BIOTIME INC
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February 4, 2019

MERGER PROPOSAL—YOUR VOTE IS VERY IMPORTANT

EXPLANATORY NOTE

On November 7, 2018, BioTime, Inc. ("**BioTime**"), Asterias Biotherapeutics, Inc.("**Asterias**") and Patrick Merger Sub, Inc., a wholly owned subsidiary of BioTime ("**Merger Sub**"), entered into an Agreement and Plan of Merger (the "**Merger Agreement**"). Pursuant to the terms of and subject to the conditions set forth in the Merger Agreement, Merger Sub will merge with and into Asterias (the "**Merger**"), with Asterias surviving the Merger as a wholly owned subsidiary of BioTime.

If the Merger is completed, Asterias stockholders will have the right to receive 0.71 (the "**Exchange Ratio**") BioTime Common Shares for each share of Asterias Common Stock issued and outstanding (except shares held by Asterias as treasury stock or shares owned by BioTime or Merger Sub), with cash paid in lieu of fractional shares. This Exchange Ratio is fixed and will not be adjusted to reflect stock price changes prior to the closing of the Merger. Based on the closing price of BioTime Common Shares on the NYSE American stock exchange ("**NYSE American**") on November 7, 2018, the last full trading day before the public announcement of BioTime's proposal to acquire Asterias, the Exchange Ratio represents approximately $1.49 in value for each share of Asterias Common Stock. Based on the closing price of BioTime Common Shares on NYSE American on February 1, 2019, the latest practicable date before the date of the enclosed joint proxy statement/prospectus, the Exchange Ratio represents approximately $0.94 in value of each share of Asterias Common Stock. BioTime shareholders will continue to own their existing BioTime Common Shares. BioTime Common Shares are currently traded on NYSE American under the symbol "BTX" and Asterias Common Stock is currently traded on NYSE American under the symbol "AST." **We urge you to obtain current market quotations of BioTime Common Shares and Asterias Common Stock.**

Based on the estimated number of shares of Asterias Common Stock outstanding on January 28, 2019, the record date for the special meetings, BioTime expects to issue approximately 24,282,167 BioTime Common Shares to Asterias stockholders in connection with the Merger, which would result in BioTime shareholders owning approximately 84% of the combined company and former Asterias stockholders owning approximately 16% of the combined company upon completion of the Merger. As of September 30, 2018, BioTime owned approximately 39% of the issued and outstanding shares of Asterias Common Stock.

BioTime and Asterias will each hold special meetings of their respective shareholders and stockholders in connection with the proposed Merger.

At the special meeting of BioTime shareholders (the "**BioTime Special Meeting**"), BioTime shareholders will be asked to consider and vote on (i) a proposal to approve the issuance of BioTime Common Shares to the stockholders of Asterias in the Merger (the "**BioTime Share Issuance Proposal**") and (ii) a proposal to adjourn the special meeting of BioTime shareholders, if necessary or appropriate, to solicit additional proxies if there are not sufficient votes to approve the BioTime Share Issuance Proposal (the "**BioTime Adjournment Proposal**"). Approval of the BioTime Share Issuance Proposal requires the affirmative vote of the holders of a majority of the total votes of BioTime Common Shares cast in person or by proxy at the special meeting to approve the share issuance pursuant to NYSE American Rules. Approval of the BioTime Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal pursuant to BioTime's Amended and Restated Bylaws, as amended to date.

At the special meeting of Asterias stockholders (the "**Asterias Special Meeting**"), Asterias stockholders will be asked to consider and vote on (i) a proposal to adopt the Merger Agreement and approve the transactions contemplated by the Merger Agreement, including the Merger (the "**Asterias Merger Proposal**") and (ii) a proposal to adjourn the special meeting of Asterias stockholders, if necessary or appropriate, to solicit additional proxies if there are not sufficient votes to approve the Asterias Merger Proposal (the "**Asterias Adjournment Proposal**"). Approval of the Asterias Merger Proposal requires the affirmative vote of the holders of a majority of the outstanding shares of Asterias Common Stock entitled to vote in person or by proxy at the special meeting pursuant to Delaware law. Approval of the Asterias Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal pursuant to Asterias' Bylaws, as amended to date.

We cannot complete the Merger unless the BioTime shareholders approve the BioTime Share Issuance Proposal and the Asterias stockholders approve the Asterias Merger Proposal. **Your vote is very important, regardless of the number of shares you own. Whether or not you expect to attend your special meeting in person, please vote your shares as promptly as possible by:**

(1) accessing the Internet website specified on your proxy card,

(2) calling the toll-free number specified on your proxy card, or

(3) marking, signing, dating and returning all proxy cards that you receive in the postage-paid envelope provided,

so that your shares may be represented and voted at the BioTime Special Meeting or Asterias Special Meeting, as applicable.

On November 7, 2018, a special committee (the "**BioTime Special Committee**") comprised only of disinterested and independent members of the BioTime board of directors (the "**BioTime Board**") unanimously determined that the Merger Agreement and the issuance of BioTime Common Shares to Asterias stockholders in connection with the Merger (the "**BioTime Share Issuance**"), are fair to, advisable and in the best interests of BioTime and its shareholders and recommended to the BioTime Board that it approve the Merger Agreement, the Merger and the BioTime Share Issuance. Thereafter, at a duly convened meeting of the BioTime Board to consider the unanimous recommendation of the BioTime Special Committee, the BioTime Board (by unanimous vote of the disinterested members of the BioTime Board, with Neal C. Bradsher, Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) approved the Merger Agreement and the BioTime Share Issuance and determined that the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders. **The BioTime Board accordingly recommends that the BioTime shareholders vote "FOR" each of the BioTime Share Issuance Proposal and the BioTime Adjournment Proposal.**

On November 7, 2018, a special committee (the "**Asterias Special Committee**") comprised only of disinterested and independent members of the Asterias board of directors (the "**Asterias Board**") unanimously determined that the Merger Agreement and the Merger are fair to, advisable and in the best interests of the Asterias stockholders and recommended to the Asterias Board that it approve the Merger Agreement and the Merger. Thereafter, at a duly convened meeting of the Asterias Board to consider the unanimous recommendation of the Asterias Special Committee, the members of the Asterias Board (by unanimous vote of the disinterested members of the Asterias Board, with Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) approved the Merger Agreement and determined that the Merger Agreement and the transactions contemplated thereby, including the Merger, are fair to, advisable and in the best interests of Asterias and its stockholders. **The Asterias Board accordingly recommends that the Asterias stockholders vote "FOR" each of the Asterias Merger Proposal and the Asterias Adjournment Proposal.**

The obligations of BioTime and Asterias to complete the Merger are subject to the satisfaction or waiver of conditions set forth in the Merger Agreement. More information about BioTime, Asterias and the Merger is contained in the enclosed joint proxy statement/prospectus. BioTime and Asterias encourage you to read the entire enclosed joint proxy statement/prospectus carefully, including the section entitled "*Risk Factors*".

Sincerely,

Brian M. Culley Michael H. Mulroy

Chief Executive Officer Chief Executive Officer

BioTime, Inc. Asterias Biotherapeutics, Inc.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THE MERGER OR THE SECURITIES TO BE ISSUED IN CONNECTION WITH THE MERGER OR PASSED UPON THE ADEQUACY OR ACCURACY OF THE DISCLOSURE IN THIS DOCUMENT. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of the enclosed joint proxy statement/prospectus is February 4, 2019, and it is first being mailed or otherwise delivered to the shareholders of BioTime and the stockholders of Asterias on or about February 6, 2019.

BIOTIME, INC.

1010 Atlantic Avenue, Suite 102

Alameda, California 94501

NOTICE OF SPECIAL MEETING OF SHAREHOLDERS

TO BE HELD ON MARCH 7, 2019

Dear Shareholders of BioTime, Inc.:

We are pleased to invite you to attend the special meeting of shareholders of BioTime, Inc., a California corporation ("**BioTime**"), which will be held at BioTime, Inc., 1010 Atlantic Avenue, Suite 102, Alameda, CA 94501 on March 7, 2019 at 9:30 a.m., local time (the "**BioTime Special Meeting**"), for the following purposes:

- to consider and vote on a proposal to approve the issuance (the "**BioTime Share Issuance**") of Common Shares of BioTime, no par value per share (the "**BioTime Common Shares**"), to Asterias stockholders pursuant to the Agreement and Plan of Merger, dated as of November 7, 2018 (the "**Merger Agreement**"), among BioTime, Asterias Biotherapeutics, Inc. ("**Asterias**"), and Patrick Merger Sub, Inc. ("**Merger Sub**"), a wholly owned subsidiary of BioTime, pursuant to which Merger Sub will merge with and into Asterias (the "**Merger**"), with Asterias surviving the Merger as a wholly owned subsidiary of BioTime, a copy of which is attached as **Annex A** to the joint proxy statement/prospectus accompanying this notice (the "**BioTime Share Issuance Proposal**"); and

- to consider and vote on a proposal to adjourn the BioTime Special Meeting, if necessary or appropriate, to solicit additional proxies if there are not sufficient votes to approve the BioTime Share Issuance Proposal (the "**BioTime Adjournment Proposal**").

BioTime will transact no other business at the special meeting except such business as may properly be brought before the special meeting or any adjournment or postponement thereof. Please refer to the attached joint proxy statement/prospectus for further information with respect to the business to be transacted at the BioTime Special Meeting.

The BioTime board of directors (the "**BioTime Board**") has fixed the close of business on January 28, 2019 as the record date for determination of BioTime shareholders entitled to receive notice of, and to vote at, the BioTime

Special Meeting or any adjournments or postponements thereof. Only holders of record of BioTime Common Shares at the close of business on the record date are entitled to vote at the BioTime Special Meeting and any adjournment or postponement of the BioTime Special Meeting.

The BioTime Board formed a committee (the "**BioTime Special Committee**") of disinterested and independent directors of BioTime to evaluate the Merger and the BioTime Share Issuance and the BioTime Special Committee unanimously determined that the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders, and recommended to the BioTime Board that it approve the Merger Agreement, the Merger and the BioTime Share Issuance.

At a meeting duly called to consider the recommendation of the Special Committee, the members of the BioTime Board (by unanimous vote of the disinterested members of the BioTime Board, with Neal C. Bradsher, Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) (1) determined that the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders, (2) approved the Merger Agreement and the transactions contemplated thereby and (3) resolved to recommend that BioTime shareholders vote for the approval of the BioTime Share Issuance.

The BioTime Board recommends that BioTime shareholders vote "FOR" the BioTime Share Issuance Proposal and "FOR" the BioTime Adjournment Proposal.

Approval of the BioTime Share Issuance Proposal requires the affirmative vote of the holders of a majority of the total votes of BioTime Common Shares cast in person or by proxy at the BioTime Special Meeting to approve the BioTime Share Issuance pursuant to NYSE American Rules. Approval of the BioTime Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal pursuant to BioTime's Bylaws, as amended to date.

Your vote is important. Whether or not you expect to attend in person, we urge you to vote your shares as promptly as possible by:

(1) accessing the Internet website specified on your proxy card;

(2) calling the toll-free number specified on your proxy card; or

(3) marking, signing, dating and returning the enclosed proxy card in the postage-paid envelope provided,

so that your shares may be represented and voted at the BioTime Special Meeting. If your shares are held in the name of a broker, bank, trust company or other nominee, please follow the instructions on the voting instruction card furnished by the record holder.

Please note that if you hold shares in different accounts, it is important that you vote the shares represented by each account.

The enclosed joint proxy statement/prospectus provides a detailed description of the Merger and the Merger Agreement. We urge you to read this joint proxy statement/prospectus, including any documents incorporated by reference, and the annexes carefully and in their entirety. If you have any questions concerning the Merger or this joint proxy statement/prospectus, would like additional copies or need help voting your BioTime Common Shares, please contact BioTime:

BioTime, Inc.

1010 Atlantic Avenue, Suite 102

Alameda, California 94501

Attention: Investor Relations

Telephone: (510) 871-4188

By Order of the Board of Directors,

Brian M. Culley

Chief Executive Officer

ASTERIAS BIOTHERAPEUTICS, INC.

6300 Dumbarton Circle

Fremont, California 94555

NOTICE OF THE SPECIAL MEETING OF STOCKHOLDERS TO BE HELD ON MARCH 7, 2019

Dear Stockholders of Asterias Biotherapeutics, Inc.:

We are pleased to invite you to attend the special meeting of stockholders of Asterias Biotherapeutics, Inc., a Delaware corporation ("**Asterias**"), which will be held at 6300 Dumbarton Circle, Fremont, CA 94555 on March 7, 2019 at 8:00 a.m., local time (the "**Asterias Special Meeting**"), for the following purposes:

- to consider and vote on a proposal to adopt the Agreement and Plan of Merger, dated as of November 7, 2018 (the "**Merger Agreement**"), among Asterias, BioTime, Inc., a Delaware corporation ("**BioTime**"), and Patrick Merger Sub, Inc., a Delaware corporation and wholly owned subsidiary of BioTime ("**Merger Sub**"), pursuant to which Merger Sub will merge with and into Asterias (the "**Merger**"), with Asterias surviving the Merger as a wholly owned subsidiary of BioTime, a copy of which is attached as **Annex A** to the joint proxy statement/prospectus accompanying this notice, and to approve the transactions contemplated by the Merger Agreement, including the Merger, pursuant to which each outstanding share of Series A common stock of Asterias, par value $0.0001 per share (the "**Asterias Common Stock**"), will be converted into the right to receive 0.71 Common Shares of BioTime, no par value per share, with cash paid in lieu of fractional shares (the "**Asterias Merger Proposal**"); and

- to consider and vote on a proposal to adjourn the Asterias Special Meeting, if necessary or appropriate, to solicit additional proxies if there are not sufficient votes to approve the Asterias Merger Proposal (the "**Asterias Adjournment Proposal**").

Asterias will transact no other business at the Asterias Special Meeting except such business as may properly be brought before the special meeting or any adjournment or postponement thereof. Please refer to the attached joint proxy statement/prospectus for further information with respect to the business to be transacted at the Asterias Special Meeting.

The Asterias Board of Directors (the "**Asterias Board**") has fixed the close of business on January 28, 2019 as the record date for determination of Asterias stockholders entitled to receive notice of, and to vote at, the Asterias Special Meeting or any adjournments or postponements thereof. Only holders of record of shares of Asterias Common Stock at the close of business on the record date are entitled to notice of, and to vote at, the special meeting and at any adjournment of the meeting.

The Asterias Board formed a committee (the "**Asterias Special Committee**") of independent and disinterested directors of Asterias to evaluate the Merger and the Asterias Special Committee unanimously determined that the Merger Agreement and the Merger are fair to, advisable and in the best interests of the stockholders of Asterias, and recommended to the Asterias Board that it approve the Merger Agreement and the Merger. At a meeting duly called to consider the recommendation of the Asterias Special Committee, the Asterias Board (by unanimous vote of the disinterested members of the Asterias Board, with Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) based in part on the unanimous recommendation of the Special Committee: (1) determined that the Merger Agreement and the Merger are fair to, advisable and in the best interests of Asterias and its stockholders, (2) approved the Merger Agreement and the transactions contemplated thereby and (3) resolved to recommend that Asterias stockholders vote for the approval and adoption of the Merger Agreement and the transactions contemplated thereby, including the Merger.

The Asterias Board recommends that Asterias stockholders vote "FOR" the Asterias Merger Proposal and "FOR" the Asterias Adjournment Proposal.

Approval of the Asterias Merger Proposal requires the affirmative vote of holders of a majority of the outstanding shares of Asterias Common Stock entitled to vote in person or by proxy at the special meeting pursuant to Delaware law. Approval of the Asterias Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal pursuant to Asterias' Amended and Restated Bylaws, as amended to date.

Your vote is important. Whether or not you expect to attend in person, we urge you to vote your shares as promptly as possible by:

(1) accessing the Internet website specified on your proxy card;

(2) calling the toll-free number specified on your proxy card; or

(3) marking, signing, dating and returning the enclosed proxy card in the postage-paid envelope provided,

so that your shares may be represented and voted at the Asterias Special Meeting. If your shares are held in the name of a broker, bank, trust company or other nominee, please follow the instructions on the voting instruction card furnished by the record holder.

Please note that if you hold shares in different accounts, it is important that you vote the shares represented by each account.

The enclosed joint proxy statement/prospectus provides a detailed description of the Merger and the Merger Agreement. We urge you to read this joint proxy statement/prospectus, including any documents incorporated by reference, and the annexes carefully and in their entirety. If you have any questions concerning the Merger or this joint proxy statement/prospectus, would like additional copies or need help voting your shares of Asterias Common Stock, please contact Asterias' proxy solicitor:

Advantage Proxy, Inc.

P.O. Box 13581

Des Moines, WA 98198

Toll Free Telephone: 877-870-8565

Main Telephone: 206-870-8565

We appreciate your continued support of Asterias and look forward to either greeting you personally at the Asterias Special Meeting or receiving your proxy.

By order of the Board of Directors,

Michael H. Mulroy

Chief Executive Officer

ADDITIONAL INFORMATION

This joint proxy statement/prospectus incorporates important business and financial information about BioTime and Asterias from documents that are not included in or delivered with the accompanying joint proxy statement/prospectus. This information is available to you without charge upon your written or oral request. You can obtain documents incorporated by reference into the accompanying joint proxy statement/prospectus (other than certain exhibits or schedules to these documents) by requesting them in writing or by telephone from BioTime or Asterias at the following addresses and telephone numbers:

For BioTime Shareholders:	**For Asterias Stockholders:**
BioTime, Inc.	Asterias Biotherapeutics, Inc.
1010 Atlantic Avenue, Suite 102	6300 Dumbarton Circle
Alameda, California 94501	Fremont, CA 94555
Attention: Investor Relations	Attention: Investor Relations
Telephone: (510) 871-4188	Telephone: (650) 963-5920

In addition, if you have questions about the Merger or the accompanying joint proxy statement/prospectus, would like additional copies of the accompanying joint proxy statement/prospectus or need to obtain proxy cards or other information related to the proxy solicitation, please contact BioTime Investor Relations at 510-871-4188, or Advantage Proxy, the proxy solicitor for Asterias, toll-free at 877-870-8565 or international at +1 206-870-8565.

If you would like to request documents, please do so no later than five business days before the date of the BioTime Special Meeting (which meeting is to be held on March 7, 2019) or five business days before the date of the Asterias Special Meeting (which meeting is to be held on March 7, 2019), as applicable.

For a more detailed description of the information incorporated by reference in the accompanying joint proxy statement/prospectus and how you may obtain it, see the section entitled "*Where You Can Find More Information*" of the accompanying joint proxy statement/prospectus.

ABOUT THIS JOINT PROXY STATEMENT/PROSPECTUS

This joint proxy statement/prospectus, which forms part of a registration statement on Form S-4 filed with the U.S. Securities and Exchange Commission (the "**SEC**") by BioTime (File No. 333-229141), constitutes a prospectus of BioTime under Section 5 of the Securities Act of 1933, as amended (the "**Securities Act**"), with respect to the BioTime Common Shares to be issued to Asterias stockholders pursuant to the Merger Agreement. This joint proxy statement/prospectus also constitutes a joint proxy statement for BioTime and Asterias under Section 14(a) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"). It also constitutes a notice of meeting with respect to the special meeting of BioTime shareholders and a notice of meeting with respect to the special meeting of Asterias stockholders.

You should rely only on the information contained or incorporated by reference into this joint proxy statement/prospectus. No one has been authorized to provide you with information that is different from that contained in, or incorporated by reference into, this joint proxy statement/prospectus. This joint proxy statement/prospectus is dated February 4, 2019, and you should assume that the information contained in, or incorporated by reference into, this joint proxy statement/prospectus is accurate only as of such date. Neither our mailing of this joint proxy statement/prospectus to BioTime shareholders or Asterias stockholders, nor the issuance by BioTime of BioTime Common Shares in connection with the Merger, will create any implication to the contrary.

This joint proxy statement/prospectus does not constitute an offer to sell, or a solicitation of an offer to buy, any securities, or the solicitation of a proxy, in any jurisdiction in which or from any person to whom it is unlawful to make any such offer or solicitation in such jurisdiction. Information contained in this joint proxy statement/prospectus regarding BioTime has been provided by BioTime, and information contained in this joint proxy statement/prospectus regarding Asterias has been provided by Asterias.

Neither BioTime shareholders nor Asterias stockholders should construe the contents of this joint proxy statement/prospectus as legal, tax or financial advice. BioTime shareholders and Asterias stockholders should consult with their own legal, tax, financial or other professional advisors. All summaries of, and references to, the agreements governing the terms of the transactions described in this joint proxy statement/prospectus are qualified by the full copies of and complete text of such agreements in the forms attached hereto as annexes, which are available on the Electronic Data Gathering Analysis and Retrieval System ("**EDGAR**") of the SEC website at www.sec.gov.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THE SECURITIES TO BE ISSUED IN CONNECTION WITH THE MERGER OR DETERMINED IF THIS JOINT PROXY STATEMENT/PROSPECTUS IS ACCURATE OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

Unless otherwise indicated or as the context otherwise requires, references in this joint proxy statement/prospectus to:

"**Asterias**" refers to Asterias Biotherapeutics, Inc., a Delaware corporation;

"**Asterias Common Stock**" refers to the common stock of Asterias, par value $0.0001 per share;

"**BioTime**" refers to BioTime, Inc., a California corporation, and its subsidiaries;

"**BioTime Common Shares**" refers to the common shares of BioTime, no par value per share;

"**Combined Company**" refers collectively to BioTime and Asterias, following completion of the Merger;

"**Merger**" refers to the merger of Merger Sub with and into Asterias, with Asterias surviving the Merger, as contemplated by the Merger Agreement;

"**Merger Agreement**" refers to the Agreement and Plan of Merger, dated November 7, 2018, among BioTime, Merger Sub and Asterias;

"**Merger Sub**" refers to Patrick Merger Sub, Inc., a Delaware corporation and wholly owned subsidiary of BioTime; and

"**we**," "**our**" and "**us**" refer collectively to BioTime and Asterias.

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QUESTIONS AND ANSWERS

The following section provides brief answers to certain questions that you may have regarding the Merger Agreement and the proposed Merger. Please note that this section does not address all issues that may be important to you as a BioTime shareholder or Asterias stockholder, as applicable. Accordingly, you should carefully read this entire joint proxy statement/prospectus, including each of the Annexes and the documents that have been incorporated by reference into this joint proxy statement/prospectus.

Q: Why am I receiving this joint proxy statement/prospectus?

A: You are receiving this joint proxy statement/prospectus because you were a stockholder of record of BioTime or Asterias as of the close of business on the record date for the special meeting of BioTime shareholders (the "**BioTime Special Meeting**") or the special meeting of Asterias stockholders (the "**Asterias Special Meeting**"), respectively. BioTime and Asterias have agreed to the combination of BioTime and Asterias pursuant to an Agreement and Plan of Merger, dated as of November 7, 2018 (as it may be amended from time to time, the "**Merger Agreement**"), among BioTime, Asterias and Merger Sub, pursuant to which Merger Sub will be merged with and into Asterias (the "**Merger**") with Asterias surviving the Merger as a wholly owned subsidiary of BioTime. See the section entitled "*The Merger Agreement*" for more information. A copy of the Merger Agreement is attached to this joint proxy statement/prospectus as **Annex A** and incorporated herein by reference. Pursuant to the Merger Agreement, at the effective time of the Merger, each outstanding share of Asterias Common Stock will be converted into the right to receive 0.71 BioTime Common Shares (the "**Exchange Ratio**"), with cash paid in lieu of fractional shares. BioTime shareholders will continue to own their existing BioTime Common Shares.

This joint proxy statement/prospectus serves as the proxy statement through which BioTime and Asterias will provide their respective stockholders with important information regarding their respective special meetings, the Merger and the other transactions contemplated by the Merger Agreement and solicit proxies to obtain the necessary stockholder approvals for the adoption of the Merger Agreement and (in the case of BioTime) the issuance of BioTime Common Shares. It also serves as the prospectus by which BioTime will offer and issue BioTime Common Shares as merger consideration.

The Merger cannot be completed unless, among other things, BioTime shareholders and Asterias stockholders approve the respective proposals to adopt the Merger Agreement and the transactions contemplated thereby, including the Merger and, in the case of BioTime, the issuance of BioTime Common Shares as merger consideration.

BioTime and Asterias will hold separate special meetings to obtain these approvals. This joint proxy statement/prospectus contains important information about the Merger and the special meetings of the stockholders of BioTime and Asterias, and you should read it carefully and in its entirety. The enclosed voting materials allow you to vote your shares without attending your respective special meeting. Your vote is important. We encourage you to vote as soon as possible.

Q: What is the strategic rationale for combining BioTime and Asterias at this time?

A: BioTime and Asterias both believe that this is an opportune time to combine in order to create a leading regenerative medicine company aimed at providing breakthrough solutions in areas of high unmet medical need. BioTime and Asterias expect substantial cost and other financial synergies as well as synergies relating to capabilities and needs as a result of the Merger and believe that the Combined Company will enjoy other advantages from critical mass, including potentially in connection with financing. See the sections entitled "*The Merger—BioTime's Reasons for the Merger and BioTime Share Issuance*" and "*The Merger—Asterias' Reasons for the Merger; Recommendation of the Asterias Special Committee and Board of Directors*."

Q: What will Asterias stockholders receive in the Merger?

A: If the Merger is completed, holders of Asterias Common Stock will be entitled to receive 0.71 BioTime Common Shares for each share of Asterias Common Stock they hold at the effective time of the Merger. Asterias stockholders will not receive any fractional BioTime Common Shares in the Merger. Instead, BioTime will pay cash in lieu of any fractional BioTime Common Shares that an Asterias stockholder would otherwise have been entitled to receive.

As of January 28, 2019, BioTime owned approximately 39% of the outstanding shares of Asterias Common Stock. Pursuant to the Merger Agreement, all such shares of Asterias Common Stock will be cancelled and will cease to exist for no consideration.

Q: What will happen to outstanding Asterias equity awards in the Merger?

A: *Stock Options*. At the Effective Time, each outstanding option to purchase shares of Asterias Common Stock pursuant to Asterias' Amended and Restated 2013 Equity Incentive Plan will be cancelled and extinguished for no consideration and shall cease to exist after the effective time of the Merger.

Restricted Stock Unit Awards. Each outstanding Asterias restricted stock unit award shall vest in full immediately prior to the effective time of the Merger and shall be cancelled and converted into the right to receive, as soon as reasonably practicable after the effective time of the Merger, 0.71 BioTime Common Shares in respect of each share of Asterias Common Stock underlying the Asterias restricted stock unit award. For a full description of the treatment of Asterias restricted stock unit awards, see the section entitled "*The Merger—Treatment of Asterias Equity Awards*."

Q: What will happen to outstanding Asterias warrants in the Merger?

A: Pursuant to the terms of the Merger Agreement, each outstanding warrant to purchase shares of Asterias Common Stock (the "**Asterias Warrants**") will be treated in accordance with the terms of the applicable Warrant Agreement.

Q: If I am an Asterias stockholder, how will I receive the merger consideration to which I am entitled?

A: After receiving the proper documentation from you, following the effective date of the Merger, the exchange agent will forward to you the BioTime Common Shares and cash in lieu of fractional shares to which you are entitled. For additional information about the exchange of shares of Asterias Common Stock for BioTime Common Shares, see the section entitled "*The Merger—Exchange of Shares in the Merger*."

Q: What is the value of the merger consideration?

A: The dollar value of the merger consideration may fluctuate between the date of this joint proxy statement/prospectus and the completion of the Merger based upon the market value of BioTime Common Shares. In the Merger, Asterias stockholders will receive the fixed amount of 0.71 BioTime Common Shares in exchange for each share of Asterias Common Stock. Any fluctuation in the market price of BioTime Common Shares after the date of this joint proxy statement/prospectus will change the value of the BioTime Common Shares that Asterias stockholders will receive at the effective time of the Merger.

Based on the closing price of BioTime Common Shares on the NYSE American stock exchange ("**NYSE American**") on November 7, 2018, the last full trading day before the public announcement of BioTime's proposal to acquire Asterias, the Exchange Ratio represented approximately $1.49 in value for each share of Asterias Common Stock. Based on the closing price of BioTime Common Shares on NYSE American on February 1, 2019, the latest practicable date before the date of this joint proxy statement/prospectus, the Exchange Ratio represented approximately $0.94 in value for each share of Asterias Common Stock. We urge you to obtain current market quotations of BioTime Common Shares and Asterias Common Stock.

Q: What will happen to BioTime Common Shares in the Merger?

A**:** If the Merger is completed, BioTime shareholders will not receive any merger consideration as a result of the Merger and will continue to own their existing BioTime Common Shares.

Q: What percentage of BioTime Common Shares will Asterias stockholders own following the Merger?

A: Based on the estimated number of shares of Asterias and BioTime Common Shares outstanding on January 28, 2019, the record date for the special meetings, Asterias and BioTime estimate that, upon completion of the Merger, former Asterias stockholders will own approximately 16% of BioTime.

Q: Will there be any changes to the BioTime board of directors if the merger becomes effective?

A: The Merger Agreement provides that parties will use commercially reasonable efforts to ensure that the board of directors of the Combined Company following the effective time of the Merger will be comprised of the following individuals: Deborah Andrews, Don M. Bailey, Neal C. Bradsher, Brian M. Culley, Stephen C. Farrell, Alfred D. Kingsley, Michael H. Mulroy, Cavan Redmond and Angus C. Russell. Each of Ms. Andrews and Messrs. Bradsher, Culley, Farrell, Kingsley, Mulroy, Redmond and Russell currently serve on the BioTime board of directors (the "**BioTime Board**"). Mr. Bailey will be appointed to serve on the BioTime Board promptly after the effective time of the Merger. For more information, please see the sections entitled "*The Merger Agreement —Directors of the Combined Company Following the Merger*" on page 90 and "*Management and Other Information of the Combined Company*" on page 137.

Q: Who will be the executive officers of BioTime immediately following the merger?

A: It is currently expected that the executive officers of BioTime following the merger will be substantially similar to the current executive officers of BioTime. In addition, following the effective time of the merger, BioTime contemplates that certain employees of Asterias will join BioTime as officers of BioTime and thus may become executive officers of BioTime. In the event that new personnel become executive officers of BioTime, certain persons who currently serve as executive officers of Asterias may no longer serve in such capacity. As of the date of this joint proxy statement/prospectus, it is not known which Asterias employees, if any, will become executive officers of BioTime and no determinations by BioTime have been made in this regard. Similarly, it is not known which of Asterias' current executive officers, if any, will cease to serve in such capacity. The current executive officers of BioTime are: Brian M. Culley (President and Chief Executive Officer), Brandi Roberts (Chief Financial Officer and Senior Vice President, Finance) and Stephana E. Patton, Ph.D., J.D. (General Counsel and Corporate Secretary).

Q: When and where will the special meetings be held?

A: The BioTime Special Meeting will be held at BioTime, Inc., 1010 Atlantic Avenue, Suite 102, Alameda, CA 94501 on March 7, 2019 at 9:30 a.m., local time. The Asterias Special Meeting will be held at 6300 Dumbarton Circle, Fremont, CA 94555 on March 7, 2019 at 8:00 a.m., local time.

Q: Who is entitled to vote at the special meetings?

A: Only shareholders of record of BioTime Common Shares at the close of business on January 28, 2019, are entitled to vote at the BioTime Special Meeting and any adjournment or postponement of the BioTime Special Meeting. Only stockholders of record of Asterias Common Stock at the close of business on January 28, 2019 are entitled to vote at the Asterias Special Meeting and any adjournment or postponement of the Asterias Special Meeting.

Q: How can I attend the special meetings?

A: All of the BioTime shareholders are invited to attend the BioTime Special Meeting and all of the Asterias stockholders are invited to attend the Asterias Special Meeting. You may be asked to present valid photo identification, such as a driver's license or passport, before being admitted to the applicable special meeting. If you hold your shares in "street name," you also may be asked to present proof of ownership to be admitted to the applicable special meeting. A brokerage statement or letter from your broker, bank, trust company or other nominee proving ownership of the shares on the record date for the applicable special meeting are examples of proof of ownership. **Please note, however, that if your shares are held in "street name" and you wish to vote at the special meeting, you must bring to the special meeting a "legal proxy" executed in your favor from the record holder (your broker, bank, trust company or other nominee) of the shares authorizing you to vote at the special meeting. Whether or not you plan to attend the special meetings, please vote as soon as possible.**

Q: What proposals will be considered at the special meetings?

A: At the BioTime Special Meeting, the BioTime shareholders will be asked to consider and vote on the following:

(1) a proposal to approve the issuance of BioTime Common Shares (the "**BioTime Share Issuance**") to the stockholders of Asterias in the Merger (the "**BioTime Share Issuance Proposal**"); and

(2) a proposal to adjourn the BioTime Special Meeting, if necessary or appropriate, to solicit additional proxies if there are not sufficient votes to approve the BioTime Share Issuance Proposal (the "**BioTime Adjournment Proposal**").

BioTime will transact no other business at the BioTime Special Meeting except such business as may properly be brought before the BioTime Special Meeting or any adjournment or postponement thereof.

At the Asterias Special Meeting, Asterias stockholders will be asked to consider and vote on the following:

(1) a proposal to adopt the Merger Agreement and approve the transactions contemplated by the Merger Agreement, including the Merger (the "**Asterias Merger Proposal**"); and

(2) a proposal to adjourn the Asterias Special Meeting, if necessary or appropriate, to solicit additional proxies if there are not sufficient votes to approve the Asterias Merger Proposal (the "**Asterias Adjournment Proposal**").

Asterias will transact no other business at the Asterias Special Meeting except such business as may properly be brought before the Asterias Special Meeting or any adjournment or postponement thereof.

Q: How does the BioTime board of directors recommend that I vote?

A: On November 7, 2018, a special committee (the "**BioTime Special Committee**") consisting of three independent and disinterested members of the BioTime Board unanimously determined that the Merger Agreement and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders and recommended to the BioTime Board that it approve and declare fair to, advisable and in the best interests of BioTime shareholders, the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance. After careful consideration, the BioTime Board (by unanimous vote of the disinterested members of the BioTime Board, with Neal C. Bradsher, Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) approved the Merger Agreement and the BioTime Share Issuance and determined that the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders.

The BioTime Board recommends that BioTime shareholders vote "FOR" the BioTime Share Issuance Proposal and "FOR" the BioTime Adjournment Proposal.

Q: How does the Asterias board of directors recommend that I vote?

A: After careful consideration, the Special Committee (the "**Asterias Special Committee**") of the Asterias board of directors (the "**Asterias Board**"), consisting of four independent and disinterested directors of Asterias, unanimously determined at a meeting of the Special Committee held on November 7, 2018, that the Merger Agreement and the Merger are fair to, advisable and in the best interests of the Asterias stockholders, and recommended to the Asterias Board that it approve and declare fair to, advisable and in the best interests of Asterias stockholders, the Merger Agreement and the Merger. At a duly convened meeting of the Asterias Board held on November 7, 2018, on the unanimous recommendation of the Asterias Special Committee, the Asterias Board (by unanimous vote of the disinterested members of the Asterias Board, with Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) approved the Merger Agreement and determined that the Merger Agreement and the transactions contemplated thereby, including the Merger, are fair to, advisable and in the best interests of Asterias and its stockholders.

The Asterias Board recommends that Asterias stockholders vote "FOR" the Asterias Merger Proposal and "FOR" the Asterias Adjournment Proposal.

Q: How do I vote?

A: If you are a shareholder of record of BioTime as of the close of business on the record date for the BioTime Special Meeting or a stockholder of record of Asterias as of the close of business on the record date for the Asterias Special Meeting, you may vote in person by attending your special meeting or, to ensure your shares are represented at the meeting, you may vote by:

- accessing the Internet website specified on your proxy card;
- calling the toll-free number specified on your proxy card; or
- marking, signing, dating and returning the enclosed proxy card in the postage-paid envelope provided.

If you hold BioTime or Asterias shares in the name of a bank or broker, please follow the voting instructions provided by your bank or broker to ensure that your shares are represented at your special meeting.

Q: What constitutes a quorum?

A: *BioTime shareholders*. The presence, in person or by proxy, of a majority of BioTime Common Shares entitled to vote at the BioTime Special Meeting will constitute a quorum for the transaction of business at the BioTime Special Meeting.

BioTime Common Shares represented at the BioTime meeting and entitled to vote but not voted, including shares for which a stockholder directs an "abstention" from voting and broker non-votes (shares held by banks, brokerage firms or nominees that are present in person or by proxy at the BioTime Special Meeting but with respect to which the broker or other stockholder of record is not instructed by the beneficial owner of such shares how to vote on a particular proposal and the broker does not have discretionary voting power on such proposal), if any, will be counted as present for purposes of establishing a quorum.

Any BioTime Common Shares held in treasury will not be included in the calculation of the number of BioTime Common Shares represented at the meeting for purposes of determining whether a quorum is present.

Asterias stockholders. The presence, in person or by proxy, of a majority of all issued and outstanding shares of Asterias Common Stock entitled to vote at the Asterias Special Meeting will constitute a quorum for the transaction of business at the Asterias Special Meeting.

Shares of Asterias Common Stock represented at the Asterias Special Meeting but not voted, including shares for which a stockholder directs an "abstention" from voting and broker non-votes (shares held by banks, brokerage firms or nominees that are present in person or by proxy at the Asterias Special Meeting but with respect to which the broker or other stockholder of record is not instructed by the beneficial owner of such shares how to vote on a particular proposal and the broker does not have discretionary voting power on such proposal), if any, will be counted as present for purposes of establishing a quorum.

Q: What vote is required to approve each proposal?

A: *BioTime shareholders.* Approval of the BioTime Share Issuance Proposal requires the affirmative vote of the holders of a majority of the total votes of BioTime Common Shares cast in person or by proxy at the special meeting to approve the BioTime Share Issuance pursuant to NYSE American Rules. Approval of the BioTime Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal.

Asterias stockholders. Approval of the Asterias Merger Proposal requires the affirmative vote of the holders of a majority of the outstanding shares of Asterias Common Stock entitled to vote in person or by proxy at the special meeting. Approval of the Asterias Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal.

As of the close of business on the record date, approximately 39% of the outstanding shares of Asterias Common Stock were held by BioTime. Under the Merger Agreement, BioTime is obligated to vote their shares at the Asterias Special Meeting.

Q: How many votes do I have?

A: *BioTime shareholders*. You are entitled to one vote for each BioTime Common Share that you owned as of the close of business on the BioTime record date. As of the close of business on the BioTime record date, there were 127,178,926 BioTime Common Shares outstanding, of which 124,203,851 BioTime Common Shares are entitled to vote at the BioTime Special Meeting.

Asterias stockholders. You are entitled to one vote for each share of Asterias Common Stock that you owned as of the close of business on the Asterias record date. As of the close of business on the Asterias record date, there were 55,947,804 shares of Asterias Common Stock outstanding and entitled to vote at the Asterias Special Meeting.

Q: What will happen if I fail to vote or vote to abstain from voting?

A: *BioTime shareholders*. If you are a BioTime shareholder and fail to vote or fail to instruct your broker or nominee to vote, or vote to abstain from voting, it will have no effect on the BioTime Share Issuance Proposal, assuming a quorum is present. If you are a BioTime shareholder and fail to vote or fail to instruct your broker or nominee to vote, it will have no effect on the BioTime Adjournment Proposal, assuming a quorum is present; however, if you vote to abstain, it will have the same effect as a vote against the BioTime Adjournment Proposal.

Asterias stockholders. If you are an Asterias stockholder and fail to vote or fail to instruct your broker or nominee to vote, or vote to abstain from voting, it will have the same effect as a vote against the Asterias Merger Proposal, assuming a quorum is present. If you are an Asterias stockholder and fail to vote or fail to instruct your broker or nominee to vote, it will have no effect on the Asterias Adjournment Proposal, assuming a quorum is present; however, if you vote to abstain, it will have the same effect as a vote against the Asterias Adjournment Proposal.

Q: If my shares are held in “street name” by my broker, will my broker automatically vote my shares for me?

A: No. If you hold your shares in a stock brokerage account or if your shares are held by a bank or nominee (that is, in “street name”), your broker, bank, trust company or other nominee cannot vote your shares on “non-routine” matters without instructions from you.

You should instruct your broker, bank, trust company or other nominee as to how to vote your shares, following the directions from your broker, bank, trust company or other nominee provided to you. Please check the voting form used by your broker, bank, trust company or other nominee. If you do not provide your broker, bank, trust company or other nominee with instructions on how to vote your shares, your broker, bank, trust company or other nominee may not vote your shares, which will have no effect on the BioTime Share Issuance Proposal and the BioTime Adjournment Proposal, in each case, assuming a quorum is present.

Please note that you may not vote shares held in street name by returning a proxy card directly to BioTime or Asterias or by voting in person at your special meeting unless you provide a “legal proxy,” which you must obtain from your broker, bank, trust company or other nominee.

Q: What will happen if I return my proxy card without indicating how to vote?

A: If you return your proxy card without indicating how to vote on any particular proposal, the BioTime Common Shares or Asterias Common Stock represented by your proxy card will be voted in favor of that proposal.

Q: What does it mean if I receive multiple proxy cards?

A: Your shares may be registered in more than one account, such as brokerage accounts and 401(k) accounts. It is important that you complete, sign, date and return each proxy card or voting instruction form you receive or vote using the telephone or the Internet as described in the instructions included with your proxy card(s) or voting instruction form(s).

Q: Can I change my vote after having returned a proxy or voting instruction card?

A: Yes. You can change your vote at any time before your proxy is voted at the applicable special meeting in one of three ways:

- you can send a written notice of revocation;
- you can grant a new, valid proxy bearing a later date (including by telephone or through the Internet); or
- if you are a holder of record, you can attend your special meeting and vote in person, which will automatically cancel any proxy previously given, or you may revoke your proxy in person, but your attendance alone will not revoke any proxy that you have previously given.

If you choose either of the first two methods, you must submit your notice of revocation or your new proxy to the Corporate Secretary of BioTime or the Corporate Secretary of Asterias, as applicable, no later than the beginning of the applicable special meeting. If your shares are held in street name by your bank or broker, you should contact your broker to change your vote or revoke your proxy.

Q: Should Asterias stockholders send in stock certificates or other evidence of ownership now?

A: No. At the effective time of the Merger and without any action on the part of any holder of Asterias Common Stock, all non-certificated shares of Asterias Common Stock represented by book-entry shall be deemed surrendered to the exchange agent, and BioTime shall cause the exchange agent to deliver to each holder of such shares the number of uncertificated whole BioTime Common Shares that the holder is entitled to receive pursuant to the Merger Agreement.

After the Merger is completed, if you are a holder of certificates representing shares of Asterias Common Stock, you will be sent a letter of transmittal with detailed written instructions for exchanging your shares of Asterias Common Stock for the merger consideration. If your shares of Asterias Common Stock are held in “street name” by your broker, bank or other nominee, you may receive instructions from your broker, bank or other nominee as to what action, if any, you need to take to effect the surrender of your “street name” shares in exchange for the merger consideration. **Do not send in your certificates now.**

Q: What happens if I transfer my BioTime Common Shares or Asterias Common Stock before the special meeting?

A: The record dates for the BioTime and Asterias Special Meetings are earlier than both the date of the special meetings and the date that the Merger is expected to be completed. If you transfer your BioTime or Asterias shares after the applicable record date but before the applicable special meeting, you will retain your right to vote at the applicable special meeting. However, if you are an Asterias stockholder, you will have transferred the right to receive the merger consideration in the Merger. In order to receive the merger consideration, you must hold your shares through the effective date of the Merger.

Q: What if I hold shares in both BioTime and Asterias?

A: If you are a stockholder of both BioTime and Asterias, you will receive two separate packages of proxy materials. A vote cast as a BioTime shareholder will not count as a vote cast as an Asterias stockholder, and a vote cast as an Asterias stockholder will not count as a vote cast as a BioTime shareholder. Therefore, please separately submit a proxy for each of your BioTime and Asterias shares.

Q: Who is the inspector of election?

A: The BioTime Board has appointed a representative of American Stock Transfer & Trust Company, LLC to act as the inspector of election at the BioTime Special Meeting. The Asterias Board has also appointed a Michael H. Mulroy to act as the inspector of election at the Asterias Special Meeting.

Q: Where can I find the voting results of the special meeting?

A: The preliminary voting results, if available, will be announced at the BioTime Special Meeting and the Asterias Special Meeting, respectively. In addition, within four business days following certification of the final voting results, each of BioTime and Asterias intends to file the final voting results of its special meeting with the SEC as a current report on Form 8-K.

Q: What will happen if all of the proposals to be considered at the special meeting are not approved?

A: Approval of the BioTime Share Issuance Proposal by the BioTime shareholders and approval of the Asterias Merger Proposal by the Asterias stockholders are each conditions to the completion of the Merger. As a result, if such approval is not obtained, the Merger will not be completed. Approval of the BioTime Adjournment Proposal or the Asterias Adjournment Proposal is not a condition to the completion of the Merger.

Q: Are BioTime or Asterias stockholders entitled to appraisal rights?

A: No. Under the General Corporation Law of the State of Delaware (the "**DGCL**"), holders of Asterias Common Stock are not entitled to appraisal rights in connection with the merger because both BioTime Common Shares and Asterias Common Stock are listed on NYSE American. Under the California Corporations Code (the "**CCC**"), BioTime shareholders are not entitled to appraisal rights in connection with the Merger.

Q: What are the material U.S. federal income tax consequences of the Merger to U.S. holders of Asterias Common Stock?

A: Asterias and BioTime intend for the Merger to qualify as a "reorganization" within the meaning of Section 368(a) of the Internal Revenue Code of 1986, as amended (the "**Code**"). U.S. holders (as defined in the section entitled "*Material U.S. Federal Income Tax Consequences*") of Asterias Common Stock should not recognize any gain or loss for U.S. federal income tax purposes upon the exchange of shares of Asterias Common Stock for BioTime Common Shares in the Merger, except with respect to cash received in lieu of fractional shares.

Please carefully review the information set forth in the section entitled "*Material U.S. Federal Income Tax Consequences*" for a more complete description of the material U.S. federal income tax consequences of the Merger. **The tax consequences to you of the Merger will depend on your particular facts and circumstances. Please consult your own tax advisors as to the specific tax consequences to you of the Merger.**

Q: What are the conditions to completion of the Merger?

A: In addition to the approval of the BioTime Share Issuance Proposal by the BioTime shareholders and the approval of the Asterias Merger Proposal by the Asterias stockholders as described above, completion of the Merger is subject to the satisfaction of a number of conditions. For additional information on the conditions to completion of the Merger, see the section entitled "*The Merger Agreement—Conditions to the Completion of the Merger*."

Q: What happens if the Merger is not completed?

A: If the Merger is not completed, Asterias stockholders will not receive any consideration for their shares. Instead, Asterias and BioTime will remain independent public companies, and shares of Asterias Common Stock and BioTime Common Shares will continue to be independently listed and traded on NYSE American. Under certain circumstances, Asterias or BioTime may be required to pay the other party a termination fee or expense reimbursement in accordance with the Merger Agreement.

Q: Will I be paid any dividends prior to the Merger?

A: BioTime publicly announced on October 25, 2018 the distribution of the majority of BioTime's ownership in AgeX Therapeutics, Inc.("**AgeX**"). The distribution of the AgeX shares occurred on November 28, 2018 (with record date of November 16, 2018), prior to the closing of the Merger, and therefore, Asterias stockholders will not be entitled to a distribution of AgeX shares. BioTime has not historically paid cash dividends to its stockholders and does not anticipate doing so in the foreseeable future.

Asterias has not historically paid cash dividends to its stockholders and does not anticipate doing so in the foreseeable future.

The Merger Agreement prohibits BioTime and Asterias from declaring, setting aside or paying any dividends on its capital stock without BioTime's consent before the earlier of the closing of the Merger and the termination of the Merger Agreement in accordance with its terms.

Q: When do you expect the Merger to be completed?

A: BioTime and Asterias hope to complete the Merger as soon as reasonably practicable and are working to complete the Merger in the first quarter of 2019. However, the Merger it is possible that factors outside the control of both companies could result in the Merger being completed at a later time, or not at all. We cannot presently determine the length of time between the respective BioTime Special Meeting and the Asterias Special Meeting and the completion of the Merger.

Q: What do I need to do now?

A: Carefully read and consider the information contained in and incorporated by reference into this joint proxy statement/prospectus, including its annexes.

If you are a holder of record, for your shares to be represented at your special meeting:

- you can attend the applicable special meeting in person;
- you can vote through the Internet or by telephone by following the instructions included in your proxy card; or
- you can indicate on the enclosed proxy card how you would like to vote and return the proxy card in the accompanying pre-addressed postage-paid envelope.

If you hold your shares in street name, in order for your shares to be represented at your special meeting, you should instruct your broker, bank, trust company or other nominee as to how to vote your shares, following the directions from your broker, bank, trust company or other nominee provided to you.

Q: Do I need to do anything with my shares of Asterias Common Stock now?

A: If you are an Asterias stockholder, after the Merger is completed, your shares of Asterias Common Stock will be automatically converted into BioTime Common Shares. You will receive instructions at that time regarding exchanging your shares for BioTime Common Shares. You do not need to take any action at this time. Please do not send any Asterias stock certificate with your proxy card.

If you are a BioTime shareholder, you are not required to take any action with respect to your BioTime stock certificates. You will continue to hold your BioTime Common Shares after the effective time of the Merger.

Q: Are there any risks in the Merger or BioTime Share Issuance that I should consider?

A: Yes. There are risks associated with all business combinations, including the Merger and the related BioTime Share Issuance. These risks are discussed in more detail in the section entitled "*Risk Factors*."

Q: What is householding and how does it affect me?

A: The SEC permits companies to send a single set of proxy materials to any household at which two or more stockholders reside, unless contrary instructions have been received, but only if the applicable company provides advance notice and follows certain procedures. In such cases, each stockholder continues to receive a separate notice of the meeting and proxy card. Certain brokerage firms may have instituted householding for beneficial owners of BioTime Common Shares or Asterias Common Stock held through brokerage firms. If your family has multiple accounts holding BioTime Common Shares or Asterias Common Stock, you may have already received householding notification from your broker. Please contact your broker directly if you have any questions or require additional copies of this proxy statement. The broker will arrange for delivery of a separate copy of this proxy statement promptly upon your written or oral request. You may decide at any time to revoke your decision to household, and thereby receive multiple copies.

Q: Who is paying for this proxy solicitation?

A: BioTime and Asterias are conducting this proxy solicitation and will bear the cost of soliciting proxies, including the preparation, assembly, printing and mailing of this joint proxy statement / prospectus, the proxy card and any additional information furnished to stockholders. BioTime is not engaging a proxy solicitor and will distribute proxy solicitation materials to brokers, banks and other nominees and will solicit proxies from BioTime shareholders directly. Asterias has retained Advantage Proxy to aid in Asterias' proxy solicitation process. Asterias estimates that its proxy solicitor fees will be approximately $10,000. BioTime and Asterias may also reimburse brokerage houses and other custodians, nominees and fiduciaries for their costs of forwarding proxy and solicitation materials to beneficial owners.

Q: Who can help answer my questions?

A: BioTime shareholders or Asterias stockholders who have questions about the Merger, the BioTime Share Issuance or the other matters to be voted on at the special meetings or desire additional copies of this joint proxy statement/prospectus or additional proxy cards should contact:

if you are a BioTime shareholder:	**if you are an Asterias stockholder:**
BioTime, Inc.	Advantage Proxy, Inc.
1010 Atlantic Avenue, Suite 102	P.O. Box 13581
Alameda, California 94501	Des Moines, WA 98198
Attention: Investor Relations	Toll Free Telephone: 877-870-8565
Telephone: (510) 871-4188	Main Telephone: 206-870-8565

SUMMARY

This summary highlights selected information included in this joint proxy statement/prospectus. You should carefully read this entire joint proxy statement/prospectus and its Annexes and the other documents referred to in this joint proxy statement/prospectus, because the information in this section may not provide all of the information that might be important to you in determining how to vote. Additional important information about BioTime and Asterias is also contained in the Annexes to, and the documents incorporated by reference into, this joint proxy statement/prospectus. For a description of, and instructions as to how to obtain, this information, see the section entitled "Where You Can Find More Information." Each item in this summary includes a page reference directing you to a more complete description of that item.

Information About the Companies (Page 44)

BioTime, Inc.

BioTime, Inc.

1010 Atlantic Avenue, Suite 102

Alameda, CA 94501

Phone: (510) 521-3390

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

BioTime's common shares are listed on NYSE American under the symbol "BTX."

Additional information about BioTime and its subsidiaries is included in the documents incorporated by reference in this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*."

Asterias Biotherapeutics, Inc.

Asterias Biotherapeutics, Inc.

6300 Dumbarton Circle
Fremont, California 94555
Phone: (510) 456-3800

Asterias is a clinical-stage biotechnology company dedicated to developing pluripotent stem cell-derived therapies to treat neurological conditions associated with demyelination and cellular immunotherapies to treat cancer. Asterias has industry-leading technology in two cell types, each with broad potential applicability: (1) oligodendrocyte progenitor cells, which become oligodendrocytes that have the potential to remyelinate axons within the central nervous system and perform other restorative functions, and (2) antigen-presenting dendritic cells, which train T-cells in the immune system to attack and destroy solid or liquid tumor cells across multiple types of cancer. Asterias currently has three clinical-stage therapeutic programs, focusing on spinal cord injury, non-small cell lung cancer and acute myeloid leukemia.

Asterias Common Stock is listed on the NYSE American under the symbol "AST."

Additional information about Asterias is included in documents incorporated by reference in this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*."

Merger Sub

Patrick Merger Sub, Inc.

1010 Atlantic Avenue, Suite 102

Alameda, CA 94501

Phone: (510) 521-3390

Patrick Merger Sub, Inc., a wholly owned subsidiary of BioTime, is a Delaware corporation that was formed on November 5, 2018 for the purpose of effecting the Merger. Upon completion of the Merger, Merger Sub will be merged with and into Asterias, with Asterias surviving as a wholly owned subsidiary of BioTime. Merger Sub has not conducted any activities other than those incidental to its formation and the matters contemplated by the Merger Agreement in connection with the Merger.

The Merger and the Merger Agreement (Pages 45 and 88, respectively)

The terms and conditions of the Merger are set forth in the Merger Agreement, a copy of which is attached as **Annex A** to this joint proxy statement/prospectus. BioTime and Asterias encourage you to read the entire Merger Agreement carefully because it is the principal legal document governing the Merger and the BioTime Share Issuance.

Structure of the Merger (Page 45)

At the effective time of the Merger, Merger Sub will merge with and into Asterias, the separate corporate existence of Merger Sub will cease, and Asterias will continue as the surviving corporation in the Merger and as a wholly owned subsidiary of BioTime.

Merger Consideration (Page 45 and 89)

If the Merger is completed, Asterias stockholders will receive 0.71 BioTime Common Shares for each share of Asterias Common Stock they hold, with cash paid in lieu of fractional shares. The Exchange Ratio is fixed and will

not be adjusted for changes in the market value of the common stock of Asterias or BioTime. Because of this, the implied dollar value of the consideration to Asterias stockholders may fluctuate between now and the completion of the Merger. Based on the closing price of BioTime Common Shares on the NYSE American on November 7, 2018, the last full trading day before the public announcement of BioTime's proposal to acquire Asterias, the Exchange Ratio represents approximately $1.49 in value for each share of Asterias Common Stock. Based on the closing price of BioTime Common Shares on NYSE American on February 1, 2019, the latest practicable date before the date of the enclosed joint proxy statement/prospectus, the Exchange Ratio represents approximately $0.94 in value of each share of Asterias Common Stock.

Asterias stockholders will not receive any fractional BioTime Common Shares in the Merger. Instead, BioTime will pay cash in lieu of any fractional BioTime Common Shares that an Asterias stockholder would otherwise have been entitled to receive.

As of February 1, 2019, BioTime owned approximately 39% of the outstanding shares of Asterias Common Stock. Pursuant to the Merger Agreement, all such shares of Asterias Common Stock will be cancelled and will cease to exist for no consideration.

Treatment of Asterias Equity Awards (Page 84 and 89)

Treatment of Asterias Stock Options

At the effective time of the Merger, each outstanding option to purchase shares of Asterias Common Stock pursuant to Asterias' Amended and Restated 2013 Equity Incentive Plan, including 3,195,414 options held by officers and directors of Asterias, will be cancelled and extinguished for no consideration and shall cease to exist after the Effective Time.

Treatment of Asterias Restricted Stock Unit Awards

Each outstanding Asterias restricted stock unit award, including awards held by officers and directors of Asterias with respect to 129,252 restricted stock units, if the Merger is consummated on March 30, 2019, shall vest in full immediately prior to the effective time of the Merger and shall be cancelled and converted into the right to receive, as soon as reasonably practicable after the effective time of the merger, 0.71 BioTime Common Shares in respect of each share of Asterias Common Stock underlying the Asterias restricted stock unit award.

Treatment of Asterias Warrants

Pursuant to the terms of the Merger Agreement, each outstanding Asterias Warrant will be treated in accordance with the terms of the applicable Warrant Agreement.

Treatment of Asterias 2013 Equity Incentive Plan (Page 90)

At the effective time of the merger, BioTime will assume sponsorship of the Asterias 2013 Equity Incentive Plan (the "**Asterias Equity Plan**"), with references to Asterias in the Asterias Equity Plan and award agreements for the Asterias Equity Awards to be deemed references to BioTime and references to shares of Asterias Common Stock therein shall be deemed references to BioTime Common Shares with appropriate equitable adjustments to reflect the Merger and the other transactions contemplated by the Merger Agreement.

BioTime's Reasons for the Merger and BioTime Share Issuance; Recommendation of the BioTime Board of Directors (Page 54)

On November 7, 2018, the BioTime Special Committee unanimously determined that the Merger Agreement and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders and recommended to the BioTime Board that it approve and declare fair to, advisable and in the best interests of BioTime shareholders, the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance. Thereafter, at a duly convened meeting of the BioTime Board to consider the unanimous recommendation of the BioTime Special Committee, the members of the BioTime Board approved (by unanimous vote of the disinterested members of the BioTime Board, with Neal C. Bradsher, Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) the Merger Agreement and the BioTime Share Issuance and determined that the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders. **The BioTime Board**

accordingly recommends that the BioTime shareholders vote "FOR" each of the BioTime Share Issuance Proposal and the BioTime Adjournment Proposal.

Opinion of BioTime's Financial Advisor (Page 57)

BioTime retained Maxim Group, LLC ("**Maxim**") as its financial advisor in connection with the Merger. As discussed in the following paragraph, on November 7, 2018, Maxim delivered to the BioTime Board its oral opinion, confirmed by its delivery of a written opinion dated November 7, 2018, that, as of the date thereof and subject to the assumptions, limitations, qualifications and conditions set forth in its opinion, the Exchange Ratio and the merger consideration being paid to the Asterias stockholders was fair, from a financial point of view, to BioTime and its shareholders.

The full text of Maxim's written opinion, dated November 7, 2018, which sets forth, among other things, the assumptions made, procedures followed, matters considered and qualifications and limitations on the scope of review undertaken by Maxim in delivering its opinion, is attached as **Annex B** to this joint proxy statement/prospectus and is incorporated herein by reference in its entirety.

You are urged to read Maxim's opinion carefully and in its entirety. Maxim's opinion was provided for the information and benefit of the BioTime Board and was delivered to the BioTime Board in connection with its evaluation of whether the merger consideration to be paid by BioTime pursuant to the Merger Agreement is fair, from a financial point of view, to BioTime, and did not address any other aspect or implication of the Merger. Maxim's opinion does not constitute a recommendation to the BioTime Board or to any other persons in respect of the Merger Agreement and the transactions contemplated thereby, including the Merger, including as to how any holder of BioTime Common Shares should vote or act in respect of the BioTime Share Issuance Proposal.

Asterias' Reasons for the Merger; Recommendation of the Asterias Special Committee and Board of Directors (Page 64)

On November 7, 2018, the Asterias Special Committee, consisting of four independent and disinterested directors, and acting with the advice of its own legal and financial advisors, unanimously determined that the terms and conditions of the Merger Agreement and the Merger are fair to, advisable and in the best interests of Asterias stockholders, and recommended to the Asterias Board that it approve and declare fair to, advisable and in the best interests of Asterias stockholders, the Merger Agreement and the Merger. On November 7, 2018, at a duly convened meeting of the Asterias Board, based on the unanimous recommendation of the Asterias Special Committee, the Asterias Board (by unanimous vote of the disinterested members of the Asterias Board, with Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) (1) determined that the Merger Agreement and the Merger are fair to, advisable and in the best interests of Asterias and its stockholders, (2) approved the Merger Agreement and the transactions contemplated thereby and (3) resolved to recommend that Asterias stockholders vote for the approval and adoption of the Merger Agreement and the transactions contemplated thereby, including the Merger. **The Asterias Board accordingly recommends that Asterias stockholders vote "FOR" the Asterias Merger Proposal and "FOR" the Asterias Adjournment Proposal.**

Opinion of Asterias' Financial Advisor (Page 70)

At the November 7, 2018 meeting of the Asterias Special Committee, representatives of Raymond James & Associates, Inc. ("**Raymond James**") rendered Raymond James's oral opinion, which was also shared with the Asterias Board at the November 7, 2018 meeting of the Asterias Board and subsequently confirmed by delivery of a written opinion to the Special Committee, dated November 7, 2018, as to the fairness, as of such date, from a financial point of view, of the Exchange Ratio to the holders of outstanding shares of Asterias Common Stock (other than shares of Asterias Common Stock held by BioTime, Asterias or any of their respective wholly-owned subsidiaries) to be received by such holders in the Merger pursuant to the Merger Agreement.

The full text of the written opinion of Raymond James, dated November 7, 2018, which sets forth, among other things, the various qualifications, procedures, assumptions and limitations on the scope of the review undertaken, is attached as **Annex C** to this joint proxy statement/prospectus. Raymond James provided its opinion for the information and assistance of the Asterias Special Committee (solely in its members' capacities as such) in connection with, and for purposes of, its consideration of the Merger, and its opinion only addresses whether the Exchange Ratio to be received by the holders of outstanding shares of Asterias Common Stock (other than shares of Asterias Common Stock held by BioTime, Asterias or any of their respective wholly-owned subsidiaries) in the Merger pursuant to the Merger Agreement was fair, from a financial point of view, to such holders. The opinion of Raymond James did not address any other term or aspect of the Merger Agreement or the Merger contemplated thereby. The Raymond James opinion does not constitute a recommendation to the Asterias Board or any holder of Asterias Common Stock as to how the Asterias Board, such stockholder or any other person should vote or otherwise act with respect to the Merger or any other matter.

The BioTime Special Meeting; Required Vote (Page 38)

The BioTime Special Meeting will be held at BioTime, Inc., 1010 Atlantic Avenue, Suite 102, Alameda, CA 94501, on March 7, 2019, at 9:30 a.m., local time, unless adjourned or postponed to a later date or time. At the BioTime Special Meeting, BioTime shareholders will be asked:

(1) to consider and vote on the BioTime Share Issuance Proposal; and

(2) to consider and vote on the BioTime Adjournment Proposal.

You may vote at the BioTime Special Meeting if you owned BioTime Common Shares at the close of business on January 28, 2019, the record date for the BioTime Special Meeting. As of the close of business on the record date, there were 127,178,926 BioTime Common Shares outstanding, of which 124,203,851 BioTime Common Shares are entitled to vote. You may cast one vote for each BioTime Common Share that you owned as of the close of business on the BioTime record date.

As of the close of business on the record date, approximately 31.6% of the outstanding BioTime Common Shares were held by BioTime's directors and executive officers and their affiliates. We currently expect that BioTime's directors and executive officers will vote their shares in favor of the above-listed proposals, though they are under no obligation to do so.

Completion of the Merger is conditioned on approval of the BioTime Share Issuance Proposal. Approval of the BioTime Share Issuance Proposal requires the affirmative vote of the holders of a majority of the total votes of BioTime Common Shares cast in person or by proxy at the special meeting to approve the share issuance pursuant to NYSE American Rules.

Approval of the BioTime Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal pursuant to BioTime's Amended and Restated Bylaws, as amended to date.

The Asterias Special Meeting; Required Vote (Page 41)

The special meeting of Asterias stockholders will be held at 6300 Dumbarton Circle, Fremont, CA 94555, on March 7, 2019 at 8:00 a.m., local time, unless adjourned or postponed to a later date or time. At the Asterias Special Meeting, stockholders will be asked:

(1) to consider and vote on the Asterias Merger Proposal; and

(2) to consider and vote on the Asterias Adjournment Proposal.

You may vote at the Asterias Special Meeting if you owned shares of Asterias Common Stock at the close of business on January 28, 2019, the record date. As of the close of business on the record date, there were 55,947,804 shares of Asterias Common Stock outstanding and entitled to vote. You may cast one vote for each share of Asterias Common Stock that you owned as of the close of business on the Asterias record date.

Approval of the Asterias Merger Proposal requires the affirmative vote of holders of a majority of the outstanding shares of Asterias Common Stock entitled to vote in person or by proxy at the special meeting pursuant to Delaware law.

Approval of the Asterias Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote.

As of the close of business on the record date, approximately 39% of the outstanding shares of Asterias Common Stock were held by BioTime. Under the Merger Agreement, BioTime is obligated to vote their shares at the Asterias Special Meeting.

Interests of BioTime's Directors and Executive Officers in the Merger (Page 82)

In considering the recommendation of the BioTime Board with respect to the Merger Agreement, you should be aware that certain of BioTime's directors and executive officers have interests in the Merger that are different from, or in addition to, the interests of BioTime shareholders generally. Interests of directors and officers that may be different from or in addition to the interests of BioTime shareholders include, among others:

- certain of BioTime's directors and executive officers serve (or in the past have served) on the Asterias Board or as executive officers of Asterias; and
- certain of BioTime's directors and executive officers and their respective affiliates are securityholders of Asterias.

As of January 28, 2019, the record date for the Asterias Special Meeting, BioTime's directors and executive officers beneficially owned 6,030,922 shares of Asterias Common Stock as a group.

The BioTime Board was aware of these interests and considered them, among other matters, in evaluating and negotiating the Merger Agreement and in reaching a decision to approve the Merger Agreement and the transactions contemplated therein, and in making its recommendation that the BioTime shareholders vote "FOR" the BioTime Share Issuance Proposal and "FOR" the BioTime Adjournment Proposal.

Merger-Related Compensation for BioTime's Named Executive Officers

The rules promulgated by the SEC under Section 14A of the Exchange Act generally require companies to seek a non-binding advisory vote from stockholders with respect to certain compensation that will or may become payable to their named executive officers in connection with a merger. BioTime is not seeking this non-binding, advisory vote from its stockholders because none of BioTime's named executive officers are entitled to any such merger-related compensation that would otherwise require such a vote.

Interests of Asterias' Directors and Executive Officers in the Merger (Page 83)

In considering the recommendation of the Asterias Board with respect to the Merger Agreement, you should be aware that certain of Asterias' directors and executive officers may have interests in the Merger that are different from, or in addition to, the interests of Asterias' stockholders. Interests of directors and officers that may be different from or in addition to the interests of Asterias stockholders include, among others:

- Certain of Asterias' directors and executive officers serve on the BioTime Board;
- Certain of Asterias' directors and executive officers and their respective affiliates are security holders of BioTime;
- Asterias' directors and executive officers are entitled to continued indemnification and insurance coverage under the Merger Agreement;
- Aditya Mohanty, a member of the Asterias Board, was a Co-Chief Executive Officer and a member of the BioTime Board until September 17, 2018; and
- The Merger Agreement provides that each Asterias restricted stock unit award, whether vested or unvested, that is outstanding immediately prior to the effective time of the Merger will vest in full immediately prior to the effective time of the Merger and will be cancelled and converted into the right to receive 0.71 BioTime Common Shares.

Certain of Asterias' executive officers own Asterias restricted stock unit awards and will be entitled to receive the Exchange Ratio in respect of such Asterias restricted stock unit award.

The Asterias Board and the Asterias Special Committee were aware of these interests and considered them, among other matters, in evaluating and negotiating the Merger Agreement and in reaching a decision to approve the Merger Agreement and the transactions contemplated therein, and in making its recommendation that the Asterias stockholders vote "FOR" the Asterias Merger Proposal and "FOR" the Asterias Adjournment Proposal.

Merger-Related Compensation for Asterias' Named Executive Officers (Page 85)

Asterias is not seeking a non-binding advisory vote from its stockholders with respect to certain compensation that will or may become payable to Asterias' named executive officers in connection with a Merger under the rules promulgated by the SEC under Section 14A of the Exchange Act ("**say-on-golden parachute**") because pursuant to the Jumpstart Our Business Startups ("**JOBS**") Act, emerging growth companies, such as Asterias, are exempt from the requirement to hold a "say-on-golden parachute" vote.

Regulatory Approvals Required for the Merger (Page 86)

BioTime has determined that the acquisition of Asterias is exempt from the premerger notification requirements of the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended. As such, the Merger is not subject to any filings with or authorizations, approvals or consents from federal and state antitrust authorities are required.

Neither BioTime nor Asterias is aware of any other material governmental approvals or actions that are required for completion of the Merger. It is presently contemplated that if any such additional governmental approvals or actions are required, those approvals or actions will be sought. There can be no assurance, however, that any additional approvals or actions will be obtained.

Asterias Go-Shop (Page 97)

At any time prior to December 3, 2018 (the "**Go-Shop Period**"), Asterias was permitted to initiate, solicit and encourage any inquiry or the making of any proposal or offer that constitutes an Acquisition Proposal (as defined below), including by making available information (including non-public information and data) and other access to the person making such Acquisition Proposal pursuant to a customary confidentiality agreement and participate in discussions with respect to any Acquisition Proposals and cooperate with any such discussions or any attempt to make any Acquisition Proposals.

Following the end of the Go-Shop Period, Asterias was required to cease all discussions with third parties with respect to Acquisition Proposals (except for Excluded Parties (as defined below) and third parties who submit unsolicited Acquisition Proposals to Asterias subject to compliance with certain conditions) and was prohibited from further initiating, soliciting or encouraging any inquiry or proposal or offer that constituted an Acquisition Proposal.

Changes in Board Recommendations (Page 100)

Subject to limited conditions, the Asterias Board or the BioTime Board may withdraw or modify its recommendation in the case of Asterias in support of the adoption of the Merger Agreement and in the case of BioTime in support of the BioTime Share Issuance. In the event that the board of directors of either company withdraws or modifies its recommendation in a manner adverse to the other company, the company whose board of directors withdrew or modified its recommendation may be required to pay a termination fee of $2 million to the other company, or to reimburse the other party's expenses in an amount up to $1.5 million.

Voting of Shares of Asterias Common Stock Owned by BioTime (Page 99)

Pursuant to the Merger Agreement, BioTime has agreed to vote all of the shares of Asterias Common Stock and Asterias Preferred Stock owned beneficially or of record by BioTime or any of its subsidiaries at the Asterias Special meeting. In the event that a special meeting of Asterias stockholders is called for the purposes of obtaining the approval of Asterias stockholders in respect of a Superior Proposal with an Excluded Party that was obtained in accordance with the go-shop provisions of the Merger Agreement, BioTime must vote or cause to be voted all of the shares of Asterias Common Stock and Asterias Preferred Stock owned beneficially or of record by BioTime or any of its subsidiaries in proportion to all other votes cast by other Asterias stockholders.

Conditions to the Completion of the Merger (Page 101)

The respective obligations of BioTime and Asterias to consummate the Merger are subject to the satisfaction of certain conditions.

Termination of the Merger Agreement (Page 103)

Either BioTime or Asterias can terminate the merger agreement under certain circumstances, which would prevent the merger from being consummated.

Expenses and Termination Fees (Page 104)

Generally, all fees and expenses incurred in connection with the Merger and the transactions contemplated by the Merger Agreement will be paid by the party incurring those expenses. However, the Merger Agreement provides that, upon termination of the Merger Agreement under certain circumstances, BioTime or Asterias may be obligated to pay to the other party a termination fee of $2 million. The Merger Agreement also provides that either BioTime or Asterias may be obligated to reimburse the other party's expenses in an amount up to $1.5 million (which will be credited against the termination fee).

No Appraisal Rights (Page 169)

Under Delaware law, holders of Asterias Common Stock are not entitled to appraisal rights in connection with the Merger.

Accounting Treatment of the Merger (Page 87)

BioTime prepares its consolidated financial statements in accordance with U.S. Generally Accepted Accounting Principles ("**U.S. GAAP**"). The Merger will be accounted for in accordance with Accounting Standards Codification Topic 805, *Business Combinations*. The purchase price will be allocated to the fair values of assets acquired, including acquired in-process research and development ("**IPR&D**"), and liabilities assumed. Any excess purchase price after this allocation will be assigned to goodwill. Under the acquisition method of accounting, goodwill and acquired IPR&D is not amortized but is tested for impairment at least annually, or more frequently if circumstances indicate potential impairment. The operating results of Asterias will be consolidated and be part of the Combined Company beginning on the date of the Merger.

Material U.S. Federal Income Tax Consequences of the Merger (Page 110)

Cooley LLP, outside counsel to BioTime, and Dentons US LLP, outside counsel to Asterias, are expected to each issue a tax opinion to the effect that the Merger will constitute a reorganization under Section 368(a) of the Code. In a reorganization, an Asterias stockholder generally should not recognize any gain or loss for U.S. federal income tax purposes upon the exchange of its shares of Asterias Common Stock for BioTime Common Shares. However, any cash received for any fractional share should result in the recognition of gain or loss as if such stockholder sold its fractional share. An Asterias stockholder's tax basis in the BioTime Common Shares that it receives in the Merger will equal its current tax basis in its Asterias Common Stock (reduced by the basis allocable to any fractional share interest

for which it receives cash).

Please carefully review the information set forth in the section entitled "*Material U.S. Federal Income Tax Consequences*" for a more complete description of the material U.S. federal income tax consequences of the Merger. The tax consequences to you of the Merger will depend on your particular facts and circumstances. Please consult your own tax advisors as to the specific tax consequences to you of the Merger.

Comparison of the Rights of Holders of BioTime Common Shares and Holders of Asterias Common Stock (Page 153)

Asterias stockholders receiving the merger consideration will have different rights once they become stockholders of BioTime due to differences between the governing corporate documents of BioTime and Asterias.

SELECTED HISTORICAL CONSOLIDATED FINANCIAL DATA OF BIOTIME

The following table sets forth selected historical consolidated financial data for BioTime. The historical consolidated financial information for each of the years in the three-year period ended December 31, 2017 is derived from the audited consolidated financial statements of BioTime as of and for each of the years in the three-year period ended December 31, 2017. The historical consolidated financial information for BioTime as of September 30, 2018 and for the nine months ended September 30, 2018 and September 30, 2017 has been derived from BioTime's unaudited interim condensed consolidated financial statements and related notes contained in its Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2018, which is incorporated herein by reference, and in the opinion of BioTime's management, include all normal and recurring adjustments that are considered necessary for the fair statement of the results for the interim periods. You should not assume the results of operations for any past periods indicate results for any future period, including with respect to the future performance of BioTime following the date of this joint proxy statement/prospectus or following the completion of the Merger. You should read this information in conjunction with BioTime's consolidated financial statements and related notes thereto included in BioTime's Annual Report on Form 10-K for the fiscal year ended December 31, 2017, which is incorporated by reference into this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*." For financial information giving effect to the Merger and the transactions contemplated by the Merger Agreement, see the section entitled "*Unaudited Pro Forma Condensed Combined Financial Information*."

	As of and for the Nine Months Ended September 30,		As of and for the Year Ended December 31,		
	2018[1]	2017	**2017[1]**	**2016[1]**	**2015[1]**
	(in thousands, except per share data)				
Consolidated Statements of Operations Data:					
Total revenue	$4,230	$2,459	$3,458	$5,923	$7,036
Gross profit	3,980	2,345	3,290	5,565	5,929
Loss from operations	(31,580)	(29,339)	(38,902)	(58,967)	(65,809)
Net income (loss) attributable to BioTime, Inc.	(1,038)	51,958	(19,976)	33,572	(46,991)
Net income (loss) per common share, basic	$(0.01)	$0.47	$(0.17)	0.35	$(0.59)
Net income (loss) per common share, diluted	$(0.01)	$0.47	$(0.17)	0.34	$(0.59)
Weighted average shares used in computing net income or loss per common share, basic	126,872	110,989	114,476	97,316	79,711
Weighted average shares used in computing net income or loss per common share, diluted	126,872	111,124	114,476	99,553	79,711
Consolidated Balance Sheet Data (at period end):					
Working capital	$32,403	$17,213	$35,744	$16,799	$34,775
Total assets	176,077	221,867	173,241	142,572	94,660
Total long-term obligations	2,016	6,868	2,099	3,214	5,751

(1) Asterias' financial statements and results of operations were included in BioTime's consolidated financial statements and results of operations for all periods through May 12, 2016. Beginning on May 13, 2016, BioTime deconsolidated Asterias' financial statements and results of operations. Since May 13, 2016, BioTime has elected to account for its Asterias shares at fair value using the equity method of accounting because since that date, BioTime has not had control of Asterias, as defined by U.S. GAAP, but BioTime continues to exercise significant influence over Asterias. Under the fair value method, the value of the shares of common stock BioTime holds in Asterias is carried on its consolidated balance sheet at fair value and is marked to market at each reporting period using the closing price of Asterias Common Stock on the NYSE American multiplied by the number of shares of Asterias held by BioTime, with changes in the fair value of the Asterias shares included in other income and expenses, net, in the consolidated statements of operations. See the section entitled "*Unaudited Pro forma Condensed Combined Financial Information*."

SELECTED HISTORICAL FINANCIAL DATA OF ASTERIAS

The following table sets forth selected historical financial data for Asterias. The historical financial information for each of the years in the three-year period ended December 31, 2017 is derived from the audited financial statements of Asterias as of and for each of the years in the three-year period ended December 31, 2017. The historical financial information for Asterias as of September 30, 2018 and for the nine months ended September 30, 2018 and September 30, 2017 has been derived from Asterias' unaudited interim condensed financial statements and related notes contained in its Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2018, which is incorporated herein by reference, and in the opinion of Asterias' management, include all normal and recurring adjustments that are considered necessary for the fair statement of the results for the interim periods. You should not assume the results of operations for any past periods indicate results for any future period, including with respect to the future performance of Asterias following the date of this joint proxy statement/prospectus or of BioTime. following the completion of the Merger. You should read this information in conjunction with Asterias' audited consolidated financial statements and related notes thereto included in this joint proxy statement/prospectus. For financial information giving effect to the Merger and the transactions contemplated by the Merger Agreement, see the section entitled "*Unaudited Pro Forma Condensed Combined Financial Information*."

	As of and for the Nine Months Ended September 30,		As of and for the Year Ended December 31,		
	2018	2017	2017	2016	2015
Statements of Operations Data:					
Total revenue	$703	$4,014	$4,042	$6,954	$3,582
Gross profit	526	3,863	3,877	6,826	3,314
Net loss	(13,748)	(21,824)	(28,372)	(35,489)	(15,003)
Net loss per share attributable to common stockholders:					
Basic and diluted	$(0.25)	$(0.44)	$(0.56)	$(0.83)	$(0.42)
Balance Sheet Data (at period end):					
Total current assets	$15,762	$21,929	$22,716	$36,990	$29,789
Total assets	29,814	43,320	43,092	61,010	57,234
Total current liabilities[(1)]	2,426	2,376	3,521	6,535	4,980
Total liabilities[(1)]	5,309	11,588	9,549	18,982	12,135
Total stockholders' equity	24,505	31,732	33,543	42,028	45,099

(1) In November 2015, the Financial Accounting Standards Board ("FASB") issued ASU No. 2015-17, Balance Sheet Classification of Deferred Taxes, to eliminate the requirement to classify deferred income tax assets and liabilities

between current and noncurrent. The ASU simply requires that all deferred income tax assets and liabilities be classified as noncurrent. As of December 31, 2016, Asterias adopted the ASU prospectively but did not reclassify previous balances of deferred income tax assets and liabilities, as permitted by the ASU.

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SELECTED UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

The following table presents selected unaudited pro forma combined financial information about BioTime's consolidated balance sheet and statements of operations, after giving effect to the Merger with Asterias. The information under "Pro Forma Statements of Operations Data" in the table below assumes the Merger had been consummated on January 1, 2017, the beginning of the earliest period presented. The information under "Pro Forma Balance Sheet Data" in the table below assumes the Merger had been consummated on September 30, 2018, using the per share closing price of BioTime Common Shares as of January 30, 2019, as quoted on the NYSE American, to determine the preliminary estimated purchase price. As of September 30, 2018, BioTime owns approximately 39% of the issued and outstanding shares of Asterias common stock.

The unaudited pro forma condensed combined financial information includes adjustments which are preliminary and may be revised. There can be no assurance that such revisions will not result in material changes. In addition, the unaudited pro forma condensed combined financial information does not reflect any cost savings or associated costs to achieve such savings from operating efficiencies, synergies, debt refinancing or other restructuring that may result from the Merger. The information presented below should be read in conjunction with the historical consolidated financial statements of each of BioTime and Asterias, including the related notes, filed by each of them with the SEC, and with the Pro Forma Condensed Combined Financial Statements of BioTime and Asterias, including the related notes, appearing elsewhere in this joint proxy statement/prospectus. See the sections entitled "*Where You Can Find More Information*" and "*Unaudited Pro Forma Condensed Combined Financial Information*" for more information. The unaudited pro forma condensed combined financial data are not necessarily indicative of results that actually would have occurred or that may occur in the future had the Merger been completed on the dates indicated.

(in thousands, except for per share data)	Nine months ended September 31, 2018	Year ended December 31, 2017
Pro Forma Statements of Operations Data:		
Total revenues	$ 4,933	$ 7,500
Gross profit	4,506	7,167
Loss from operations	(45,602)	(69,467)
Other income, net [1]	51,871	71,994
Net income attributable to shareholders	7,031	5,840
Net income per share of common stock, basic and diluted	$ 0.05	$ 0.04

	As of September 30, 2018
Pro Forma Balance Sheet Data:	
Working capital	$ 34,164

Total assets	215,987
Current portion of long-term debt[2]	1,124
Long-term debt, net of current portion[2]	2,025
Noncontrolling interests deficit in subsidiaries	(1,569)

[1] Primarily generated by BioTime from gains on deconsoldiations of former subsidiaries other than Asterias and mark to market adjustments of retained ownership interests in those affiliates. Upon deconsolidation, the retained ownership interests in those affiliates, AgeX and OncoCyte Corporation ("**OncoCyte**"), are accounted for at fair value with changes in fair value included in other income and expenses, net. AgeX common stock is listed on the NYSE American under the symbol "AGE" and OncoCyte common stock is listed on the NYSE American under the symbol "OCX".

[2] Primarily comprised of lease liabilities, capital lease obligations and liability classified warrants.

COMPARATIVE HISTORICAL AND PRO FORMA PER SHARE FINANCIAL DATA

The following table sets forth, for the nine months ended September 30, 2018 and the year ended December 31, 2017, selected per share information for BioTime Common Shares on a historical and pro forma combined basis and, for the nine months ended September 30, 2018 and the year ended December 31, 2017, selected per share information for Asterias Common Stock on a historical and pro forma equivalent basis. Except for the historical information as of and for the year ended December 31, 2017, which is derived from the audited financial statements, the information in the table is unaudited. The pro forma information is presented for illustrative purposes only and is not necessarily indicative of the operating results or financial position that would have occurred if the Merger and the other transactions contemplated by the Merger Agreement had been completed as of the beginning of the periods presented, nor is it necessarily indicative of the future operating results or financial position of BioTime or Asterias following the date of this joint proxy statement/prospectus or following the completion of the Merger. You should read the data with the historical consolidated financial statements and related notes of BioTime and Asterias contained in their respective Annual Reports on Form 10-K for the year ended December 31, 2017, and their respective Quarterly Reports on Form 10-Q for the quarter ended September 30, 2018, as applicable, all of which are incorporated by reference into this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*."

As of September 30, 2018, BioTime owned approximately 39% of the issued and outstanding shares of Asterias Common Stock. Beginning on May 13, 2016, BioTime uses the equity method of accounting when it has the ability to exercise significant influence, but not control, as determined in accordance with U.S. GAAP, over the operating and financial policies of Asterias. BioTime has elected to account for its Asterias shares at fair value using the equity method of accounting because beginning on May 13, 2016, the date on which BioTime deconsolidated Asterias, BioTime has not had control of Asterias, as defined by U.S. GAAP, but continues to exercise significant influence over Asterias. Under the fair value method, BioTime's value in shares of Asterias Common Stock is marked to market at each balance sheet date using the closing price of Asterias Common Stock on the NYSE American multiplied by the number of shares of Asterias Common Stock held by BioTime, with changes in the fair value of the Asterias shares included in other income and expenses, net, in the historical consolidated statements of operations. Prior to May 13, 2016, Asterias' financial statements and results of operations were included with BioTime's consolidated financial statements and results.

The BioTime Common Shares held by Asterias are accounted for as marketable equity securities at fair value. Asterias values BioTime Common Shares it holds at each balance sheet date using the closing prices of BioTime Common Shares on the NYSE American multiplied by the number of BioTime Common Shares held by Asterias. Beginning on January 1, 2018, with the adoption of Accounting Standards Update 2016-01, *Financial Instruments–Overall: Recognition and Measurement of Financial Assets and Financial Liabilities* (ASU 2016-01), all unrealized gains and losses on BioTime Common Shares Asterias holds are included in other income and expenses, net, in Asterias' historical operations. Prior to January 1, 2018 and the adoption of ASU 2016-01, these securities were called "available-for-sale securities" and unrealized holding gains and losses were reported in other comprehensive income or loss, net of tax, and were a component of the accumulated other comprehensive loss on the balance sheet. On January 1, 2018, Asterias recorded the cumulative-effect of the accumulated other comprehensive loss to the accumulated deficit balance in accordance with ASU 2016-01. All realized gains and losses on BioTime Common Shares sold are included in other income and expenses, net, for all periods presented. For more information, see

historical financial statements of Asterias referenced above.

The pro forma combined data and Asterias equivalent pro forma data for book value per share gives effect to the Merger as if the Merger had been effective as of September 30, 2018, and as if the Merger had been effective as of January 1, 2017 in the case of the net income or loss per share data. The unaudited pro forma data combines the historical results of Asterias into BioTime's consolidated statement of operations, while eliminating the gain or loss recorded by BioTime and Asterias in their respective historical results. While certain adjustments were made for the estimated impact of fair value adjustments and other Merger-related activity, they are not indicative of what could have occurred had the acquisition taken place on January 1, 2017 or September 30, 2018.

The pro forma combined net income per share of common stock set forth below were calculated using the methodology as described in the section entitled "*Unaudited Pro Forma Condensed Combined Financial Information*." Neither BioTime nor Asterias has declared a dividend on account of their respective common stock during the periods presented in the following table. The pro forma combined book value per share was calculated by dividing total combined BioTime and Asterias pro forma common shareholders' equity by pro forma equivalent shares of common stock. The pro forma Asterias equivalent per common share amounts were calculated by multiplying the pro forma combined per share amounts by the Exchange Ratio of 0.71.

The unaudited pro forma adjustments are based upon available information and certain assumptions that BioTime and Asterias management believe are reasonable. The unaudited pro forma data, while helpful in illustrating the financial characteristics of the Combined Company under one set of assumptions, does not reflect the impact of factors that may result as a consequence of the Merger or consider any potential impacts of current market conditions or the Merger on revenues, expense efficiencies, debt refinancing or restructuring, among other factors, nor the impact of possible business model changes. As a result, unaudited pro forma data is presented for illustrative purposes only and does not represent an attempt to predict or suggest future results. Upon completion of the Merger, the operating results of Asterias will be reflected in the consolidated financial statements of BioTime on a prospective basis.

	Nine months ended September 30, 2018	Year ended December 31, 2017	
BioTime historical data			
Net loss per share, basic and diluted	$ (0.01)	$ (0.17)	
Book value per share	$ 1.34	$ 1.29	
Asterias historical data			
Net loss per share, basic and diluted	$ (0.25)	$ (0.56)	
Book value per share	$ 0.44	$ 0.62	
BioTime unaudited pro forma combined data			
Net income per share, basic and diluted	$ 0.05	$ 0.04	
Book value per share	$ 1.25	n/m	(1)
Asterias equivalent unaudited pro forma data[2]			
Net income per share, basic and diluted	$ 0.03	$ 0.03	
Book value per share	$ 0.89	n/m	(1)

(1) Pro forma book value per share as of December 31, 2017 is not meaningful as purchase accounting adjustments were calculated as of September 30, 2018.

(2) The Asterias pro forma equivalent per share amounts were calculated by multiplying the pro forma combined amounts by the Exchange Ratio of 0.71.

COMPARATIVE PER SHARE MARKET PRICE AND DIVIDEND INFORMATION

BioTime Common Shares are listed on NYSE American under the symbol “BTX,” and Asterias Common Stock is listed on NYSE American under the symbol “AST.” The following table sets forth the high and low reported closing sale prices per share of BioTime Common Shares and Asterias Common Stock for the calendar quarters indicated. As set forth below, neither BioTime nor Asterias declared any cash dividends on account of the BioTime Common Shares nor the Asterias Common Stock, respectively, for the calendar quarters indicated.

	BioTime Common Shares		**Asterias Common Stock**	
	High	**Low**	**High**	**Low**
2016				
First Quarter	$3.68	2.08	5.49	2.60
Second Quarter	$3.25	2.29	4.75	2.35
Third Quarter	$3.97	2.70	4.75	2.58
Fourth Quarter	$3.89	2.89	5.65	3.00
2017				
First Quarter	$3.73	2.88	5.00	3.07
Second Quarter	$3.44	2.94	4.30	2.83
Third Quarter	$3.15	2.51	3.75	2.95
Fourth Quarter	$2.84	2.15	3.74	1.95
2018				
First Quarter	$3.10	2.29	2.55	1.45
Second Quarter	$2.64	2.03	1.85	1.25
Third Quarter	$2.79	2.06	1.80	1.30
Fourth Quarter	$2.29	0.86	1.32	0.56
2019				
First Quarter (though February 1, 2019)	$1.42	0.89	1.04	0.67

On November 28, 2018, BioTime distributed approximately 12.7 million AgeX shares owned by BioTime on a pro rata basis, to eligible BioTime shareholders. Eligible BioTime shareholders received one share of AgeX common stock for every 10 BioTime Common Shares held as of the record date of November 16, 2018.

The following table presents trading information for BioTime Common Shares and Asterias Common Stock on November 7, 2018, the last full trading day before the public announcement of the proposed acquisition of Asterias by BioTime, and February 1, 2019, the latest practicable trading day before the date of this joint proxy statement/prospectus.

	BioTime Common Shares			Asterias Common Stock		
	High	Low	Close	High	Low	Close
November 7, 2018	$2.14	$2.07	$2.1	$1.2	$1.05	$1.06
February 1, 2019	$1.46	$1.28	$1.33	$1.01	$0.91	$0.95

For illustrative purposes, the following table provides equivalent per share information for Asterias Common Stock on November 7, 2018, the last full trading day before the public announcement of the proposed acquisition of Asterias by BioTime, and February 1, 2019, the latest practicable trading day before the date of this joint proxy statement/prospectus. Equivalent per share amounts for Asterias Common Stock are calculated by multiplying per share information for BioTime Common Shares by the Exchange Ratio of 0.71, rounded to the nearest whole cent.

	BioTime Common Shares			Asterias Equivalent Common Stock		
	High	Low	Close	High	Low	Close
November 7, 2018	$1.52	$1.47	$1.49	$0.85	$0.75	$0.75
February 1, 2019	$1.04	$0.91	$0.94	$0.72	$0.65	$0.67

BioTime shareholders and Asterias stockholders are advised to obtain current market quotations for BioTime Common Shares and Asterias Common Stock. The market price of BioTime Common Shares and Asterias Common Stock will fluctuate between the date of this joint proxy statement/prospectus and the date of completion of the Merger. No assurance can be given concerning the market price of BioTime Common Shares or Asterias Common Stock before or after the effective time of the Merger. Changes in the market price of BioTime Common Shares prior to the completion of the Merger will affect the market value of the merger consideration that Asterias stockholders will receive upon completion of the Merger.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This joint proxy statement/prospectus and the documents incorporated by reference into this joint proxy statement/prospectus contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 with respect to the financial condition, results of operations, business strategies, operating efficiencies or synergies, revenue enhancements, competitive positions, growth opportunities, plans and objectives of the management of each of BioTime, Asterias and the Combined Company, the Merger and the markets for BioTime Common Shares and Asterias Common Stock and other matters. Statements in this joint proxy statement/prospectus and the documents incorporated by reference herein that are not historical facts are hereby identified as "forward-looking statements" for the purpose of the safe harbor provided by Section 21E of the Exchange Act, and Section 27A of the Securities Act. These forward-looking statements, including, without limitation, those relating to the future business prospects, revenues and income of BioTime and Asterias, wherever they occur in this joint proxy statement/prospectus or the documents incorporated by reference herein, are necessarily estimates reflecting the best judgment of the respective managements of BioTime and Asterias and involve a number of risks and uncertainties that could cause actual results to differ materially from those suggested by the forward-looking statements. These forward-looking statements should, therefore, be considered in light of various important factors, including those set forth in and incorporated by reference into this joint proxy statement/prospectus.

Words such as "estimate," "project," "plan," "intend," "expect," "anticipate," "believe," "would," "should," "could" and simila are intended to identify forward-looking statements. These forward-looking statements are found at various places throughout this joint proxy statement/prospectus, including in the section entitled "*Risk Factors*." Important factors that could cause actual results to differ materially from those indicated by such forward-looking statements include those set forth in BioTime's and Asterias' filings with the SEC, including their respective Annual Reports on Form 10-K for the fiscal year ended December 31, 2017 and Quarterly Reports on Form 10-Q for the fiscal quarter ended September 30, 2018, as well as, among others, risks and uncertainties relating to:

- the receipt of approval of both BioTime's and Asterias' stockholders;
- the possibility of regulatory challenges to the transactions contemplated by the Merger Agreement;
- the parties' ability to meet expectations regarding the timing, completion and accounting and tax treatments of the Merger;
- the possibility that the parties may be unable to achieve expected synergies and operating efficiencies in connection with the Merger within the expected time frames or at all and to successfully integrate Asterias' operations into those of BioTime;
- continued liquidity and sufficiency of capital, including capital necessary to consummate the proposed transaction;
- general economic and market conditions;

the integration of Asterias' operations into those of BioTime being more difficult, time-consuming or costly than expected;

operating costs and business disruption (including, without limitation, difficulties in maintaining relationships with employees, customers, clients or suppliers) being greater than expected following the transaction;

the difficulty of retaining certain key employees of Asterias;

BioTime's and Asterias' ability to adapt its services to changes in technology or the marketplace;

the outcome of litigation in which BioTime or Asterias is or may become involved;

pricing trends, including BioTime's and Asterias' ability to achieve economies of scale in manufacturing and capital costs;

BioTime's and Asterias' ability to implement their respective business strategies;

the success of new products released by BioTime and Asterias, if any;

the integration of new businesses BioTime may acquire or new business ventures BioTime may start;

changes to and the impact of the laws, rules and regulations (including tax and healthcare laws, rules and regulations) that apply to and regulate BioTime's and Asterias' operations; and

other developments in the markets in which Asterias and BioTime operate, as well as management's response to any of the aforementioned factors.

The parties undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise. In the event that a party does update any forward-looking statement, no inference should be made that the parties will make additional updates with respect to that statement, related matters or any other forward-looking statements.

RISK FACTORS

In addition to the other information contained in or incorporated by reference into this joint proxy statement/prospectus, including the matters addressed in the section entitled "Cautionary Statement Regarding Forward-Looking Statements," BioTime shareholders should carefully consider the following risks in deciding whether to vote for the approval of the BioTime proposals, and Asterias stockholders should carefully consider the following risk factors in deciding whether to vote for the Asterias proposals. In addition, shareholders of BioTime and stockholders of Asterias should read and consider the risks associated with each of the businesses of BioTime and Asterias because these risks will relate to the Combined Company. Certain of these risks can be found in BioTime's Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2018, which is incorporated by reference into this joint proxy statement/prospectus, and Asterias' Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2018, which is incorporated by reference into this joint proxy statement/prospectus. You should carefully read this entire joint proxy statement/prospectus and its Annexes and the other documents incorporated by reference into this joint proxy statement/prospectus. See the section entitled "Where You Can Find More Information."

Risks Related to the Merger

The Exchange Ratio is fixed and will not be adjusted in the event of any change in the stock prices of either BioTime or Asterias.

Upon closing of the Merger, each share of Asterias Common Stock will be converted into the right to receive 0.71 BioTime Common Shares with cash paid in lieu of fractional shares. This Exchange Ratio is fixed in the Merger Agreement and will not be adjusted for changes in the market price of either BioTime Common Shares or Asterias Common Stock. Because the Exchange Ratio is fixed, changes in the price of BioTime Common Shares prior to the Merger will affect the value of the merger consideration that Asterias stockholders will receive on the date of the Merger. In addition, BioTime will issue an amount of BioTime Common Shares in the Merger based on the number of shares of Asterias Common Stock outstanding as of the effective time of the Merger, and the amount of BioTime Common Shares issued in the Merger will not change based on the price of BioTime Common Shares or Asterias Common Stock as of the date of the Merger or their relative price, or any changes in their price or relative price prior to the Merger.

Stock price changes may result from a variety of factors (many of which are beyond our control), including the following:

- changes in our respective businesses, operations and prospects;

changes in market assessments of the business, operations, and prospects of either company;

investor behavior and strategies, including market assessments of the likelihood that the Merger will be completed;

interest rates, general market and economic conditions and other factors generally affecting the price of BioTime Common Shares and Asterias Common Stock; and

federal, state, and local legislation, governmental regulation, and legal developments in the jurisdictions in which Asterias and BioTime operate.

The price of BioTime Common Shares at the closing of the Merger may vary from its price on the date the Merger Agreement was executed, on the date of this joint proxy statement/prospectus, and/or on the dates of the special meetings of BioTime and Asterias. As a result, the market value represented by the Exchange Ratio will also vary. For example, based on the range of closing prices of BioTime Common Shares during the period from November 7, 2018, the last full trading day before BioTime's public announcement of its intent to acquire Asterias, through February 1, 2019, the latest practicable date before the date of this joint proxy statement/prospectus, the Exchange Ratio represented a market value ranging from a low of $0.61 to a high of $1.49 for each share of Asterias Common Stock.

The ability of BioTime and Asterias to complete the Merger is subject to a number of conditions. If the conditions to the Merger are not met, the Merger may not occur.

The Merger Agreement specifies certain conditions must be satisfied or waived to complete the Merger. BioTime cannot assure you that all of the conditions will be satisfied or waived. If the conditions are not satisfied or waived, the Merger may not occur or will be delayed, and BioTime may lose some or all of the intended benefits of the Merger.

Among other conditions, completion of the Merger is subject to the condition that (i) the BioTime Merger and Share Issuance Proposal be approved by the affirmative vote of the holders of a majority of the total votes of BioTime Common Shares cast in person or by proxy at the special meeting to approve the BioTime Share Issuance pursuant to the NYSE American Rules and (ii) the Asterias Merger Proposal be approved by the affirmative vote of the holders of a majority of the outstanding shares of Asterias Common Stock entitled to vote in person or by proxy at the special meeting pursuant to Delaware law. These and the other conditions to the completion of the Merger may not be fulfilled, and if this occurs, the Merger may not be completed. In addition, if the Merger is not completed by May 31, 2019, either BioTime or Asterias may choose not to proceed with the Merger, and the parties can mutually decide to terminate the Merger Agreement at any time prior to the consummation of the Merger, before or after shareholder approval. In addition, BioTime or Asterias may elect to terminate the Merger Agreement in certain other circumstances. See the sections entitled "*The Merger Agreement—Conditions to the Completion of the Merger*" and "*The Merger Agreement—Termination of the Merger Agreement*" for a fuller description of these circumstances.

Any delay in completing the Merger may reduce or eliminate the expected benefits from the transaction.

The Merger is subject to a number of conditions beyond BioTime's and Asterias' control that may prevent, delay or otherwise materially adversely affect its completion. BioTime and Asterias cannot predict whether and when these other conditions will be satisfied. There can be no assurance that either BioTime or Asterias or both parties will waive any condition to closing that is not satisfied. Furthermore, the requirements for obtaining the required approvals and the time required to satisfy any other conditions to the closing could delay the completion of the Merger for a significant period of time or prevent it from occurring. Any delay in completing the Merger could cause BioTime not to realize some or all of the benefits that it expects to achieve if the Merger is successfully completed within its expected timeframe. See the section entitled " *The Merger Agreement—Conditions to the Completion of the Merger*."

Failure to complete the Merger could negatively impact the stock prices and the future business and financial results of BioTime and Asterias.

If the Merger is not completed, the ongoing businesses of BioTime or Asterias may be adversely affected and BioTime and Asterias will be subject to several risks, including the following:

being required, under certain circumstances, to pay a termination fee of $2.0 million or, under specified circumstances, an expense reimbursement of $1.5 million (see the section entitled "*The Merger Agreement—Expenses and Termination Fees*");

having to pay certain costs relating to the proposed Merger, such as legal, accounting, financial advisor, filing, printing and mailing fees;

under the Merger Agreement, each of BioTime and Asterias being subject to certain restrictions on the conduct of its business until the earlier of the effective time of the Merger or termination of the Merger Agreement, which may adversely affect its ability to execute certain business strategies; and

directing the focus of management of each of the companies on the Merger instead of on pursuing other opportunities that may be beneficial to each company.

If the Merger does not occur, BioTime and Asterias may incur these costs without realizing any of the benefits of the Merger being completed. In addition, if the Merger is not completed, BioTime and/or Asterias may experience negative reactions from the financial markets and from their respective customers and employees. BioTime and/or Asterias could also be subject to litigation related to any failure to complete the Merger or to enforcement proceedings commenced against BioTime or Asterias to perform their respective obligations under the Merger Agreement. If the Merger is not completed, BioTime and Asterias cannot assure their respective shareholders that these risks will not materialize or will not materially affect the business, financial results and stock prices of Asterias or BioTime.

The Merger Agreement contains provisions that could discourage a potential competing acquiror or could result in any competing proposal being offered at a lower price than it might otherwise be.

The Merger Agreement contains "no shop" provisions that, after the expiration of the "go-shop" period, which concluded on December 3, 2018, with no parties qualifying as Excluded Parties, subject to limited exceptions, restrict Asterias' ability to solicit, encourage, facilitate or discuss competing third-party proposals to acquire all or a significant part of Asterias. In addition, BioTime generally has an opportunity to offer to modify the terms of the Merger and the Merger Agreement in response to any competing Acquisition Proposals that may be made before the Asterias Board may withdraw or modify its recommendation. In some circumstances, upon termination of the Merger Agreement, one of the parties may be required to pay a termination fee to the other party. For additional information, see the sections entitled "*The Merger Agreement—Asterias Go-Shop*", "*The Merger Agreement — No Solicitation of Alternative Proposals*," "*The Merger Agreement —Termination Rights in Response to a Superior Proposal; Changes in Board Recommendations* " and "*The Merger Agreement —Termination of the Merger Agreement*."

These provisions could discourage a potential competing acquiror from considering or proposing that acquisition, even if it were prepared to pay consideration with a higher per share cash or market value than that market value proposed to be received or realized in the Merger, or might result in a potential competing acquiror proposing to pay a lower price than it might otherwise have proposed to pay because of the added expense of the termination fee that may become payable in certain circumstances.

The Merger will involve substantial transaction and Merger-related transition costs in connection with the Merger.

BioTime and Asterias have incurred and expect to continue to incur substantial, non-recurring costs and expenses relating directly to the Merger and integrating the operations of Asterias, including fees and expenses payable to legal, accounting, financial advisors, other professional fees and expenses, insurance premium costs, SEC filing fees, printing and mailing costs and other transaction-related costs, fees and expenses. BioTime and Asterias may incur additional costs to maintain employee morale and the retain key employees. If the Merger is not completed, BioTime and Asterias will have incurred substantial expenses for which no ultimate benefit will have been received by either company.

The pendency of the Merger and related uncertainty could adversely affect the relationships of BioTime and Asterias with employees, collaboration partners, financing parties and other third parties.

Uncertainty about the effect of the Merger on employees, programs in development, collaboration partners and other third parties may have an adverse effect on Asterias and BioTime. These uncertainties may cause collaboration partners, financing parties and others that deal with Asterias or BioTime to seek to change, delay or defer decisions with respect to existing or future business relationships. Retention, hiring and motivation of certain current and prospective employees by Asterias or BioTime may be challenging while the Merger is pending, as they may experience uncertainty about their future roles with Asterias or BioTime due to the potential complexities of the Merger. If key employees, collaboration partners, financing parties and other third parties terminate or change, or seek to terminate or change, their existing relationships with Asterias or BioTime, Asterias' business or BioTime's business, and the Combined Company's business as a result, could be harmed.

The consummation of the Merger may permit counterparties to other agreements to terminate those agreements.

Asterias is party to certain agreements that give the counterparties to such agreements, including investors and commercial partners, certain rights, including notice, consent and other rights in connection with "change of control" transactions or otherwise, that may give rise to a default by Asterias under the agreements or a right by the counterparty to terminate the agreement. Under certain of these agreements, the Merger may constitute a "change of control" or otherwise give rise to consent or termination rights and, therefore, the counterparties may assert their rights in connection with the Merger and claim a default of the agreement by Asterias and/or terminate the agreements, which may adversely affect business and operations of BioTime and the value of BioTime Common Shares following the Merger.

The fairness opinions obtained by the BioTime Special Committee and the Asterias Special Committee from their respective financial advisors will not be updated to reflect changes in circumstances between signing the Merger Agreement and the completion of the Merger.

Neither the BioTime Special Committee nor the Asterias Special Committee has obtained an updated fairness opinion as of the date of this joint proxy statement/prospectus from Maxim, the BioTime Special Committee financial advisor, or Raymond James, the Asterias Special Committee's financial advisor. Changes in the operations and prospects of BioTime or Asterias, general market and economic conditions, and other factors that may be beyond the control of BioTime and Asterias and on which the fairness opinions were based, may alter the value of BioTime or Asterias or the price of BioTime Common Shares or Asterias Common Stock by the time the Merger is completed.

The fairness opinions do not speak as of the time the Merger will be completed or as of any date other than the dates of such opinions. Neither BioTime nor Asterias anticipates asking their respective financial advisors to update their fairness opinions. The fairness opinions of Maxim and Raymond James are included as **Annexes B** and **C**, respectively, to this joint proxy statement/prospectus. For a description of the fairness opinions that the BioTime Special Committee received from its financial advisor and a summary of the material financial analyses it provided to the BioTime Special Committee in connection with rendering such opinions, see the section entitled "*The Merger—Opinion of BioTime's Financial Advisor*." For a description of the opinion that the Asterias Special Committee received from its financial advisor and a summary of the material financial analyses such financial advisor provided to the Asterias Special Committee in connection with rendering such opinion, see the section entitled "*The Merger— Opinion of Asterias' Financial Advisor*."

For a description of the factors considered by the BioTime Special Committee in determining to approve the Merger and the BioTime Share Issuance, see the section entitled "*The Merger—BioTime's Reasons for the Merger and BioTime Share Issuance; Recommendation of the BioTime Special Committee and Board of Directors*." For a description of the factors considered by the Asterias Board in determining to approve the Merger Agreement and the Merger, see the section entitled "*The Merger—Asterias' Reasons for the Merger; Recommendation of the Asterias*

Special Committee and Board of Directors."

Certain directors and executive officers of BioTime and Asterias have interests in the Merger that may be different from, or in addition to, the interests of BioTime's shareholders and Asterias' stockholders generally.

Certain executive officers of BioTime and Asterias participated in the negotiation of the terms of the Merger Agreement. BioTime and Asterias each formed a Special Committee. The BioTime Board and the Asterias Board, upon the recommendation of each respective Special Committee, approved the Merger Agreement and determined that the Merger Agreement and the other transactions contemplated by the Merger Agreement are fair, advisable, and in the best interests of each company and its respective shareholders and stockholders. In considering these facts and the other information contained in this joint proxy statement/prospectus, you should be aware that certain of BioTime's directors and executive officers and certain of Asterias' directors and executive officers have interests in the Merger that may be different from, or in addition to, the interests of BioTime shareholders or Asterias stockholders. For example, some BioTime directors and executive officers own shares in Asterias and serve on the Asterias Board, and some Asterias directors own shares of BioTime and serve on the BioTime Board. See the sections entitled "*Stock Ownership of Certain Beneficial Owners and Management/Directors of BioTime*," "*The Merger—Interests of BioTime's Directors and Executive Officers in the Merger*," "*Stock Ownership of Certain Beneficial Owners and Management/Directors of Asterias*" and "*The Merger—Interests of Asterias' Directors and Executive Officers in the Merger*."

Asterias stockholders will not be entitled to dissenters' or appraisal rights in the Merger.

Dissenters' or appraisal rights are statutory rights that, if applicable under law, enable stockholders of a corporation to dissent from an extraordinary transaction, such as a merger, and to demand that such corporation pay the fair value for their shares as determined by a court in a judicial proceeding instead of receiving the consideration offered to stockholders in connection with the extraordinary transaction. Under the DGCL, stockholders do not have appraisal rights if the shares of stock they hold, at the record date for determination of stockholders entitled to vote at the meeting of stockholders to act upon the Merger or consolidation, are either (i) listed on a national securities exchange or (ii) held of record by more than 2,000 holders. Notwithstanding the foregoing, appraisal rights are available if stockholders are required by the terms of the Merger Agreement to accept for their shares anything other than (a) shares of stock of the surviving corporation, (b) shares of stock of another corporation that will either be listed on a national securities exchange or held of record by more than 2,000 holders, (c) cash instead of fractional shares or (d) any combination of clauses (a)-(c).

Because Asterias Common Stock is listed on NYSE American, a national securities exchange, and is expected to continue to be so listed on the record date, and because the Merger otherwise satisfies the foregoing requirements, holders of Asterias Common Stock will not be entitled to dissenters' or appraisal rights in the Merger with respect to their shares of Asterias Common Stock.

Until the completion of the Merger or the termination of the Merger Agreement in accordance with its terms, in consideration of the agreements made by the parties in the Merger Agreement, BioTime and Asterias are each prohibited from entering into certain transactions and taking certain actions that might otherwise be beneficial to BioTime or Asterias and their respective shareholders and stockholders.

Until the Merger is completed, the Merger Agreement restricts each of BioTime and Asterias from taking specified actions without the consent of the other party, and generally requires each of BioTime and Asterias to operate in the ordinary course of business consistent with past practices. Asterias is subject to a number of customary interim operating covenants relating to, among other things, its capital expenditures, incurrence of indebtedness, entry into or amendment of certain types of agreements, equity grants and changes in employee compensation. These restrictions may prevent BioTime and/or Asterias from making appropriate changes to their respective businesses or pursuing attractive business opportunities that may arise prior to the completion of the Merger. See the section entitled " *The Merger Agreement—Conduct of Business* " for a description of the restrictive covenants applicable to BioTime and Asterias, respectively.

The Merger may be completed even though material adverse changes may result from the announcement of the Merger, industry-wide changes and other causes.

In general, either BioTime or Asterias can refuse to complete the Merger if there is a material adverse change affecting the other party between November 7, 2018, the date of the Merger Agreement, and the effective time of the Merger. However, certain types of changes do not permit either party to refuse to complete the Merger, even if such change could be said to have a material adverse effect on BioTime or Asterias, including:

- conditions in the industries in which BioTime and Asterias operate;
- general economic conditions in the United States or any other country;
- conditions in the securities markets, credit markets, currency markets or other financial markets in the United States or any other country;
- political conditions in the United States or any other country or acts of war, sabotage or terrorism in the United States or any other country;

earthquakes, hurricanes, tsunamis, tornadoes, floods, mudslides, wild fires or other natural disasters, weather conditions and other force majeure events in the United States or any other country;

changes in law or other legal or regulatory conditions or changes in U.S. GAAP or other accounting standards;

changes in stock price or the trading volume of BioTime's or Asterias' stock, or any failure by BioTime or Asterias to meet any public estimates or expectations of Asterias' revenue, earnings or other financial performance or results of operations for any period, but not, in each case, the underlying cause of such changes or failures;

effects directly resulting from the announcement of the Merger Agreement or the pendency of the Merger, including any loss of employees of Asterias and/or BioTime; and

either Asterias or BioTime taking any action explicitly contemplated by the Merger Agreement (except certain actions taken in the ordinary course of Asterias' or BioTime's business).

If adverse changes occur and BioTime and Asterias still complete the Merger, the Combined Company stock price may suffer. This in turn may reduce the value of the Merger.

Risks Related to the Business of the Combined Company Following the Merger

BioTime is expected to incur substantial expenses related to the integration of BioTime and Asterias.

BioTime is expected to incur substantial expenses in connection with the integration of the business, policies, procedures, operations, technologies and systems of Asterias with those of BioTime. There are a large number of systems that must be integrated, including management information, purchasing, administrative, accounting and finance, sales, marketing, billing, payroll and benefits, installation, engineering, infrastructure and regulatory compliance, among others. While BioTime has assumed that a certain level of expenses would be incurred, there are a number of factors beyond its control that could affect the total amount or the timing of all of the expected integration expenses. Moreover, many of the expenses that will be incurred are, by their nature, difficult to estimate accurately at the present time. These integration expenses likely will result in BioTime taking significant charges against earnings following the completion of the Merger, but the amount and timing of such charges are uncertain at present, and if such charges are greater than expected, they could offset the cost synergies that BioTime expects to achieve from the Merger.

Following the Merger, the Combined Company may be unable to integrate successfully the businesses of BioTime and Asterias and realize the anticipated benefits of the Merger.

The Merger involves the combination of two companies which currently operate as independent public companies. Following the Merger, the Combined Company will be required to devote significant management attention and resources to integrating its business practices and operations. The Combined Company may fail to realize some or all of the anticipated benefits of the Merger if the integration process takes longer than expected or is more costly than expected. Potential difficulties the Combined Company may encounter in the integration process include the following:

- the inability to successfully combine the businesses of BioTime and Asterias in a manner that permits the Combined Company to achieve the synergies anticipated to result from the Merger, which would result in the anticipated benefits of the Merger not being realized partly or wholly in the time frame currently anticipated or at all;

- lost sales and customers as a result of certain customers of either of the two companies deciding not to do business with the Combined Company;

- complexities associated with managing the combined businesses;

- integrating personnel from the two companies;

- creation of uniform standards, controls, procedures, policies and information systems;

potential unknown liabilities and unforeseen increased expenses, delays or regulatory conditions associated with the Merger; and

performance shortfalls at one or both of the two companies as a result of the diversion of management's attention caused by completing the Merger and integrating the companies' operations.

In addition, BioTime and Asterias have operated and, until the completion of the Merger, will continue to operate, independently. It is possible that the integration process could result in the diversion of each company's management's attention, the disruption or interruption of, or the loss of momentum in, each company's ongoing businesses or inconsistencies in standards, controls, procedures and policies, any of which could adversely affect our ability to maintain relationships with collaboration partners and employees or our ability to achieve the anticipated benefits of the Merger, or could reduce the earnings or otherwise adversely affect the business and financial results of the Combined Company.

The availability of cells will impact the time and cost of commencing our research and product development programs.

The cells, cell lines and other biological materials that have been acquired by Asterias are being stored under cryopreservation protocols intended to preserve their functionality. Asterias successfully completed the verification of the viability of the lots of AST-OPC1 (as defined below) cells that Asterias has been using in its current SCiStar Phase 1/2a study. However, Asterias does not currently have sufficient amounts of AST-OPC1 cells to complete a large randomized control trial or for future commercial activities. Asterias is developing additional cell banks and modifying its process to generate sufficient amounts of AST-OPC1 cells for use in future trials. These process development activities may increase the costs of the Combined Company's product development for AST-OPC1 and the ability to complete these activities will impact the ability to move forward the overall AST-OPC1 program.

The manufacturing of cells for our clinical programs is difficult and costly.

The Combined Company may need to rely upon third parties to produce AST-OPC1 cells for future studies and commercialization. Asterias is currently relying on CRUK (as defined below) to manufacture AST-VAC2 for its upcoming Phase 1 study in the UK. If the Merger is completed, the Combined Company will not be able to give any assurance that the Combined Company or any third-party manufacturers used by the Combined Company will be able to develop the manufacturing capabilities necessary to supply adequate amounts of product to support the Combined Company's future clinical trials or commercialization. Moreover, the Combined Company will not be able to give any assurance that it or the contract manufacturers or suppliers that the Combined Company selects will be able to supply the Combined Company's products in a timely or cost-effective manner or in accordance with applicable regulatory requirements, the Combined Company's specifications, or the Combined Company's clinical development timelines. The failure of the Combined Company or any of our third-party manufactures or suppliers to comply with regulatory requirements could result in material manufacturing delays and product shortages, which could delay or otherwise

negatively impact the Combined Company's clinical trials and product development plans.

The market price of BioTime Common Shares may decline in the future as a result of the Merger.

The market price of BioTime Common Shares may decline in the future as a result of the Merger for a number of reasons, including if the integration of BioTime and Asterias is unsuccessful (including for the reasons set forth in the preceding risk factor) or if BioTime fails to achieve the perceived benefits of the Merger, including financial results, as rapidly as or to the extent anticipated by financial or industry analysts. These factors are, to some extent, beyond the control of BioTime.

Activities undertaken during the pendency of the Merger to complete the Merger and the other transactions contemplated by the Merger Agreement may divert management attention and resources.

If the efforts and actions required of BioTime and Asterias in order to consummate the Merger and the other transactions contemplated by the Merger Agreement are more difficult, costly or time consuming than expected, such efforts and actions could result in the diversion of each company's management's attention and resources or the disruption or interruption of, or the loss of momentum in, each company's ongoing businesses, which could adversely affect the business and financial results of BioTime or Asterias, as applicable.

BioTime's and Asterias' operations require substantial ongoing capital, and if financing is not available to the Combined Company on acceptable terms, the Combined Company may need to raise additional capital by issuing securities or debt through licensing arrangements, which may cause dilution to the Combined Company's shareholders or restrict the Combined Company's operations or proprietary rights.

BioTime's and Asterias' respective businesses are capital intensive. Following the Merger, the Combined Company is expected to incur significant costs on an ongoing basis to continue its operations, develop and manufacture its current or future products, and to pay any significant unplanned or accelerated expenses or for new significant strategic investments. For example, the Combined Company may need or seek to raise capital from third-party fund investors and lenders Additional financing may not be available to the Combined Company when it needs it, or may not be available on favorable terms. To the extent that the Combined Company raises additional capital by issuing equity securities, such an issuance may cause significant dilution to the Combined Company's shareholders' ownership and the terms of any new equity securities may have preferences over the Combined Company's common stock. Any debt financing the Combined Company enters into may involve covenants that restrict its operations. These restrictive covenants may include limitations on additional borrowing and specific restrictions on the use of the Combined Company's assets, as well as prohibitions on its ability to create liens, pay dividends, redeem its stock or make investments. In addition, if the Combined Company raises additional funds through licensing arrangements, it may be necessary to grant licenses on terms that are not favorable to the Combined Company.

BioTime may also need or want to raise additional financing for working capital, capital expenditures, acquisitions or other general corporate purposes in connection with the Merger. BioTime's ability to raise capital from third-party fund investors and lenders to fund its operations and growth, or to refinance its existing indebtedness, will depend on, among other factors, BioTime's financial position and performance, as well as prevailing market conditions and other factors beyond BioTime's control, such as any decisions by credit ratings agencies with respect to credit ratings that they may maintain with respect to BioTime. Any concerns regarding BioTime's business and liquidity, uncertainty regarding the timing and completion of the Merger and the capital structure of Asterias and BioTime following the Merger and general market conditions could negatively impact BioTime's ability to access the capital markets or to raise funds on acceptable terms, or at all.

Current BioTime and Asterias shareholders will have a reduced ownership and voting interest in the Combined Company after the Merger and will exercise less influence over the Combined Company's management.

Current BioTime shareholders currently have the right to vote in the election of the BioTime Board and other matters affecting BioTime. Current Asterias stockholders currently have the right to vote in the election of the Asterias Board and on other matters affecting Asterias. Immediately after the Merger is completed, it is expected that current BioTime shareholders will own approximately 84% of the BioTime Common Shares and current Asterias stockholders will own approximately 16% of the outstanding BioTime Common Shares after the completion of the Merger, based on the number of shares of common stock outstanding of BioTime and Asterias as of January 28, 2019 the record date for the special meetings.

As a result of the Merger, current BioTime and Asterias shareholders will have less influence on the Combined Company's management and policies than they now have on the management and policies of BioTime and Asterias, respectively.

Future equity issuances could result in dilution of the BioTime Common Shares, which could cause the price of BioTime Common Shares to decline, and future sales of BioTime Common Shares could depress the market price of BioTime Common Shares.

BioTime may from time to time in the future issue additional common shares, including to finance the business of the Combined Company following the Merger. Such future issuances may be at prices that are below the prevailing or historical market price of BioTime Common Shares. Actual or anticipated issuances or sales of substantial amounts of BioTime Common Shares could cause the market price of BioTime Common Shares to decline and make it more difficult for BioTime to sell equity securities in the future at a time and on terms that BioTime deems appropriate. The issuance of any BioTime Common Shares in the future (including after the date of this joint proxy statement/prospectus or the date of the BioTime or Asterias Special Meetings and prior to the completion of the Merger) also would dilute the percentage ownership interest held by shareholders prior to such issuance and would reduce the percentage ownership that Asterias stockholders would have owned in BioTime upon completion of the Merger, and any such dilution may reduce the value of the consideration that Asterias stockholders will receive in the Merger. Further, BioTime's ability to complete any future capital raise, including any offering of BioTime Common Shares, on commercially reasonable terms is dependent on market conditions and factors which may be beyond BioTime's control, including actual or anticipated fluctuations in BioTime's operating results, changes in earnings estimated by securities analysts or BioTime's ability to meet those estimates, the operating performance and stock price of comparable companies, changes to the regulatory and legal environment under which BioTime operates, and domestic and worldwide economic conditions.

The unaudited pro forma condensed combined financial data for BioTime included in this joint proxy statement/prospectus is preliminary, and BioTime's actual financial position and operations after the Merger may differ materially from the unaudited pro forma financial data included in this joint proxy statement/prospectus.

The unaudited pro forma financial data for BioTime included in this joint proxy statement/prospectus is presented for illustrative purposes only and is not necessarily indicative of what BioTime's actual financial position or operations would have been had the Merger been completed within the expected time frame. BioTime's actual results and financial position after the Merger may differ materially and adversely from the unaudited pro forma financial data included in this joint proxy statement/prospectus. The unaudited pro forma condensed combined financial information reflects adjustments, which are based upon preliminary estimates, to record the Asterias identifiable assets acquired and liabilities assumed at fair value and the resulting goodwill. The purchase price allocation reflected in this document is preliminary, and final allocation of the purchase price will be based upon the actual purchase price and the fair value of the assets and liabilities of Asterias as of the date of the completion of the Merger. Further, the Combined Company expects to recognize a significant amount of acquired in-process research and development assets and goodwill in the Merger. The acquired in-process research and development assets and goodwill will be subject to annual impairment assessments, or more frequently if circumstances indicate potential impairment, and a material charge may be necessary if the results of operations and cash flows are unable to support those assets and goodwill subsequent to the Merger. For more information see the section entitled "*Unaudited Pro Forma Condensed Combined Financial Information*."

The prospective financial forecasts relating to BioTime and Asterias (including the Forecasts used by Maxim and the Projections Used By Raymond James (each as defined below)) included in this joint proxy statement/prospectus (the "Transaction Projections") reflect estimates made by management of BioTime and Asterias, and BioTime's and Asterias' actual performance may differ materially from such prospective financial forecasts.

The Transaction Projections are based on assumptions of, and information available to, BioTime and Asterias at the time such prospective financial forecasts were prepared. Neither BioTime nor Asterias know whether the assumptions made will prove correct. Any or all of such information may turn out to be wrong. Such information can be adversely affected by inaccurate assumptions or by known or unknown risks and uncertainties, many of which are beyond BioTime's and Asterias' control. Further, prospective financial forecasts of this type are based on estimates and assumptions that are inherently subject to factors such as company performance, industry performance, general business, economic, regulatory, market and financial conditions, as well as changes to the business, financial condition or results of operations of BioTime and Asterias, including the factors described in the sections entitled "*Other Risk Factors of BioTime and Asterias*" and "*Cautionary Statement Regarding Forward-Looking Statements*," which factors and changes may cause the Transaction Projections or the underlying assumptions to be inaccurate. As a result of these contingencies, there can be no assurance that the Transaction Projections will be realized or that actual results will not be significantly higher or lower than projected. In view of these uncertainties, the inclusion of the Transaction Projections in this joint proxy statement/prospectus should not be regarded as an indication that the BioTime Board, the Asterias Board, BioTime, Asterias, Merger Sub, Maxim, Raymond James or any other recipient of this information considered, or now considers, it to be an assurance of the achievement of future results.

The Transaction Projections were not prepared with a view toward public disclosure or toward compliance with U.S. GAAP, published guidelines of the SEC or the guidelines established by the American Institute of Certified Public Accountants for preparation and presentation of prospective financial information.

In addition, the Transaction Projections have not been updated or revised to reflect information or results after the date the Transaction Projections were prepared or as of the date of this joint proxy statement/prospectus. For more information see the section entitled "*The Merger—Certain BioTime and Asterias Unaudited Prospective Financial Information*."

The Combined Company's future results will suffer if it does not effectively manage its expanded operations following the Merger.

Following the Merger, the size and scope of operations of the business of the Combined Company will increase beyond the current size and scope of operations of either BioTime's or Asterias' current businesses. In addition, BioTime may continue to expand its size and operations through additional acquisitions or other strategic transactions. BioTime's future success depends, in part, upon its ability to manage its expanded business, which may pose substantial challenges for management, including challenges related to the management and monitoring of new operations and associated increased costs and complexity. There can be no assurances that the BioTime will be successful or that it will realize the expected economies of scale, synergies and other benefits currently anticipated from the Merger or anticipated from any additional acquisitions or strategic transactions.

The trading price of BioTime Common Shares is likely to continue to be volatile.

The trading price of BioTime Common Shares has been highly volatile and could continue to be subject to wide fluctuations in response to various factors, some of which are beyond BioTime's control. BioTime Common Shares has experienced an intra-day trading high of $2.89 per share and a low of $0.86 per share over the last 52 weeks. The stock market in general, and the market for biotechnology companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors may seriously affect the market price of companies' stock, including BioTime's, regardless of actual operating performance. In addition, in the past, following periods of volatility in the overall market and the market price of a particular company's securities, securities class action litigation has often been instituted against these companies.

BioTime's stock price may be negatively impacted by risks and conditions that apply to BioTime, which are different from the risks and conditions applicable to Asterias.

Upon completion of the Merger, Asterias stockholders will become holders of BioTime Common Shares. The businesses and markets of BioTime and its subsidiaries and the other companies it may acquire in the future are different from those of Asterias. There is a risk that various factors, conditions and developments that would not affect the price of Asterias Common Stock could negatively affect the price of BioTime Common Shares. Please see BioTime's Annual Report on Form 10-K for the fiscal year ended December 31, 2017, as updated by any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K filed with the SEC, all of which are incorporated by reference in this joint proxy statement/prospectus, and the section entitled "*Cautionary Statement Regarding Forward-Looking Statements*" for a summary of some of the key factors that might affect BioTime and the prices at which BioTime Common Shares may trade from time to time.

The BioTime Common Shares to be received by Asterias stockholders as a result of the Merger will have different rights from the shares of Asterias Common Stock currently held by Asterias stockholders.

Upon completion of the Merger, Asterias stockholders will become BioTime shareholders and their rights as shareholders will be governed by BioTime's Charter and BioTime's Bylaws. The rights associated with BioTime Common Shares are different from the rights associated with Asterias Common Stock. See the section entitled "*Comparison of the Rights of Holders of BioTime Common Shares and Holders of Asterias Common Stock*" for a discussion of the different rights associated with BioTime Common Shares.

The Merger may not be accretive and may cause dilution to BioTime's earnings per share, which may negatively affect the market price of BioTime Common Shares.

BioTime currently anticipates that the Merger will be accretive to earnings per share in 2018, excluding one-time costs. This expectation, however, is based on preliminary estimates which may materially change, including the currently expected timing of the Merger. BioTime could also encounter additional transaction-related costs or other factors such as a delay in the closing of the Merger and/or the failure to realize all of the benefits anticipated in the Merger. All of these factors could cause dilution to BioTime's earnings per share or decrease or delay the expected accretive effect of the Merger and cause a decrease in the market price of BioTime Common Shares.

Our ability to use our net operating loss carryforwards ("NOLs") may be limited.

Under the provisions of the Code, changes in our ownership, in certain circumstances, will limit the amount of U.S. federal NOLs that can be utilized annually in the future to offset taxable income. In particular, Section 382 of the Code imposes limitations on a company's ability to use NOLs upon certain changes in such ownership. Calculations pursuant to Section 382 of the Code can be very complicated and no assurance can be given that upon further analysis, our ability to take advantage of our NOLs may be limited to a greater extent than we currently anticipate. If we are limited in our ability to use our NOLs in future years in which we have taxable income, we will pay more taxes than if we were able to utilize our NOLs fully. We may experience ownership changes in the future as a result of subsequent shifts in our stock ownership that we cannot predict or control that could result in further limitations being placed on our ability to utilize our federal NOLs.

Other Risk Factors of BioTime and Asterias

BioTime's and Asterias' businesses are and will be subject to the risks described above. In addition, BioTime and Asterias are, and will continue to be, subject to the risks described in BioTime's Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and Asterias' Annual Report on Form 10-K for the fiscal year ended December 31, 2017, respectively, as, in each case, updated by any subsequent Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, all of which are filed with the SEC and are incorporated by reference into this joint proxy statement/prospectus. See the section entitled " *Where You Can Find More Information* " for the location of information incorporated by reference in this joint proxy statement/prospectus.

THE BIOTIME SPECIAL MEETING OF SHAREHOLDERS

Date, Time and Place of the BioTime Special Meeting of Shareholders

The special meeting of BioTime shareholders will be held at BioTime, Inc, 1010 Atlantic Avenue, Suite 102, Alameda, CA 94501, on March 7, 2019 at 9:30 a.m., local time.

Purpose of the BioTime Special Meeting of Shareholders

At the BioTime Special Meeting, BioTime shareholders will be asked:

- to consider and vote on the BioTime Share Issuance Proposal; and
- to consider and vote on the BioTime Adjournment Proposal.

Recommendation of the BioTime Board of Directors

On November 7, 2018, the BioTime Special Committee consisting of three independent and disinterested members of the BioTime Board unanimously determined that the Merger Agreement and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders and recommended to the BioTime Board that it approve and declare fair to, advisable and in the best interests of BioTime shareholders, the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance. After careful consideration, the BioTime Board (by unanimous vote of the disinterested members of the BioTime Board, with Neal C. Bradsher, Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) approved the Merger Agreement and the BioTime Share Issuance and determined that the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders.

Accordingly, the BioTime Board, acting upon the unanimous recommendation of the BioTime Special Committee, recommends that the shareholders of Asterias vote “FOR” each of the BioTime Share Issuance Proposal and the BioTime Adjournment Proposal.

BioTime Record Date; Shareholders Entitled to Vote

Only holders of record of BioTime Common Shares at the close of business on January 28, 2019, the record date for the BioTime Special Meeting, will be entitled to notice of, and to vote at, the BioTime Special Meeting or any adjournments or postponements thereof. A list of shareholders of record entitled to vote at the special meeting will be available beginning two business days after notice of the special meeting is given, and continuing through the special meeting, at BioTime's executive offices and principal place of business at 1010 Atlantic Avenue, Suite 102, Alameda, CA 94501 for inspection by shareholders during ordinary business hours for any purpose germane to the BioTime Special Meeting. The list will also be available at the BioTime Special Meeting for examination by any shareholder of record present at the BioTime Special Meeting.

As of the close of business on the record date, there were outstanding a total of 127,178,926 BioTime Common Shares outstanding, of which 124,203,851 BioTime Common Shares are entitled to vote at the BioTime Special Meeting. As of the close of business on the record date, approximately 31.6% of the outstanding BioTime Common Shares were held by BioTime directors and executive officers and their affiliates. We currently expect that BioTime's directors and executive officers will vote their shares in favor of the above-listed proposals, though they are under no obligation to do so.

Quorum

Shareholders who hold at least a majority of the outstanding BioTime Common Shares as of the close of business on the record date and who are entitled to vote must be present or represented by proxy in order to constitute a quorum for the transaction of business at the BioTime Special Meeting. BioTime Common Shares represented at the BioTime Special Meeting and entitled to vote but not voted, including shares for which a shareholder directs an "abstention" from voting and broker non-votes (shares held by banks, brokerage firms or nominees that are present in person or by proxy at the BioTime Special Meeting but with respect to which the broker or other stockholder of record is not instructed by the beneficial owner of such shares how to vote on a particular proposal and the broker does not have discretionary voting power on such proposal), if any, will be counted as present for purposes of establishing a quorum. BioTime Common Shares held in treasury will not be included in the calculation of the number of BioTime Common Shares represented at the meeting for purposes of determining whether a quorum is present.

Required Vote

Approval of the BioTime Share Issuance Proposal requires the affirmative vote of the holders of a majority of the total votes of BioTime Common Shares cast in person or by proxy at the special meeting to approve the BioTime Share Issuance pursuant to NYSE American Rules. Approval of the BioTime Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal pursuant to BioTime's Bylaws.

Abstentions and Broker Non-Votes

If you are a BioTime shareholder and fail to vote or fail to instruct your broker or nominee to vote, or vote to abstain from voting, it will have no effect on the Merger and BioTime Share Issuance Proposal, assuming a quorum is present. If you are a BioTime shareholder and fail to vote or fail to instruct your broker or nominee to vote, it will have no effect on the BioTime Adjournment Proposal, assuming a quorum is present; however, if you vote to abstain, it will have the same effect as a vote against the BioTime Adjournment Proposal.

Voting on Proxies; Incomplete Proxies

A proxy card is enclosed for your use. BioTime requests that you follow the instructions contained on the proxy card and vote via the Internet, by telephone, or mark, sign and date the accompanying proxy and return it promptly in the enclosed postage-paid envelope. When the accompanying proxy is returned properly executed, the BioTime Common Shares represented by it will be voted at the BioTime Special Meeting or any adjournment thereof in accordance with the instructions contained in the proxy.

If a proxy is returned without an indication as to how the BioTime Common Shares represented are to be voted with regard to a particular proposal, the BioTime Common Shares represented by the proxy will be voted in favor of each such proposal. At the date hereof, management has no knowledge of any business that will be presented for consideration at the special meeting and which would be required to be set forth in this joint proxy statement/prospectus or the related BioTime proxy card other than the matters set forth in BioTime's Notice of Special Meeting of Shareholders. If any other matter is properly presented at the BioTime Special Meeting for consideration, it is intended that the persons named in the enclosed form of proxy and acting thereunder will vote in accordance with their best judgment on such matter.

Your vote is important. Accordingly, please vote today following the instructions contained on the enclosed proxy card whether or not you plan to attend the BioTime Special Meeting in person.

Shares Held in “Street Name”

If you hold your shares in a stock brokerage account or if your shares are held by a bank or nominee (that is, in “street name”), your broker, bank, trust company or other nominee cannot vote your shares on “non-routine” matters without instructions from you. You should instruct your broker, bank, trust company or other nominee as to how to vote your shares, following the directions from your broker, bank, trust company or other nominee provided to you. Please check the voting form used by your broker, bank, trust company or other nominee. If you do not provide your broker, bank, trust company or other nominee with instructions on how to vote your shares, your broker, bank, trust company or other nominee may not vote your shares, which will have no effect on the BioTime Share Issuance Proposal and the BioTime Adjournment Proposal, in each case, assuming a quorum is present.

Please note that you may not vote shares held in street name by returning a proxy card directly to BioTime or Asterias or by voting in person at your special meeting unless you provide a "legal proxy," which you must obtain from your broker, bank, trust company or other nominee.

Revocability of Proxies and Changes to a BioTime shareholder's Vote

You have the power to revoke your proxy at any time before your proxy is voted at the BioTime Special Meeting. You can revoke your proxy in one of three ways:

- you can send a signed notice of revocation;
- you can grant a new, valid proxy bearing a later date (including by telephone or through the Internet); or
- if you are a holder of record, you can attend the BioTime Special Meeting and vote in person, which will automatically cancel any proxy previously given, or you can revoke your proxy in person, but your attendance alone will not revoke any proxy that you have previously given.

If you choose either of the first two methods, your notice of revocation or your new proxy must be received by BioTime's Corporate Secretary at 1010 Atlantic Avenue, Suite 102, Alameda, CA 94501, no later than the beginning of the BioTime Special Meeting. If your shares are held in "street name" by your bank or broker, you should contact your broker to change your vote or revoke your proxy.

Solicitation of Proxies

In accordance with the Merger Agreement, the cost of proxy solicitation for the BioTime Special Meeting will be borne by BioTime. In addition to the use of the mail, proxies may be solicited by officers and directors and regular employees of BioTime, some of whom may be considered participants in the solicitation, without additional remuneration, by personal interview, telephone, facsimile or otherwise. BioTime will also request brokerage firms, nominees, custodians and fiduciaries to forward proxy materials to the beneficial owners of shares held of record on the record date and will provide customary reimbursement to such firms for the cost of forwarding these materials. BioTime is not engaging a proxy solicitor and will distribute proxy solicitation materials to brokers, banks and other nominees and will solicit proxies from BioTime shareholders directly.

Attending the BioTime Special Meeting of Shareholders

If you plan to attend the BioTime Special Meeting and wish to vote in person, you will be given a ballot at the special meeting. Please note, however, that if your shares are held in “street name,” and you wish to vote at the special meeting, you must bring to the special meeting a “legal proxy” executed in your favor from the record holder (your broker, bank, trust company or other nominee) of the shares authorizing you to vote at the BioTime Special Meeting.

In addition, if you are a registered shareholder, please be prepared to provide proper identification, such as a driver’s license or passport. If you hold your shares in “street name,” you will need to provide proof of ownership, such as a recent account statement or letter from your broker, bank, trust company or other nominee proving ownership on the BioTime record date, along with proper identification. BioTime shareholders will not be allowed to use cameras, recording devices and other similar electronic devices at the meeting.

Assistance

If you need assistance in completing your proxy card or have questions regarding the BioTime Special Meeting, please contact BioTime Investor Relations by phone at 510-871-4188 or by mail at BioTime, Inc., 1010 Atlantic Avenue, Suite 102, Alameda, California 94501.

THE ASTERIAS SPECIAL MEETING OF STOCKHOLDERS

Date, Time and Place of the Asterias Special Meeting of Stockholders

The special meeting of Asterias stockholders will be held at 6300 Dumbarton Circle, Fremont, CA 94555, on March 7, 2019 at 8:00 a.m., local time.

Purpose of the Asterias Special Meeting of Stockholders

At the Asterias Special Meeting, Asterias stockholders will be asked:

- to consider and vote on the Asterias Merger Proposal; and
- to consider and vote on the Asterias Adjournment Proposal.

Recommendation of the Asterias Board and the Asterias Special Committee

The Asterias Special Committee unanimously determined that the terms and conditions of the Merger Agreement, the Merger and the other transactions contemplated thereby are fair to, advisable and in the best interests of the stockholders of Asterias and recommended to the Asterias Board that it approve and declare fair to, advisable and in the best interests of the stockholders of Asterias, the Merger Agreement and the Merger and the other transactions contemplated thereby.

At a duly convened meeting of the Asterias Board to consider the unanimous recommendation of the Asterias Special Committee, the Asterias Board (by unanimous vote of the disinterested members of the Asterias Board, with Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) based in part on the unanimous recommendation of the Asterias Special Committee (i) determined that the Merger Agreement, the Merger and the other transactions contemplated by the Merger Agreement are fair to, advisable and in the best interests of Asterias and its stockholders, (ii) approved the form, terms, provisions and conditions of the Merger Agreement and the consummation of the Merger and the other transactions contemplated by the Merger Agreement, and (iii) resolved to recommend that Asterias' stockholders vote for the adoption of the Merger Agreement.

Accordingly, the Asterias Board, acting upon the unanimous recommendation of the Asterias Special Committee, recommends that the stockholders of Asterias vote "FOR" each of the Asterias Merger Proposal and the Asterias Adjournment Proposal.

Asterias Record Date; Stockholders Entitled to Vote

Only holders of record of shares of Asterias Common Stock at the close of business on January 28, 2019, the record date for the Asterias Special Meeting, will be entitled to notice of, and to vote at, the Asterias Special Meeting and at any adjournment of the meeting. A list of stockholders of record of Asterias entitled to vote at the special meeting will be available for ten days before the Asterias Special Meeting at Asterias' executive offices and principal place of business at 6300 Dumbarton Circle, Fremont, California 94555 for inspection by stockholders during ordinary business hours for any purpose relating to the Asterias Special Meeting. The list will also be available at the Asterias Special Meeting for examination by any stockholder of record present at the Asterias Special Meeting.

As of the close of business on the record date, there were outstanding a total of 55,947,804 shares of Asterias Common Stock entitled to vote at the Asterias Special Meeting. As of the close of business on the record date, approximately 39% of the outstanding shares of Asterias Common Stock were held by BioTime. Under the Merger Agreement, BioTime is obligated to vote their shares at the Asterias Special Meeting.

Quorum

A quorum is necessary to transact business at the Asterias Special Meeting. The presence, in person or by proxy, of a majority of all issued and outstanding shares of Asterias Common Stock entitled to vote at the Asterias Special Meeting will constitute a quorum. Shares of Asterias Common Stock represented at the Asterias Special Meeting but not voted, including shares for which a stockholder directs an "abstention" from voting, will be counted as present for purposes of establishing a quorum. Similarly, broker non-votes (shares held by banks, brokerage firms or nominees that are present in person or by proxy at the Asterias Special Meeting but with respect to which the broker or other stockholder of record is not instructed by the beneficial owner of such shares how to vote on a particular proposal and the broker does not have discretionary voting power on such proposal) will be counted as present for purposes of establishing a quorum. Shares of Asterias Common Stock held in treasury will not be included in the calculation of the number of shares of Asterias Common Stock represented at the meeting for purposes of determining whether a quorum is present.

Required Vote

The votes required for each proposal are as follows:

Asterias Merger Proposal: Approval of the Asterias Merger Proposal requires the affirmative vote of holders of a majority of the outstanding shares of Asterias Common Stock entitled to vote in person or by proxy at the Asterias Special Meeting pursuant to Delaware law.

Asterias Adjournment Proposal: Approval of the Asterias Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal pursuant to Asterias' Amended and Restated Bylaws, as amended.

The Asterias Board recommends that Asterias stockholders vote "FOR" the Asterias Merger Proposal and the Asterias Adjournment Proposal, and your properly signed and dated proxy will be so voted unless you specify otherwise.

As of the close of business on the record date, approximately 39% of the outstanding shares of Asterias Common Stock were held by BioTime. Under the Merger Agreement, BioTime is obligated to vote their shares at the Asterias Special Meeting. For more information relating to BioTime's obligation to vote its shares of Asterias Common Stock, see the section entitled "*The Merger Agreement–Voting of Shares of Asterias Common Stock Owned by BioTime*."

Abstentions and Broker Non-Votes

If you are an Asterias stockholder and fail to vote, fail to instruct your broker or nominee to vote, or vote to abstain, it will have the same effect as a vote against the Asterias Merger Proposal pursuant to Delaware law, which requires that the Asterias Merger Proposal must be approved by a majority of the issued and outstanding shares of Asterias Common Stock entitled to vote in person or by proxy at the Asterias Special Meeting. If you are an Asterias stockholder and fail to vote or fail to instruct your broker or nominee to vote, it will have no effect on the Asterias Adjournment Proposal, assuming a quorum is present. If you are an Asterias stockholder and you mark your proxy or voting instructions to abstain, it will have the effect of a vote against the Asterias Adjournment Proposal.

Voting in Person

If you plan to attend the Asterias Special Meeting and wish to vote in person, you will be given a ballot at the Asterias Special Meeting. Please note, however, that if your shares are held in “street name,” and you wish to vote at the Asterias Special Meeting, you must bring to the Asterias Special Meeting a “legal proxy” executed in your favor from the record holder (your broker, bank, trust company or other nominee) of the shares authorizing you to vote at the Asterias Special Meeting.

In addition, if you are a registered stockholder, please be prepared to provide proper identification, such as a driver’s license or passport. If you hold your shares in “street name,” you will need to provide proof of ownership, such as a recent account statement or letter from your broker, bank, trust company or other nominee proving ownership on the Asterias record date, along with proper identification. Stockholders will not be allowed to use cameras, recording devices and other similar electronic devices at the meeting.

Voting of Proxies; Incomplete Proxies

A proxy card is enclosed for your use. Asterias requests that you mark, sign and date the accompanying proxy and return it promptly in the enclosed postage-paid envelope. When the accompanying proxy is returned properly executed, the shares of Asterias Common Stock represented by it will be voted at the Asterias Special Meeting or any adjournment thereof in accordance with the instructions contained in the proxy.

If a proxy is returned without an indication as to how the shares of Asterias Common Stock represented are to be voted with regard to a particular proposal, the Asterias Common Stock represented by the proxy will be voted in favor of each such proposal. At the date hereof, management has no knowledge of any business that will be presented for consideration at the Asterias Special Meeting and which would be required to be set forth in this joint proxy statement/prospectus or the related Asterias proxy card other than the matters set forth in Asterias' Notice of the Special Meeting of Stockholders. If any other matter is properly presented at the Asterias Special Meeting for consideration, it is intended that the persons named in the enclosed form of proxy and acting thereunder will vote in accordance with their best judgment on such matter.

Your vote is important. Accordingly, please mark, sign, date and return the enclosed proxy card whether or not you plan to attend the Asterias Special Meeting in person.

Shares Held in "Street Name"

If you hold your shares in a stock brokerage account or if your shares are held by a bank or nominee (that is, in "street name"), you must provide the record holder of your shares with instructions on how to vote your shares if you wish them to be counted. Please follow the voting instructions provided by your bank or broker. Please note that you may not vote shares held in street name by returning a proxy card directly to Asterias or by voting in person at the Asterias Special Meeting unless you provide a "legal proxy," which you must obtain from your bank or broker. Further, brokers who hold shares of Asterias Common Stock on behalf of their customers may not give a proxy to Asterias to vote those shares without specific instructions from their customers.

If you are an Asterias stockholder and you do not instruct your broker on how to vote your shares, your broker may not vote your shares, which will have the same effect as a vote against the Asterias Merger Proposal. If you are an Asterias stockholder and do not instruct your broker on how to vote your shares, it will have no effect on the Asterias Adjournment Proposal, assuming a quorum is present.

Revocability of Proxies

You have the power to revoke your proxy at any time before your proxy is voted at the Asterias Special Meeting. You can revoke your proxy in one of three ways:

- you can send a signed notice of revocation;
- you can grant a new, valid proxy bearing a later date (including by telephone or through the Internet); or
- if you are a holder of record, you can attend the Asterias Special Meeting and vote in person, which will automatically cancel any proxy previously given, or you can revoke your proxy in person, but your attendance alone will not revoke any proxy that you have previously given.

If you choose either of the first two methods, your notice of revocation or your new proxy must be received by Asterias' Corporate Secretary at Asterias Biotherapeutics, Inc. 6300 Dumbarton Circle, Fremont, California, 94555 no later than the beginning of the Asterias Special Meeting. If your shares are held in "street name" by your bank or broker, you should contact your broker to change your vote or revoke your proxy.

Solicitation of Proxies

In accordance with the Merger Agreement, the cost of proxy solicitation for the Asterias Special Meeting will be borne by Asterias. In addition to the use of the mail, proxies may be solicited by officers and directors and regular employees of Asterias, some of whom may be considered participants in the solicitation, without additional remuneration, by personal interview, telephone, facsimile or otherwise. Asterias will also request brokerage firms, nominees, custodians and fiduciaries to forward proxy materials to the beneficial owners of shares held of record on the record date and will provide customary reimbursement to such firms for the cost of forwarding these materials. Asterias has retained Advantage Proxy to assist in its solicitation of proxies and has agreed to pay them a fee of up to $10,000, plus reasonable expenses, for these services.

Adjournments

If a quorum is not present or represented, the stockholders entitled to vote at the Asterias Special Meeting, present in person or represented by proxy, shall have the power to adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum is present or represented. If a quorum is present at the Asterias Special Meeting but there are not sufficient votes at the time of the Asterias Special Meeting to approve the Asterias Merger Proposal, then Asterias stockholders may be asked to vote on the Asterias Adjournment Proposal. No notices of an adjourned meeting need be given unless the adjournment is for more than 30 days or, if after the adjournment, a new record date is fixed for the adjourned meeting, in which case a notice of the adjourned meeting will be given to each stockholder of record entitled to vote at the meeting. At any subsequent reconvening of the Asterias Special Meeting at which a quorum is present, any business may be transacted that might have been transacted at the original meeting and all proxies will be voted in the same manner as they would have been voted at the original convening of the Asterias Special Meeting, except for any proxies that have been effectively revoked or withdrawn prior to the time the proxy is voted at the reconvened meeting.

Assistance

If you need assistance in completing your proxy card or have questions regarding the Asterias Special Meeting, please contact Advantage Proxy, Asterias' proxy advisor:

Advantage Proxy, Inc.

P.O. Box 13581

Des Moines, WA 98198

Toll Free Telephone: 877-870-8565

Main Telephone: 206-870-8565

INFORMATION ABOUT THE COMPANIES

BioTime, Inc.

BioTime, Inc.

1010 Atlantic Avenue, Suite 102

Alameda, CA 94501

Phone: (510) 521-3390

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

BioTime's common shares are listed on NYSE American under the symbol "BTX."

Additional information about BioTime and its subsidiaries is included in the documents incorporated by reference in this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*."

Asterias Biotherapeutics, Inc.

Asterias Biotherapeutics, Inc.

6300 Dumbarton Circle

Fremont, California 94555

Phone: (510) 456-3800

Asterias is a clinical-stage biotechnology company dedicated to developing pluripotent stem cell-derived therapies to treat neurological conditions associated with demyelination and cellular immunotherapies to treat cancer. Asterias has industry-leading technology in two cell types, each with broad potential applicability: (1) oligodendrocyte progenitor cells, which become oligodendrocytes that have the potential to remyelinate axons within the central nervous system and perform other restorative functions, and (2) antigen-presenting dendritic cells, which train T-cells in the immune system to attack and destroy solid or liquid tumor cells across multiple types of cancer. Asterias currently has three clinical-stage therapeutic programs, focusing on spinal cord injury, non-small cell lung cancer and acute myeloid leukemia.

Asterias Common Stock is listed on the NYSE American under the symbol “AST.”

Additional information about Asterias is included in documents incorporated by reference in this joint proxy statement/prospectus. See the section entitled “*Where You Can Find More Information*.”

Merger Sub

Patrick Merger Sub, Inc.

1010 Atlantic Avenue, Suite 102

Alameda, CA 94501

Phone: (510) 521-3390

Patrick Merger Sub, Inc., a wholly owned subsidiary of BioTime, is a Delaware corporation that was formed on November 5, 2018 for the purpose of effecting the Merger. Upon completion of the Merger, Merger Sub will be merged with and into Asterias, with Asterias surviving as a wholly owned subsidiary of BioTime. Merger Sub has not conducted any activities other than those incidental to its formation and the matters contemplated by the Merger Agreement in connection with the Merger.

THE MERGER

*This discussion of the Merger is qualified in its entirety by reference to the Merger Agreement, which is attached to this joint proxy statement/prospectus as **Annex A** and is incorporated by reference into this joint proxy statement/prospectus. This summary does not purport to be complete and may not contain all of the information about the Merger that is important to you. You should read the entire Merger Agreement carefully as it is the legal document that governs the Merger. This section is not intended to provide you with any factual information about BioTime or Asterias. Such information can be found elsewhere in this joint proxy statement/prospectus and in the public filings BioTime or Asterias make with the SEC that are incorporated by reference into this joint proxy statement/prospectus, as described in the section entitled "Where You Can Find More Information."*

Structure of the Merger

At the effective time of the Merger, Merger Sub, a wholly owned subsidiary of BioTime formed to effect the Merger, will merge with and into Asterias. Asterias will be the surviving corporation in the Merger and will thereby become a wholly owned subsidiary of BioTime.

Merger Consideration

In the Merger, each outstanding share of Asterias Common Stock (other than shares owned by Asterias, BioTime or Merger Sub, which will be cancelled) will be converted into the right to receive 0.71 BioTime Common Shares, with cash paid in lieu of fractional shares. This Exchange Ratio is fixed and will not be adjusted to reflect stock price changes prior to closing of the Merger. BioTime shareholders will continue to hold their existing BioTime shares.

Background of the Merger

As part of the continuous evaluation of Asterias' clinical and pre-clinical programs and financing needs, the Asterias Board and senior management regularly considered a variety of potential strategic options and transactions, all in a continued effort to enhance stockholder value. Over the past several years, the Asterias Board considered potential strategic alternatives, financings and partnership opportunities presented or potentially available to Asterias, as well as the opportunities and risks associated with Asterias continuing to operate as an independent company.

At several times during the second half of 2017 and first half of 2018, Michael Mulroy, the Chief Executive Officer of Asterias (and also a member of the BioTime Board), and Aditya Mohanty, the Co-Chief Executive Officer of BioTime at the time, informally discussed topics related to the industry, financial markets, or their respective businesses, including the possibility of a potential transaction between the two companies. During this same time period, Asterias also had business development discussions with several foreign global companies regarding its OPC1and VAC programs; however none of these discussions resulted in any third party submitting a proposal with respect to any collaboration or acquisition proposal.

During the second and third fiscal quarters of 2017, Asterias explored opportunities to conduct a capital raise in light of recent positive events associated with its business, including encouraging preliminary data from Asterias' Phase 1/2a study of OPC1 in severe spinal cord injury and the commencement by Cancer Research UK of a Phase 1 clinical trial of Asterias' VAC2 product candidate in non-small cell lung cancer. Notwithstanding these positive business events, Asterias experienced difficulty in raising its desired amount of capital on acceptable terms through an underwritten public offering. On October 18, 2017, Asterias instead closed a registered direct offering to sell 4,000,000 shares of Asterias Common Stock for gross proceeds of approximately $10.4 million. In light of Asterias' reduced ability to raise funds to operate its business, on November 2, 2017, Asterias reduced its staffing allocated to non-clinical activities to reduce its operating expenses while still continuing to generate clinical data in its clinical stage programs. The reduction in staffing affected approximately thirty employees or one-half of Asterias' workforce. The staffing reduction successfully reduced Asterias' annual cash burn but made it more difficult for Asterias to make progress with respect to certain non-clinical activities. The market price and trading volume of Asterias Common Stock gradually declined during 2018 and as a result, Asterias was unable to raise the same level of funds through its at-the-market sales agreement in 2018 as it did in 2017.

In January 2018, Asterias met with Company A, a global pharmaceutical company at the JP Morgan investor conference, where it expressed interest in potentially pursuing some form of collaboration involving Asterias' spinal cord injury program. Discussions with Company A ensued over the next few months but did not mature to the point where Company A submitted a proposal. Asterias and Company A originally entered into a Mutual Confidentiality and Non-Disclosure Agreement in October 2017 and entered into an amended and restated Mutual Confidentiality and Non-Disclosure Agreement in February 2018 to discuss the potential collaboration. These agreements did not include any standstill or don't ask/don't waive conditions. In March 2018, Company A informed Asterias that it would not be submitting an offer to collaborate with Asterias on the development of the clinical program.

In March 2018, after Company A declined to submit a proposal, Asterias held a regularly-scheduled meeting of its Board of Directors. At this meeting, the Asterias Board discussed potential strategic alternatives as well as key milestones for Asterias as an independent company.

The BioTime Board regularly evaluates the strategic direction and ongoing business plans of BioTime with a view toward strengthening its business as a leader in cell therapy and enhancing shareholder value. As part of this evaluation, the BioTime Board has from time to time considered a variety of strategic alternatives, including, among others, (1) the continuation of their current business plan; (2) potential expansion opportunities into new product lines, and acquisitions and combinations with other businesses; and (3) investment in and development of new products. Following the notice from Company A and in light of BioTime Board's concerns over the performance of Asterias and its difficulty securing financing at attractive rate as well as the potential synergies of the two companies the BioTime Board discussed at its regularly scheduled meeting in March 2018 the possibility of a strategic transaction with Asterias. The BioTime Board instructed management to explore the options and provide feedback to the BioTime Board. The BioTime Board continued to discuss a potential strategic transaction with Asterias at its meetings and received feedback and recommendations from management with respect to the various considerations applicable to such potential transaction.

On April 5, 2018, during a meeting between Mr. Mohanty and Mr. Mulroy, Mr. Mulroy inquired whether BioTime would be willing to make an offer to acquire Asterias. Mr. Mohanty responded that the matter is being considered and he would provide updates when relevant.

On May 14, 2018, Mr. Mohanty informed Mr. Mulroy that BioTime is considering a strategic transaction with Asterias and may submit a letter expressing BioTime's interest in discussing a potential transaction with Asterias.

On May 29, 2018, at the BioTime regularly scheduled meeting, the BioTime Board discussed a potential strategic transaction with Asterias and considered alternatives with respect thereto, with Mr. Mulroy recusing himself for that portion of the meeting. The BioTime Board received a report from management and discussed all relevant considerations, following which the BioTime Board determined to continue to consider a strategic transaction with Asterias. The BioTime Board also approved the creation of the BioTime Special Committee, composed of Deborah

Andrews, Stephen Farrell, and Angus Russell, each determined by the BioTime Board to be an independent board member and disinterested with respect to the potential Asterias transaction, to consider a potential strategic transaction with Asterias and any strategic alternatives thereto. The BioTime Special Committee was delegated exclusive authority to (1) take action with respect to a strategic transaction with Asterias and any alternatives thereto and any evaluation or negotiation thereof, (2) engage independent legal and financial advisors on terms determined by the BioTime Special Committee, (3) make a recommendation to the BioTime Board with respect to any proposed transaction with Asterias or alternatives thereto and (4) evaluate, review and consider other potential strategic alternatives that may be relevant to BioTime. The BioTime Board further instructed management to send a letter of intent to Asterias to indicate BioTime's willingness to consider a strategic transaction and to start the discussion.

Later on May 29, 2018 Messrs. Mohanty and Mulroy had a conversation, during which Mr. Mohanty conveyed to Mr. Mulroy that BioTime may be willing to explore a potential transaction and may submit a letter of intent to that effect.

On May 31, 2018, Mr. Mulroy and Mr. Chavez had a discussion with its counsel at Dentons US LLP ("**Dentons**") about the news that BioTime may submit a letter of intent to Asterias and the proper process for a transaction of this type.

On June 6, 2018, Asterias received a letter from BioTime indicating its desire to discuss a potential strategic transaction with Asterias. In the letter, BioTime stated that it believed that combining its portfolio of cellular and related technologies, assets and expertise would provide a solid foundation to further the development of Asterias' therapeutics programs, and would be in the best interests of both BioTime's shareholders and Asterias' stockholders.

On June 7, 2018, Messrs. Mulroy and Mohanty had a conversation regarding the process and next steps that would have to be taken if the parties were to pursue a strategic transaction.

On June 11, 2018, Mr. Mohanty and Mr. Don Bailey, in Mr. Bailey's capacity as an independent and disinterested member of the Asterias Board, held a telephonic conversation to discuss the BioTime letter. Mr. Bailey acknowledged receipt of the letter and informed Mr. Mohanty that the Asterias Board would discuss the letter at its next meeting. Mr. Bailey requested that Mr. Mohanty consider tax and voting requirements in connection with such potential transaction.

At a regularly scheduled meeting on June 20, 2018, the Asterias Board considered and discussed BioTime's desire to discuss a potential strategic transaction with Asterias as stated in its June 6, 2018 letter. Mr. Mulroy and Ryan D. Chavez, Asterias' Chief Financial Officer and General Counsel, presented to the Asterias Board preliminary considerations and potential benefits and risks relating to a strategic transaction with BioTime. Following discussion, the Asterias Board determined to establish the Asterias Special Committee to evaluate and negotiate such a potential strategic transaction and other strategic alternatives, including remaining as a stand alone company. The Asterias Board decided to form the Asterias Special Committee because the Asterias Board consisted of members that are also on the BioTime Board, such as Messers Mulroy and Kingsley, and as at June 20, Mr. Mohanty, and also because establishing the Asterias Special Committee would be efficient. The Asterias Board approved the creation of a the Asterias Special Committee consisting of Messrs. Don Bailey, Steve Cartt, Andy Arno and Natale Ricciardi, each determined by the Asterias Board to be an independent board member and disinterested with respect to BioTime's proposal, to consider the proposal from BioTime and strategic alternative transactions. The Asterias Special Committee was delegated exclusive authority to (1) take action with respect to the BioTime proposal and any alternative transactions with any other parties and any evaluation or negotiation thereof, (2) engage independent legal and financial advisors on terms determined by the Asterias Special Committee, (3) contact third parties regarding the possibility of exploring an alternative transaction, (4) make a recommendation to the Asterias Board with respect to any proposed transaction with BioTime or other third parties and (5) evaluate, review and consider other potential strategic alternatives that may be available to Asterias. The Special Committee was authorized to consider recommending to the Asterias Board that Asterias remain a stand-alone company. The Asterias Board resolved not to recommend or approve any proposed transaction from BioTime or any other third party without the prior favorable recommendation of the Asterias Special Committee. At the Asterias Board meeting, representatives from Dentons gave the Asterias Board a presentation on the fiduciary duties of directors and officers under Delaware law.

Immediately following the June 20, 2018 meeting of the Asterias Board, the newly established Asterias Special Committee held its first meeting. The Asterias Special Committee authorized (i) management of Asterias to initiate discussions with BioTime to facilitate due diligence between Asterias and BioTime, (ii) Dentons to act as counsel for Asterias in connection with the potential transaction after confirming that Dentons had no substantial relationship with

BioTime, and (iii) management to identify a financial advisor to advise the Asterias Special Committee with respect to a potential transaction and to potentially make a recommendation to the Asterias Special Committee.

On June 21, 2018, at a regularly scheduled meeting of the BioTime Board, BioTime's management reviewed for the BioTime various strategic options and led the BioTime Board in discussion regarding BioTime's strategy and options. During the discussion with respect to a potential transaction with Asterias, Mr. Mulroy departed the meeting in light of his relationship with Asterias. As part of this discussion, the BioTime Board discussed the synergies of the combined entities if the transaction were to occur, including reduction of spending on G&A and use of BioTime's effective manufacturing capacity to advance Asterias products. The BioTime Board then instructed management to continue working with the BioTime Special Committee to assess a potential transaction with Asterias and provide a recommendation.

On June 22, 2018, Asterias was removed as a member of the Russell 2000 index. Asterias management felt that removal from the Russell 2000 index would further reduce Asterias' ability to raise capital on acceptable terms.

On June 25, 2018, Asterias and BioTime executed a Mutual Confidentiality and Nondisclosure Agreement to govern the diligence efforts of the parties. Such agreement did not include standstill or "don't ask/don't waive" provision.

On June 28, 2018, management from Asterias and BioTime held a meeting to discuss the key clinical programs of both companies and to initiate early diligence discussions.

On July 3, 2018, Mr. Mohanty called Mr. Mulroy to check on the Asterias Board's view as to a potential transaction. Mr. Mulroy responded that Asterias is following a process to assess the offer and will get to BioTime when ready.

Also on July 3, 2018, Asterias granted BioTime and its representatives access to an electronic data room with preliminary due diligence information regarding Asterias. Between June 28, 2018 and November 4, 2018, representatives of BioTime's and Asterias' respective management teams participated in numerous due diligence sessions on BioTime's and Asterias' respective businesses, legal, financial, intellectual property and regulatory matters.

On July 6, 2018, the Asterias Special Committee held a meeting. Messrs. Mulroy and Chavez presented the Asterias Special Committee with a summary of the due diligence conducted by Asterias and BioTime. Messrs. Mulroy and Chavez also presented to the Asterias Special Committee Raymond James' capabilities to act as financial advisor for the Asterias Special Committee in connection with its review of strategic alternatives. Messrs. Mulroy and Chavez disclosed to the Asterias Special Committee that Raymond James had acted as lead underwriter on two prior financings for BioTime in February 2017 and October 2017 and the amount of fees that BioTime paid to Raymond James for its participation in these financings was approximately $2,932,500. They also discussed how Raymond James stated it did not have any current engagement with BioTime, and Raymond James would agree to act only as financial advisor for the Asterias Special Committee in connection with its review of strategic alternatives. Members of Raymond James, including Stu Barich, then joined the meeting and presented to the Asterias Special Committee. Following this presentation, the members of Raymond James left the meeting and discussion by the Asterias Special Committee ensued. Following discussion, the Asterias Special Committee determined that Raymond James past engagements with BioTime would not present an actual or potential conflict of interest with respect to Raymond James engagement as the Asterias Special Committee's financial advisor and authorized Asterias management to engage Raymond James as financial advisor for the Asterias Special Committee for the proposed transaction under the terms set forth in an engagement letter previously reviewed by the Asterias Special Committee.

On July 9, 2018, the BioTime Board held a meeting with representatives of Cooley LLP ("**Cooley**"), legal counsel to BioTime and the BioTime Special Committee, present. Representatives of Cooley reviewed with the BioTime Board certain legal matters, including the BioTime Board's fiduciary duties in relation to a potential acquisition of Asterias or another similar company.

On July 11, 2018, Mr. Bailey called Mr. Mohanty and informed him that Asterias is engaging in a process to assess the BioTime offer and that diligence can occur at the same time. Mr. Bailey also mentioned that both parties need to consider and assess what are the tax implications of such proposed transaction as well as the necessary voting requirements.

On July 26, 2018, a meeting of the BioTime Special Committee was held. During the meeting management presented to the BioTime Special Committee the results of its analysis of a potential transaction with Asterias. The BioTime Special Committee discussed various considerations with respect to an acquisition of the shares of Asterias common stock not held by BioTime, including the reduction in general and administrative costs, the potential of becoming a leading cell therapy company with two additional cell therapy products, the benefit of using BioTime's current manufacturing expertise to advance Asterias' products, and other benefits of a potential combination. The BioTime Special Committee also discussed other alternatives and opportunities available to BioTime in the cell therapy space that BioTime had considered. The BioTime Committee expressed the view that an acquisition of the remaining shares of Asterias can be more beneficial to the BioTime shareholders than such alternatives and therefore instructed management to continue exploring a potential transaction.

On August 17, 2018, the Asterias Special Committee held a meeting, and invited Mr. Mulroy and Mr. Chavez to provide a summary of discussions that Asterias management had with BioTime management as it relates to operational considerations with respect to a potential transaction between the two companies. The Asterias Special Committee then directed Asterias management to conduct further discussions with BioTime management on the timing of BioTime's offer.

On September 12, 2018, the BioTime Special Committee held a meeting to discuss the potential transaction with Asterias. During the meeting representatives of BioTime's management provided a comprehensive presentation regarding the benefits and disadvantages of acquiring the remaining shares of Asterias, including, the following advantages: additional clinical-stage assets would add optionality and spread portfolio risk, the combined company's portfolio of assets can strengthen market position as a leader in cellular therapy development, Asterias' assets compliments BioTime's lines, the acquisition can allow BioTime to bolster its pipeline, both companies can enjoy the synergies of the assets, capabilities and needs, reposition BioTime for the future and help deliver on the corporate goals of simplification and clinical progress. The presentation also highlighted the risks associated with Asterias' product lines.

On September 17, 2018, BioTime announced that Brain Culley will serve as the new Chief Executive Officer of BioTime. Prior to such announcement Mr. Mohanty told Mr. Mulroy that the new appointment will not impact the process for the transaction and that BioTime is still in the process of evaluating a transaction with Asterias.

On October 4, 2018, the BioTime Special Committee held a meeting to discuss the potential acquisition and the considerations and benefits of such transaction. At the meeting the BioTime Special Committee instructed management to continue exploring and negotiating a transaction with Asterias on the terms provided by the BioTime Special Committee. The BioTime Special Committee further instructed management to provide Asterias a term sheet to indicate Bio Time's willingness to negotiate a deal.

On October 5, 2018, BioTime provided a preliminary non-binding term sheet to Don Bailey, in Mr. Bailey's capacity as a member of the Asterias Special Committee, to express BioTime's desire to discuss a merger transaction with Asterias. In the non-binding term sheet, BioTime proposed to acquire all of Asterias' issued and outstanding shares of Common Stock, subject to the completion of due diligence, at an exchange ratio of 0.52 BioTime Common Shares for each share of Asterias Common Stock, which, given the current trading prices of BioTime and Asterias common stock, offered no premium to the Asterias stockholders. In the non-binding term sheet, BioTime expressed their desire to execute a merger agreement prior to November 12, 2018.

On October 7, 2018, the Asterias Special Committee held a meeting, with Messrs. Mulroy and Chavez and representatives of Dentons and Raymond James in attendance. Representatives from Dentons addressed the Asterias Special Committee and summarized steps and actions that the Asterias Special Committee should consider and potentially take in connection with the receipt of the preliminary non-binding term sheet from BioTime. Representatives from Dentons also summarized for the Asterias Special Committee the fiduciary duties of directors and officers owed to stockholders under Delaware law. The Asterias Special Committee discussed the process for considering the BioTime proposal while exploring other alternatives available to Asterias, including continuing on a stand-alone basis and the potential financing options, the potential benefits of a business combination transaction with BioTime, the risk that BioTime could retract its offer and the impact on stockholder value if Asterias were subsequently required to raise equity. The Asterias Special Committee further discussed customary provisions that are typically negotiated in a transaction of this nature, but were not included in BioTime's term sheet, such as a "majority-of-the-minority" condition, a price "collar" and a "go-shop" provision. The Asterias Board also discussed the need

to seek a more favorable exchange ratio for Asterias stockholders, which included a premium to the current Asterias stock price. At the meeting, Asterias management also identified a number of additional potential strategic counterparties for a business combination transaction with Asterias. The Asterias Special Committee decided to direct Mr. Bailey to contact Angus Russell, Chairman of the Business Strategy Committee of the BioTime Board, to obtain further information about, and discuss the terms of the proposed transaction.

On October 10, 2018, the Asterias Board held a regularly scheduled meeting. In addition to the members of the Asterias Board, representatives from Dentons and Raymond James were also in attendance for certain portions of the meeting. Mr. Mulroy gave a presentation on the status of Asterias' neurology and immunotherapy programs, from both a clinical and a contract manufacturing perspective. Mr. Mulroy also gave the Asterias Board an update on Asterias' financial position. Mr. Mulroy advised the Asterias Board that, among other things, Asterias' auditors may issue a going concern opinion in March 2019 unless additional funding is secured, or there is a significant reduction in operational activities that could have a long-term impact on Asterias. Mr. Mulroy also expressed that the same challenges that negatively impacted Asterias' prior financing discussions remain present. These challenges include sub-optimal financing terms and non-fundamental investors. Following a lunch break, representatives from Raymond James gave a presentation on the overall equity market environment and Asterias' ability to raise additional capital as an independent company. Thereafter, the Special Committee updated the Asterias Board on the progress of the negotiations thus far.

Following the regularly scheduled Asterias Board meeting, the Asterias Special Committee met to continue their discussion from the meeting on October 7, 2018. At this meeting, the Asterias Special Committee agreed that Mr. Bailey would communicate to BioTime a counteroffer that included, among other things, a fixed exchange ratio of 0.78 BioTime Common Shares for every share of Asterias Common Stock, which would be a 30% premium for the Asterias stockholders, calculation of the stock price of the two companies based on a 30-day volume weighted average price, a 25-day "go-shop" provision, a 15% price collar, a provision providing for one or more Asterias Board members to serve on the BioTime Board following the business combination, and further clarity from BioTime on BioTime's plans for Asterias' employees following the proposed merger.

Later on October 10, 2018, Mr. Bailey called Mr. Russell and proposed a counteroffer of terms to the proposed transaction as described above. After the telephone call, the BioTime Special Committee met to discuss the counteroffer from Asterias.

On October 11, 2018, the BioTime Special Committee met again to continue its discussion regarding methodologies to price the acquisition and implications therefore. Following discussion the BioTime Special Committee authorized management to continue negotiations with Asterias based on guidelines provided by the BioTime Special Committee, including a 10% premium.

Later on October 11, 2018, Mr. Russell called Mr. Bailey to present the position of BioTime Special Committee on the proposed terms. BioTime agreed to a volume weighted average price formula, and an exchange ratio of 0.64 BioTime Common Shares for every share of Asterias Common Stock, which would be a 10% premium for the Asterias stockholders. In addition, BioTime proposed that Asterias conduct a "market check" prior to signing in light of the lack of exclusivity provision in lieu of the request to include a go-shop provision after signing. Mr. Russell also discussed BioTime's planned distribution of shares of its wholly-owned subsidiary, AgeX Therapeutics, Inc., ("**AgeX**") and that the distribution could impact the exchange ratio. Mr. Russell conveyed that BioTime was not prepared to agree to a price collar provision.

On October 14, 2018, the Asterias Special Committee held a meeting, with Messrs. Mulroy and Chavez and representatives of Dentons and Raymond James in attendance. The Asterias Special Committee discussed various points with respect to BioTime's revised terms. Thereafter, the Asterias Special Committee agreed that Mr. Bailey should discuss with Mr. Russell certain proposed revisions to terms proposed by Mr. Russell, which included that the valuation of each company's shares would be based on a 60-day volume weighted average price, an exchange ratio more favorable than the exchange ratio offered by BioTime, which would equate to a 24% premium for Asterias stockholders, inclusion of a 25-day "go-shop", and inclusion of a requirement for BioTime to agree to vote its Asterias' shares in favor of the transaction. At this time, the Asterias Special Committee agreed not to continue to pursue a price collar. The Asterias Special Committee felt that BioTime needed to provide more details on how the AgeX distribution would affect the calculation of the exchange ratio. In addition, the Asterias Special Committee asked Mr. Cartt to conduct a due diligence discussion with Mr. Mohanty, a former co-Chief Executive Officer of BioTime and a member of the Asterias Board, in order to obtain additional information relating to BioTime's clinical programs.

Later on October 14, 2018, Mr. Bailey called Mr. Russell to communicate the Asterias Special Committee's counterproposal. Mr. Russell responded that a 10% premium may be more appropriate and that BioTime would consider the counterproposal.

On October 14, 2018, Mr. Cartt had a telephone call with Mr. Mohanty and reported back to the Asterias Special Committee through electronic mail.

On October 16, 2018, Mr. Mulroy had a telephonic meeting with Mr. Culley to discuss process, diligence and cultural issues relating to the companies.

Further on October 16, 2018, the BioTime Special Committee met to discuss the counter offer from Asterias. The BioTime Special Committee directed Mr. Russell to continue negotiating the transaction with Asterias based on the guidelines provided by the BioTime Special Committee.

On October 17, 2018, Mr. Russell called Mr. Bailey to present the BioTime Special Committee's position with respect to the acquisition terms. BioTime had agreed to many of Asterias' requested terms, but BioTime's rejected Asterias' proposed offer for a 24% premium for Asterias stockholders. BioTime reiterated its offer of a 10% premium for Asterias stockholders.

On October 19, 2018, the Asterias Special Committee held a meeting, with Messrs. Mulroy and Chavez and representatives of Dentons and Raymond James in attendance. The Asterias Special Committee noted that BioTime and Asterias were in agreement with many of the major points, with the material exception of the exchange ratio. The Asterias Special Committee agreed that it would reduce its requested premium of 24%, but would stand firm in asking for an exchange ratio that was more advantageous than the exchange ratio offered by BioTime reflecting 10% premium. After a thorough discussion, the Asterias Special Committee agreed to propose to BioTime a 16.6% premium for Asterias stockholders. The Asterias Special Committee was hopeful that an agreement could eventually be reached, and therefore, instructed Dentons to communicate with Cooley so that the legal teams could start preparing the Merger Agreement.

Later on October 19, 2018, Mr. Bailey called Mr. Russell and communicated this revised offer of the Asterias Special Committee. Further, Mr. Bailey noted that the two parties had not concluded how the potential AgeX dividend might impact this offer. Mr. Bailey further requested that the process be more efficient and progress quicker.

From October 19, 2018 to the execution of the Merger Agreement, Dentons and Cooley worked together in preparing the Merger Agreement while members of the Asterias Special Committee and the BioTime Special Committee continued to negotiate and agree on open issues.

On October 21, 2018, the BioTime Special Committee met to discuss the potential Asterias acquisition. After receiving update on Asterias' counter proposal, the BioTime Special Committee discussed potential considerations in pricing and the acquisition and instructed Mr. Russell to continue negotiations with Asterias on the terms instructed by the BioTime Special Committee.

Later on October 21, 2018, Mr. Russell called Mr. Bailey to convey the proposed terms highlighted by the BioTime Special Committee. Mr. Russell offered a premium of 15%, as opposed to the 16.6% proposed by Asterias. Mr. Bailey communicated the offer to the other members of the Asterias Special Committee via email, and the members of the Asterias Special Committee expressed their views that they could potentially support a deal at a 15% premium. The

issue of AgeX's impact remained an open item.

On October 23, 2018, the BioTime Special Committee met to discuss the potential Asterias acquisition with representatives of Covington & Burling LLP ("**Covington**"), the BioTime Special Committee's additional independent counsel, present for a portion of the meeting. At the meeting, representatives of Covington reviewed for the BioTime Special Committee the fiduciary duties applicable to the members of the BioTime Board. Covington also led the BioTime Special Committee in discussion regarding the alternatives for structuring the transaction and various considerations.

Further on October 23, 2018, Mr. Russell and Mr. Bailey discussed methods for valuation of the AgeX shares and agreed to look into potential third party valuation expert to help in the process.

On October 31, 2018, Mr. Bailey received a call from Mr. Russell. Mr. Russell proposed that the period used to calculate the volume weighted average price for determining the exchange ratio be reduced from 60 days to 30 days.

On November 1, 2018, the BioTime Special Committee met with representatives of Cooley present. At the meeting the BioTime Special Committee received updates as to the negotiation of the transaction and discussed further the various pricing methodologies. The BioTime Special Committee then instructed Mr. Russell to continue negotiating the deal on the terms highlighted by the committee.

On November 2, 2018, Mr. Bailey and Mr. Mulroy met with Brian M. Culley, the recently appointed CEO of BioTime to discuss various issues related to the possible transaction.

Later on November 2, 2018, Mr. Russell called Mr. Bailey to convey that BioTime had not yet finalized a value of the AgeX dividend for purposes of calculating the exchange ratio, and therefore, that BioTime was prepared to offer to increase the premium from 15% to 30%, which would accommodate the value of the AgeX distribution and result in an exchange ratio of 0.71 BioTime Common Shares for each share of Asterias Common Stock, based on using the average of the 30-day and 60-day volume weighted average price of the Asterias Common Stock and the BioTime Common Shares. This proposal assumed that the AgeX shares would be distributed before the deal closes.

On November 4, 2018, the Asterias Special Committee held a meeting with, Messrs. Mulroy and Chavez and representatives of Dentons and Raymond James in attendance to discuss the draft Merger Agreement and the proposal from BioTime which included an offer of an exchange ratio of 0.71 BioTime Common Shares for each share of Asterias Common Stock. At this point, the Asterias Special Committee, after several rounds of negotiation during several weeks, determined that this was the best offer that BioTime would offer, and was proceed to a vote in the next meeting, especially since the proposal would give Asterias the benefit of a go-shop period. The Asterias Special Committee decided to reconvene on November 7, 2018 to vote whether or not to recommend that the Asterias Board approve the Merger Agreement.

On November 7, 2018, the Asterias Special Committee met, with Messrs. Mulroy and Chavez and representatives of Dentons and Raymond James also attending. Mr. Mulroy presented to the Asterias Special Committee an update on Asterias' clinical and preclinical programs and its financial condition. Mr. Mulroy's presentation also covered a summary of the material negotiations with BioTime, how the exchange ratio was derived, reasons for the transaction, risks of the proposed transaction, and a list of potential go-shop parties for the Asterias Special Committee to consider. Representatives from Dentons gave the Asterias Special Committee a summary of its fiduciary duties under Delaware law. Representatives of Dentons next provided an overview of the key terms of the draft Merger Agreement. The Asterias Special Committee discussed the terms of the Merger Agreement with its advisors. Representatives of Raymond James presented to the Asterias Special Committee an overview of the valuation analyses and other factors supporting Raymond James' oral fairness opinion to be delivered later in the meeting. The Asterias Special Committee discussed this analysis. After discussion, representatives of Raymond James delivered their oral opinion, which was subsequently confirmed by delivery of a written opinion to the Asterias Special Committee, dated November 7, 2018, that as of such date, the exchange ratio of 0.71 BioTime Common Shares per share of Asterias Common Stock was fair, from a financial point of view, to the holders of Asterias Common Stock, other than with respect to any shares of Asterias Common Stock held by BioTime, Asterias or their respective wholly-owned subsidiaries. Representatives of Dentons discussed with the Asterias Special Committee draft resolutions to be adopted by the Asterias Special Committee recommending that the Asterias Board approve the Merger Agreement. After discussion, including taking into consideration the fairness opinion provided by Raymond James, the Asterias Special Committee determined to recommend that the Asterias Board approve the Merger Agreement and submit the Merger Agreement to a vote of the Asterias stockholders.

Later on November 7, 2018, the Asterias Board held a special meeting, with representatives of Asterias' management, Dentons and Raymond James in attendance. Representatives from Dentons gave the Asterias Board a summary of its fiduciary duties under Delaware law. Dentons also presented to the Asterias Board a summary of the material terms of the Merger Agreement. Thereafter, representatives of Raymond James presented to the Asterias Board regarding the fairness opinion rendered to the Asterias Special Committee earlier in the day, and its view that the exchange ratio was fair, from a financial point of view, to the holders of Asterias Common Stock, other than with respect to any shares of Asterias Common Stock held by BioTime, Asterias or their respective wholly-owned subsidiaries. The Asterias Board discussed these matters with representatives of Raymond James and the other participants in the meeting. Following this discussion, and based in part on the unanimous recommendation of the Special Committee, the Asterias Board (other than Alfred D. Kingsley and Michael H. Mulroy, who recused themselves from the vote of the Asterias Board): (1) determined that the Merger Agreement, the Merger and the other transactions contemplated by the Merger Agreement were fair to, advisable and in the best interests of Asterias and its stockholders, (2) approved the form, terms, provisions and conditions of the Merger Agreement and the consummation of the Merger and the other transactions contemplated by the Merger Agreement, and (3) resolved to recommend that Asterias stockholders vote for the adoption of the Merger Agreement.

On November 7, 2018, the BioTime Special Committee met, with representatives of Cooley and Maxim also present. Mr. Russell presented to the BioTime Special Committee an update on the negotiations with Asterias, and the previously discussed reasons for the transaction. Representatives of Maxim presented to the BioTime Special Committee an overview of the valuation analysis conducted by Maxim and the methodologies used by Maxim. The Special Committee confirmed its authorization for the use of the projections of Asterias used by Maxim in its analysis. Questions were asked and discussion ensued following which, representatives of Maxim delivered their oral opinion, which was subsequently confirmed by delivery of a written opinion to the BioTime Special Committee, dated November 7, 2018, that as of such date, that the Exchange Ratio was fair, from a financial point of view, to BioTime and the stockholders of BioTime subject to the terms, conditions and limitations highlighted by Maxim. The representatives of Maxim then left the meeting. Representatives from Cooley then reminded the BioTime Special Committee of its fiduciary duties under applicable law as previously communicated to the special committee. Representatives of Cooley next provided an overview of the key terms of the draft Merger Agreement. The BioTime Special Committee then discussed the terms of the Merger Agreement. Representatives of Cooley next discussed with the BioTime Special Committee draft resolutions to be adopted by the BioTime Special Committee recommending that the BioTime Board approve the Merger Agreement and the issuance of the BioTime shares. After discussion, including taking into consideration the fairness opinion provided by Maxim, the Maxim Special Committee determined to recommend that the BioTime Board approve the Merger Agreement and the issuance of shares in the Merger and submit the issuance of the shares in the Merger to a vote of the BioTime shareholders.

Later on November 7, 2018, the BioTime Board held a special meeting, with representatives of Cooley and Maxim in attendance. Mr. Russell updated the BioTime Board of the BioTime Special Committee's meeting and the recommendation of the BioTime Special Committee. Representatives of Maxim then presented to the BioTime Board an overview of the valuation analysis conducted by Maxim and the methodologies used by Maxim and described the fairness opinion rendered to the BioTime Special Committee earlier in the day, and its view that the Exchange Ratio was fair, from a financial point of view, to BioTime and BioTime Shareholders based on the conditions, assumptions and terms described to the BioTime Board. The BioTime Board then asked questions and discussed these matters with representatives of Maxim and the other participants in the meeting. Following this discussion representatives of Maxim left the meeting and representatives of Cooley reminded the BioTime Board of its fiduciary duties as previously discussed with the BioTime Board. Representatives of Cooley also presented to the BioTime Board a summary of the material terms of the Merger Agreement. Thereafter, and based in part on the unanimous recommendation of the BioTime Special Committee, the BioTime Board (with the unanimous vote of the disinterested members of the BioTime Board): (1) determined that the Merger Agreement, the Merger, the issuance of the BioTime Common Shares and the other transactions contemplated by the Merger Agreement were fair to, advisable and in the best interests of BioTime and its shareholders, (2) approved the form, terms, provisions and conditions of the Merger Agreement and the consummation of the Merger and the other transactions contemplated by the Merger Agreement, and (3) resolved to recommend that BioTime shareholders vote for the approval of the issuance of the BioTime shares.

The Merger Agreement was executed by the parties on November 7, 2018.

On November 8, 2018, before the markets opened, BioTime and Asterias announced that they had entered into the Merger Agreement.

Prior to the entry into the Merger Agreement, Asterias, working with its financial advisors, compiled a list of twelve third parties to contact during the “go-shop” period, as permitted by the Merger Agreement, which was the list that Mr. Mulroy presented to the Special Committee on November 7, 2018. This list was comprised of potential third parties that the Asterias senior management believed may be interested in a potential strategic transaction with Asterias and were capable of submitting and consummating a competitive proposal. The list included three companies that had previously engaged in discussions with Asterias with respect to potential collaboration or license agreements, including Company A.

On November 11, 2018 and November 12, 2018, at the direction of Asterias, Raymond James contacted each of the twelve parties to determine if they were interested in engaging in discussions with respect to a potential strategic transaction with Asterias. On November 20, 2018, one of the twelve parties responded to Asterias and indicated that it was not be in a position to submit an alternative proposal at this time.

On November 27, 2018, Raymond James again reached out to nine of the eleven parties that had not responded to the initial outreach to see if they were interested in engaging in discussions with Asterias at this time. Asterias reached out directly to three of the eleven parties (with both Asterias and Raymond James reaching out to one party). Subsequent to November 27, 2018 two of the parties contacted Asterias to indicate that they are not in a position to submit an alternative proposal at this time.

On December 3, 2018, the "go-shop" period expired without any third party making an alternative proposal.

The above description chronology summarizes key events and contacts that led to the signing of the Merger Agreement. It does not purport to describe every conversation among the Asterias Special Committee, the BioTime Special Committee, members of the management of Asterias or BioTime or representatives of the Asterias Special Committee or BioTime Special Committee and other parties with respect to the Merger.

BioTime's Reasons for the Merger and BioTime Share Issuance; Recommendation of the BioTime Board of Directors

On November 7, 2018, the BioTime Board, with Messrs. Bradsher, Kingsley and Mulroy recusing themselves, (1) determined that the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance, are fair to, advisable and in the best interests of BioTime and its shareholders, (2) approved the Merger Agreement and the transactions contemplated thereby and (3) resolved to recommend that BioTime shareholders vote for the approval of the BioTime Share Issuance.

Accordingly, the BioTime Board recommends that BioTime shareholders vote "FOR" the BioTime Share Issuance Proposal and "FOR" the BioTime Adjournment Proposal.

In reaching its decision, the BioTime Board, with Messrs. Bradsher, Kingsley and Mulroy recusing themselves, as described above in the section entitled "*—Background of the Merger*," held a number of meetings, consulted with BioTime's senior management and its legal and financial advisors, respectively, and considered a number of factors.

The various factors the BioTime Board considered that weighed positively in favor of the Merger and the BioTime Share Issuance Proposal included, among others and not necessarily in order of relative importance:

its belief that the Combined Company will operate more efficiently to create a premier cell therapy company;

its ability to enjoy new partnerships with notable institutions such as the California Institute for Regenerative Medicine and Cancer Research UK;

its belief that Asterias cell therapy product candidates fit naturally and operationally within BioTime's existing portfolio and would enhance BioTime's shareholders value by diversifying the pipeline of BioTime with two additional clinical-stage assets addressing high unmet medical needs;

its expectation of substantial cost and other financial synergies as well as synergies relating to capabilities and needs as a result of the Merger and its belief that the Combined Company will enjoy other advantages from critical mass, including potentially in connection with financing;

its belief that the Merger can accelerate Asterias product development and commercialization timelines due to Asterias ability to leverage BioTime's unique cell manufacturing expertise at BioTime's GMP facility in Israel and its broad patent position;

its belief that the businesses and corporate cultures of BioTime and Asterias are complementary and the integration of the two companies can be completed in a timely and efficient manner with minimal disruption to employees; and

its expectation that upon completion of the Merger, current BioTime shareholders will continue to own approximately 84% of the outstanding BioTime Common Shares.

These expectations and beliefs of the BioTime Board are based in part on the following factors that the BioTime Board considered:

its knowledge and understanding, based on its discussions with BioTime's management, of BioTime's business, operations, financial condition, earnings, strategy and future prospects;

information and discussions with BioTime management, in consultation with representatives of Maxim (as defined below), regarding Asterias' business, operations, financial conditions, earnings, strategy and future prospects, and the results of BioTime's legal, financial and business due diligence review of Asterias;

its thorough deliberation and consideration of the Merger and other alternatives to the Merger;

management's knowledge of the prospective environment in which the Combined Company will operate following the Merger, including industry, economic and market conditions;

the historical and then-current trading prices and volumes of each of the BioTime Common Shares and Asterias Common Stock;

the fact that the terms of the Merger Agreement were the product of arm's-length negotiations between BioTime and its advisors, on the one hand, and Asterias and its advisors, on the other hand, and that Messrs. Bradsher, Kingsley and Mulroy recused themselves from the BioTime Board's vote to approve the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance;

the terms of the Merger Agreement, including:

the fixed Exchange Ratio in the Merger Agreement, which will not be increased or reduced, even in the event of a decrease in the price of BioTime Common Shares or Asterias Common Stock, respectively;

the fact that, as a condition to the completion of the Merger, the BioTime Share Issuance Proposal must be approved by the affirmative vote of the holders of a majority of the total votes of BioTime Common Shares cast in person or by proxy at the BioTime Special Meeting;

the right of BioTime to receive a termination fee of $2 million if Asterias terminates the Merger Agreement under certain circumstances, or expense reimbursement of up to $1.5 million under certain circumstances, as more fully described in the section entitled "*The Merger Agreement—Termination Rights in Response to a Superior Proposal; Changes in Board Recommendations*" and "*The Merger Agreement—Expenses and Termination Fees*"; and

the fact that under certain circumstances, the BioTime Board may change its recommendation in response to an Intervening Event with respect to BioTime, as more fully described in the section entitled "*The Merger Agreement—Changes in Board Recommendations*."

the opinion of Maxim, provided as of November 7, 2018, to the effect that, as of such date, and based on and subject to the various assumptions made, procedures followed, factors considered, and qualifications and limitations described in the opinion, the Exchange Ratio and the merger consideration to be paid by BioTime was fair, from a financial point of view, to BioTime, as more fully described in the section entitled "*The Merger—Opinion of BioTime's Financial Advisor*";

Since BioTime already owns approximately 39% of Asterias, achieving the benefits associated with combining the companies require a purchase of only the remaining 61.1% of the outstanding shares of Asterias with relatively smaller dilution to the BioTime shareholders, which will own approximately 84% of BioTime following the closing of the Merger.

In addition, the BioTime Board considered a variety of risks and other potentially negative factors concerning the Merger Agreement, the Merger, the BioTime Share Issuance and the other transactions contemplated by the Merger Agreement. These factors included the following, which are not necessarily listed in order of relative importance:

- the risk that because the Exchange Ratio in the Merger is fixed, BioTime cannot be certain of the market value of the merger consideration until completion of the Merger;
- the possibility that the Merger, the BioTime Share Issuance and other transactions contemplated by the Merger Agreement may not be completed on the terms or timeline currently contemplated or at all, including for reasons beyond the control of BioTime or Asterias;
- the risk that failure to complete the Merger, the BioTime Share Issuance and the other transactions contemplated by the Merger Agreement could negatively affect the price of BioTime Common Shares and future business and financial results of BioTime, and could lead to negative perceptions among investors and other stakeholders;
- the ownership dilution to current BioTime shareholders as a result of the issuance of BioTime Common Shares to holders of Asterias Common Stock as merger consideration pursuant to the Merger Agreement;
- the potential risk of diverting management focus, employee attention and resources from other strategic opportunities and operational matters while working to complete the proposed transactions and successfully integrate BioTime and Asterias;
- the costs to be incurred in connection with the Merger, the BioTime Share Issuance and the other transactions contemplated by the Merger Agreement, including the fees and expenses associated with completing such transactions;
- the risk that Asterias may be unable to retain key employees;
- the risk of not capturing all of the anticipated operational cost savings and synergies, and the risk that other anticipated benefits of the transactions may not be realized on the expected timeframe or at all;
- the challenges of combining BioTime with Asterias following the Merger, including technical, financial, operational, accounting and other challenges;
- the fact that projections or future results of operations of the Combined Company are necessarily estimates based on assumptions, and not guarantees as to future financial performance as more fully described in the section entitled "*The Merger—Certain BioTime and Asterias Unaudited Prospective Financial Information*";
- the risk that financing may not be available to BioTime, Asterias or, after the consummation of the Merger, the Combined Company, on favorable terms or at all, or, after the consummation of the Merger;

the risk that Asterias may enter into a binding agreement with respect to an alternative Acquisition Proposal, as more fully described in the section entitled "*The Merger Agreement—Asterias Go-Shop*" and "*The Merger Agreement—No Solicitation of Alternative Proposals*";

the risk that the Asterias Board changes its recommendation in response to a Asterias Superior Proposal under such circumstances as permitted in the Merger Agreement, as more fully described in the section entitled "*The Merger Agreement—Termination Rights in Response to a Superior Proposal; Changes in Board Recommendations*";

the risk that BioTime may be obligated to pay Asterias a termination fee of $2 million if the Merger Agreement is terminated under certain circumstances, or reimburse Asterias of its expenses of up to $1.5 million if the Merger Agreement is terminated under certain other circumstances, as more fully described in the section entitled "*The Merger Agreement—Expenses and Termination Fees*;

the risk Asterias obligation to pay BioTime to receive a termination fee of $2 million if Asterias terminates the Merger Agreement under certain circumstances, or reimburse BioTime for its expenses up to $1.5 million under certain circumstances (as more fully described in the section entitled "*The Merger Agreement—Termination Rights in Response to a Superior Proposal; Changes in Board*") may not be sufficient to fully compensate BioTime for its losses in such circumstances; and

the risk that the incurrence of additional indebtedness in connection with the Merger would have adverse consequences on BioTime's business following the Merger.

In addition to considering the factors described above, the BioTime Board considered the fact that some of BioTime's directors and executive officers have other interests in the Merger that are different from, or in addition to, the interests of BioTime shareholders generally, as more fully described in the section entitled "*The Merger—Interests of BioTime's Directors and Executive Officers in the Merger*."

The BioTime Board concluded that the potentially negative factors associated with the Merger Agreement, the Merger, the BioTime Share Issuance, and the other transactions contemplated by the Merger Agreement, were outweighed by the potential benefits that it expected the BioTime shareholders would achieve as a result of entering into the Merger Agreement and consummating the transactions contemplated thereby. Accordingly, the BioTime Board determined that the Merger Agreement and transactions contemplated thereby, including the Merger and the BioTime Share Issuance, were advisable and in the best interests of BioTime and the BioTime shareholders.

The foregoing discussion of the factors considered by the BioTime Board is not intended to be exhaustive, but, rather, includes the material factors considered by the BioTime Board. In reaching its decision to approve the Merger Agreement and transactions contemplated thereby, including the Merger and the BioTime Share Issuance, the BioTime Board did not quantify or assign any relative weights to the factors considered, and individual directors may have given different weights to different factors. The BioTime Board considered all these factors as a whole, including thorough discussions with, and questioning of, BioTime's management and BioTime's financial and legal advisors, and overall considered the factors to be favorable to, and to support, its determination.

This explanation of BioTime's reasons for the Merger and other information presented in this section is forward-looking in nature and should be read in light of the sections entitled "*Risk Factors*" and "*Cautionary Statement Regarding Forward-Looking Statements*."

Opinion of BioTime's Financial Advisor

BioTime has retained Maxim to act as financial adviser to BioTime in connection with the Merger. As part of this engagement, BioTime requested that Maxim evaluate the fairness of the merger consideration to be paid by BioTime pursuant to the Merger Agreement, from a financial point of view, to BioTime. As discussed in the following paragraph, on November 7, 2018, Maxim delivered to the BioTime Board its oral opinion, confirmed by its delivery of a written opinion dated November 7, 2018, that as of the date thereof, and subject to the assumptions, limitations, qualifications and conditions set forth in Maxim's written opinion, the Exchange Ratio and the merger consideration being paid to Asterias stockholders in accordance with the Merger Agreement is fair from a financial point of view to BioTime and its shareholders.

The full text of Maxim's written opinion, dated November 7, 2018, which sets forth, among other things, the assumptions made, procedures followed, matters considered and qualifications and limitations on the scope of review undertaken by Maxim in delivering its opinion, is attached as **Annex B** to this joint proxy statement/prospectus and is incorporated herein by reference in its entirety. The description of Maxim's written opinion set forth in this joint proxy statement/prospectus is qualified in its entirety by the full text of such opinion. Maxim's opinion does not constitute a recommendation to the BioTime Board or to any other persons in respect of the Merger, including as to how any holder of BioTime Common Shares should vote or act with respect to the BioTime Merger and Share Issuance Proposal. We encourage you to read Maxim's opinion carefully and in its entirety.

Maxim's opinion was provided for the information and benefit of the BioTime Special Committee and was delivered to the BioTime Special Committee in connection with their evaluation of whether the merger consideration to be paid by BioTime pursuant to the Merger Agreement is fair, from a financial point of view to BioTime, and did not address any other aspect or implication of the Merger Agreement or the transactions contemplated thereby, including the Merger. Maxim's opinion did not address the relative merits of the Merger as compared to other business or financial strategies that might be available to BioTime, nor did it address the underlying business decision of BioTime to engage in the Merger. Maxim also provided the BioTime Board with a presentation in connection with their evaluation.

Maxim's opinion necessarily was based upon information made available to Maxim as of November 7, 2018 and financial, economic, monetary, market, regulatory and other conditions and circumstances as they existed and as could be evaluated on such date. Maxim has no obligation to update, revise or reaffirm its opinion based on subsequent developments. Maxim's opinion did not express any opinion as to the price at which the BioTime Common Shares will trade at any time.

The following is a summary of Maxim's opinion, and is qualified in its entirety by the full text of such opinion attached as **Annex B** to this joint proxy statement/prospectus. We encourage you to read Maxim's written opinion carefully in its entirety:

In connection with delivering its opinion, Maxim, among other things:

- reviewed certain publicly available filings relating to BioTime and Asterias, including Annual Reports on Form 10-K of BioTime and Asterias; certain interim reports to stockholders and Quarterly Reports on Form 10-Q of BioTime and Asterias;
- reviewed certain business agreements;
- reviewed certain non-public financial analyses and projected cash-based data relating to Asterias under alternative business assumptions that were shared with Maxim by BioTime (and were prepared by Asterias and further revised and adjusted by the BioTime management team, as approved for use by the BioTime Special Committee) (the

"**Forecasts used by Maxim**").

reviewed the reported prices and the historical trading activity for BioTime Common Shares and Asterias Common Stock;

compared certain financial and stock market information for BioTime with similar information for certain other companies the securities of which are publicly traded;

compared the premium reflected in the Exchange Ratio with premiums paid in certain other transactions that Maxim deemed relevant;

reviewed the financial terms of certain recently completed strategic transactions, business combinations, and acquisitions within the Biotechnology industry;

reviewed a draft of the Merger Agreement dated November 6, 2018, which Maxim assumed was in substantially final form and from which Maxim assumed the final form would not vary in any respect material to its analysis; and

performed such other analyses and examinations and considered such other factors that Maxim deemed appropriate.

For purposes of its analysis and opinion, Maxim assumed and relied upon, without undertaking any independent verification of, the accuracy and completeness of all of the information publicly available, and all of the information supplied or otherwise made available to, discussed with, or reviewed by Maxim, and Maxim assumes no liability therefor. Maxim was not requested to, and did not, explore alternatives to the merger or solicit interest of any other parties in pursuing transactions with BioTime.

Maxim was not asked to pass upon, and expressed no opinion with respect to, any matter other than the fairness of the merger consideration to be paid by BioTime pursuant to the Merger Agreement, from a financial point of view, to BioTime. Maxim did not express any view on, and its opinion did not address, the fairness of the Merger to, or any consideration received in connection therewith by, the holders of any other securities, creditors or other constituencies of BioTime or Asterias, or as to the fairness of the amount or nature of any compensation to be paid or payable to any of the officers, directors or employees of BioTime or Asterias or any of the other parties to the Merger Agreement or any affiliates thereof, or any class of such persons, whether relative to the merger consideration or otherwise. Maxim assumed that any modification to the structure of the Merger would not vary in any respect material to its analysis. Maxim's opinion did not address the relative merits of the Merger as compared to other business or financial strategies that might be available to BioTime, nor did it address the underlying business decision of BioTime to engage in the Merger. Maxim's opinion does not constitute a recommendation to the BioTime Board, the BioTime Special Committee or to any other persons in respect of the Merger, including as to how any holder of BioTime Common Shares should vote or act in respect of the Merger. Maxim expressed no opinion as to the price at which BioTime Common Shares will trade at any time. Maxim is not a legal, regulatory, accounting or tax expert and assumed the accuracy and completeness of assessments by the management of BioTime and its advisors with respect to legal, regulatory, accounting and tax matters.

Maxim provides a multitude of financial services including investment banking, private wealth management, and global institutional equity, fixed-income and derivatives sales and trading as well as equity research. Maxim and its affiliates, or other related entities or individuals, may at any time purchase, sell, hold or vote long or short positions and investments in securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments of BioTime, and any of their respective affiliates and third parties, or any currency or commodity that may be involved in the Transaction. Maxim will receive a fee of $375,000 from BioTime for delivering the opinion as well as reimbursement of certain expenses. Maxim's fee will be due in its entirety upon the delivery of the opinion, irrespective of whether the Merger is completed. BioTime has agreed to indemnify Maxim against certain liabilities, and to reimburse it for certain liabilities in connection with Maxim providing the opinion. No controlling person of Maxim is directly personally receiving compensation or other remuneration from any of the parties to the Merger.

In rendering its opinion, Maxim relied upon and assumed, without assuming any responsibility for independent verification, the accuracy and completeness of all the financial, legal, regulatory, tax, accounting and other

documentation and information provided to, discussed with, or reviewed by Maxim and have relied on such information as being complete and accurate in all material respects, including any documentation and information originally produced by BioTime or Asterias and provided by BioTime to Maxim. In that regard, Maxim assumed that the Forecasts used by Maxim have been reasonably prepared on a basis reflecting the best currently available estimates and judgments of the management of BioTime and those financial projections originally produced by Asterias and provided by BioTime to Maxim. Maxim assumed that there were no material changes in the assets, liabilities, financial condition, results of operations, reserves, business operations since the date of the financial statements referenced herein. Moreover, it is understood that the Forecasts used by Maxim are based on numerous variables and assumptions that are inherently uncertain, including without limitation, factors related to general economic, market and competitive conditions. Accordingly, actual results could vary significantly from those set forth in such Forecasts used by Maxim, and as noted previously, Maxim has relied on the Forecasts used by Maxim without independent verification or analyses and does not in any respect assume any responsibility for the accuracy or completeness thereof. Maxim has not made an independent evaluation or appraisal of the assets and liabilities (including any joint ventures, contingent, derivative or other off-balance-sheet assets and liabilities) of BioTime or any of its subsidiaries, Asterias or any of its subsidiaries, joint ventures and Maxim has not been furnished with any such evaluation or appraisal. Maxim has assumed that all governmental, regulatory or other consents and approvals necessary for the consummation of the Merger will be obtained without any adverse effect on the expected benefits of the Merger in any way meaningful to their analysis. Maxim is not an actuary and its services did not include any actuarial determination or evaluation by Maxim or any attempt to evaluate actuarial assumptions, and Maxim has relied on BioTime with respect to the appropriateness and adequacy of reserves of BioTime and actuarial assumptions used by BioTime in connection with the Forecasts used by Maxim. In that regard, Maxim has made no analysis of, and expressed no opinion as to, the appropriateness or adequacy of reserves or actuarial assumptions. Maxim has relied upon assurances by BioTime and Asterias that they are unaware of any facts that would make their respective information incomplete or misleading. Maxim has no obligation to update or modify its opinion.

Maxim was not requested to, and did not, explore alternatives to the Merger or solicit interest of any other parties in pursuing transactions with BioTime.

Maxim's Analysis of Asterias

Maxim performed a series of analyses to derive indicative valuation ranges for Asterias Common Stock.

Comparable Companies Valuation

Maxim compared stock market valuation for selected publicly traded companies that Maxim deemed appropriate with similar information for Asterias. The selected comparable companies considered by Maxim were (collectively "**peers**"):

Company	Ticker	Exchange
Aduro Biotech Inc	ADRO	NasdaqGS
Aeglea Bio Therapeutics Inc	AGLE	NasdaqGM
Bellicum Pharmaceuticals Inc	BLCM	NasdaqGM
Pluristem Therapeutics Inc	PSTI	NasdaqCM
Mustang Bio Inc	MBIO	NasdaqGM
Brainstorm Cell Therapeutics Inc	BCLI	NasdaqCM
Leap Therapeutics Inc	LPTX	NasdaqGM
Genocea Biosciences Inc	GNCA	NasdaqGM
TRACON Pharmaceuticals Inc	TCON	NasdaqGM
Caladrius Biosciences Inc	CLBS	NasdaqCM
Oncolytics Biotech Inc	ONCY	NasdaqCM
Advaxis Inc	ADXS	NasdaqGS
Capricor Therapeutics Inc	CAPR	NasdaqCM
Histogenics Corp	HSGX	NasdaqCM
Neuralstem Inc	CUR	NasdaqCM

Maxim selected the peer group in the following manner: Maxim first identified comparable companies listed on a national exchange with a market capitalization of under $500 million in the biotechnology sector. The peer group was then condensed to only include biotechnology companies which operate in similar fields as Asterias, have no approved or marketed drugs, focus on the development of drugs for neurology or oncology indications or that are developing drugs comprised of living cells. The universe of pure-play comparable listed companies is generally very limited due to the intrinsic heterogeneity of development stage drug programs. In an effort to maximize a good level of comparability between Asterias and its peers, the peer companies selected by Maxim were those that Maxim considered to be with the most similarities in their stage of development, total number of unique clinical assets in

development, indication and or are companies whose drugs are comprised of living cells, size, risk and opportunity profiles, and ultimately in their future growth and profitability profiles.

With respect to the peer group, Maxim analyzed the current market valuation of such companies.

Maxim elected to use market capitalization to drive the valuation analysis portion of the comparable companies' valuation analysis due to the stage of Asterias as a pre-revenue biotechnology company, including for the following reasons. First, industry convention tends to use market value as the primary valuation metric for pre-revenue, development stage biotechnology companies. Second, pre-revenue biotechnology companies finance periodically at irregular intervals of irregular dollar amounts corresponding to the capital needs to reach their next clinical milestone(s). Third, determining the actual value of cash across multiple pre-revenue drug development stage companies as cash is only relevant in context as a proxy for future dilution risk. Therefore, evaluating cash on the balance sheet relative to cash required to reach the next clinical milestone is more relevant to accurately evaluate dilution risk.

The analysis of the market capitalization of the peer group yielded an implied equity value of $95.8 million using the mean of the peer group and an implied equity valuation of $62.9 million using the median of the peer group.

Discounted Cash Flow Analysis

Maxim performed a discounted cash flow analysis of Asterias to calculate the present value of Asterias based on the sum of the present values of the projected available cash flow streams and the terminal value of the equity using the Forecasts used by Maxim.

In its analysis, Maxim utilized the probability risk adjusted financial projections of Asterias included in the Forecasts used by Maxim, which were provided by BioTime. The Forecasts used by Maxim provided to Maxim included three revenue streams: the first was for Asterias' cancer focused VAC-2 drug program which utilized a 5.1% probability of success rate; the second was the revenue stream of Asterias neurologic focused U.S. OPC-1 program which utilized a 14.2% probability of success rate and lastly a revenue stream of Asterias' Japan OPC-1 program which utilized a 30.1% probability of success rate. BioTime provided Maxim with data from January 1, 2018 through December 31, 2046 for Asterias' OPC-1 drug program in both the U.S. and Japan and data from January 1, 2018 through December 31, 2038 for Asterias' VAC-2 drug program. Maxim has assumed that the financial projections have been reasonably prepared on a basis reflecting the best currently available estimates and judgments of the management of BioTime and those financial projections originally produced by Asterias and modified by BioTime and then provided to Maxim.

The projected values were discounted using a discount rate of 18.8% (equivalent to Asterias' weighted average cost of capital ("WACC")). Maxim determined the intrinsic value assuming a Growth in Perpetuity of 1.0%, as provided by BioTime. In determining the discount rates used in the discounted cash flow analysis, Maxim noted, among other things, factors such as inflation, prevailing market interest rates, and the inherent business risk and rates of return required by investors.

The result of the analysis yielded an intrinsic value of $216.9 million; after incorporating Asterias' net cash, Maxim arrived at an implied equity value of $220.4 million.

Precedent Premium Paid Analysis

Maxim performed an analysis of selected transactions to compare premiums paid in such transactions to the premium implied by the Exchange Ratio in the Merger. The selected transactions represented 28 precedent public company transactions that closed between November 5, 2015 and November 5, 2018 in which the target company was a publicly traded healthcare company trading on a major U.S. exchange, where the transaction value was less than $500 million and a majority stake in the target company was acquired. The precedent deals include transactions in the overall healthcare sector as well as a subset of only biotechnology transactions. Maxim notes that 8 of the 28 transactions analyzed were classified as biotechnology.

Maxim calculated the implied share price premium derived from the share prices directly before the announcements of both the healthcare and subset of biotechnology transactions. Maxim then applied the range of implied premium from the biotechnology transactions to the price of Asterias Common Stock of $1.18 as of November 6, 2018.

Precedent biotechnology transactions:

Date Closed	Target	Buyer
01/31/2018	Repros Therapeutics Inc. (NasdaqCM:RPRX)	Allergan Sales, LLC
12/11/2017	Ocera Therapeutics, Inc. (NASDAQ:OCRX)	MAK LLC
11/07/2017	Dimension Therapeutics, Inc. (NASDAQ:DMTX)	Ultragenyx Pharmaceutical Inc. (NasdaqGS:RARE)
06/16/2017	GenVec, Inc. (NasdaqCM:GNVC)	Intrexon Corporation (NasdaqGS:XON)
11/29/2016	Aegerion Pharmaceuticals, Inc. (NasdaqGS:AEGR)	Novelion Therapeutics Inc. (NasdaqGS:NVLN)
06/29/2016	Nanosphere, Inc. (NASDAQ:NSPH)	Luminex Corporation (NasdaqGS:LMNX)
05/06/2016	VBI Vaccines Inc (NasdaqCM:VBIV)	SciVac Therapeutics Inc. (TSX:VAC)
02/09/2016	Ocata Therapeutics, Inc. (NasdaqGM:OCAT)	Astellas Pharma Inc. (TSE: 4503)

Precedent healthcare transactions:

Date Closed	Target	Buyer
10/22/2018	Invuity, Inc. (NASDAQ: IVTY)	Stryker Corporation (NYSE:SYK)
08/30/2018	SteadyMed Ltd. (NASDAQ: STDY)	United Therapeutics Corporation (NasdaqGS:UTHR)
08/13/2018	Juniper Pharmaceuticals, Inc. (NASDAQ: JNPR)	Catalent Pharma Solutions, Inc.
04/20/2018	Cogentix Medical, Inc. (NasdaqCM:CGNT)	LM US Parent, Inc.
01/31/2018	Repros Therapeutics Inc. (NasdaqCM:RPRX)	Allergan Sales, LLC
12/27/2017	MGC Diagnostics Corporation (NasdaqCM:MGCD)	Altus Capital Partners
12/11/2017	Ocera Therapeutics, Inc. (NASDAQ:OCRX)	MAK LLC
11/14/2017	CombiMatrix Corporation (NasdaqCM:CBMX)	Invitae Corporation (NYSE:NVTA)
11/07/2017	Dimension Therapeutics, Inc. (NASDAQ:DMTX)	Ultragenyx Pharmaceutical Inc. (NasdaqGS:RARE)
07/31/2017	Nexvet Biopharma Public Ltd Company (NasdaqGM:NVET)	Zoetis Inc. (NYSE:ZTS)
07/24/2017	Innocoll Holdings plc (NasdaqGM:INNL)	Gurnet Point Capital Limited
07/17/2017	Syneron Medical Ltd. (NasdaqGS:ELOS)	Apax Partners (Israel) Ltd
06/16/2017	Span-America Medical Systems, Inc. (NasdaqGM:SPAN)	Savaria Corporation (TSX:SIS)
06/16/2017	GenVec, Inc. (NasdaqCM:GNVC)	Intrexon Corporation (NasdaqGS:XON)
02/22/2017	Derma Sciences, Inc. (NasdaqCM:DSCI)	Integra LifeSciences Holdings Corp. (NasdaqGS:IART)
11/29/2016	Aegerion Pharmaceuticals, Inc. (NasdaqGS:AEGR)	Novelion Therapeutics Inc. (NasdaqGS:NVLN)
11/21/2016	EndoChoice Holdings, Inc. (NYSE:GI)	Boston Scientific Corporation (NYSE:BSX)
09/30/2016	USMD Holdings, Inc. (NasdaqCM:USMD)	WellMed Medical Management Inc.
09/07/2016	Sequenom Inc. (NasdaqGS:SQNM)	Laboratory Corporation of America Holdings (NYSE:LH)
07/27/2016	Hansen Medical, Inc. (NasdaqGM:HNSN)	Auris Health, Inc.

07/01/2016	Symmetry Surgical Inc. (NasdaqGM:SSRG)	RoundTable Healthcare Management, LLC
06/29/2016	Nanosphere, Inc. (NASDAQ:NSPH)	Luminex Corporation (NasdaqGS:LMNX)
06/21/2016	Alexza Pharmaceuticals Inc. (NasdaqCM:ALXA)	Grupo Ferrer Internacional, S.A.
05/09/2016	VirtualScopics Inc. (NasdaqCM:VSCP)	BioTelemetry, Inc. (NasdaqGS:BEAT)
05/06/2016	VBI Vaccines Inc (NasdaqCM:VBIV)	SciVac Therapeutics Inc. (TSX:VAC)
02/09/2016	Ocata Therapeutics, Inc. (NasdaqGM:OCAT)	Astellas Pharma Inc. (TSE: 4503)
02/03/2016	TriVascular Technologies, Inc. (Nasdaq:TRIV)	Endologix, Inc. (Nasdaq:ELGX)
12/04/2015	DARA BioSciences, Inc. (NASDAQ: DARA)	Midatech Pharma PLC (AIM: MTPH)

The analysis yielded an implied equity valuation of $100.6 million using the mean values of the precedent transactions and an implied equity valuation of $100.3 million using the median values of the precedent transactions.

Research Analyst Price Targets

Maxim reviewed publicly available share price targets of research analysts' estimates known to Maxim as of November 7, 2018 for Asterias. Maxim calculated an implied equity value by multiplying Asterias' fully-diluted shares outstanding by the average and median price target. The price targets published by equity research analysts do not necessarily reflect current market trading prices for Asterias Common Stock and these price targets are subject to numerous uncertainties, including the future financial performance of each company and market conditions.

The result of the analysis yielded an implied equity value of $415.6 million using the mean values of the analysis and an implied equity value of $349.4 million using the median values.

Precedent Transactions Analysis

Maxim endeavored to identify a group of precedent transaction comparable to the proposed transaction but due to the limited comparable metrics (no revenue or cash flow, disparate drug indications and stages of development) and relative transaction sizes, Maxim noted that there are no precedent control transactions over the last four years that are relevant for the analysis and as such, Maxim has not included this methodology in its analysis.

Other Factors

BioTime publicly announced on October 25, 2018 distribution of the majority of BioTime's ownership in AgeX. The distribution of the AgeX shares occurred on November 28, 2018 (with record date of November 16, 2018), prior to the closing of the Merger, and therefore, Asterias stockholders will not be entitled to a distribution of AgeX shares. In reaching its opinion Maxim did not discount the value of BioTime Common Shares payable to the Asterias stockholders to account for the fact that they will not be participating in the distribution of AgeX shares. Therefore, for purposes of its opinion, Maxim did not attempt to value the AgeX shares based on the assumption that if the Exchange Ratio is fair to BioTime before discounting the AgeX shares, then it will necessarily be fair to BioTime if the consideration payable to the Asterias stockholders is lower as a result of the AgeX distribution.

While Maxim has not completed a valuation analysis of AgeX or the value of the shares to be distributed, we note the following facts, which were publicly announced by BioTime in press releases dated September 4, 2018 and October 30, 2018: On August 30, 2018 BioTime consummated the sale of 14.4 million shares of AgeX (40.2% of AgeX common shares and 34.4% of fully diluted shares) to Juvenescence for $43.2 million, which equates to a value per share of $3.00. The cash consideration of $21.6 million, or 50% of the purchase price, was paid in two installments. The first installment of $10.8 million was received by BioTime at the close of the transaction. The second installment was to be paid on November 2, 2018. The remaining 50% of the $43.2 million consideration, or $21.6 million, has been paid by Juvenescence in the form of a 2-year convertible promissory note with an annual interest rate of 7%, payable at maturity, if not converted into Juvenescence common stock sooner. Subsequent to the transaction with Juvenescence, BioTime owns 14.416 million shares of AgeX.

BioTime distributed approximately 12.69 million shares to BioTime shareholders on November 28, 2018.

On October 30, 2018 BioTime announced they have been informed that a third party has committed to purchase any and all shares of AgeX from all index funds in Israel at a price of $2.80 per share, up to a maximum dollar amount of $2.5 million.

In arriving at its opinion, Maxim did not draw, in isolation, conclusions from or with regard to any factor or analysis considered by it. Rather, Maxim made its determination as to fairness on the basis of its experience and professional judgment after considering the results of all of the analyses. The order of the analyses and reviews described in the summary above and the results thereof do not represent the relative importance or weight given to these analyses and reviews by Maxim. Considering selected portions of the analyses and reviews in the summary set forth above, without considering the analyses and reviews as a whole, could create an incomplete or misleading view of the analyses and reviews underlying Maxim's opinion. Maxim may have considered various assumptions more or less probable than other assumptions, so the range of valuations resulting from any particular analysis or combination of analyses described above should not be taken to represent Maxim's view with respect to the actual value of Asterias Common Stock or BioTime Common Share.

For purposes of its analyses and reviews, Maxim considered industry performance, general business, economic, market and financial conditions and other matters, many of which are beyond the control of Asterias, BioTime and their advisors. No company or business used in Maxim's analyses and reviews as a comparison is identical to Asterias or BioTime, and an evaluation of the results of those analyses and reviews is not entirely mathematical. Rather, the analyses and reviews involve complex considerations and judgments concerning financial and operating characteristics and other factors that could affect the acquisition, public trading or other values of the companies, businesses or transactions used in Maxim's analyses and reviews. The estimates contained in Maxim's analyses and reviews and the ranges of valuations resulting from any particular analysis or review are not necessarily indicative of actual values or predictive of future results or values, which may be significantly more or less favorable than those suggested by Maxim's analyses and reviews. In addition, analyses and reviews relating to the value of companies, businesses or securities do not purport to be appraisals or to reflect the prices at which companies, businesses or securities actually may be sold. Accordingly, the estimates used in, and the results derived from, Maxim's analyses and reviews are inherently subject to substantial uncertainty, and Maxim assumes no responsibility if future results or values are materially different from those forecasted in such estimates.

In the past two years, no material relationship existed between Maxim and its affiliates and BioTime or Asterias pursuant to which compensation was received by Maxim or its affiliates as a result of such a relationship. In the future, Maxim may provide financial advisory or other services to Asterias, BioTime or their respective affiliates, and in connection with any such services Maxim may receive compensation.

With respect to the Merger, Maxim did not recommend any specific merger consideration to the BioTime Board or BioTime management or that any specific consideration constituted the only appropriate consideration in the Merger.

In the ordinary course of business, Maxim or its affiliates may actively trade the securities, or related derivative securities, or financial instruments of BioTime, Asterias and their respective affiliates, for its own account and for the accounts of its customers and, accordingly, may at any time hold a long or short position in such securities or instruments.

Asterias' Reasons for the Merger; Recommendation of the Asterias' Special Committee; Recommendation of the Asterias Board of Directors

Both the Asterias Special Committee and the Asterias Board believe, based on their consideration of the factors described below, that the Merger Agreement and the transactions contemplated thereby, including the Merger, are substantively and procedurally fair, to the Asterias stockholders.

The Asterias Special Committee

On November 7, 2018, the Asterias Special Committee, consisting of independent and disinterested directors of Asterias, and acting with the advice of the Asterias Special Committee's legal and financial advisors, unanimously determined that the Merger Agreement, the Merger and the other transactions contemplated thereby are fair to, advisable and in the best interests of the stockholders of Asterias. The Asterias Special Committee also unanimously recommended that the Asterias Board (1) determine that the Merger Agreement and the Merger are fair to, advisable and in the best interests of Asterias and its stockholders, (2) approve the Merger Agreement and the transactions contemplated thereby and (3) resolve to recommend that Asterias stockholders vote for the approval and adoption of the Merger Agreement and the transactions contemplated thereby, including the Merger.

In reaching its determination and recommendation to the Asterias Board, the Asterias Special Committee, as described above in the section entitled "*—Background of the Merger*," held a number of meetings, consulted with Asterias' senior management and its advisors at Dentons and Raymond James and considered a number of factors. The various factors the Asterias Special Committee considered that weighed positively in favor of the Asterias Merger Proposal included, among others and not necessarily in order of relative importance:

the Merger would bring together BioTime's OpRegen program in age-related macular degeneration and AST's OPC1 program in spinal cord injury, creating a leading regenerative medicine company aimed at providing breakthrough solutions in areas of high unmet medical need;

together with Asterias' immunotherapy clinical program in non-small cell lung cancer which is being funded and sponsored by Cancer Research UK, the Combined Company would have three active clinical programs, each with its own future clinical and regulatory milestones and that the potential successful accomplishments of these milestones would provide a greater degree of news flow and opportunity to drive investor interest;

the Combined Company would benefit from an industry leading intellectual property portfolio and experience with all phases of therapeutic product development, with a special emphasis on clinical program execution;

the transaction simplifies the corporate / ownership structure of both companies, eliminating Asterias' stockholder overhead and fully integrating Asterias' clinical programs within BioTime's corporate structuring and that that the Combined Company should also result in significant cost savings, including reduced corporate overhead;

Asterias, as a standalone company, has limited financial resources and access to capital;

the Combined Company is expected to have greater access to capital and lower capital costs (including on potentially more favorable terms) than Asterias on a standalone basis due to its larger size, diversified program portfolio, membership in the Russell 2000 index and listing on both the NYSE American and TASE Exchange in Israel;

as an early stage cell therapy company, Asterias faces the prospect of multiple "tech transfers" to third parties to manufacture cells on a late-stage clinical and commercial scale;

the Combined Company will be a vertically integrated cell therapy company, with strong manufacturing capabilities;

the Combined Company's management team will draw upon experienced leaders from both companies while Asterias has experienced significant executive management turnover since being formed in late 2013, including at the chief executive officer level, which has included resignations by key executives who have not been replaced, including Asterias' Chief Scientific Officer and Chief Operating Officer;

the fact that the consideration to be received by Asterias stockholders consists entirely of BioTime Common Shares, which provides Asterias stockholders with reduced volatility and an ownership interest in BioTime following the completion of the Merger, and which represents an opportunity to participate in the potential for earnings per share accretion and potential cost synergies created by the Merger;

the fact that after giving effect to the Merger, the outside shareholders of Asterias who owned approximately 60% of Asterias will own approximately 16% of the combined company's outstanding Common Stock, which would allow

these stockholders to participate in the future growth of the combined company after the consummation of the Merger

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Asterias has a long relationship with BioTime, and the Asterias Board has a deep understanding of the operations, financial condition, and prospects, including the information obtained through due diligence; of BioTime;

the risks and challenges faced by Asterias in accomplishing its strategic and business objectives, earnings and prospects, including the financing needs of Asterias' business, general conditions in the biotech industry and other risk factors set forth in Asterias' Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on March 15, 2018 and its Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2018, filed with the SEC on November 11, 2018, which are incorporated herein by reference;

the benefits of the Merger as compared to the possible alternatives to the Merger (including continuing to operate as a standalone business and a potential equity financing), the timing and likelihood of accomplishing the business plans and strategic objectives of those alternatives, and the potential benefits and risks of those alternatives, including the risks associated with those alternatives in light of industry- and Asterias-specific dynamics and the risk that pursuing other potential alternatives could have resulted in the loss of an opportunity to consummate the contemplated transaction with BioTime;

the oral opinion of Raymond James, which was subsequently confirmed by delivery of a written opinion to the Asterias Special Committee, dated November 7, 2018, that as of such date, the Exchange Ratio was fair, from a financial point of view, to the holders of Asterias Common Stock (other than with respect to any shares of Asterias Common Stock held by BioTime, Asterias or their respective wholly-owned subsidiaries) (see the section entitled "*The Merger— Opinion of Asterias' Financial Advisor*");

the Asterias Special Committee's belief that, as a result of extensive negotiations between the parties and their respective advisors, the implied value of the per share merger consideration of approximately $1.49 per share (based on an Exchange Ratio of 0.71 and the closing price of BioTime Common Shares on November 7, 2018), was the highest price per share for Asterias Common Stock that BioTime was willing to pay at the time of those negotiations, and that the combination of BioTime's agreement to pay that price and the go-shop process described below and under the section entitled "*The Merger Agreement—Asterias Go-Shop*" would result in a sale of Asterias at the highest price per share for the Asterias Common Stock that was reasonably attainable;

current financial market conditions and historical market prices, volatility and trading information with respect to Asterias Common Stock and BioTime Common Shares;

the historical share prices of Asterias and BioTime, including the fact that the implied per share value of the merger consideration to be received by Asterias stockholders of 0.71 BioTime Common Shares represented (based on the closing price of BioTime Common Shares and Asterias Common Stock on November 7, 2018) a premium of approximately 40.7% based on the unaffected closing price per share of Asterias Common Stock of $1.06 and BioTime Common Shares of $2.10 on November 7, 2018;

information and discussions with Asterias' management and advisors regarding BioTime's business, assets, financial condition, results of operations, current business strategy and prospects, including the projected long-term financial results of BioTime; and

the terms of the Merger Agreement, including the fact that the Merger Agreement contains go-shop provisions (as are more fully described under the sections entitled "*The Merger Agreement—Asterias Go-Shop*" and "*The Merger Agreement—No Solicitation of Alternative Proposals*") intended to enable Asterias to continue to evaluate potential alternatives to the proposed acquisition by BioTime, including:

- Asterias' right, at any time prior on or prior to December 3, 2018, to initiate, solicit and encourage any offers with respect to alternative acquisition proposals, and, until Asterias' stockholders approve the proposal to adopt the Merger Agreement, to continue discussions, subject to certain conditions, after the Go-Shop Period ends with parties who had made an acquisition proposal during the Go-Shop Period if the Asterias Board or Special Committee determines in good faith that such acquisition proposal constitutes or is reasonably expected to constitute an Asterias Superior Proposal (as defined under "*The Merger Agreement—No Solicitation of Alternative Proposals*");

- the Asterias Board's ability to withdraw or change its recommendation of the Merger Agreement, and Asterias' right to terminate the Merger Agreement and accept an Asterias Superior Proposal prior to the approval of Asterias stockholders to adopt the Merger Agreement, subject in each case to Asterias paying BioTime a termination fee of $2.0 million, including if the termination is in connection with Asterias' entry into a definitive agreement with an Excluded Party (as defined under "*The Merger Agreement—No Solicitation of Alternative Proposals*") with respect to an Asterias Superior Proposal, which amounts the Asterias Special Committee believed were reasonable in light of, among other matters, the benefit of the Merger to Asterias' stockholders, the typical size of such termination fees in similar transactions and the likelihood that a fee of such size would not be a meaningful deterrent to alternative acquisition proposals, as more fully described in the section entitled "*The Merger Agreement—Expenses and Termination Fees*";

- the nature of the closing conditions included in the Merger Agreement, as well as the likelihood of satisfaction of all of the conditions to the completion of the proposed Merger;

- the nature of the other representations, warranties and covenants of Asterias in the Merger Agreement;

- the right of Asterias to seek to specifically enforce BioTime's obligations under the Merger Agreement (as more fully described in the section entitled "*The Merger Agreement—Specific Performance*"); and

- the fact that, if the Merger Agreement is terminated in connection with Asterias' entry into a definitive agreement with respect to an Asterias Superior Proposal, BioTime has agreed in the Merger Agreement to vote its shares of Asterias Common Stock in the same proportion in favor of such proposal as the shares of Asterias Common Stock held by unaffiliated stockholders are voted.

The Asterias Special Committee also considered the following factors relating to the procedural safeguards that it believed would ensure the fairness of the Merger and permit the Asterias Special Committee to represent effectively the interests of Asterias' unaffiliated stockholders:

- the fact that the Asterias Special Committee consists of independent and disinterested directors of Asterias who are not affiliated with BioTime, are not employees of Asterias or any of its affiliates and have no financial interest in the Merger different from, or in addition to, the interests of Asterias' unaffiliated stockholders, other than their interests described under "*The Merger—Interests of Asterias' Directors and Executive Officers in the Merger*";

the fact that the Asterias Special Committee was advised by Raymond James, as financial advisor, and by Dentons, as legal advisor, each a nationally recognized firm selected by the Asterias Special Committee, and that, based on disclosures made to the Asterias Special Committee, the Asterias Special Committee concluded that each of Raymond James and Dentons were free of material conflicts and could provide independent advice in connection with the proposed transaction;

the fact that, as part of its review of Asterias' alternatives, the Asterias Special Committee considered the possibility of, and obtained the advice of its financial and legal advisors with respect to, strategic alternatives to the Merger;

the fact that the Asterias Special Committee conducted thorough deliberations regarding the Merger and alternatives to the Merger;

the fact that each of the Asterias Special Committee and the Asterias Board was aware that it had no obligation to recommend any transaction and that the Asterias Special Committee had the authority to reject any proposals made by BioTime or other potential acquirers; and

the fact that the Asterias Special Committee made its evaluation of the Merger Agreement and the Merger based upon the factors discussed in this proxy statement and with the full knowledge of the interests of BioTime in the Merger.

The Asterias Special Committee, in consultation with Asterias' management and its legal and financial advisors, also considered a variety of risks and other potentially negative factors, including the following:

the risk that forecasts of future results of operations and synergies are necessarily estimates based on assumptions and may not be realized – both companies have early stage programs that have significant risk;

the potential expenses and transaction costs related to the Merger, including in connection with any litigation that may result from the announcement or pendency of the Merger;

the risk that because the Exchange Ratio in the Merger consideration is fixed, Asterias cannot be certain of the market value of the merger consideration until completion of the Merger;

the market value of the merger consideration until completion of the Merger;

because Asterias stockholders will be receiving exclusively BioTime Common Shares in the Merger, the risks inherent in owning BioTime Common Shares, including the volatility of BioTime Common Shares, and the other risk factors set forth in BioTime's Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on March 15, 2018 and the Quarterly Reports on Form 10-Q for the quarterly periods ended March 30, June 30, and September 30 2018, filed with the SEC on May 10, August 2, and Nov 8, 2018, respectively, all of which are incorporated herein by reference;

the fact that there can be no assurance that all conditions to the parties' obligations to complete the Merger will be satisfied;

the potential for diversion of management and employee attention and for increased employee attrition during the period prior to completion of the proposed Merger, and the potential effect of the proposed Merger on Asterias' business and relations with customers, suppliers, financial counterparties and strategic alliance and joint venture partners;

the difficulty inherent in integrating the businesses, assets and workforces of two companies and the risk that anticipated strategic and other benefits to Asterias and BioTime following completion of the proposed Merger will not be realized or will take longer to realize than expected;

the terms of the Merger Agreement, including:

the restrictions on Asterias' ability to solicit alternative transaction proposals following a 25-day post-signing "go-shop" period;

the restrictions on the conduct of Asterias' business prior to completion of the proposed Merger;

the right of the BioTime Board to change its recommendation in favor of the Merger or terminate the Merger Agreement in certain circumstances, as more fully described in the section entitled "*The Merger Agreement—Termination Rights in Response to a Superior Proposal; Changes in Board Recommendations*";

the fact that if the Merger is not completed, Asterias may be required to pay a termination fee in certain circumstances, as more fully described in the section entitled "*The Merger Agreement—Expenses and Termination Fees*";

if the Merger is not completed for any reason there would likely be a material negative impact on Asterias and its stockholders; and

various other risks associated with the Merger and the business of Asterias and the Combined Company described in the sections entitled "*Risk Factors*" and "*Cautionary Statements Regarding Forward-Looking Statements*."

The Asterias Special Committee considered all of these factors as a whole, and, on balance, concluded that they supported a determination that the Merger Agreement, the Merger and the transactions contemplated thereby, are fair to, advisable and in the best interests of the stockholders of Asterias. In considering the factors described above and any other factors, individual members of the Asterias Special Committee or the Asterias Board may have viewed factors differently or given different weight or merit to different factors.

The foregoing discussion of the information and factors considered by the Asterias Special Committee is not exhaustive. In view of the wide variety of factors considered by the Asterias Special Committee in connection with its evaluation of the proposed Merger and the complexity of these matters, the Asterias Special Committee did not consider it practical to, nor did it attempt to, quantify, rank or otherwise assign relative weights to the specific factors that it considered in reaching its decision.

The foregoing discussion of the information and factors considered by the Asterias Special Committee is forward-looking in nature. This information should be read in light of the factors set forth in the section entitled "*Cautionary Statement Concerning Forward-Looking Information*."

Recommendation of the Asterias Board

On November 7, 2018, based in part on the unanimous recommendation of the Asterias Special Committee, as well as on the basis of the other factors described above, the Asterias Board (by unanimous vote of the disinterested members of the Asterias Board, with Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) on behalf of Asterias:

determined that the Merger Agreement and the Merger are advisable and are substantively and procedurally fair to, and in the best interests of, Asterias and its stockholders;

approved the Merger Agreement and the Merger; and

resolved to recommend that Asterias' stockholders vote "FOR" the proposal to adopt the Merger Agreement and approve the Merger.

The Asterias Board recommends (by unanimous vote of the disinterested members of the Asterias Board, with Alfred D. Kingsley and Michael H. Mulroy recusing themselves from the vote) that you vote "FOR" the adoption of the Merger Agreement.

In reaching its determinations, the Asterias Board also considered:

the Asterias Special Committee's analyses, conclusions and unanimous determination, which the Asterias Board adopted, that the terms and conditions of the Merger Agreement, the Merger and the other transactions contemplated thereby are fair to, advisable and in the best interests of the stockholders of Asterias and the Asterias Special Committee's unanimous recommendation that the Asterias Board approve and declare fair to, advisable and in the best interests of the Asterias stockholders of Asterias, the Merger Agreement, the Merger and the other transactions contemplated thereby; and

the oral opinion of Raymond James, the Asterias Special Committee's financial advisor, to the Asterias Special Committee (which was confirmed in writing by delivery of Raymond James' written opinion dated November 7, 2018), to the effect that, as of the date of such opinion, and subject to the assumptions, limitations, qualifications and conditions set forth therein, the Exchange Ratio was fair, from a financial point of view, to the holders of Asterias Common Stock, other than with respect to any shares of Asterias Common Stock held by BioTime, Asterias or their respective wholly-owned subsidiaries. See the section entitled "*The Merger— Opinion of Asterias' Financial Advisor*."

In considering the recommendation of the Asterias Board to approve the proposal to approve and adopt the Merger Agreement and the Merger, Asterias stockholders should be aware that Asterias' executive officers and directors may have interests in the Merger that are different from, or in addition to, those of Asterias stockholders generally. The Asterias Board and the Asterias Special Committee were aware of these interests during their respective deliberations on the merits of the Merger and in the Asterias Board deciding to recommend that Asterias stockholders vote "FOR" the proposal to approve and adopt the Merger Agreement and the Merger. See the section entitled "*—Interests of Asterias' Directors and Executive Officers in the Merger*."

Opinion of Asterias' Financial Advisor

At the November 7, 2018, meeting of the Asterias Special Committee, representatives of Raymond James rendered Raymond James's oral opinion, which was also shared with the Asterias Board at the November 7, 2018 meeting of the Asterias Board and subsequently confirmed by delivery of a written opinion to the Special Committee, dated November 7, 2018, to the effect that, as of such date, and based upon and subject to the qualifications, assumptions and other matters considered in connection with the preparation of its opinion, the Exchange Ratio to be received by the holders of shares of Asterias' outstanding common stock (other than with respect to any shares of Asterias Common Stock held by BioTime, Asterias or their respective wholly-owned subsidiaries) in the Merger pursuant to the Merger Agreement was fair to such holders from a financial point of view.

The full text of the written opinion of Raymond James is attached as **Annex C** to this joint proxy statement/prospectus. The summary of the opinion of Raymond James set forth in this joint proxy statement/prospectus is qualified in its entirety by reference to the full text of such written opinion. Holders of Asterias Common Stock are urged to read the opinion in its entirety.

Raymond James provided its opinion for the information of the Asterias Special Committee (solely in its members' capacities as such) in connection with, and for purposes of, its consideration of the Merger, and its opinion only addresses whether the Exchange Ratio to be received by the holders of shares of Asterias Common Stock (other than shares of Asterias Common Stock held by BioTime, Asterias or any of their respective wholly-owned subsidiaries) in the Merger pursuant to the Merger Agreement was fair, from a financial point of view, to such holders. No limitations were imposed by the Asterias Special Committee upon Raymond James with respect to the investigation made or the procedures followed in rendering its opinion. The opinion of Raymond James does not address any other term or aspect of the Merger Agreement or the Merger contemplated thereby. The Raymond James opinion does not constitute

a recommendation to the Asterias Board or to any holder of Asterias Common Stock as to how the Asterias Board, such stockholder or any other person should vote or otherwise act with respect to the Merger or any other matter. Raymond James does not express any opinion as to the likely trading range of BioTime Common Shares following the Merger, which may vary depending on numerous factors that generally impact the price of securities or on the financial condition of BioTime at that time.

In connection with the preparation of its opinion, Raymond James, among other things:

reviewed the financial terms and conditions of the Merger as stated in the draft of the Merger Agreement, dated as of November 6, 2018, which we refer to in this section as the "Draft Agreement", such draft being the last draft of the Merger Agreement provided to Raymond James;

reviewed certain information related to the historical, current and future operations, financial condition and prospects of Asterias made available to Raymond James by Asterias, including, but not limited to, financial projections for 2019 through 2038 prepared by the management of Asterias, as approved for Raymond James' use by Asterias which we refer to in this section as the "**Asterias Projections**";

reviewed certain information related to the historical, current and future operations of BioTime made available to Raymond James by Asterias, including, but not limited to, financial projections for 2019 through 2028 prepared by the management of Asterias, as approved for Raymond James's use by Asterias which we refer to in this section as the "**BioTime Projections**," and together with the Asterias Projections, the "**Projections Used By Raymond James**";

reviewed Asterias' recent public filings and certain other publicly available information regarding Asterias;

reviewed BioTime's recent public filings and certain other publicly available information regarding BioTime;

reviewed certain other non-public financial, operating and other information regarding Asterias and BioTime provided to Raymond James by Asterias;

reviewed the financial and operating performance of selected public companies that Raymond James deemed to be relevant;

reviewed the publicly available financial terms of selected transactions that Raymond James deemed to be relevant;

reviewed the current and historical market prices for Asterias Common Stock and BioTime Common Shares, and the current market prices of the publicly traded securities of certain other companies that Raymond James deemed to be relevant;

considered certain discussions and negotiations between representatives of Asterias and BioTime in which Raymond James participated;

conducted such other financial studies, analyses and inquiries, and considered such other factors, as Raymond James deemed appropriate;

discussed with members of the senior management of Asterias certain information relating to the aforementioned and any other matters which Raymond James deemed relevant to its inquiry; and

received a certificate regarding financial statements and projections from the Chief Financial Officer of Asterias as of November 6, 2018.

With the Asterias Special Committee's consent, Raymond James assumed and relied upon the accuracy and completeness of all information supplied by or on behalf of Asterias and BioTime, or otherwise reviewed by or discussed with Raymond James, and Raymond James did not undertake any duty or responsibility to, nor did Raymond James independently, verify any of such information. Raymond James did not make or obtain an independent appraisal of the assets or liabilities (contingent or otherwise) of Asterias or BioTime. With respect to the Projections Used By Raymond James and any other information and data provided to or otherwise reviewed by or discussed with Raymond James, Raymond James, with the Asterias Special Committee's consent, assumed that the Projections Used By Raymond James and such other information and data were reasonably prepared in good faith on bases reflecting the best currently available estimates and judgments of the management of Asterias and BioTime, as applicable, and Raymond James relied upon Asterias to advise Raymond James promptly if any information previously provided became inaccurate or was required to be updated during the period of its review. Raymond James expressed no opinion with respect to the Projections Used By Raymond James or the assumptions on which they were based. Based upon the terms specified in the Draft Agreement, Raymond James assumed that the Merger will qualify as a reorganization under the provisions of Section 368(a) of the Internal Revenue Code. Raymond James relied upon and assumed, without independent verification, that the final form of the Merger Agreement would be substantially similar to the Draft Agreement reviewed by Raymond James in all respects material to its analysis, and that the Merger would be consummated in accordance with the terms of the Merger Agreement without waiver of or amendment to any of the conditions thereto. Furthermore, Raymond James assumed, in all respects material to its analysis, that the representations and warranties of each party contained in the Merger Agreement were true and correct and that each party will perform all of the covenants and agreements required to be performed by it under the Merger Agreement without being waived. Raymond James also relied upon and assumed, without independent verification, that (i) the Merger would be consummated in a manner that complies in all respects with all applicable international, federal and state statutes, rules and regulations, and (ii) all governmental, regulatory or other consents and approvals necessary for the consummation of the Merger would be obtained and that no delay, limitations, restrictions or conditions would be imposed or amendments, modifications or waivers made that would have an effect on the Merger, Asterias or BioTime that would be material to its analysis or opinion.

Raymond James expressed no opinion as to the underlying business decision to effect the Merger, the structure or tax consequences of the Merger, or the availability or advisability of any alternatives to the Merger. The Raymond James opinion is limited to the fairness, from a financial point of view, of the Exchange Ratio to be received by the holders of shares of Asterias Common Stock (other than shares of Asterias Common Stock held by BioTime, Asterias or any of their respective wholly-owned subsidiaries). Raymond James expressed no opinion with respect to any other reasons (legal, business, or otherwise) that may support the decision of the Asterias Board to approve or consummate the Merger. Furthermore, no opinion, counsel or interpretation was intended by Raymond James on matters that require legal, accounting or tax advice. Raymond James assumed that such opinions, counsel or interpretations had been or would be obtained from appropriate professional sources. Furthermore, Raymond James relied, with the consent of the Asterias Special Committee, on the fact that Asterias was assisted by legal, accounting and tax advisors, and, with the consent of the Asterias Special Committee, relied upon and assumed the accuracy and completeness of the assessments by Asterias and its advisors as to all legal, accounting and tax matters with respect to Asterias, BioTime and the Merger.

In formulating its opinion, Raymond James considered only the Exchange Ratio to be received by the holders of shares of Asterias Common Stock (other than shares of Asterias Common Stock held by BioTime, Asterias or any of their respective wholly-owned subsidiaries), and Raymond James did not consider, and its opinion did not address, the

fairness of the amount or nature of any compensation to be paid or payable to any of the officers, directors or employees of Asterias, or class of such persons, in connection with the Merger, whether relative to the Exchange Ratio or otherwise. Raymond James was not requested to opine as to, and it did not express an opinion as to or otherwise address, among other things: (i) the fairness of the Merger to the holders of any class of securities, creditors or other constituencies of Asterias, or to any other party, except to the holders of shares of Asterias Common Stock (other than shares of Asterias Common Stock held by BioTime, Asterias or any of their respective wholly-owned subsidiaries) or (ii) the fairness of the Merger to any one class or group of Asterias' or any other party's security holders or other constituents vis-à-vis any other class or group of Asterias' or such other party's security holders or other constituents (including, without limitation, the allocation of any consideration to be received in the Merger amongst or within such classes or groups of security holders or other constituents). Raymond James expressed no opinion as to the impact of the Merger on the solvency or viability of Asterias or BioTime or the ability of Asterias or BioTime to pay their respective obligations when they come due.

Material Financial Analyses

The following summarizes the material financial analyses conducted by Raymond James and reviewed with the Asterias Special Committee and the Asterias Board at its meetings on November 7, 2018. No company or transaction used in the analyses described below is identical or directly comparable to Asterias, BioTime or the contemplated Merger.

Selected Companies Analysis of Asterias. Raymond James analyzed the equity values of the following six publicly-traded biotechnology companies with a focus on early-stage oncology and/or spinal cord injury (the "Asterias Selected Companies"):

Affimed N.V.

OncoSec Medical Incorporated

Oncolytics Biotech Inc.

Neuralstem, Inc.

Advaxis, Inc.

Invivo Therapeutics Holdings Corp.

Raymond James reviewed the mean, median, 25th percentile and 75th percentile of equity values of the Asterias Selected Companies to derive a range of potential values for Asterias. The results of the Asterias Selected Companies analysis are summarized below:

	Asterias Selected Companies Equity Value as of 11/02/18 ($ in millions)			
	25th Percentile	Median	Mean	*75th Percentile*
Equity Value	$21.7	$ 43.1	$79.9	$ 95.3

Selected Companies Analysis of BioTime. Raymond James analyzed the equity values of the following seven publicly-traded clinical-stage biotechnology companies with a focus on regenerative medicine therapy (the "BioTime Selected Companies"):

Mesoblast Limited

Athersys, Inc.

Celyad SA

Pluristem Therapeutics Inc.

Bellicum Pharmaceuticals, Inc.

Ophthotech Corporation

Capricor Therapeutics, Inc.

Raymond James reviewed the mean, median, 25th percentile and 75th percentile of equity values of the BioTime Selected Companies to derive a range of potential values for BioTime. The results of the BioTime Selected Companies analysis are summarized below:

	BioTime Selected Companies Equity Value as of 11/02/18 ($ in millions)			
	25th Percentile	Median	Mean	*75th Percentile*
Equity Value	$113.7	$198.1	$298.3	$ 287.6

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Raymond James used the ranges of equity values for Asterias and BioTime to calculate the implied share price and implied exchange ratio that would be attributable to the holders of shares of Asterias Common Stock. The implied share price calculations were based on Asterias' fully diluted shares outstanding of 56,243,810 and BioTime's fully diluted shares outstanding of 127,588,607. Raymond James then compared these implied exchange ratios to the Exchange Ratio implied by the Merger. The results of this analysis are summarized below:

	Asterias and BioTime Implied Share Priced from Selected Companies Analysis as of 11/02/18 ($)			
	25th Percentile	Median	Mean	*75th Percentile*
Asterias Implied Share Price	$0.39	$ 0.77	$1.42	$ 1.69
BioTime Implied Share Price	$0.89	$ 1.55	$2.34	$ 2.25

	Implied Exchange Ratio as of 11/02/18	
	Minimum	Maximum
Implied Exchange Ratio	0.17	1.90

Raymond James noted that the Exchange Ratio implied by the Merger was within the range of exchange ratios implied by this analysis.

Selected Transaction Analysis - Asterias. Raymond James analyzed publicly available information relating to selected acquisition transactions consummated during the period from January 1, 2017 to November 7, 2018, in which the buyer acquired an ownership stake greater than 49% and in which the target was an early to mid-stage biotechnology company based in the U.S. (the "**Asterias Selected Transactions**"). For each transaction, Raymond James reviewed the total transaction value excluding any contingent value rights ("**CVRs**"). The Asterias Selected Transactions used in the analysis included:

Date Announced	**Target**	**Buyer**
10/09/2018	Vector Neurosciences Inc.	MeiraGTx Holdings plc
09/20/2018	Celenex, Inc.	Amicus Therapeutics, Inc.
09/14/2018	Bonti, Inc.	Allergan plc
12/12/2017	Repros Therapeutics Inc.	Allergan plc
11/02/2017	Ocera Therapeutics, Inc.	Mallinckrodt plc

09/18/2017	Dimension Therapeutics, Inc.	Ultragenyx Pharmaceutical Inc.
06/27/2017	Altor BioScience Corporation	NantCell, Inc.
01/24/2017	GenVec, Inc.	Intrexon Corporation

Raymond James reviewed the mean, median, 25th percentile and the 75th percentile of the transaction values to derive a range of potential values for Asterias. The results of the Asterias Selected Transactions analysis are summarized below:

	Asterias Selected Transactions Transaction Value as of 11/02/18 ($ in millions)			
	25th Percentile	Median	Mean	**75th Percentile**
Transaction Value	$23.6	$ 69.3	$78.6	$ 112.8

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Selected Transaction Analysis - BioTime. Raymond James analyzed publicly available information relating to selected acquisition transaction consummated during the period from January 1, 2017 to November 7, 2018, in which the buyer acquired an ownership stake greater than 49% and in which the target was an early to mid-stage biotechnology company based in the U.S. (the "***BioTime Selected Transactions***"). For each transaction, Raymond James reviewed the total transaction value excluding any CVRs. The BioTime Selected Transactions used in the analysis included:

Date Announced	**Target**	**Buyer**
10/09/2018	Vector Neurosciences Inc.	MeiraGTx Holdings plc
09/26/2018	Syntimmune, Inc.	Alexion Pharmaceuticals, Inc.
09/20/2018	Celenex, Inc.	Amicus Therapeutics, Inc.
09/14/2018	Bonti, Inc.	Allergan plc
01/31/2018	Cascadian Therapeutics, Inc.	Seattle Genetics, Inc.
12/12/2017	Repros Therapeutics Inc.	Allergan plc
11/02/2017	Ocera Therapeutics, Inc.	Mallinckrodt plc
09/18/2017	Dimension Therapeutics, Inc.	Ultragenyx Pharmaceutical Inc.
06/27/2017	Altor BioScience Corporation	NantCell, Inc.
05/23/2017	True North Therapeutics, Inc.	Bioverativ Inc.
01/24/2017	GenVec, Inc.	Intrexon Corporation

Raymond James reviewed the mean, median, 25th percentile and the 75th percentile of the transaction values to derive a range of potential values for BioTime. The results of the BioTime Selected Transactions analysis are summarized below:

	BioTime Selected Transactions Transaction Value as of 11/02/18			
	($ in millions)			
	25th Percentile	Median	Mean	**75th Percentile**
Transaction Value	$34.3	$100.0	$186.6	$ 297.5

Raymond James used this range of transaction values for Asterias and BioTime to calculate the implied share price and implied exchange ratio that would be attributable to the holders of shares of Asterias Common Stock. The implied share price calculations were based on Asterias' fully diluted shares outstanding of 56,243,810 and BioTime's fully diluted shares outstanding of 127,588,607. Raymond James then compared these implied exchange ratios to the Exchange Ratio implied by the Merger. The results of this analysis are summarized below:

	Asterias and BioTime Implied Share Prices from Selected Transactions Analysis as of 11/02/18 ($)			
	25th Percentile	Median	Mean	**75th Percentile**
Asterias Implied Share Price	$0.42	$ 1.23	$1.40	$ 2.01
BioTime Implied Share Price	0.27	0.78	1.46	2.33

	Implied Exchange Ratio as of 11/02/18	
	Minimum	Maximum
Implied Exchange Ratio	0.18	7.47

Raymond James noted that the Exchange Ratio implied by the Merger was within the range of exchange ratios implied by this analysis.

Discounted Cash Flow Analysis of Asterias. Raymond James estimated a range of equity values for Asterias based upon the present value of Asterias' estimated unlevered free cash flows, defined as earnings before interest, taxes, depreciation and amortization (EBITDA) less provisions for taxes plus tax shield from net operating losses carryforward, for fiscal years ended December 31, 2019, through December 31, 2038, in each case with risk adjustments as provided by Asterias' management and approved for Raymond James's use by the Asterias Special Committee. In performing this discounted cash flow analysis, Raymond James utilized discount rates ranging from 16.9% to 18.9%, which were selected based on the capital asset pricing model and the estimated weighted average cost of capital of the Asterias Selected Companies. This discounted cash flow analysis assumed that Asterias has no terminal value. This discounted cash flow analysis was based upon certain assumptions regarding the Projections Used By Raymond James described below in the section of this joint proxy statement/prospectus entitled "*The Merger–Certain Asterias and BioTime Unaudited Prospective Financial Information*," and discussions held with the management of Asterias.

Raymond James reviewed the range of implied equity values resulting from the discounted cash flow analysis to derive a range of illustrative equity values for Asterias. The results of the discounted cash flow analysis are summarized below:

	Asterias Implied Equity Value as of 11/02/18	
	($ in millions)	
	Minimum	Maximum
Implied Equity Value	$55.1	$ 77.9

Discounted Cash Flow Analysis of BioTime. Raymond James estimated a range of equity values for BioTime based upon the present value of BioTime's estimated unlevered free cash flows for fiscal years ended December 31, 2019 through December 31, 2028, in each case with risk adjustments as provided by Asterias and approved for Raymond James' use by the Special Committee. In performing this discounted cash flow analysis, Raymond James utilized discount rates ranging from 16.0% to 18.0%, which were selected based on the capital asset pricing model and the estimated weighted average cost of capital of the BioTime Selected Companies. This discounted cash flow analysis assumed that BioTime has no terminal value. This discounted cash flow analysis was based upon certain assumptions regarding the Projections Used By Raymond James described below in the section of this joint proxy statement/prospectus entitled "*The Merger– Certain Asterias and BioTime Unaudited Prospective Financial Information*," and discussions held with the management of Asterias.

Raymond James reviewed the range of implied equity values resulting from the discounted cash flow analysis to derive a range of illustrative equity values for BioTime. The results of the discounted cash flow analysis are summarized below:

	BioTime Implied Equity Value as of 11/02/18	
	($ in millions)	
	Minimum	Maximum
Implied Equity Value	$196.0	$ 242.9

Raymond James reviewed the range of implied equity values resulting from these discounted cash flow analyses to derive a range of potential values for Asterias and BioTime. Raymond James then used the ranges of potential values for Asterias and BioTime to calculate the implied share price and implied exchange ratio that would be attributable to the holders of shares of Asterias Common Stock. The implied share price calculations were based on Asterias' fully diluted shares outstanding of 56,243,810 and BioTime's fully diluted shares outstanding of 127,588,607. Raymond

James then compared these implied exchange ratios to the Exchange Ratio implied by the Merger. The results of this analysis are summarized below:

	Asterias and BioTime Implied Share Prices from DCF Analysis as of 11/02/18 ($)	
	Minimum	Maximum
Asterias Implied Share Price	$0.98	1.38
BioTime Implied Share Price	1.54	1.90

	Implied Exchange Ratio as of 11/02/18	
	Minimum	Maximum
Implied Exchange Ratio	0.51	0.90

Trading Analysis. Solely for informational purposes. Raymond James analyzed historical closing prices of Asterias and BioTime for the last 30 trading days as of November 2, 2018. Raymond James then used this range of share prices for Asterias and BioTime to calculate an implied exchange ratio and compared them to the proposed Exchange Ratio implied by the Merger. The results of this analysis are summarized below:

	Asterias and BioTime Share Prices Based on Trading (last 30 days)			
	as of 11/02/18 ($)			
	Minimum	Median	Mean	Maximum
Asterias Share Price	$0.80	$ 1.16	$1.13	$ 1.40
BioTime Share Price	1.85	2.10	2.12	2.44

	Implied Exchange Ratio as of 11/02/18	
	Minimum	Maximum
Implied Exchange Ratio	0.33	0.76

Raymond James noted that the Exchange Ratio implied by the Merger was within the range of exchange ratios implied by this analysis.

Additional Considerations. The preparation of a fairness opinion is a complex process and is not susceptible to a partial analysis or summary description. Raymond James believes that its analyses must be considered as a whole and that selecting portions of its analyses, without considering the analyses taken as a whole, would create an incomplete view of the process underlying its opinion. In addition, Raymond James considered the results of all such analyses and did not assign relative weights to any of the analyses, but rather made qualitative judgments as to significance and relevance of each analysis and factor, so the ranges of valuations resulting from any particular analysis described above should not be taken to be the view of Raymond James as to the actual value of Asterias or BioTime.

In performing its analyses, Raymond James made numerous assumptions with respect to industry performance, general business, economic and regulatory conditions and other matters, many of which are beyond the control of Asterias and BioTime. The analyses performed by Raymond James are not necessarily indicative of actual values, trading values or actual future results which might be achieved, all of which may be significantly more or less favorable than suggested by such analyses. Such analyses were provided to the Asterias Special Committee and Asterias Board (solely in its members' capacities as such) and were prepared solely as part of the analysis of Raymond James of the fairness, from a financial point of view, to the holders of shares of Asterias Common Stock of the Exchange Ratio to be received by such holders in connection with the proposed Merger pursuant to the Merger Agreement. The analyses do not purport to be appraisals or to reflect the prices at which companies may actually be

sold, and such estimates are inherently subject to uncertainty. The opinion of Raymond James was one of many factors taken into account by the Asterias Board in making its determination to approve the Merger. Neither Raymond James's opinion nor the analyses described above should be viewed as determinative of the Asterias Board's or Asterias management's views with respect to Asterias, BioTime or the Merger. Raymond James provided advice to Asterias with respect to the proposed Merger. Raymond James did not, however, recommend any specific amount of consideration to the Asterias Board or that any specific exchange ratio constituted the only appropriate consideration for the Merger. The Asterias Special Committee placed no limits on the scope of the analysis performed, or opinion expressed, by Raymond James.

The Raymond James opinion was necessarily based upon market, economic, financial and other circumstances and conditions existing and disclosed to it on November 2, 2018, and any material change in such circumstances and conditions may affect the opinion of Raymond James, but Raymond James does not have any obligation to update, revise or reaffirm its opinion. Raymond James relied upon and assumed, without independent verification, that there had been no change in the business, assets, liabilities, financial condition, results of operations, cash flows or prospects of Asterias or BioTime since the respective dates of the most recent financial statements and other information, financial or otherwise, provided to Raymond James that would be material to its analyses or its opinion, and that there was no information or any facts that would make any of the information reviewed by Raymond James incomplete or misleading in any material respect.

During the two years preceding the date of Raymond James's written opinion, Raymond James has not received any compensation from Asterias for any engagement or services performed. There are no material relationships that existed during the two years prior to the date of the opinion or are mutually understood to be contemplated in which any compensation was received or is intended to be received as a result of the relationship between Raymond James and Asterias. Raymond James has provided certain services to BioTime in the past two years unrelated to the Merger as the sole book-running manager for two public offerings of BioTime Common Shares in February 2017 and October 2017. Raymond James received compensation amounting to approximately $2,932,500 in connection with those services.

For services rendered in connection with the delivery of its opinion, Asterias paid Raymond James a fee upon delivery of its opinion (the "**Opinion Fee**") in the amount of $500,000. Asterias will also pay Raymond James a fee for advisory services in connection with the Merger, which is contingent upon the closing of the Merger (the "**Transaction Fee**"), in the amount equal to 1.35% of any transaction value paid, payable or received in the Merger. Regardless of the transaction value, the minimum total fee is $1,000,000. Asterias also agreed to reimburse Raymond James for its expenses incurred in connection with its services, including the fees and expenses of its counsel, and will indemnify Raymond James against certain liabilities arising out of its engagement.

The delivery of Raymond James' opinion was approved by an opinion committee of Raymond James.

Raymond James is actively involved in the investment banking business and regularly undertakes the valuation of securities in connection with public offerings, private placements, business combinations and similar transactions. In the ordinary course of business, Raymond James may trade in the securities of Asterias and BioTime for its own account and for the accounts of its customers and, accordingly, may at any time hold a long or short position in such securities. Raymond James may provide investment banking, financial advisory and other financial services to Asterias, BioTime or other participants in the Merger in the future, for which Raymond James may receive compensation.

Certain BioTime and Asterias Unaudited Prospective Financial Information

Neither BioTime nor Asterias, as a matter of course, publicly discloses forecasts or internal projections as to future performance, earnings or other results due to, among other reasons, the uncertainties of the new drug development, approval and commercialization processes, as well as other uncertainties associated with underlying assumptions and estimates.

As described above, in connection with Raymond James' evaluation of the fairness of the merger consideration from a financial point of view to the holders of Asterias Common Stock (other than shares of Asterias Common Stock held

by BioTime, Asterias or any of their respective wholly-owned subsidiaries), Raymond James, among other things, was provided by Asterias with the Projections Used By Raymond James, which were approved for Raymond James' use by Asterias. The Projections Used By Raymond James included: (i) certain assumptions and financial estimates regarding the future operations of Asterias, which were prepared by Asterias; and (ii) certain assumptions and financial estimates regarding the future operations of BioTime, which were prepared by Asterias management based on public financial estimates prepared independently without input from BioTime and approved for Raymond James' use by Asterias. Such projections with respect to BioTime were not internally prepared, reviewed or adopted by the BioTime management and the information in such projections was prepared by independent analysts not affiliated with BioTime, at the time and based on assumptions that may not be accurate, and for purposes unrelated to the management of BioTime's business or the Merger.

The inclusion of any unaudited financial projections or assumptions underlying such information, including the Projections Used By Raymond James or a description of their use in connection with Raymond James' evaluation of the fairness of the merger consideration from a financial point of view to the holders of Asterias Common Stock (other than shares of Asterias Common Stock held by BioTime, Asterias or any of their respective wholly-owned subsidiaries) in this joint proxy statement/prospectus, however, should not be regarded as an indication that BioTime, Asterias, the BioTime Board, the Asterias Board, the Asterias Special Committee or the BioTime Special Committee or any other recipient of this information considered, or now considers, the Projections Used By Raymond James to be predictive of actual future results.

As further described above, certain assumptions and financial estimates relating to Asterias were also provided to Maxim and approved by BioTime for use by Maxim in connection with its evaluation of the fairness of the Exchange Ratio and the merger consideration from a financial point of view to BioTime and the shareholders of BioTime (such financial estimates are referred to as the "Forecasts used by Maxim"). The Forecasts used by Maxim were prepared based on information received by BioTime from Asterias and modified by BioTime management, as described in the section entitled "*—Opinion of BioTime's Financial Advisor*." The inclusion of any unaudited financial projections or assumptions underlying such information, including the Forecasts used by Maxim or a description of their use in connection with Maxim's evaluation of the fairness of the Exchange Ratio and the merger consideration from a financial point of view to BioTime and BioTime shareholders in this prospectus, however, should not be regarded as an indication that BioTime, Asterias, the BioTime Board, the Asterias Board, the Asterias Special Committee or the BioTime Special Committee or any other recipient of this information considered, or now considers, the Forecasts used by Maxim to be predictive of actual future results.

You should not place undue reliance on the unaudited financial projections contained in this joint proxy statement/prospectus.

The Projections Used By Raymond James and the Forecasts used by Maxim are being included in this joint proxy statement/prospectus in accordance with subsection (a)(6) of Item 1015 of Regulation M-A because they constitute part of the bases of the analysis conducted by Raymond James and by Maxim as described herein, in connection with delivering their respective opinions described under the section entitled "*—Opinion of BioTime's Financial Advisor*" and "*—Opinion of Financial Advisor to the Asterias Special Committee*."

The Projections Used By Raymond James and the Forecasts used by Maxim are subjective in many respects and thus subject to interpretation. While presented with numeric specificity, the Projections Used By Raymond James and the Forecasts used by Maxim reflect numerous estimates and assumptions that are inherently uncertain with respect to general business, economic, market and financial conditions and matters specific to Asterias or BioTime, including the revenues to be received following FDA approval, the likelihood of receiving FDA approval, and the other factors described or referenced under the section entitled "*Cautionary Statement Regarding Forward-Looking Statements*" and under the section entitled "*Risk Factors*," all of which are difficult to predict and many of which are beyond Asterias' or BioTime's control. Neither Asterias nor BioTime can provide any assurance that the assumptions underlying the Projections Used By Raymond James or the Forecasts used by Maxim are or were reasonable. Many of the assumptions reflected in the Projections Used By Raymond James and the Forecasts used by Maxim are subject to change and none of the Projections Used By Raymond James or the Forecasts used by Maxim reflect revised prospects for Asterias or BioTime business, changes in general business or economic conditions or any other transactions or event that has occurred or that may occur and that was not anticipated at the time such financial information was prepared. The Projections Used By Raymond James and the Forecasts used by Maxim cover multiple years and such information by its nature becomes less predictive with each succeeding year. Neither Asterias nor BioTime assume any obligation, nor does any of them intend, to update or otherwise revise the Projections Used By Raymond James or the Forecasts used by Maxim. There can be no assurance that the results reflected in any of the Projections Used By Raymond James or the Forecasts used by Maxim will be realized or that actual results will not materially vary from the Projections Used By Raymond James and the Forecasts used by Maxim. Therefore, the inclusion of the Projections Used By Raymond James and the Forecasts used by Maxim in this prospectus should not

be relied on as predictive of actual future events nor construed as financial guidance.

Although presented with numerical specificity, the Projections Used By Raymond James and the Forecasts used by Maxim were prepared in the context of numerous variables, estimates and assumptions that are inherently uncertain and beyond BioTime or Asterias' control and which may prove not to have been, or to no longer be, accurate. Important factors that may affect actual results and cause these Projections Used By Raymond James or the Forecasts used by Maxim to not be achieved include, but are not limited to, risks and uncertainties relating to Asterias' business (including its ability to achieve strategic goals, objectives and targets over the applicable periods, and obtain regulatory approval of Asterias' product candidates), industry performance, the regulatory environment, general business and economic conditions and other factors. In addition, the Projections Used By Raymond James and the Forecasts used by Maxim also reflect assumptions that are subject to change and do not reflect revised prospects for Asterias' business, changes in general business or economic conditions or any other transaction or event that has occurred or that may occur and that was not anticipated at the time the Projections Used By Raymond James and the Forecasts used by Maxim were prepared. Accordingly, there can be no assurance that these Projections Used By Raymond James or the Forecasts used by Maxim will be realized or that future financial results will not materially vary from these Projections Used By Raymond James and the Forecasts used by Maxim.

The Projections Used By Raymond James and the Forecasts used by Maxim are forward-looking statements. For information on factors that may cause these future financial results to materially vary, see the section entitled "*Cautionary Statement Concerning Forward-Looking Statements*."

The Projections Used By Raymond James and the Forecasts used by Maxim were prepared for internal use, and were not prepared with a view toward public disclosure, or with a view toward compliance with published guidelines of the SEC regarding projections, the guidelines established by the American Institute of Certified Public Accountants for preparation and presentation of prospective financial information, or GAAP. Neither Asterias' nor BioTime's independent registered public accounting firm, nor any other independent accountants, have compiled, examined or performed any procedures with respect to the prospective financial information included below, or expressed any opinion or any other form of assurance with respect thereto or the achievability of the results reflected in such projections, and none of the foregoing assumes any responsibility for such information.

For the reasons described above, readers of this joint proxy statement/prospectus are cautioned not to rely on the Projections Used By Raymond James or the Forecasts used by Maxim as predictive of actual future events. Neither Asterias nor BioTime has made, in the Merger Agreement or otherwise, any representation to the other party, or to any other person, concerning any of the Projections Used By Raymond James or the Forecasts used by Maxim.

The summaries of the Projections Used By Raymond James and the Forecasts used by Maxim are not included in this joint proxy statement/prospectus in order to induce any BioTime shareholder or Asterias stockholder to vote in favor of the Merger or any of the other proposals to be voted on at either the BioTime Special Meeting or the Asterias Special Meeting.

The following tables present, subject to the foregoing, a summary of the Projections Used By Raymond James and the Forecasts used by Maxim:

Projections Used By Raymond James With Respect to the Future Operations of Asterias

The portion of the Projections Used By Raymond James with respect to the future operations of Asterias was prepared by Asterias management and relies on numerous estimates and assumptions including, among others:

Clinical development – The model assumed clinical development of OPC1 in severe spinal cord injury and of VAC2 in non-small cell lung cancer. The model assumed OPC1 receives approval to treat AIS-A, AIS-B, or AIS-C patients with C-5 to C-7 spinal cord injuries in the United States in 2026 and in Japan and Europe in 2028. For VAC2, the model assumed VAC2 receives approval to treat patients with non-small cell lung cancer in the United States in 2027 and China and certain parts of Europe in 2028. For OPC1, the model assumed an 18.8% cumulative probability success from Phase 2 to commercialization. For VAC2, the model assumed a 12.5% cumulative probability of success from Phase 1 to commercialization.

Clinical trial and process development costs – For OPC1, the model assumed confirmatory phase 2 clinical trial costs at $25 million and process development costs of approximately $12 million during phase 2 and pivotal trial costs at $30 million, process development costs of approximately $12 million, and product manufacturing costs of approximately $12 million during phase 3. For VAC2, the model assumed confirmatory phase 2 clinical trial, process development and product manufacturing costs during phase 2 of approximately $30 million and pivotal trial, process development costs and product manufacturing costs during phase 3 of approximately $48 million.

Addressable population and penetration – For OPC1, the maximum addressable population of patients (those patients who could possibly benefit from a therapy) was set at 80% due to limited competition in this indication and occurred in the fifth year following commercialization. For VAC2, the maximum addressable population of patients was set at a much lower 15% due to the competitive landscape in non-small cell lung cancer.

Pricing and costs of goods sold (COGS) – For OPC1, a product candidate that has received orphan designation status in the United States, the model assumed a sale price of $250,000 per patient in the United States and Japan and a sale price of $125,000 per patient in Europe, offset by rebates of 10% and royalty payments to certain third parties. The OPC1 model also assumed a COGS rate of 20%. For VAC2, the model assumed a sale price of $150,000 per course of therapy in the United States and China and a sale price of $100,000 per course of therapy in Europe, offset by rebates of 10% and royalty payments to certain third parties. The VAC2 model also assumed a COGS rate of 20%.

Post-marketing R&D Costs – The model assumed a greater of (i) $10 million per year or (ii) 5% of sales of post-commercial research and development or process development work. These costs may relate to different OPC1 or VAC2 indications, CMC optimization work, or studies targeting different populations.

Sales and Marketing Costs – Sales and marketing efforts for OPC1 can be targeted due to the limited number of Level 1 Trauma Centers that address these types of injuries (management approximates 30-40 sales persons). That being said, management assumed sales and marketing costs of the greater of at least $5 million annually or 4% of sales.

General and Administrative (G&A) Costs – The model assumed G&A costs similar to current levels with a 3% annual increase in these costs. The model also assumed an additional $2 million in G&A costs starting when OPC1 enters the E.U. and Japanese markets.

Asterias Projections (in millions)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Risk Adjusted Net Income / (Loss)	(12.2)	(18.3)	(16.3)	(16.5)	(16.3)	(14.9)	(14.2)	(3.9)	26.5	57.7
	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Risk Adjusted Net Income / (Loss)	79.3	83.6	101.6	114.6	121.5	126.2	130.5	134.8	139.3	144.0

Projections Used By Raymond James With Respect to the Future Operations of BioTime

The assumptions and financial estimates regarding BioTime that is included in the Projections Used By Raymond James were prepared based on public financial projections prepared independently without input from BioTime but were modified based on Asterias management's own view on the probabilities of success for BioTime's clinical product candidates. The modified assumptions that were used to revise public financial projections related to the probability of success for BioTime's OpRegen and Renevia product candidates. For OpRegen, Asterias management applied a cumulative probability of success from Phase 1/2 to commercialization of 14% for Dry AMD. For Renevia, Asterias management applied a probability of success of 35% for obtaining European approval in HIV-related FLA and a cumulative probability of success to commercialization for indications beyond HIV-related FLA of 9.4%. BioTime did not prepare or review such projections, and Asterias did not seek BioTime's review, of such projections.

BioTime Projections (in millions)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Risk Adjusted Net Income / (Loss)	(44.9)	(48.4)	(72.3)	(104.8)	(46.2)	97.8	209.9	266.8	409.2	523.3

Maxim Projections

The Forecasts used by Maxim, which were approved by BioTime for use by Maxim in connection with its opinion were prepared based upon certain non-public financial analyses and projected cash-based data relating to Asterias initially prepared by Asterias management and modified by BioTime after making certain adjustments to the computation of cash flows that were deemed appropriate by the BioTime management. The projected cash-based data provided by Asterias to BioTime consists of (i) projections relating to Asterias' OPC-1 clinical program that Asterias provided to BioTime in the first quarter of 2018 (the "**OPC1 Projections**") and (ii) projections relating to Asterias' VAC2 clinical program that Asterias provided to BioTime in October 2018 (the "**VAC2 Projections**"). When Asterias updated its projections for OPC1 in October 2018 (the "**Updated OPC1 Projections**"), and provided the Updated OPC1 Projections to Raymond James in connection with the rendering of a fairness opinion, Asterias did not provide, and BioTime did not use, the Updated OPC1 Projections because BioTime had already did extensive analysis of Asterias' OPC1 program using the OPC1 Projections, as modified by adjustments deemed appropriate by BioTime since OPC-1 is an early stage candidate that recently entered clinical development. On the other hand, Asterias did provide to BioTime with the VAC2 Projections in November 2018 because BioTime had not previously prepared a VAC2 model due to VAC2 being in an earlier stage of clinical development. The Forecasts used by Maxim were made available to

Maxim for purposes of its financial analysis as to the fairness of the merger consideration from a financial point of view to BioTime and its shareholders. Below is a description of a number of the main adjustments made by BioTime to the projections prepared by Asterias to create the Forecasts used by Maxim.

Development pathways and expenses – For OPC1 Japan, the clinical development pathway was adjusted to reflect the regenerative medicine conditional approval pathway as stated in the Revised Pharmaceutical Affairs Act (rPAA). This development pathway calls for a small Japanese Phase 2 study followed by up to five years of on-market patient registry data. For VAC2, the costs of the Phase 1 non-small cell lung cancer trial were removed as the trial is 100% funded by Cancer Research UK (CRUK).

Probability of Success – Probability of clinical success assumptions were adjusted to reflect therapeutic area historical data as summarized in the BIO Industry Analysis Report: "Clinical Development Success rates 2006-2015". For the US OPC1 forecast, the probability of success by stage was adjusted using the neurology therapeutic area historical data such that the cumulative probability of Phase 2 through approval success became 14.25 Vs 21.3%. For Japan, the neurology P2 success rate was used for both the Phase 2 study as well as the on-market registry for a cumulative probability of success of 31% Vs 21.3%. For VAC2, the oncology therapeutic area historical data was used such that the cumulative probability of success from Phase 1 through approval became 5.1% Vs 12.5%

Addressable population and penetration – For VAC2, adjustments were made to the forecast assumptions to reflect opinions of immune-oncology therapeutic area experts (KOLs) from a marker research study commissioned by BioTime. The addressable population of patients (those patients who could possibly benefit from a therapy) was adjusted from 15% to 40% in US and EU and 30% in China to reflect KOL views on success rates of approved therapies and the move to combination immunotherapies. The peak penetration rates (the percentage of addressable patients that may go on a therapy) was adjusted from 15% to 20% in the US and EU.

Commercialization scenarios – All forecasts were set to a 'go-it-alone' scenario meaning the combined entity would develop the therapies through to approval and would commercialize. For VAC2, the royalty payable to CRUK was added to the forecast scenario.

These updated forecasts were then provided by management of BioTime to Maxim, who was then directed by the BioTime Special Committee of the BioTime board of directors to use the Forecasts used by Maxim in connection with the rendering of Maxim's fairness opinion and for performing Maxim's related financial analysis, as described under the section titled *"—Opinion of BioTime's Financial Advisor*." A summary of the probability-adjusted free cash flows from the Forecasts used by Maxim is included below to provide BioTime stockholders access to specific non-public information that was considered by the BioTime Special Committee for purposes of evaluating the merger.

The following table contains summary data from the Forecasts used by Maxim.

(in thousands)											
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2
Risk Adjusted Net Income/(Loss)	(10,276)	(19,713)	(18,538)	(13,010)	3,058	7,622	18,970	38,138	60,642	81,006	
	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	
Risk Adjusted Net Income/(Loss)	111,846	122,065	135,233	143,587	152,561	266,658	156,111	164,090	172,492	181,341	

Interests of BioTime's Directors and Executive Officers in the Merger

In considering the recommendations of the BioTime Board with respect to the Merger, BioTime's shareholders should be aware that certain of the directors and executive officers of BioTime have certain interests, including financial interests, in the Merger that may be different from, or in addition to, the interests of BioTime's shareholders generally. The BioTime Board was aware of these interests and considered them, among other matters, in approving the Merger Agreement, and in making its recommendations that BioTime's shareholders approve the BioTime Share Issuance. The BioTime Board also ultimately determined that the Merger Agreement and the transactions contemplated thereby, including the Merger and the BioTime Share Issuance, was fair to, advisable and in the best interests of BioTime and its shareholders. See the sections entitled "*The Merger—Background of the Merger*" and "*The Merger—BioTime's Reasons for the Merger and BioTime Share Issuance; Recommendation of the BioTime Board of Directors*." These interests are described in more detail below.

Service as Directors or Executive Officers of Asterias

Mr. Alfred D. Kingsley, the Chairman of the BioTime Board, and Michael H. Mulroy, a member of the BioTime Board, each serve on the Asterias Board. In addition, Mr. Mulroy serves as Asterias' Chief Executive Officer.

As discussed in the section entitled "*The Merger—Background of the Merger*," the BioTime Board agreed that Messrs. Kingsley and Mulroy would recuse themselves from any vote by the BioTime Board on matters related to a potential acquisition of Asterias, including approval of the economic terms of any such acquisition, and the BioTime Board also held sessions in which such topics were discussed without the participation of Messrs. Kingsley and Mulroy. Additional information regarding the material business and other relationships of the members of the BioTime Board with Asterias is described in BioTime's Proxy Statement for its 2018 annual meeting of stockholders on Schedule 14A, which is incorporated by reference into this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*,"

Ownership of Asterias Common Stock

Certain directors and executive officers of BioTime beneficially own, as of December 17, 2018, an aggregate of 5,964,256 shares of Asterias Common Stock as a group. In connection with the Merger, each outstanding share of Asterias Common Stock (other than shares owned by Asterias, BioTime, or Merger Sub, if any, which will be cancelled), including shares held by any of BioTime's directors and executive officers, will be converted into the right to receive 0.71 BioTime Common Shares, with cash paid in lieu of fractional shares.

The following table sets forth the total number of shares of Asterias Common Stock beneficially owned by each such individual and certain affiliated entities, as well as each of the BioTime Named Executive Officers identified in the BioTime Proxy Statement on Schedule 14A filed with the SEC on March 29, 2018, as of December 17, 2018.

Name	**Number of shares of Asterias Common Stock Beneficially Owned**
Executive Officers	
Michael D. West[1]	3,846
Non-Employee Directors	
Neal C. Bradsher[2]	5,292,156
Alfred D. Kingsley[3]	254,000
Michael H. Mulroy[4]	414,254

(1) Includes 3,846 shares of Asterias Common Stock that may be acquired upon the exercise of certain stock options. Dr. West resigned as BioTime's co-CEO in September 2018.

(2) Includes 5,292,156 shares of Asterias Common Stock owned by Broadwood Capital, Inc. Mr. Bradsher is the President of Broadwood Capital, Inc.

(3) Includes 245,000 shares of Asterias Common Stock that may be acquired upon the exercise of certain stock options.

(4) Includes 283,315 shares of Asterias Common Stock that may be acquired upon the exercise of certain stock options, 33,334 shares of Asterias Common Stock that may be acquired upon the exercise of certain stock options that will become exercisable within 60 days of December 17, 2018. Excludes 683,350 shares of Asterias Common Stock that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

In addition, as of December 17, 2018, BioTime owned 38.9% of the outstanding shares of Asterias Common Stock. Since the deconsolidation of Asterias on May 13, 2016, BioTime experienced a loss of control under U.S. GAAP and Asterias ceased being a consolidated subsidiary but has remained a significant affiliate of BioTime.

Interests of Asterias' Directors and Executive Officers in the Merger

In considering the recommendations of the Asterias' Board with respect to the Merger, Asterias' stockholders should be aware that certain of the directors and executive officers of Asterias have certain interests, including financial interests, in the Merger that may be different from, or in addition to, the interests of Asterias' stockholders generally. The Asterias Board and the Asterias Special Committee were aware of these interests and considered them, among other matters, in evaluating and negotiating the Merger Agreement and in reaching a decision to approve the Merger Agreement and the transactions contemplated therein. These interests are described below.

Service as Directors or Executive Officers of BioTime; Family Relationships

Mr. Michael Mulroy, CEO of Asterias and a member of the Asterias Board, and Mr. Alfred Kinsley, a member of the Asterias Board, each serve on the BioTime Board.

In addition, Mr. Andrew Arno, a member of the Asterias Board, serves of the board of directors of OncoCyte, Inc., a former majority-owned subsidiary of BioTime, Inc. In selecting Mr. Arno for service on the Asterias Special Committee, the Asterias Board concluded, and Mr. Arno agreed, that Mr. Arno's service on the board of directors of OncoCyte, Inc. did not present a material conflict of interest for Mr. Arno.

Aditya Mohanty, a member of the Asterias Board, was a Co-Chief Executive Officer and a member of the BioTime Board until September 17, 2018. As discussed in the section entitled "*The Merger—Background of the Merger*," the Asterias Board approved the creation of the Asterias Special Committee consisting of Don M. Bailey, Andrew Arno and Natale S. Ricciardi, each determined by the Asterias Board to be an independent board member and disinterested with respect to BioTime's proposal to acquire Asterias, to consider the proposal from BioTime and any strategic alternatives thereto.

Merger-Related Compensation for BioTime's Named Executive Officers

The rules promulgated by the SEC under Section 14A of the Exchange Act generally require companies to seek a non-binding advisory vote from stockholders with respect to certain compensation that will or may become payable to their named executive officers in connection with a merger. BioTime is not seeking this non-binding, advisory vote from its stockholders because none of BioTime's named executive officers are entitled to any such merger-related compensation that would otherwise require such a vote. For information regarding the interests of BioTime's named executive officers in the Merger, see the section entitled "*The Merger—Interests of BioTime's Directors and Executive Officers in the Merger*."

Treatment of Asterias Equity Awards

Asterias Stock Options

Each option to purchase Asterias Common Stock that is outstanding and unexercised as of the effective time of the Merger, whether vested or unvested, shall be cancelled and extinguished for no consideration and shall cease to exist after the effective time of the Merger. For a full description of the treatment of Asterias stock options, see the section entitled "*The Merger Agreement—Treatment of Asterias Equity Awards*."

Asterias Restricted Stock Unit Awards

Each Asterias restricted stock unit award that is outstanding immediately prior to the effective time of the Merger will vest in full immediately prior to the effective time of the Merger (if not already vested at such time) and will be cancelled and converted into the right to receive 0.71 BioTime Common Shares in respect of each share of Asterias Common Stock underlying each Asterias restricted stock unit award. For a full description of the treatment of Asterias restricted stock unit awards, see the section entitled "*The Merger Agreement—Treatment of Asterias Equity Awards*."

Assuming that the closing of the Merger occurs on March 30, 2019, the following table sets forth, for each of Asterias' executive officers holding Asterias restricted stock unit awards as of such date, and the number of BioTime Common Shares into which such Asterias restricted stock unit awards will be converted. However, the actual number of Asterias restricted stock unit awards to be converted into BioTime Common Shares will depend on the number of outstanding Asterias restricted stock unit awards held by such individuals immediately prior to the effective time of the Merger. Asterias' directors do not hold any restricted stock unit awards, whether vested or unvested.

	Asterias Restricted **Stock Unit Awards**	BioTime Common Shares
Executive Officers		
Michael H. Mulroy	-	-
Ryan D. Chavez	37,500	26,625
Edward Wirth III	37,500	26,625
Craig Halberstadt	12,500	8,875

Treatment of Asterias Warrants

Pursuant to the terms of the Merger Agreement, each outstanding Asterias Warrant will be treated in accordance with the terms of the applicable Warrant Agreement. For a full description of the treatment of Asterias Warrants, see the section entitled "*The Merger Agreement—Treatment of Asterias Warrants*."

Indemnification; Directors' and Officers' Insurance

The Merger Agreement provides that for not less than six years from and after the effective time of the Merger, the surviving corporation will, and BioTime will cause the surviving corporation to, indemnify and hold harmless all past and present directors, officers and employees of Asterias (collectively, the "**Indemnified Parties**") against any costs or expenses (including advancing attorneys' fees and expenses in advance of the final disposition of any actual or threatened claim, action, investigation, suit or proceeding, whether civil, criminal, administrative or investigative, to each Indemnified Party to the fullest extent permitted by law, as long as such Indemnified Party agrees in advance to return any such funds to which a court of competent jurisdiction has determined in a final, nonappealable judgment such Indemnified Party is not ultimately entitled), judgments, fines, losses, claims, damages, liabilities and amounts paid in settlement in connection with any actual or threatened claim, action, investigation, suit or proceeding in respect of acts or omissions occurring or alleged to have occurred at or prior to the effective time of the Merger (including acts or omissions occurring in connection with the approval of the Merger Agreement and the consummation of the Merger or any of the other transactions contemplated by the Merger Agreement), whether asserted or claimed prior to, at or after the effective time of the Merger, in connection with such persons serving as an officer, director, employee or other fiduciary of Asterias or of any person if such service was at the request or for the benefit of Asterias, to the fullest extent permitted by law or provided pursuant to Asterias' certificate of incorporation and bylaws or any indemnification agreements, if any, in existence on the date of the Merger Agreement.

The Merger Agreement also provides that for six years after the effective time of the Merger, the surviving corporation will cause to be maintained in effect the provisions in (1) Asterias' certificate of incorporation and bylaws

and (2) any other agreements of Asterias with any Indemnified Party, in each case, regarding elimination of liability, indemnification of officers, directors and employees and advancement of expenses that are in existence on the date of the Merger Agreement.

The Merger Agreement also provides that BioTime must also cause the surviving corporation to provide, for an aggregate period of not less than six years from the effective time of the Merger, Asterias' current directors and officers an insurance and indemnification policy that provides coverage for events occurring prior to the effective time of the Merger ("**D&O Insurance**") that is no less favorable than Asterias' existing policy or, if insurance coverage that is no less favorable is unavailable, the best available coverage, subject to certain exceptions.

For a detailed description of these requirements, see the section entitled *"The Merger Agreement—Indemnification; Directors' and Officers' Insurance."*

Merger-Related Compensation for Asterias' Named Executive Officers

Asterias is not seeking a say-on-golden parachute vote because pursuant to the JOBS Act, emerging growth companies, such as Asterias, are exempt from the requirement to hold a "say-on-golden parachute" vote and the disclosure related thereto.

Regulatory Approvals Required for the Merger

BioTime has determined that the acquisition of Asterias is exempt from the premerger notification requirements of the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended. As such, the Merger is not subject to any filings with or authorizations, approvals or consents from federal and state antitrust authorities are required.

Neither BioTime nor Asterias is aware of any other material governmental approvals or actions that are required for completion of the Merger. It is presently contemplated that if any such additional governmental approvals or actions are required, those approvals or actions will be sought. There can be no assurance, however, that any additional approvals or actions will be obtained.

Exchange of Shares in the Merger

Prior to the effective time of the Merger, BioTime will appoint an exchange agent reasonably acceptable to Asterias to manage the exchange of Asterias Common Stock for BioTime Common Shares comprising the merger consideration. Pursuant to the Merger Agreement, at the effective time of the Merger, each issued and outstanding share of Asterias Common Stock (other than shares owned by BioTime or Merger Sub or by Asterias as treasury stock, which will be cancelled) will be automatically converted into 0.71 BioTime Common Shares without the need for any action by the holders of such stock.

At the effective time of the Merger and without any action on the part of any holder of Asterias Common Stock, all non-certificated shares of Asterias Common Stock represented by book-entry shall be deemed surrendered to the exchange agent, and BioTime shall cause the exchange agent to deliver to each holder of such shares the number of uncertificated whole BioTime Common Shares that the holder is entitled to receive pursuant to the Merger Agreement.

Promptly after the effective time of the Merger, BioTime will cause the exchange agent to mail to each holder of a certificate that, prior to the effective time of the Merger, represented shares of Asterias Common Stock a letter of transmittal specifying that delivery will be effected and risk of loss and title to any certificates representing shares of Asterias Common Stock shall pass only upon delivery of such certificates (or affidavits of loss in lieu thereof) to the exchange agent. The letter will also include instructions explaining the procedure for surrendering Asterias Common Stock certificates, if any, in exchange for BioTime Common Shares comprising the merger consideration. Asterias stockholders who hold their shares in street name will not receive letters of transmittal from the exchange agent. Instead, such stockholders may receive separate notices and/or instructions from their bank, broker or other nominee as to what action, if any, should be taken to exchange “street name” shares for the merger consideration. Depending on the practices and policies of their bank, broker or other nominee, stockholders who hold their shares in street name

may not need to take any further action for the applicable merger consideration to be transferred to their accounts. Asterias stockholders who hold their shares in street name should consult their bank, broker or nominee for additional information on the timing and procedures for receiving the merger consideration.

Asterias stockholders of record will not receive any fractional BioTime Common Shares in the Merger. Instead, each Asterias stockholder of record will be entitled to receive a cash payment without interest in lieu of any fractional BioTime Common Shares it otherwise would have received pursuant to the Merger equal to the product obtained by multiplying (1) the fraction of a BioTime Common Share to which such holder would otherwise have been entitled by (2) the closing price for a BioTime Common Share on NYSE American on the last complete trading day immediately prior to the effective time of the Merger. Similarly, Asterias stockholders who hold their shares in street name will not receive any fractional BioTime Common Shares in the Merger. Instead, such stockholders will receive a cash payment in lieu of any fractional shares they would otherwise have received pursuant to the Merger, as determined by their bank, broker or other nominee. Asterias stockholders who hold their shares in street name should consult their bank, broker or nominee for additional information on such distribution of cash in lieu of fractional shares.

Upon the surrender of an Asterias Common Stock certificate for cancellation to the exchange agent together with a properly completed letter of transmittal, in the case of certificated shares, or the receipt of an “agent’s message” by the exchange agent, in the case of shares of Asterias Common Stock held in book-entry form, Asterias stockholders will receive the merger consideration and any cash in lieu of fractional shares as described in the paragraph above.

After the effective time of the Merger, shares of Asterias Common Stock will no longer be outstanding and will automatically be cancelled and will cease to exist, and each applicable holder of such shares of Asterias Common Stock will cease to have any rights with respect thereto, except the right to receive, upon the surrender of such shares of Asterias Common Stock in accordance with the procedures described above, merger consideration in respect of such shares of Asterias Common Stock. Until holders of Asterias Common Stock have surrendered their shares to the exchange agent for exchange, in the case of certificated shares of Asterias Common Stock, those holders will not receive dividends or distributions declared or made with respect to BioTime Common Shares with a record date after the effective time of the Merger. However, upon the surrender of their shares of Asterias Common Stock, such holders will receive the amount of dividends or other distributions with respect to BioTime Common Shares theretofore paid with a record date after the effective time of the Merger.

After the effective time of the Merger, the stock transfer books of Asterias will be closed and thereafter there will be no further registration of transfers of shares of Asterias Common Stock on the records of Asterias. After the effective time of the Merger, if certificates formerly representing shares of Asterias are presented to BioTime or the exchange agent, they will be cancelled and exchanged for the merger consideration.

BioTime shareholders need not take any action with respect to their stock certificates.

Dividends and Share Repurchases

BioTime publicly announced on October 25, 2018 the distribution of the majority of BioTime's ownership in AgeX. The distribution of the AgeX shares occurred on November 28, 2018 (with record date of November 16, 2018), prior to the closing of the Merger, and therefore, Asterias stockholders will not be entitled to a distribution of AgeX shares. Other than the distribution of AgeX shares, BioTime has not historically paid cash dividends to its stockholders and does not anticipate doing so in the foreseeable future.

Asterias has not historically paid cash dividends to its stockholders and does not anticipate doing so in the foreseeable future.

The Merger Agreement prohibits Asterias from declaring or paying dividends or other distributions on its common stock and from repurchasing shares of Asterias Common Stock until the earlier of the closing of the Merger or the termination of the Merger Agreement without BioTime's consent. The Merger Agreement prohibits BioTime from declaring or paying dividends or other distributions on its common stock to the extent such action would reasonably be expected to prevent, materially delay or materially impair the ability of BioTime or Merger Sub to consummate the transactions contemplated by the Merger Agreement, until the earlier of the closing of the Merger or the termination

of the Merger Agreement without Asterias' consent.

Listing of BioTime Common Shares

Under the Merger Agreement, BioTime will cause the BioTime Common Shares to be issued in the Merger to be approved for listing on NYSE American, subject to official notice of issuance. It is a condition to the completion of the Merger that the BioTime Common Shares to be issued to Asterias stockholders pursuant to the Merger be approved for listing on NYSE American, subject to official notice of issuance.

De-Listing and Deregistration of Asterias Common Stock

Upon the completion of the Merger, the Asterias Common Stock currently listed on NYSE American will cease to be quoted on NYSE American and will subsequently be deregistered under the Exchange Act. This will make certain provisions of the Exchange Act, such as the requirement of furnishing a proxy or information statement in connection with stockholder meetings, no longer applicable to Asterias.

Following the Merger, BioTime Common Shares will continue to be traded on NYSE American under the symbol "BTX."

Accounting Treatment of the Merger

BioTime prepares its consolidated financial statements in accordance with U.S. GAAP. The Merger will be accounted for in accordance with Accounting Standards Codification Topic 805, *Business Combinations*. The purchase price will be allocated to the fair values of assets acquired, including acquired IPR&D, and liabilities assumed. Any excess purchase price after this allocation will be assigned to goodwill. Under the acquisition method of accounting, goodwill and IPR&D is not amortized but is tested for impairment at least annually, or more frequently if circumstances indicate potential impairment. The operating results of Asterias will be consolidated and be part of the Combined Company beginning on the effective date of the Merger.

THE MERGER AGREEMENT

This section describes certain terms of the Merger Agreement. The description in this section and elsewhere in this joint proxy statement/prospectus is qualified in its entirety by reference to the complete text of the Merger Agreement, a copy of which is attached as ***Annex A*** *and is incorporated by reference into this joint proxy statement/prospectus. This summary does not purport to be complete and may not provide all of the information about the Merger Agreement that might be important to you in determining how to vote. We urge you to read the Merger Agreement carefully and in its entirety.*

Explanatory Note Regarding the Merger Agreement

In reviewing the Merger Agreement and this summary, please remember that they have been included to provide you with information regarding the terms of the Merger Agreement and are not intended to provide any other factual information about BioTime, Asterias or any of their subsidiaries. The Merger Agreement contains representations and warranties and covenants by each of the parties to the Merger Agreement, which are summarized below. These representations and warranties have been made solely for the benefit of the other parties to the Merger Agreement and:

- were not intended as statements of fact, but rather as a way of allocating risk to one of the parties if those statements prove to be inaccurate;
- have been qualified by certain confidential disclosures that were made to the other party in connection with the negotiation of the Merger Agreement, which disclosures are not reflected in the Merger Agreement; and
- may apply standards of materiality in a way that is different from what may be viewed as material by you or other investors.

Moreover, information concerning the subject matter of the representations and warranties in the Merger Agreement and described below may have changed since the date of the Merger Agreement and subsequent developments or new information qualifying a representation or warranty may have been included in this joint proxy statement/prospectus. In addition, if specific material facts arise that contradict the representations and warranties in the Merger Agreement, BioTime or Asterias, as applicable, will disclose those material facts in the public filings that it makes with the SEC if it determines that it has a legal obligation to do so. Accordingly, the representations and warranties and other provisions of the Merger Agreement should not be read alone, but instead should be read together with the information provided elsewhere in this joint proxy statement/prospectus and in the documents incorporated by reference into this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*."

Terms of the Merger

The Merger Agreement provides that, on the terms and subject to the satisfaction or waiver of the conditions set forth in the Merger Agreement and in accordance with the DGCL, at the effective time of the Merger, Merger Sub will be merged with and into Asterias, whereupon the separate existence of Merger Sub will cease and Asterias will continue as the surviving entity in the Merger, such that following the Merger, the surviving corporation will be a subsidiary of BioTime.

Completion of the Merger

Unless the parties agree otherwise, the closing of the Merger will take place on the second business day after the satisfaction or waiver of the last of the conditions set forth in the Merger Agreement (other than any such conditions that by their nature are to be satisfied at the Closing, but subject to the satisfaction or waiver of such conditions), unless another date is agreed to in writing by Asterias and BioTime. The Merger will be effective at the time that the parties file a certificate of merger with the Secretary of State of the State of Delaware, unless the parties agree to a later date and time for the completion of the Merger and specify that time in the certificate of merger.

We currently expect to close the Merger in the first quarter of 2019, subject to receipt of the requisite stockholder approvals and regulatory clearances and the satisfaction or waiver of the other conditions to the Merger described below, but we cannot guarantee when or if the Merger will be completed.

Merger Consideration

Under the terms of the Merger Agreement, at the effective time of the Merger, each outstanding share of Asterias Common Stock issued and outstanding immediately prior to the effective time of the Merger will be automatically converted into the right to receive 0.71 BioTime Common Shares.

Asterias stockholders will not receive any fractional BioTime Common Shares in the Merger. Instead, each Asterias stockholder will be entitled to receive an amount in cash without interest in lieu of any fractional BioTime Common Shares it otherwise would have received pursuant to the Merger equal to the product obtained by multiplying (i) the fraction of a BioTime Common Share to which such holder would otherwise have been entitled by (ii) the closing price for a BioTime Common Share on NYSE American on the last complete trading day immediately prior to the effective time of the Merger.

Treatment of Asterias Equity Awards

Stock Options. At the effective time of the Merger, each outstanding option to purchase shares of Asterias Common Stock pursuant to Asterias' Amended and Restated 2013 Equity Incentive Plan (the "**Asterias Equity Plan**") will be cancelled and extinguished for no consideration and will cease to exist after the effective time of the Merger.

Restricted Stock Unit Awards. Each outstanding Asterias restricted stock unit award will vest in full immediately prior to the effective time of the Merger and will be cancelled and converted into the right to receive the merger consideration in respect of each share of Asterias Common Stock underlying such Asterias restricted stock unit award.

Treatment of Asterias Warrants

Warrants. Pursuant to the terms of the Merger Agreement, each outstanding Asterias Warrant will be treated in accordance with the terms of the applicable Warrant Agreement. The Warrant Agreement governing the Asterias Warrants provides that in the event of a fundamental transaction, as described in the warrants and generally including

any reorganization, recapitalization or reclassification of Asterias Common Stock, the sale, transfer or other disposition of all or substantially all of Asterias' properties or assets, Asterias' consolidation or merger with or into another person, the acquisition of more than 50% of Asterias Common Stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by the outstanding Asterias Common Stock, the successor entity is required to assume the obligations of Asterias under the warrant such that holders of the warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such fundamental transaction. In addition, prior to the consummation of any fundamental transaction pursuant to which holders of shares of Asterias Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock, Asterias must make appropriate provision to ensure that the holder of the warrant will thereafter have the right to receive upon exercise of the applicable Asterias Warrant within 90 days after the consummation of the fundamental transaction but, in any event, prior to the expiration date of the applicable Asterias Warrant, in lieu of the shares of the Asterias Common Stock (or other securities, cash, assets or other property) purchasable upon the exercise of the Asterias Warrant prior to such fundamental transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the holder of such Asterias Warrant would have been entitled to receive upon the happening of such fundamental transaction had the Asterias Warrant been exercised immediately prior to such fundamental transaction. In addition, in the event of a fundamental transaction, Asterias or any successor entity will be required to purchase at a holder's option, exercisable at any time concurrently with or within thirty (30) days after the consummation of the fundamental transaction, such holder's warrants for cash in an amount equal to the value of the unexercised portion of such holder's warrants, determined in accordance with the Black Scholes option pricing model as specified in the warrants.

Treatment of the Asterias 2013 Equity Incentive Plan

Under the terms of the Merger Agreement, BioTime will assume sponsorship of the Asterias Equity Plan. All references to Asterias in the Asterias Equity Plan and award agreements for Asterias equity awards will be deemed references to BioTime and references to shares therein will be deemed references to BioTime Common Shares with appropriate equitable adjustments to reflect the Merger and the other transactions contemplated by the Merger Agreement.

Directors of the Combined Company Following the Merger

Pursuant to the Merger Agreement, the board of directors of the Combined Company following the effective time of the Merger will be comprised of the following individuals: Deborah Andrews, Don M. Bailey, Neal C. Bradsher, Brian M. Culley, Stephen C. Farrell, Alfred D. Kingsley, Michael H. Mulroy, Cavan Redmond and Angus C. Russell. Each of Ms. Andrews and Messrs. Bradsher, Culley, Farrell, Kingsley, Mulroy, Redmond and Russell currently serve on the BioTime Board. Mr. Bailey will be appointed to serve on the BioTime Board promptly after the effective time of the Merger.

Representations and Warranties

The Merger Agreement contains representations and warranties made by BioTime and Merger Sub to Asterias and by Asterias to BioTime and Merger Sub. Certain of the representations and warranties in the Merger Agreement are subject to materiality or material adverse effect qualifications (that is, they will not be deemed to be untrue or incorrect unless their failure to be true or correct is material or would result in a material adverse effect). In addition, certain of the representations and warranties in the Merger Agreement are subject to knowledge qualifications, which means that those representations and warranties would not be deemed untrue or incorrect as a result of matters of which certain officers of the party making the representation did not have knowledge, assuming due inquiry.

The Merger Agreement provides that a “material adverse effect” means, with respect to Asterias, any change, effect, development, circumstance, condition, state of facts, event or occurrence that, individually or taken together in the aggregate, is, or would reasonably be expected to (i) be, materially adverse to the business, assets, properties, condition (financial or otherwise) or results of operations of Asterias; provided that none of the following will be deemed, either alone or in combination, to be or constitute a material adverse effect or be taken into account when determining whether a material adverse effect has occurred or may, would or could occur:

conditions in the industry in which Asterias operates;

general economic conditions within the United States or any other country;

conditions in the securities markets, credit markets, currency markets or other financial markets in the United States or any other country;

political conditions in the United States or any other country or acts of war, sabotage or terrorism in the United States or any other country;

earthquakes, hurricanes, tsunamis, tornadoes, floods, mudslides, wild fires or other natural disasters, weather conditions and other force majeure events in the United States or any other country;

changes in applicable law or other legal or regulatory conditions or changes in U.S. GAAP or other accounting standards;

changes in Asterias' stock price or the trading volume of Asterias' stock, or any failure by Asterias to meet any public estimates or expectations of Asterias' revenue, earnings or other financial performance or results of operations for any period, but not, in each case, the underlying cause of such changes or failures;

any change, effect, development, circumstance, condition, state of facts, event or occurrence directly resulting from the announcement of the Merger Agreement or the pendency of the transactions contemplated therein, including any loss of employees; and

the taking of any action explicitly contemplated by the Merger Agreement except any actions taken in the ordinary course of business in compliance with certain covenants contained in the Merger Agreement;

or (ii) prevent, materially delay or materially impede the performance by Asterias of its obligations under the Merger Agreement or any of the transactions contemplated therein (included the consummation of the Merger).

The Merger Agreement provides that a "material adverse effect" means, with respect to BioTime, any change, effect, development, circumstance, condition, state of facts, event or occurrence that, individually or taken together in the aggregate, is, or would reasonably be expected to (i) be, materially adverse to the business, assets, properties, condition (financial or otherwise) or results of operations of BioTime and the subsidiaries of BioTime, taken as a whole; provided that none of the following will be deemed, either alone or in combination, to be or constitute an material adverse effect or be taken into account when determining whether an material adverse effect has occurred or may, would or could occur:

conditions in the industry in which BioTime and the subsidiaries of BioTime operate;

general economic conditions within the United States or any other country;

conditions in the securities markets, credit markets, currency markets or other financial markets in the United States or any other country;

political conditions in the United States or any other country or acts of war, sabotage or terrorism in the United States or any other country;

earthquakes, hurricanes, tsunamis, tornadoes, floods, mudslides, wild fires or other natural disasters, weather conditions and other force majeure events in the United States or any other country;

changes in applicable law or other legal or regulatory conditions or changes in U.S. GAAP or other accounting standards;

changes in BioTime's stock price or the trading volume of BioTime's stock, or any failure by BioTime to meet any public estimates or expectations of BioTime's revenue, earnings or other financial performance or results of operations for any period, but not, in each case, the underlying cause of such changes or failures;

any change, effect, development, circumstance, condition, state of facts, event or occurrence directly resulting from the announcement of the Merger Agreement or the pendency of the transactions contemplated by the Merger Agreement, including any loss of employees; and

the taking of any action explicitly contemplated hereby, except any actions taken in the ordinary course of business in compliance with certain covenants contained in the Merger Agreement;

or (ii) prevent, materially delay or materially impede the performance by BioTime of its obligations under the Merger Agreement or any of the transactions contemplated therein (included the consummation of the Merger).

In the Merger Agreement, Asterias has made representations and warranties regarding, among other topics:

- organization, standing, corporate power and absence of subsidiaries;
- organizational documents;
- capitalization, including the number of shares of Asterias capital stock, stock options and other equity-based awards outstanding or reserved for issuance;
- authority to execute and deliver the Merger Agreement, to perform Asterias' obligations thereunder and to consummate the transactions contemplated by the Merger Agreement and the enforceability of the Merger Agreement against Asterias;
- the declaration of advisability of the Merger Agreement by the Asterias Board and any requisite committee thereof and the approval of the Merger Agreement and the transactions contemplated thereby by the Asterias Board requisite committee thereof;
- the absence of conflicts with, or violations of, organizational documents, applicable law certain contracts as a result of Asterias' entering into the Merger Agreement and consummating the Merger and the other transactions contemplated by the Merger Agreement;
- consents and approvals required in connection with the transactions contemplated by the Merger Agreement;
- compliance with applicable laws and permits;
- documents filed with or furnished to the SEC by Asterias, financial statements, internal controls and accounting or auditing practices;
- the absence of undisclosed liabilities and off-balance-sheet arrangements;
- the absence of a material adverse effect on Asterias since June 30, 2018 and the conduct of business by Asterias in the ordinary course consistent with past practice since June 30, 2018;
- absence of certain litigation and governmental orders;
- employee benefit plan matters;
- labor and employment matters;
- the accuracy of the information to be supplied in this Joint Proxy Statement / Prospectus;
- owned and leased real property;
- intellectual property;
- taxes;

environmental matters;

material contracts;

the listing of Asterias Common Stock on NYSE American;

insurance;

broker's fees and expenses payable in connection with the Merger;

absence or waiver of any applicable anti-takeover law or provision;

the absence of certain business practices and compliance with applicable U.S. trade laws;

the absence of transactions with affiliates;

the vote required to adopt and approve the Merger Agreement, the Merger and the related transactions;

the receipt of an opinion by the special committee of Asterias from the financial advisor of Asterias as to the fairness of the Exchange Ratio from a financial point of view to Asterias stockholders; and

regulatory matters.

In the Merger Agreement, BioTime and Merger Sub have made representations and warranties regarding, among other topics;

organization, standing and corporate power;

organizational documents;

capitalization, including the number of shares of BioTime capital stock and equity-based awards outstanding or reserved for issuance under the BioTime equity plans;

authority to execute and deliver the Merger Agreement, to perform its obligations thereunder and to consummate the transactions contemplated by the Merger Agreement and the enforceability of the Merger Agreement against each of BioTime and Merger Sub;

the declaration of advisability of the Merger Agreement by the BioTime Board and the approval of the Merger Agreement and the transactions contemplated thereby by the BioTime Board;

the absence of conflicts with, or violations of, organizational documents, applicable law and certain contracts as a result of BioTime and Merger Sub entering into the Merger Agreement and consummating the Merger and the other transactions contemplated by the Merger Agreement;

consents and approvals required in connection with the transactions contemplated by the Merger Agreement;

compliance with applicable laws and permits;

documents filed with or furnished to the SEC by BioTime, financial statements, internal controls and accounting or auditing practices;

the absence of undisclosed liabilities and off-balance-sheet arrangements;

the absence of a material adverse effect on BioTime since June 30, 2018 and the actions authorized, committed or agreed by BioTime since June 30, 2018;

absence of certain litigation and governmental orders;

taxes;

- the accuracy of the information to be supplied in this Joint Proxy Statement / Prospectus;
- material compliance with NYSE American Rules;
- broker's fees and expenses payable in connection with the Merger;
- the necessary vote required to adopt and approve the Merger Agreement, the Merger and the related transactions;
- the receipt of an opinion by the special committee of BioTime and the BioTime Board from the financial advisor of BioTime as to the fairness of the Exchange Ratio from a financial point of view to BioTime; and
- the absence of prior activities by Merger Sub.

Survival of Representations and Warranties

None of the representations and warranties in the Merger Agreement will survive the effective time of the Merger.

Conduct of Business Pending the Merger

Each of BioTime and Asterias has undertaken certain covenants in the Merger Agreement restricting the conduct of their respective businesses between the date of the Merger Agreement and the effective time of the Merger. In general, each of BioTime and Asterias has agreed to conduct their respective businesses in all material respects in the ordinary course of business consistent with past practice. In the case of Asterias, Asterias has also agreed to (i) preserve intact its present business organizations and preserve its relationships with customers, suppliers and other persons with whom it has material business relations, (ii) maintain the validity of certain permits, and (iii) keep available the services of key employees of Asterias.

In addition, between the date of the Merger Agreement and the effective time of the Merger, BioTime has agreed not to take, and to cause its subsidiaries not to take, any of the following actions without the prior written consent of Asterias (subject in each case to exceptions specified in the Merger Agreement or previously disclosed in writing to Asterias as provided in the Merger Agreement):

- authorizing or paying any dividends or other distributions, other than dividends or distributions by a wholly owned subsidiary to BioTime or another wholly owned BioTime subsidiary;
- splitting, combining, reducing or reclassifying any of its or its subsidiaries' capital stock, warrants, outstanding equity awards, or other securities in substitution for shares of its capital stock;

authorizing, announcing an intention to authorize, or acquiring equity interest in, or business of, any corporation, partnership, association or other similar business entity or division thereof or any properties or assets (with certain exceptions);

amending its certificate of incorporation and bylaws;

issuing, delivering, selling, granting, pledging or otherwise encumbering or subjecting to any lien (except as otherwise provided by a BioTime benefit plan) on any shares of capital stock, voting securities or other equity interests of BioTime in each case, subject to certain limitations and exceptions; and

repurchasing, redeeming or otherwise acquiring its or its subsidiaries' capital or any rights, warrants or options to acquire any such shares in its capital, subject to certain exceptions.

In addition, between the date of the Merger Agreement and the effective time of the Merger, Asterias has agreed not to take any of the following actions without the prior written consent of BioTime (subject in each case to exceptions specified in the Merger Agreement or previously disclosed in writing to BioTime as provided in the Merger Agreement):

authorizing or paying any dividends on or make any distribution with respect to its outstanding shares of capital stock;

splitting, combining, reducing or reclassifying any of its or its subsidiaries' capital stock, warrants, outstanding equity awards, or other securities in substitution for shares of its capital stock;

subject to certain exceptions, (i) increasing the compensation or benefits payable to Asterias' employee, officer, director or individual independent contractor, (ii) granting to any of Asterias' employee, officer, director or individual independent contractor an increase in severance or termination pay, (iii) entering into any employment, severance or retention agreement with any of Asterias' employee, officer, director or individual independent contractor, (iv) establishing, adopting, entering into, amending or terminating any collective bargaining agreement or Asterias benefit plan, (v) taking any action to accelerate any payment or benefit payable to any of Asterias' employee, officer, director or individual independent contractor, (vi) terminate the employment of any current employee, officer, director or individual independent contractor other than for cause or non-performance of material duties or due to death or disability or (vii) hire any person for employment with Asterias;

commencing, implementing or effecting any material organizational restructuring of Asterias;

reassigning the responsibilities of any employee, officer, director or individual independent contractor at the rank or title of Vice President or higher in any material respect, except that Asterias may terminate any employee, officer, director or individual independent contractor for cause or non-performance of material duties or due to death or disability;

making any material change in financial accounting methods, except as required by U.S. GAAP or SEC policy;

authorizing, announcing an intention to authorize, or acquiring equity interest in, or business of, any corporation, partnership, association or other similar business entity or division thereof or any properties or assets (with certain exceptions);

amending its certificate of incorporation and bylaws;

issuing, delivering, granting, selling, pledging, disposing of or otherwise encumbering (i) any shares of capital stock, voting securities or other equity interest in Asterias, subject to certain exceptions, or (ii) any securities convertible into or exchangeable for any such shares, voting securities or equity interest, or any rights, warrants or options to acquire any such shares in its capital stock, voting securities or equity interests, in each case, subject to certain limitations and exceptions;

repurchasing, redeeming or otherwise acquiring its or its subsidiaries' capital or any rights, warrants or options to acquire any such shares in its capital, subject to certain exceptions;

redeeming, repurchasing, prepaying (other than prepayments of revolving loans), defeasing, incurring, assuming, endorsing, guaranteeing or otherwise become liable for or modify in any material respects the terms of any indebtedness for borrowed money or issue or sell any debt securities or calls, options, warrants or other rights to acquire any debt securities;

making any loans, advances or capital contributions, subject to certain exceptions;

selling, leasing, licensing, transferring, exchanging, swapping or otherwise disposing of, or subject to any encumbrance, any of its material properties or assets, subject to certain exceptions;

settling, paying, discharging or satisfying any litigation, suits, actions, proceedings, arbitrations, mediations, audits, hearings, allegations, claims, demands or inquiries that (i) impose any injunctive relief on Asterias, (ii) concern alleged criminal activity or (iii) involve the payment of money in excess of $50,000 in the aggregate in excess of existing insurance coverage;

commencing any litigation, suits, actions, proceedings, arbitrations, mediations, audits, hearings, or inquiries against any person, except for (i) the routine collection of accounts receivable, or (ii) an action in connection with a breach of the Merger Agreement;

(i) changing any material tax election or tax accounting period, (ii) making any material tax election, (iii) filing any amended tax return without the prior written consent of BioTime, (iv) settling or compromising any audit or proceeding relating to taxes, (v) agreeing to an extension or waiver of the statute of limitations with respect to taxes, (vi) entering into any “closing agreement” within the meaning of Section 7121 of the tax code (or any similar provision of state, local, or non-U.S. Law) or (vii) taking any action that would require the filing of a “gain recognition agreement” to avoid current recognition of income or gain for U.S. federal income tax purposes;

making, or committing to make, any new capital expenditure or expenditures in excess of $100,000 in the aggregate;

(i) entering into any contract or amendment that would be considered a “Material Contract” (as defined in the Merger Agreement), (ii) materially amending, materially modifying or terminating any Material Contract or (iii) waiving, releasing, relinquishing or assigning any Material Contract, right or Claim, subject to certain exceptions;

failing to file, deliver or provide any response, document, information or other material, or pay any fee due and payable, necessary to prevent the abandonment, expiration or termination of certain intellectual property; and

agreeing, in writing or otherwise, to take any of the foregoing actions.

Covenants and Agreements

The Merger Agreement contains certain other covenants and agreements, including covenants relating to:

confidentiality, access by each party to certain information about the other party during the period prior to the effective time of the Merger, including permitting by applicable law representatives of Asterias and BioTime access during normal business hours and upon reasonable advance notice, access to the other parties properties, records and personnel, and notification of certain matters;

use reasonable best efforts to take, or cause to be taken, all actions and to do, or cause to be done, all things necessary or advisable under applicable laws to consummate the Merger and the other transactions contemplated by the Merger Agreement as soon as practicable after the date of the Merger Agreement, subject to the terms and conditions of the Merger Agreement;

cooperation between BioTime and Asterias in connection with public announcements;

the indemnification by BioTime of the directors, officers and employees of Asterias;

the use of each party's reasonable best efforts so that no takeover statute is or becomes applicable to the merger and if such takeover statute becomes applicable, to take all necessary action to eliminate or minimize the effects of such takeover statute;

BioTime's taking all action necessary to cause each of Merger Sub and the surviving corporation to perform their respective obligations under the Merger Agreement;

Asterias' termination of certain Asterias benefit plans prior to the closing of the Merger (if requested by BioTime);

the taking of all steps required by BioTime and Asterias to ensure that any dispositions of Asterias Common Stock and acquisitions of BioTime Common Shares are exempt transactions under Section 16(a) of and Rule 16b-3 promulgated under the Exchange Act;

cooperation between BioTime and Asterias in the defense or settlement of any stockholder litigation relating to the Merger;

cooperation between BioTime and Asterias to cause shares of Asterias Common Stock to be delisted from NYSE American and terminate its registration under the Exchange Act;

use of BioTime's reasonable best efforts to cause the BioTime Common Shares to be issued in the Merger to be approved for listing on NYSE American;

cooperation between BioTime and Asterias and use of commercially reasonable efforts to integrate their respective accounting principles;

the use of each party's reasonable best efforts to cause the Merger to qualify as a "reorganization" within the meaning of Section 368(a) of the Code;

Asterias furnishing BioTime with customary information required in connection with the Merger;

prompt notification to the other party of facts or circumstances reasonably be expected to result in any condition to the consummation of the Merger not being satisfied; and

BioTime's obligations in connection with certain Asterias employee matters.

Asterias Go-Shop

At any time between the date of the Merger Agreement and December 3, 2018 (the "**Go-Shop Period**"), Asterias and its representatives may (i) solicit, initiate, encourage and facilitate any inquiry, discussion, offer or request that constitutes, or could reasonably be expected to lead to an Acquisition Proposal (as defined below), (ii) grant a waiver under or terminate any "standstill" or similar obligation of any third party with respect to Asterias solely to allow such third party to submit an Acquisition Proposal and making available information (including non-public information and books and records) and other access to the person making such Acquisition Proposal pursuant to an acceptable confidentiality agreement and (iii) participate in discussions and negotiations with, furnish non-public information relating to Asterias and afford access to Asterias' books and records, in each case in connection with an Acquisition

Proposal; provided that, in the case of clause (iii), Asterias must first enter into an Acceptable Confidentiality Agreement (as defined in the Merger Agreement) with the recipient of any such information and must insure that the information provided to such recipient have been previously provided or made available to BioTime (or provided or made available within one business day).

Upon the expiration of the Go-Shop Period, Asterias must immediately cease and cause to be terminated, any and all existing activities, discussions or negotiations with any third party conducted prior thereto with respect to any Acquisition Proposal or Acquisition Transaction (as defined below) (other than with respect to each Excluded Party (as defined below) only for so long as such third party is and remains an Excluded Party), and will terminate all access granted to any such third party (other than with respect to each Excluded Party only for so long as such third party is and remains an Excluded Party) to any physical or electronic data room.

No-Solicitation of Alternative Proposals

Upon the conclusion of the Go-Shop Period and except with respect to an Excluded Party, Asterias will not, directly or indirectly:

- solicit, initiate, knowingly encourage, facilitate or induce the making, submission or announcement of an Acquisition Proposal or the making of any inquiry, offer or proposal that would reasonably be likely to lead to any Acquisition Proposal or Acquisition Transaction;
- furnish to any third party any non-public information relating to Asterias or any of its subsidiaries, or afford access to the business, properties, assets, books or records of Asterias or any of its subsidiaries to any third party, in each case in connection with an Acquisition Proposal or an Acquisition Transaction or under circumstances reasonably likely to lead to an Acquisition Proposal or an Acquisition Transaction;
- take any other action intended to assist or facilitate the making of any Acquisition Proposal or any inquiry, offer or proposal that would be reasonably likely to lead to an Acquisition Proposal or Acquisition Transaction;
- participate or engage in discussions or negotiations with any third party regarding an Acquisition Proposal or Acquisition Transaction;
- approve, endorse or recommend an Acquisition Proposal or Acquisition Transaction; or
- execute or enter into any letter of intent, memorandum of understanding or Contract contemplating or otherwise relating to an Acquisition Proposal or Acquisition Transaction.

Notwithstanding these restrictions, the Merger Agreement provides that, if at any time prior to obtaining the requisite Asterias stockholder approval, Asterias may, directly or indirectly, (i) engage or participate in discussions or negotiations with (x) any Excluded Person and (y) any third party that has made a written Acquisition Proposal after the date of the Merger Agreement that was not solicited in violation of the terms and conditions of the Merger Agreement and that the Asterias Board determines in good faith (after consultation with its financial advisor and its outside legal counsel) either constitutes or would reasonably be likely to lead to a Superior Proposal (as defined below) (ii) furnish any non-public information relating to Asterias or any of its subsidiaries to a third party described in clause (y) above; provided that, in the case of any action described in clauses (i) and (ii):

- each of the Asterias Board and any requisite committee thereof has determined in good faith that the failure to take such action would be inconsistent with its fiduciary duties under applicable law;
- either Asterias is already a party to or enters into an Acceptable Confidentiality Agreement with such third party;
- unless prohibited by a confidentiality agreement entered into prior to the date hereof, Asterias notifies BioTime of the identity of such third party and provides BioTime with a copy of such Acquisition Proposal; and

contemporaneously with, or promptly after, furnishing any non-public information to such third party, Asterias furnishes such non-public information to BioTime (to the extent such information has not been previously furnished to BioTime).

For purposes of the Merger Agreement:

"Acquisition Proposal" means any offer, proposal or indication of interest from any third party relating to any Acquisition Transaction.

"Acquisition Transaction" means any transaction or series of related transactions (other than the Transactions) involving: (i) any acquisition or purchase by any third party, directly or indirectly, of more than twenty percent (20%) of any class of outstanding voting or equity securities of Asterias, or any tender offer (including a self-tender offer) or exchange offer that, if consummated, would result in any third party beneficially owning more than twenty percent (20%) of any class of outstanding voting or equity securities of Asterias; (ii) any merger, consolidation, share exchange, business combination, joint venture, recapitalization, reorganization or other similar transaction involving Asterias and a third party pursuant to which the stockholders of Asterias immediately preceding such transaction hold less than eighty percent (80%) of the equity interests in the surviving or resulting entity of such transaction; (iii) any sale, lease (other than in the ordinary course of business), exchange, transfer or other disposition to a third party of more than twenty percent (20%) of the consolidated assets, revenue or net income of Asterias and its subsidiaries (with assets being measured by the fair market value thereof); or (iv) any combination of the foregoing.

"Excluded Party" means any third party from which Asterias or its representatives received during the Go-Shop Period a bona fide written Acquisition Proposal that: (i) remains pending as of, and shall not have been withdrawn prior to, the expiration of the Go-Shop Period; and (ii) during the Go-Shop Period each of the Asterias Board and the Asterias Special Committee reasonably determines in good faith, after consultation with Asterias' financial and legal advisors, constitutes or would be reasonably likely to lead to a Superior Proposal; provided, that any such third party shall cease to be an Excluded Party upon the earliest to occur of the following: (A) such third party's Acquisition Proposal is withdrawn, terminated or expires; (B) each of the Asterias Board and any requisite committee thereof determines in good faith, after consultation with its financial advisor and outside legal counsel, that such third party's Acquisition Proposal no longer constitutes a Superior Proposal or is no longer reasonably likely to lead to a Superior Proposal; and (C) 11:59 p.m. (New York time) on the fiftieth (50^{th}) day following November 7, 2018.

"Superior Proposal" means any written *bona fide* written Acquisition Proposal (except that, for purposes of this definition, the references in the definition of "Acquisition Proposal" to "20%" shall be replaced by "50%") made by a third party after the date of the Merger Agreement that (i) was not solicited in violation of the provisions of the Merger Agreement relating to the go-shop, non-solicitation, notification of certain matters relating to the go-shop and the recommendations of the Asterias Board and BioTime Board; and (ii) which each of the Asterias Board and any requisite committee thereof has determined in its good faith judgment, after consultation with outside legal counsel and financial advisors, taking into account all legal, financial and regulatory aspects of the transaction described in such Acquisition Proposal, including the identity of the Person making such Acquisition Proposal, the certainty of closing, the availability of financing and the ability of such Person to consummate the transactions contemplated by the Acquisition Proposal, (A) would reasonably be expected to be consummated in accordance with its terms (if accepted) and (B) is on terms and conditions more favorable to the holders of Asterias Common Stock (solely in their capacities as such) from a financial point of view than the Transactions (after taking into account any revisions to the terms of the transactions proposed by BioTime and any different time period likely to be required to consummate such Acquisition Proposal relative to the transactions).

Voting of Shares of Asterias Common Stock Owned by BioTime

BioTime has agreed to vote all of the shares of Asterias Common Stock and Asterias Preferred Stock owned beneficially or of record by BioTime or any of its subsidiaries at the Asterias Special meeting. In the event that a special meeting of Asterias stockholders is called for the purposes of obtaining the approval of Asterias stockholders in respect of a Superior Proposal with an Excluded Party that was obtained in accordance with the go-shop provisions of the Merger Agreement, BioTime must vote or cause to be voted all of the shares of Asterias Common Stock and Asterias Preferred Stock owned beneficially or of record by BioTime or any of its subsidiaries in proportion to all other votes cast by other Asterias stockholders.

Termination Rights in Response to a Superior Proposal; Changes in Board Recommendations

BioTime and Asterias have agreed under the Merger Agreements to, through their respective board of directors, recommend to their stockholders to adopt the Merger Agreement (in the case of Asterias) and to approve the issuance of the BioTime Common Shares in the Merger (in the case of BioTime) and to include such recommendations in this joint proxy statement/prospectus.

The Merger Agreement provides that, subject to the exceptions described below, the Asterias Board will not (i) fail to make, withdraw, amend, modify or qualify, in a manner that is adverse to the other party (or publicly propose to withhold, withdraw, amend, modify or qualify) its recommendation of the Merger, (ii) approve, endorse, adopt or recommend, or publicly propose to approve, endorse, adopt or recommend, an Acquisition Proposal or Acquisition Transaction, (iii) fail to include the recommendation by the Asterias Board and the recommendation by the BioTime Board in the joint proxy statement/prospectus or (iv) fail to publicly recommend against any Acquisition Proposal or Acquisition Transaction within ten business days after the commencement of such Acquisition Proposal or Acquisition Transaction (each an "Asterias Board Recommendation Change").

Notwithstanding the foregoing restrictions, the Asterias Board may (i) effect an Asterias Board Recommendation Change or (ii) terminate the Merger Agreement to enter to enter into a definitive agreement to consummate a Superior Proposal if, prior to the Asterias stockholder approval:

- the Asterias Board has received a bona fide Acquisition Proposal after the date of the Merger Agreement that was not obtained in violation the Merger Agreement;
- each of the Asterias Board and the Asterias Special Committee determines in good faith (after consultation with its financial advisor and its outside legal counsel) that such Acquisition Proposal is a Superior Proposal;
- the Asterias Board gives BioTime at least four business day's prior written notice of its intent to effect such Asterias Board Recommendation Change or termination;
- if requested by BioTime during such four business day period, Asterias negotiates in good faith with BioTime regarding modifications to the terms and conditions of the Merger Agreement so that such Superior Proposal ceases to be a superior proposal;
- prior to the end of such four business day period, BioTime fails to provide a counterproposal that is at least as favorable to Asterias stockholders as the superior proposal); and
- each of the Asterias Board and the Asterias Special Committee determines (after consultation with its financial advisor and its outside legal counsel) that, in light of such Superior Proposal, the failure to effect an Asterias Board Recommendation change or terminate the Merger Agreement in order to consummate such Superior proposal would be inconsistent with its fiduciary duties under applicable law.

Asterias may also effect an Asterias Board Recommendation Change in response to an Asterias Intervening Event (as defined below) any time prior to receiving the Asterias stockholder approval in the event that the Asterias Board determines (after consultation with its outside legal counsel) that the failure to effect an Asterias Board Recommendation Change in response to such Asterias Intervening Event would be inconsistent with its fiduciary duties under applicable law, provided that, prior to effecting an Asterias Board Recommendation Change,

- the Asterias Board gives Asterias at least four business day's prior written notice of its intent to effect such Asterias Board Recommendation Change; and

- if requested by BioTime during such four business day period, Asterias negotiates in good faith with BioTime regarding modifications to the terms and conditions of the Merger Agreement.

Further, the Merger Agreement provides that, subject to the exceptions described below, the BioTime Board will not (i) fail to make, withdraw, amend, modify or qualify the BioTime Board Recommendation in a manner that is adverse to Asterias, or publicly propose to withhold, withdraw, amend, modify or qualify the BioTime Board Recommendation in a manner that is adverse to Asterias, or (ii) fail to include the BioTime Board Recommendation in this joint proxy statement/prospectus (each a "BioTime Board Recommendation Change," and together with an Asterias Board Recommendation Change, a "Board Recommendation Change").

Notwithstanding the foregoing restrictions, the BioTime Board may (i) effect a BioTime Board Recommendation Change or (ii) terminate the Merger Agreement in response to a BioTime Intervening Event (as defined below) any time prior to receiving the BioTime shareholder approval in the event that the BioTime Board determines (after consultation with its outside legal counsel) that the failure to effect a BioTime Board Recommendation Change in response to such BioTime Intervening Event would be inconsistent with its fiduciary duties under applicable law, provided that, prior to effecting a BioTime Board Recommendation Change,

the BioTime Board gives Asterias at least four business day's prior written notice of its intent to effect such BioTime Board Recommendation Change; and

if requested by Asterias during such four business day period, BioTime negotiates in good faith with Asterias regarding modifications to the terms and conditions of the Merger Agreement.

For purposes of the Merger Agreement:

"Asterias Intervening Event" means an effect that relates to Asterias (a) that was not known to the Asterias Board, or the material consequences of which (based on facts known to members of the Asterias Board as of the date of the Merger Agreement) were not reasonably foreseeable by the Asterias Board as of the date of the Merger Agreement and (b) that does not relate to (1) any Acquisition Proposal, (2) any change in the price, or change in trading volume, of BioTime Common Shares or Asterias Common Stock and (3) meeting or exceeding internal or analysts' expectations, projections or results of operations; provided that, in the case of each of the exceptions contained in clauses (2) and (3), that the exception shall not apply to the underlying causes giving rise to or contributing to such circumstances or prevent any of such underlying causes from being taken into account in determining whether an Asterias Intervening Event has occurred.

"BioTime Intervening Event" means an effect that relates to BioTime (a) that was not known to the BioTime Board, or the material consequences of which (based on facts known to members of the BioTime Board as of the date of the Merger Agreement) were not reasonably foreseeable by the BioTime Board as of the date of the Merger Agreement and (b) that does not relate to (1) any change in the price, or change in trading volume, of BioTime Common Shares or Asterias Common Stock and (2) meeting or exceeding internal or analysts' expectations, projections or results of operations; provided that, in the case of each of the exceptions contained in clauses (1) and (2), that the exception shall not apply to the underlying causes giving rise to or contributing to such circumstances or prevent any of such underlying causes from being taken into account in determining whether a BioTime Intervening Event has occurred.

Conditions to the Completion of the Merger

The respective obligations of each of BioTime and Asterias to effect the Merger will be subject to the satisfaction or waiver on or prior to the Closing Date of each of the following conditions:

the requisite approval of the Asterias stockholders and the BioTime shareholders must be obtained;

the registration statement on Form S-4 must become effective in accordance with the provisions of the Securities Act and no stop order suspending the effectiveness of such registration statement shall be issued by the SEC and remain in effect and no proceeding to that effect shall be commenced or threatened in writing by the SEC;

no applicable adverse law injunction, judgment, decree or other order shall have occurred;

any approval of an applicable governmental authority required under any applicable antitrust law (if applicable) must be obtained and any mandatory waiting period related thereto shall have expired; and

the BioTime Common Shares to be issued in the Merger must be approved for listing on NYSE American, subject to official notice of issuance.

In addition, the obligations of BioTime and Merger Sub to effect the Merger are subject to the satisfaction or waiver of the following conditions:

certain representations and warranties of Asterias (relating to capitalization and vote required) must be true and correct as of the date of the Merger Agreement and the Closing Date, except, in the case of the Capitalization representation, for de minimis inaccuracies where the failure to be true and correct would not reasonably be expected to result in additional cost, expense or liability to the parties and their affiliates, individually or in the aggregate that is more than $300,000;

certain representations and warranties of Asterias (relating to organization and power, a uthority, brokers and expenses and opinion of financial advisor) must be true and correct in all material respects as of the date of the Merger Agreement and the Closing Date;

all other representations not referred to in the preceding clauses must be true and correct as of the date of the Merger Agreement and the Closing Date, except for any failure to be so true and correct that has not had, and would not reasonably be expected to have, individually or in the aggregate, a material adverse effect on Asterias;

Asterias must comply with or perform, in all material respects, all covenants, obligations and agreements of Asterias under the Merger Agreement to be complied with or performed by it prior to the effective time of the Merger;

no material adverse effect with respect to Asterias shall have occurred since the date of the Merger Agreement;

Asterias shall have furnished BioTime with a certificate signed on its behalf by the chief executive officer or chief financial officer of Asterias to the effect that the conditions set forth above are satisfied; and

BioTime shall have received confirmation that all persons who received non-public information relating to Asterias in connection with the go-shop provisions of the Merger Agreement have either returned or destroyed all such non-public information.

In addition, the obligations of Asterias to effect the Merger are subject to the satisfaction or waiver of the following conditions:

certain representations and warranties of BioTime (relating to capitalization and vote required) being true and correct as of the date of the Merger Agreement and the Closing Date, except, in the case of the Capitalization representation, for de minimis inaccuracies where the failure to be true and correct would not reasonably be expected to result in additional cost, expense or liability to the parties and their affiliates, individually or in the aggregate that is more than $1.5 million;

certain representations and warranties of BioTime (relating to organization and power, a uthority, brokers and expenses and opinion of financial advisor) being true and correct in all material respects as of the date of the Merger Agreement and the Closing Date;

all other representations not referred to in the preceding clauses being true and correct as of the date of the Merger Agreement and the Closing Date, except for any failure to be so true and correct that has not had, and would not reasonably be expected to have, individually or in the aggregate, a material adverse effect on BioTime;

BioTime and Merger Sub have complied with or performed, in all material respects, all covenants, obligations and agreements of BioTime and Merger Sub under the Merger Agreement to be complied with or performed by them on or prior to the effective time of the Merger;

no material adverse effect with respect to BioTime has occurred since the date of the Merger Agreement; and

BioTime has furnished Asterias with a certificate signed on its behalf by the chief executive officer or chief financial officer of BioTime to the effect that the conditions set forth above are satisfied.

Termination of the Merger Agreement

The Merger Agreement may be terminated and the Merger and the other transactions contemplated by the Merger Agreement may be abandoned as follows:

by mutual written consent of BioTime and Asterias;

by either BioTime or Asterias:

if an applicable governmental authority of competent jurisdiction has issued an adverse law injunction, judgment, decree or other order restraining, permanently enjoining or otherwise permanently prohibiting the Merger;

if, prior to the effective time of the Merger, the other party breaches a representation, warranty, covenant or agreement contained in the Merger Agreement such that the closing conditions cannot be satisfied and such breach is not curable by May 31,2019 (the "Outside Date") or, if curable by the Outside Date, has not been cured within the earlier of thirty calendar days after the receipt of notice thereof by the defaulting party from the non-defaulting party or three business days before the Outside Date;

if the Merger has not been successfully completed by the Outside Date;

if Asterias fails to obtain the Asterias stockholder approval; or

if BioTime fails to obtain the BioTime shareholder approval;

by BioTime:

if the Asterias Board (i) effects an Asterias Adverse Change Recommendation, (ii) fails to include the Asterias Board Recommendation in this joint proxy statement/prospectus, (iii) following a public tender offer or exchange offer, fails to recommend against acceptance of such offer within 10 business days, (iv) fails to publicly reaffirm the Asterias Board Recommendation within 10 business days following written request by BioTime following any public statement by an Asterias stockholder or member of the Asterias Board expressing opposition to the Merger;

if Asterias has materially and willfully breached its obligations under the go-shop, non-solicitation or notice and information provisions of the Merger Agreement; or

if, prior to the receipt of the approval of BioTime's shareholders, the BioTime Board or any requisite committee thereof has effected a BioTime Board Recommendation Change in compliance with the terms of the Merger Agreement and BioTime pays a termination fee (as described below);

by Asterias:

if, prior to the receipt of the approval of BioTime's shareholders, (i) the BioTime Board or any requisite committee thereof has effected a BioTime Board Recommendation Change, (ii) BioTime fails to include the BioTime Board Recommendation in this joint proxy statement / prospectus, or (iii) BioTime fails to publicly reaffirm the BioTime Board Recommendation within 10 business days after Asterias requests such reaffirmation in writing following any public statement by a shareholder of BioTime or a member of the BioTime Board in opposition to the Merger; or

if Asterias receives a Superior Proposal, the Asterias Board has determined to terminate the Merger Agreement, Asterias has complied with the go-shop, non-solicitation or notice and information provisions of the Merger Agreement and prior to or concurrently with such termination Asterias pay BioTime a termination fee (as described below).

If the Merger Agreement is validly terminated, the agreement will become null and void and there will be no liability on the part of BioTime, Merger Sub or Asterias, except in the case of fraud or a willful or intentional breach of a representation, warranty, covenant or agreement set forth in the Merger Agreement. The provisions of the Merger Agreement relating to BioTime's vote, publicity, effects of termination, expenses, interpretation, governing law, jurisdiction, waiver of jury trial, assignment and specific performance, as well as the confidentiality agreement entered into between BioTime and Asterias, will continue in effect notwithstanding termination of the Merger Agreement.

Expenses and Termination Fees

Generally, each party shall pay all fees and expenses incurred by it in connection with the Merger and the other transactions and agreements contemplated by the Merger Agreement. However, upon a termination of the Merger Agreement, a party may become obligated to pay to the other party a termination fee or expense reimbursement in certain circumstances, as described below.

Asterias will be obligated to pay a termination fee of $2 million in cash to BioTime if:

Asterias terminates the Merger Agreement, as permitted by and in compliance with the terms of the Merger Agreement, prior to obtaining the approval of the Asterias stockholders required to consummate the Merger, in order to enter into a binding agreement providing for a Superior Proposal;

BioTime terminates the Merger Agreement (i) because Asterias has materially and willfully breached the go-shop, non-solicitation and notice and information provisions of the Merger Agreement, (ii) prior to obtaining the approval of Asterias stockholders for the Merger, because

the Asterias Board effects an Asterias Adverse Change Recommendation,

Asterias fails to include the Asterias Board Recommendation in this joint proxy statement/prospectus,

following a public tender offer or exchange offer, Asterias fails to recommend against acceptance of such offer within 10 business days, or

Asterias fails to publicly reaffirm the Asterias Board Recommendation within 10 business days following written request by BioTime following any public statement by an Asterias stockholder or member of the Asterias Board expressing opposition to the Merger;

(i) the Merger Agreement is terminated by BioTime because (A) because the Merger had not been consummated by the Outside Date, (B) because Asterias stockholders failed to approve the Merger proposal, or (C) Asterias materially breached the Merger Agreement, and (ii) Asterias consummates an Acquisition Transaction within 12 months after such termination or Asterias enters into a definitive agreement providing for an Acquisition Transaction within 12 months after such termination and such Acquisition Transaction is consummated (whether or not within the 12 month period) (for purposes of this provision of the Merger Agreement, references to "twenty percent (20%)" in the definition of Acquisition Transaction are deemed to be references to "fifty percent (50%)").

BioTime will be obligated to pay a termination fee of $2 million in cash to Asterias if:

- the Merger Agreement is terminated by BioTime, prior to obtaining the approval of BioTime shareholders for the Merger, the BioTime Board has effected a BioTime Board Recommendation Change in compliance with the terms of the Merger Agreement; or

- the Merger Agreement is terminated by Asterias, prior to obtaining the approval of BioTime shareholders for the Merger, (i) the BioTime Board or the BioTime Special Committee effects a BioTime Board Recommendation Change, (ii) BioTime fails to include the BioTime Board Recommendation in this joint proxy statement/prospectus or (iii) BioTime fails to publicly reaffirm the recommendation of the BioTime Board within ten business days after Asterias requests in writing following any public statement by a shareholder of BioTime or a member of the BioTime Board expressing opposition to the Merger or the terms included in the Merger Agreement.

In addition, either BioTime or Asterias must reimburse the expenses of the other party in certain circumstances.

Asterias will be obligated to pay up to $1.5 million of BioTime's out-of-pocket fees, costs and expenses incurred in connection with the execution and performance of the Merger Agreement (which amount shall be credited against any termination fee payable by BioTime to Asterias) if:

- either BioTime or Asterias terminates the Merger Agreement because Asterias fails to obtain the Asterias stockholder approval and the approval of BioTime's shareholders has been obtained; or

- BioTime terminates the Merger Agreement due to Asterias' material breach of the Merger Agreement.

BioTime will be obligated to pay up to $1.5 million of Asterias' out-of-pocket fees, costs and expenses incurred in connection with the execution and performance of the Merger Agreement (which amount shall be credited against any

termination fee payable by Asterias to BioTime) if:

- either BioTime or Asterias terminates the Merger Agreement because BioTime fails to obtain the BioTime shareholder approval and the approval of Asterias' stockholders has been obtained; or

- Asterias terminates the Merger Agreement due to BioTime's material breach of the Merger Agreement.

Directors' and Officers' Insurance and Indemnification

The Merger Agreement provides that for not less than six years from and after the effective time of the Merger, the surviving corporation will, and BioTime will cause the surviving corporation to, indemnify and hold harmless the Indemnified Parties against any costs or expenses (including advancing attorneys' fees and expenses in advance of the final disposition of any actual or threatened claim, action, investigation, suit or proceeding, whether civil, criminal, administrative or investigative, to each Indemnified Party to the fullest extent permitted by law, as long as such Indemnified Party agrees in advance to return any such funds to which a court of competent jurisdiction has determined in a final, nonappealable judgment such Indemnified Party is not ultimately entitled), judgments, fines, losses, claims, damages, liabilities and amounts paid in settlement in connection with any actual or threatened claim, action, investigation, suit or proceeding in respect of acts or omissions occurring or alleged to have occurred at or prior to the effective time of the Merger (including acts or omissions occurring in connection with the approval of the Merger Agreement and the consummation of the Merger or any of the other transactions contemplated by the Merger Agreement), whether asserted or claimed prior to, at or after the effective time of the Merger, in connection with such persons serving as an officer, director, employee or other fiduciary of Asterias or of any person if such service was at the request or for the benefit of Asterias, to the fullest extent permitted by law or provided pursuant to Asterias' certificate of incorporation and bylaws or any indemnification agreements, if any, in existence on the date of the Merger Agreement.

The Merger Agreement also provides that for six years after the effective time of the Merger, the surviving corporation will cause to be maintained in effect the provisions in (1) Asterias' certificate of incorporation and bylaws and (2) any other agreements of Asterias with any Indemnified Party, in each case, regarding elimination of liability, indemnification of officers, directors and employees and advancement of expenses that are in existence on the date of the Merger Agreement, and no such provision will be amended, modified or repealed in any manner that would adversely affect the rights or protections thereunder of any such Indemnified Party in respect of acts or omissions occurring or alleged to have occurred at or prior to the effective time of the Merger (including acts or omissions occurring in connection with the approval of the Merger Agreement and the consummation of the Merger or any of the other transactions contemplated by the Merger Agreement).

BioTime will cause the surviving corporation to provide, for an aggregate period of not less than six years from the effective time of the Merger, Asterias' current directors and officers with D&O Insurance that is no less favorable than Asterias' existing policy or, if insurance coverage that is no less favorable is unavailable, the best available coverage; provided however that the surviving corporation will not be required to pay an annual premium for the D&O Insurance in excess of 300% of the last annual premium paid prior to the date of the Merger Agreement; provided further that Asterias may prior to the effective time of the Merger substitute such policy with a single premium tail coverage with respect to D&O Insurance with an annual cost not in excess of 300% of the last annual premium paid prior to the date of the Merger Agreement.

In the event BioTime or the surviving corporation or any of their respective successors or assigns (1) consolidates with or merges into any other person and will not be the continuing or surviving corporation or entity of such

consolidation or merger or (2) transfers all or substantially all of its properties and assets to any person, then, and in each such case, proper provision will be made so that the successors and assigns of BioTime or the Surviving Corporation, as the case may be, will assume the obligations set forth in the directors' and officers' insurance and indemnification provisions of the Merger Agreement.

Employee and Labor Matters

The Merger Agreement provides that commencing on the effective time of the Merger and ending on December 31, 2019, the surviving corporation will provide individuals who are employees of Asterias immediately prior to the effective time of the Merger and continue to be employees of BioTime or one of the subsidiaries of BioTime (including the surviving corporation) immediately following the effective time of the Merger, but only for so long as such individuals are so employed, employee benefits (other than equity-based awards) that are either (A) substantially comparable to the employee benefits (other than equity-based awards) provided by Asterias on the date of the Merger Agreement or (B) substantially comparable to the employee benefits (other than equity-based awards) provided to similarly-situated employees of BioTime.

As of the effective time of the Merger, BioTime shall, and shall cause the surviving corporation to, use commercially reasonable efforts to give continuing Asterias employees credit for purposes of eligibility, benefit accrual, vesting and entitlement to benefits where length of service is relevant (but not for any purposes under any employee benefit plan that is a defined benefit pension plan or with respect to an equity plan) under any applicable BioTime benefit plan that such employees may be eligible to participate in after the effective time of the Merger for such continuing Asterias employees' service with Asterias to the same extent that such service was credited for purposes of any comparable employee benefit plan of Asterias immediately prior to the effective time of the Merger and in no event shall service prior to the effective time of the Merger be required to be taken into account if such service credit would result in the duplication of benefits with respect to the same period or if such service credit would violate the terms of any BioTime benefit plan.

Amendment and Modification; Waiver

Amendment and Modification. The Merger Agreement may be amended, modified and supplemented by the parties, in writing, at any time before or after receipt of the requisite stockholder approvals. However, after stockholder approval has been received, no amendment is permissible that would require further stockholder approval under applicable law without further approval of such stockholders.

Waiver. At any time prior to the effective time of the Merger, either party may, in writing, (i) extend the time for the performance of any of the obligations or other acts of the other party, (ii) waive any inaccuracies in the representations or warranties made by the other party contained in the Merger Agreement or in any document delivered pursuant thereto or (iii) waive compliance with any of the agreements or conditions by the other party contained in the Merger.

No Third Party Beneficiaries

The Merger Agreement is not intended to confer any rights or remedies upon any person other than the parties and, as described in the section entitled "*The Merger Agreement—Directors' and Officers' Insurance and Indemnification*," the Indemnified Parties.

Specific Performance

The parties have agreed in the Merger Agreement that irreparable injury will occur in the event that any of the provisions of the Merger Agreement is not performed in accordance with its specific terms or is otherwise breached. Each party will be entitled to an injunction or injunctions to prevent or remedy any breaches or threatened breaches of the Merger Agreement by any other party, to an injunction, judgment, decree or other order of specific performance to specifically enforce the terms and provisions of the Merger Agreement and to any further equitable relief.

BIOTIME ADJOURNMENT PROPOSAL

If BioTime fails to receive a sufficient number of votes to approve the BioTime Share Issuance Proposal, BioTime may propose to adjourn the BioTime Special Meeting, if a quorum is present, for a period of not more than 45 days for the purpose of soliciting additional proxies to approve the BioTime Share Issuance Proposal. BioTime currently does not intend to propose adjournment at the BioTime Special Meeting if there are sufficient votes to approve the BioTime Share Issuance Proposal.

Vote Required Recommendation of the BioTime Board

Approval of the BioTime Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal. If you are a BioTime shareholder and fail to vote or fail to instruct your broker or nominee to vote, it will have no effect on the BioTime Adjournment Proposal, assuming a quorum is present; however, if you vote to abstain, it will have the same effect as a vote against the BioTime Adjournment Proposal.

The BioTime Board recommends that BioTime shareholders vote "FOR" the BioTime Adjournment Proposal.

ASTERIAS ADJOURNMENT PROPOSAL

If Asterias fails to receive a sufficient number of votes to approve the Asterias Merger Proposal, Asterias may propose to adjourn the Asterias Special Meeting, if a quorum is present, for a period of not more than 30 days for the purpose of soliciting additional proxies to approve the Asterias Merger Proposal. BioTime currently does not intend to propose adjournment at the Asterias Special Meeting if there are sufficient votes to approve the Asterias Merger Proposal.

Vote Required Recommendation of the Asterias Board

Approval of the Asterias Adjournment Proposal requires the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the proposal. If you are an Asterias stockholder and fail to vote or fail to instruct your broker or nominee to vote, it will have no effect on the Asterias Adjournment Proposal, assuming a quorum is present; however, if you vote to abstain, it will have the same effect as a vote against the Asterias Adjournment Proposal.

The Asterias Board recommends that Asterias stockholders vote “FOR” the Asterias Adjournment Proposal.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

The following is a general discussion of the material U.S. federal income tax consequences of the Merger to U.S. holders (as defined below) of Asterias Common Stock that receive BioTime Common Shares pursuant to the Merger. This discussion is limited to U.S. holders who hold their Asterias Common Stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion is based on current provisions of the Code, Treasury regulations promulgated thereunder, judicial interpretations thereof and administrative rulings and published positions of the Internal Revenue Service (the "**IRS**"), each as in effect as of the date hereof, and all of which are subject to change or differing interpretations, possibly with retroactive effect, and any such change or differing interpretation could affect the accuracy of the statements and conclusions set forth herein.

This discussion does not purport to address all aspects of U.S. federal income taxation that may be relevant to particular holders of Asterias Common Stock in light of their particular facts and circumstances and does not apply to holders of Asterias Common Stock that are subject to special rules under the U.S. federal income tax laws (including, for example, banks or other financial institutions, dealers in securities or currencies, traders in securities that elect to apply a mark-to-market method of accounting, insurance companies, tax-exempt entities, governmental organizations, entities or arrangements treated as partnerships for U.S. federal income tax purposes or other flow-through entities (and investors therein), subchapter S corporations, retirement plans, individual retirement accounts or other tax-deferred accounts, real estate investment trusts, regulated investment companies, holders liable for the alternative minimum tax, certain former citizens or former long-term residents of the United States, holders that are not U.S. holders, U.S. holders having a "functional currency" other than the U.S. dollar, holders who hold shares of Asterias Common Stock as part of a hedge, straddle, constructive sale, conversion transaction or other integrated transaction, holders who own (or are deemed to own) 5% or more of the outstanding stock of Asterias, holders subject to special tax accounting rules under Section 451(b) of the Code and holders who acquired (or will acquire) their shares of Asterias Common Stock through the exercise of employee stock options or otherwise as compensation or through a tax-qualified retirement plan). This discussion also does not address any considerations under U.S. federal tax laws other than those pertaining to the income tax, nor does it address any considerations under the Medicare contribution tax or any state, local or non-U.S. tax laws.

If an entity or arrangement treated as a partnership for U.S. federal income tax purposes holds shares of Asterias Common Stock, the tax treatment of a person treated as a partner in such partnership generally will depend on the status of the partner and the activities of the partnership. Persons that for U.S. federal income tax purposes are treated as a partner in a partnership holding shares of Asterias Common Stock should consult their tax advisors regarding the tax consequences of the Merger to them.

ALL HOLDERS OF ASTERIAS COMMON STOCK SHOULD CONSULT THEIR OWN TAX ADVISORS AS TO THE PARTICULAR TAX CONSEQUENCES TO THEM OF THE MERGER, INCLUDING THE APPLICABILITY AND EFFECT OF ANY U.S. FEDERAL, STATE, LOCAL, NON-U.S. AND OTHER TAX LAWS.

For purposes of this discussion, the term “U.S. holder” means a beneficial owner of shares of Asterias Common Stock that is, for U.S. federal income tax purposes:

an individual who is a citizen or resident of the United States;

a corporation (or any other entity treated as a corporation for U.S. federal income tax purposes) created or organized under the laws of the United States, any state thereof, or the District of Columbia;

an estate, the income of which is subject to U.S. federal income tax regardless of its source; or

a trust (a) if a court within the United States is able to exercise primary supervision over the trust’s administration and one or more U.S. persons have the authority to control all substantial decisions of

the trust or (b) that has a valid election in effect under applicable Treasury regulations to be treated as a U.S. person for U.S. federal income tax purposes.

General

Under the Merger Agreement, Asterias will use reasonable best efforts to obtain a tax opinion from Dentons US LLP, outside counsel to Asterias, satisfying the requirements of Item 601 of Regulation S-K under the Securities Act to the effect that the Merger will qualify as a "reorganization" within the meaning of Section 368(a) of the Code. This opinion will be based on customary assumptions and representations from Asterias, BioTime and Merger Sub, as well as certain covenants and undertakings by Asterias, BioTime and Merger Sub. If any of the assumptions, representations, covenants or undertakings is incorrect, incomplete or inaccurate or is violated, the validity of the opinion described above may be affected and the U.S. federal income tax consequences of the Merger could differ from those described in this joint proxy statement/prospectus.

An opinion of counsel represents counsel's best legal judgment but is not binding on the IRS or any court, and there can be no certainty that the IRS will not challenge the conclusions reflected in the opinion or that a court would not sustain such a challenge. Neither Asterias nor BioTime intends to obtain a ruling from the IRS with respect to the tax consequences of the Merger. If the IRS were to successfully challenge the "reorganization" status of the Merger, the tax consequences would differ from those described in this joint proxy statement/prospectus.

U.S. Federal Income Tax Consequences of the Merger to U.S. Holders

Accordingly, on the basis of the opinion described above, Asterias and BioTime intend for the Merger to qualify as a "reorganization" within the meaning of Section 368(a) of the Code. Assuming such qualification, and subject to the discussion below relating to the receipt of cash in lieu of fractional shares:

- a U.S. holder of Asterias Common Stock will not recognize any gain or loss upon the exchange of shares of Asterias Common Stock for BioTime Common Shares in the Merger;
- a U.S. holder of Asterias Common Stock will have a tax basis in the BioTime Common Shares received in the Merger (including any fractional BioTime Common Shares deemed received and exchanged for cash as described below) equal to the tax basis of the Asterias Common Stock surrendered in exchange therefor; and
- a U.S. holder of Asterias Common Stock will have a holding period for BioTime Common Shares received in the Merger (including any fractional BioTime Common Shares deemed received and exchanged for cash as described below) that includes its holding period for its shares of Asterias Common Stock surrendered in exchange therefor.

Cash in Lieu of Fractional Shares

No fractional BioTime Common Shares will be distributed to holders of Asterias Common Stock in connection with the Merger. A U.S. holder that receives cash in lieu of a fractional share of BioTime Common Shares as a part of the Merger will generally be treated as having received the fractional share pursuant to the Merger and then as having sold that fractional share of BioTime Common Shares for cash. As a result, such U.S. holder will recognize capital gain or loss measured by the difference between the cash received for such fractional share and the portion of the U.S. holder's tax basis in the shares of Asterias Common Stock allocable to the fractional share. Such capital gain or loss will generally be long term capital gain or loss if the holding period for such shares of Asterias Common Stock is more than one year. Long term capital gain of certain non-corporate taxpayers, including individuals, is generally taxed at preferential rates. The deductibility of capital losses is subject to limitations.

Backup Withholding

Backup withholding at the applicable rate (currently, 24%) may apply with respect to certain payments, such as cash received for fractional shares, unless the U.S. holder of the Asterias Common Stock receiving such payments (i) is an exempt holder (and that, when required, provides certification as to its exempt status) or (ii) provides a properly completed IRS Form W-9 containing the holder's name, address, correct federal taxpayer identification number and a statement that the holder is exempt from backup withholding. Backup withholding does not constitute an additional tax, and any amounts withheld from payments to a U.S. holder under the backup withholding rules will be allowed as a refund or credit against the holder's U.S. federal income tax liability, if any, provided the required information is timely furnished to the IRS.

ASTERIAS BUSINESS

Overview

Asterias is a clinical-stage biotechnology company dedicated to developing cell-based therapeutics to treat neurological conditions associated with demyelination and cellular immunotherapies to treat cancer. Asterias has industry-leading technology in two cell types, each with broad potential applicability: (1) oligodendrocyte progenitor cells, which become oligodendrocytes that have the potential to remyelinate axons within the central nervous system and perform other restorative functions, and (2) antigen-presenting dendritic cells, which train T-cells in the immune system to attack and destroy solid or liquid tumor cells across multiple types of cancer.

Asterias currently has three clinical stage programs:

- AST-OPC1 is an oligodendrocyte progenitor cell population derived from pluripotent stem cells that is currently in a Phase 1/2a clinical trial for spinal cord injuries ("**SCI**") that has been partially funded by the California Institute for Regenerative Medicine;
- AST-VAC2 is a non-patient-specific ("**off-the-shelf**") cancer immunotherapy derived from pluripotent stem cells for which a clinical trial in non-small cell lung cancer is being funded and sponsored by Cancer Research UK, the world's largest independent cancer research charity; and
- AST-VAC1 is a patient-specific cancer immunotherapy which has generated positive Phase 2 data in the treatment of Acute Myeloid Leukemia ("**AML**").

Like chimeric antigen receptor, or CAR-T, therapies, AST-VAC1 is an "autologous" therapy meaning that it is sourced from a patient's own cells through a standard process known as leukapheresis. For AST-OPC1 and AST-VAC2, Asterias uses human embryonic stem ("**hES**") cell lines, which were originally isolated in the 1990's and which have almost unlimited capacity to expand and differentiate into the various cell types of the body. For AST-OPC1, hES cells are induced to become an oligodendrocyte progenitor cell population that supplements the body's natural axon remyelination function, which can be damaged or otherwise insufficient as a result of certain neurological events or conditions including spinal cord injury. Likewise for AST-VAC2, the hES cells are differentiated to mature dendritic cells that educate the immune system to target telomerase, a protein produced by most tumor cells.

Asterias believes that its experience, expertise, and intellectual property surrounding oligodendrocyte progenitor cells and dendritic cells provide Asterias with two distinct technology platforms in neurology and cancer immunotherapy. Asterias' neurology platform has the potential for application in additional indications, such as advanced multiple sclerosis and white matter stroke, and Asterias' immunotherapy platform potentially could be employed in any

immunogenic cancer and could be designed to target antigens beyond telomerase.

Corporate History

Asterias was incorporated in Delaware on September 24, 2012. In October 2013, Asterias acquired intellectual property, cell lines, preclinical and clinical data, and other assets from Geron Corporation ("**Geron**") and also acquired rights to use certain hES cell lines and to practice certain patents from BioTime. Additionally, in February 2016, Asterias executed a broad, non-exclusive cross-license with BioTime and its subsidiary ES Cell International Pte Ltd. Asterias' two core technology platforms are based upon and supported by assets acquired from these transactions.

Immediately following Asterias' 2013 transaction with Geron, Asterias was approximately 72% owned by BioTime and, until May 13, 2016, Asterias was a majority-owned and controlled subsidiary of BioTime. As of February 1, 2019, BioTime owned approximately 39% of the outstanding shares of Asterias Common Stock.

Asterias' principal executive offices are located at 6300 Dumbarton Circle, Fremont, California 94555. Asterias' telephone number is (510) 456-3800. Asterias' corporate website is *www.asteriasbiotherapeutics.com.*

Products Under Development

AST-OPC1

About AST-OPC1

Asterias' AST-OPC1 product candidate is an oligodendrocyte progenitor cell population, derived from a current Good Manufacturing Practice ("**cGMP**") master cell bank of undifferentiated hES cells that has been qualified for human use. These cells, which are stored frozen until ready for use, are produced under cGMP conditions and screened for adventitious agents.

Oligodendrocytes are nature's neural insulating cells. Like the insulation covering an electrical wire, oligodendrocytes enable the conduction of electrical impulses along nerve fibers throughout the central and peripheral nervous system. They are also known to promote neural growth, as well as induce blood vessel formation around nerve axons.

AST-OPC1 cells have been shown to reproduce the natural functions of oligodendrocytes in animals, including three potentially reparative functions that address the complex pathologies observed at the site of a spinal cord injury. These activities of AST-OPC1 include production of neurotrophic factors, stimulation of vascularization, and induction of remyelination of denuded axons, all of which are critical for survival, regrowth, and conduction of nerve impulses through axons at the injury site. In preclinical animal testing, AST-OPC1 administration led to remyelination of axons, improved hind limb and forelimb locomotor function, dramatic reductions in injury-related cavitation, and significant preservation of myelinated axons traversing the injury site.

Phase 1/2a Study in Patients with Complete Cervical Spinal Cord Injuries

Based on the results of a previously completed Phase 1 safety trial of AST-OPC1 in thoracic spinal cord injury, Asterias obtained permission from the FDA in August 2014 to initiate a Phase 1/2a dose escalation trial in subjects with neurologically complete (AIS-A) cervical spinal cord injuries (the "**SCiStar study**"). In May 2016, Asterias was granted FDA clearance to expand the SCiStar study to enroll additional subjects to include two additional cohorts of subjects with motor complete, sensory incomplete (AIS-B) cervical spinal cord injury. The SCiStar study is an open-label, single-arm trial testing three sequential escalating doses of AST-OPC1 administered at up to 20 million AST-OPC1 cells in twenty-five subjects with subacute, C-4 to C-7, motor complete (AIS-A or AIS-B) cervical spinal cord injuries ("**SCI**"). These individuals have essentially lost all movement below their injury site and experience severe paralysis of the upper and lower limbs. AIS-A patients have lost all motor and sensory function below their injury site,

while AIS-B patients have lost all motor function but may retain some minimal sensory function below their injury site. AST-OPC1 was administered 21 to 42 days post-injury. Subjects will be followed by neurological exams and imaging procedures to assess the safety and activity of the product.

Asterias completed enrollment of the entire SCiStar study in December 2017. The SCiStar study consists of five cohorts:

Cohort	**Injury Type; AST-OPC1 Dose**	**# of Subjects**
Cohort 1	AIS-A; 2M AST-OPC1 cells (low dose for safety evaluation)	3
Cohort 2	AIS-A; 10M AST-OPC1 cells	6
Cohort 3	AIS-A; 20M AST-OPC1 cells*	6
Cohort 4	AIS-B; 10M AST-OPC1 cells	6
Cohort 5	AIS-B; 20M AST-OPC1 cells*	4
Total		25

In late July 2018, Asterias provided a clinical trial update on the AST-OPC1 SCiStar study that highlighted, among other things, the following:

Positive Safety Profile – Asterias has dosed 25 subjects with AST-OPC1 in the SCiStar study and a total of 30 subjects including the five subjects from a previous Phase 1 safety trial in thoracic spinal cord injury who have been followed for as long as seven years. The results-to-date continue to support the safety of AST-OPC1.

Cell Engraftment - 92% (11/12) of Cohort 3 and 4 subjects have magnetic resonance imaging ("**MRI**") scans at twelve months consistent with the formation of a tissue matrix at the injury site, which is encouraging evidence that AST-OPC1 cells have engrafted at the injury site and helped to prevent cavitation. The 12-month MRI results-to-date for 94% (17/18) of the Cohort 2-4 subjects provide supportive evidence that AST-OPC1 cells have durably engrafted at the injury site and helped to prevent cavitation. In addition, 100% (4/4) of Cohort 5 subjects had MRI scans at six months consistent with the formation of a tissue matrix at the injury site. Cavitation is a destructive process that occurs within the spinal cord following spinal cord injuries, and typically results in permanent loss of motor and sensory function. Additionally, a patient with cavitation can develop a condition known as syringomyelia, which results in additional neurological and functional damage to the patient and can result in chronic pain.

Improved Motor Function - At twelve months, 94% (17/18) of Cohort 2-4 subjects recovered at least one motor level on at least one side and 33% (6/18) of these subjects recovered two or more motor levels on at least one side. Asterias expects to report the 12-month top-line readout for the entire study early in the first quarter of 2019.

In September 2018, Asterias announced that the FDA has accepted Asterias' request to meet to discuss proposed next steps for the OPC1 clinical development program. The meeting with the FDA under OPC1's RMAT designation took place in November 2018. In October 2018, Asterias announced a positive outcome from an independent Data Review Panel's review of the data generated by patients enrolled in the SCiStar study.

Asterias expects to have the 12-month top-line readout for the entire study late in the first quarter of 2019.

The SCiStar study followed a previous Phase 1 clinical trial, in which five subjects with neurologically complete, thoracic spinal cord injury were administered two million AST-OPC1 cells at the spinal cord injury site 7-14 days post-injury. They also received low levels of immunosuppression for the next 60 days. Delivery of AST-OPC1 was successful in all five subjects with no serious adverse events associated with the administration of the cells, with AST-OPC1 itself, or the immunosuppressive regimen. All five subjects have completed at least six years of follow-up. No evidence of rejection of AST-OPC1 was observed in detailed immune response monitoring of all subjects. In four of the five subjects, serial MRI scans indicated that reduced spinal cord cavitation may have occurred. There have been five minor adverse events possibly related to AST-OPC1 such as transient fever and nerve pain. There have been

no unexpected neurological changes to date.

Regenerative Medicine Advanced Therapy Designation and Orphan Drug Designation

In September 2017, the FDA granted Asterias' request for AST-OPC1 to be designated a Regenerative Medicine Advanced Therapy ("**RMAT**") under the 21st Century Cures Act. The RMAT designation is intended to facilitate expedited development, review and approval for important new regenerative medicine therapies for which preliminary clinical evidence indicates the potential to address a serious or life-threatening disease or condition. In addition to providing an avenue for increased and earlier interactions with the FDA, RMAT-designated products may be eligible for priority review and accelerated approval. Asterias expects to have discussions with the FDA sometime in 2018 on the development of AST-OPC1 using the RMAT designation.

In February 2016, Asterias announced that the FDA had granted Asterias' application for Orphan Drug Designation of AST-OPC1 for the treatment of acute spinal cord injury.

Manufacturing and Process Development

Asterias is in the process of establishing additional cGMP master and working cell banks of undifferentiated hES cells of the H1 cell line for future clinical development and commercial use. Asterias is also updating the manufacturing process for AST-OPC1 to improve yields and support a scalable process for eventually manufacturing on a larger scale. Asterias will need to successfully complete the update of the manufacturing process in order to manufacture additional clinical-grade lots of AST-OPC1 to use for future clinical development.

Market Conditions

It is estimated that there are approximately 17,000 new spinal cord injuries annually in the United States (NSCISC SCI Facts and Figures at a Glance (2016)). As of 2016, the National Spinal Cord Injury Statistical Center reported that approximately 4,500 of these new spinal cord injuries annually in the United States are AIS-A, AIS-B or AIS-C patients with C-4 to C-7 spinal cord injuries (https://www.nscisc.uab.edu/). Individuals with neurologically complete cervical spinal cord injury are part of an orphan population with a severe unmet medical need due to the loss of function in all four limbs. These individuals frequently require significant assistance for their care and activities of daily living. A published study estimated the lifetime costs of care for a person who suffers a cervical SCI at age 25 to up to $5.4 million (Y. C. Cao and M. J. DeVivo (2011)).

There are currently no drugs approved by the United States Food and Drug Administration ("**FDA**") specifically for the treatment of spinal cord injury, although methylprednisolone, a corticosteroid generally used as an anti-inflammatory drug, is sometimes prescribed on an off-label basis to reduce acute inflammation in the injured spinal cord immediately after injury. It is believed that in order to effect substantial benefit in treating this complex injury, multiple mechanisms of action are required, such as re-myelination of the demyelinated axons, generation of new blood vessels to repair the ischemic damage from injury, and the presence of biologics that cause neurite or new nerve growth to enable the severed axons to repair. In pre-clinical studies to date, AST-OPC1 cells have been shown to exhibit all three effects.

CIRM Grant and other Funding

In October 2014, Asterias signed a Notice of Grant Award ("**NGA**") with the California Institute for Regenerative Medicine ("**CIRM**"), effective October 1, 2014, with respect to a $14.3 million grant award for clinical development of AST-OPC1. The NGA, as amended, includes the terms under which CIRM will release grant funds to us. Under the NGA, as amended on March 2, 2016, CIRM pledged to disburse the grant funds to Asterias based on Asterias' attainment of certain progress milestones and Asterias has received the entire $14.3 million awarded to Asterias under the NGA.

Asterias will need to raise additional capital in order to conduct subsequent clinical trials and to complete product development work necessary for larger trials and commercialization, which may include additional non-dilutive funding through CIRM and other sources to develop this product.

AST-VAC2 and AST-VAC1

AST-VAC2 and AST-VAC1 are designed to attack cancer cells by targeting the cancer cell's expression of human telomerase ("**hTERT**"). Both product candidates use an immune cell type known as dendritic cells to stimulate immune responses to telomerase. Dendritic cells are antigen processing and presenting cells which are potent initiators of a cellular and antibody-mediated immune response. Telomerase is a pan-cancer antigen, expressed at high levels in nearly all human cancers, but at very low levels or not at all in normal human cells. Somewhat analogous to CAR-T therapies, the premise underlying these vaccines is to stimulate a T cell response to tumor cells. Asterias' AST-VAC programs seek to "teach" the patient's own immune system to attack cancer cells while sparing other normal healthy cells.

Asterias' AST-VAC programs have the potential to be used as a monotherapy or in combination with other therapies. As a monotherapy, Asterias believe its AST-VAC programs, which to date have shown a more favorable safety profile than many other approaches to treat cancer, have potential as a remission maintenance therapy in cancers that are susceptible to immune attack, express telomerase and have high rates of relapse. Asterias believes that its AST-VAC programs are also potentially complimentary with other therapies, such as CAR-T therapies, that program T cells to aggressively attack cancer cells to induce remission but also have less favorable toxicity profiles and therefore are not well tolerated as a remission maintenance therapy. A CAR-T therapy that induces remission could potentially be used in combination with one of Asterias' AST-VAC programs to help a patient stay in remission.

Asterias also believes that its AST-VAC programs may be synergistic with other therapies such as immune checkpoint inhibitors, where the checkpoint inhibitor allows the immune system to again work naturally to attack cancer cells in a situation where the body's own natural response is being suppressed by the cancer. Asterias also believes that its AST-VAC programs have the potential to be applicable therapies across a wide range of cancers since telomerase is expressed at high levels in the vast majority of human cancers.

AST-VAC2

About AST-VAC2

AST-VAC2 is an allogeneic, or non-patient specific, cancer vaccine candidate designed to stimulate patient immune responses to telomerase. AST-VAC2 is produced from hES cells and can be modified with any antigen. The use of hES, as opposed to collecting and using the patient's own blood, as the starting material for AST-VAC2 provides a scalable system for the production of a large number of vaccine doses in a single lot. Allogeneic vaccine production has the potential to have lower manufacturing costs, provide off-the-shelf availability which provides broader access to patients, and ensure greater product consistency. In addition, Asterias believes that this approach has the potential to stimulate a more robust immune response through an adjuvant effect of the immune mismatch between the biological profile of AST-VAC2 and patients receiving the therapy.

Clinical Trial and Option Agreement with Cancer Research UK

During September 2014, Asterias entered into a Clinical Trial and Option Agreement with Cancer Research UK ("**CRUK**") and Cancer Research Technology Limited, a wholly-owned subsidiary of CRUK (the "**CRUK Agreement**"). Under the CRUK Agreement, CRUK has agreed to fund Phase 1 clinical development of Asterias' AST-VAC2 product candidate loaded with the same LAMP-telomerase construct Asterias has used in AST-VAC1. Under the terms of the CRUK Agreement, Asterias is responsible, at Asterias' own cost, for completing process development and manufacturing scale-up of the AST-VAC2 manufacturing process and transferring the resulting cGMP-compatible process to CRUK. CRUK is responsible, at its own cost, for manufacturing clinical grade AST-VAC2 and for carrying out the Phase 1 clinical trial of AST-VAC2. The study will administer AST-VAC2 to treat up to 24 patients with either advanced or resected NSCLC to examine the safety, immunogenicity, and activity of AST-VAC2 and position the immunotherapy for future clinical trials. Asterias will continue to serve in a collaborative and advisory role with CRUK throughout this process. The CRUK Agreement is subject to termination if certain milestones relating to regulatory approvals are not achieved, if Asterias is in material breach of the agreement and Asterias does not cure such breach within 60 days, or if Asterias is insolvent or commence liquidation proceedings. In addition, CRUK may terminate the CRUK Agreement if the clinical trial protocol, or an amendment thereto, is not approved by the regulatory authority, ethics committee or Asterias, if CRUK is not satisfied with the product manufacturing process, if CRUK faces budget constraints, if certain problems arises during the clinical trial, or performance of the CRUK Agreement by CRUK would be unlawful.

In January 2016, Asterias announced that it had completed the technology transfer of the AST-VAC2 manufacturing process to CRUK.

In September 2017, Asterias announced that the Medicines and Healthcare Products Regulatory Agency ("MHRA") and the NHS Research Ethics Committee ("**REC**") had provided the necessary approvals to initiate the first-in-human ("**FIH**") clinical trial of AST-VAC2 in the United Kingdom.

In June 2018, Asterias announced enrollment and dosing of the first patient in the Phase 1 clinical trial of AST-VAC2 in NSCLC. This initial clinical trial will examine the safety and tolerability of AST-VAC2 in NSCLC as the study's primary endpoints. Secondary and tertiary endpoints of the study include evaluations of the immunogenicity of AST-VAC2 in NSCLC. In July 2018, Asterias announced that the Safety Review Committee for the trial held a scheduled meeting to review the safety and tolerability data generated in the first patient enrolled in the study and recommended continuation of the study and moving to parallel enrollment of the second and third patients in the advanced cancer cohort, as planned per the study's protocol. In September 2018, Asterias announced that the Safety Review Committee for the first clinical trial of VAC2 held its second scheduled meeting to review the safety and tolerability data generated in patients two and three enrolled in the study and recommended continuation of the study and moving to open enrollment in the advanced disease cohort, as planned per the study's protocol. The fourth patient in the study to receive VAC2 has recently been dosed and enrollment for the study is ongoing.

Upon completion of the Phase 1 study, Asterias will have an exclusive first option to acquire the data generated in the trial. If Asterias exercises that option Asterias will be obligated to make payments upon the execution of the license agreement and, upon the achievement of various milestones, as well as make royalty payments 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 Asterias by third parties. Asterias would also be obligated to make payments to those licensors and sub licensors upon the achievement of various milestones, and then royalties on sales of products if AST-VAC2 is successfully developed and commercialized.

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 us, certain background intellectual property and will develop a scalable manufacturing and differentiation process for Asterias' AST-VAC2 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 five years after the execution of the Services Agreement. At Asterias' option of, up to GBP £3,600,000 of such payments may be settled in shares of Asterias Common Stock. As of September 30, 2018, Asterias has incurred costs since commencement of the Services Agreement of GBP £3,400,000 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 both parties 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.

AST-VAC1

About AST-VAC1

AST-VAC1 is an autologous product candidate, manufactured from cells that come from the patient. AST-VAC1 consists of antigen-presenting mature dendritic cells pulsed with messenger RNA for the protein component of

hTERT and a portion of a lysosomal targeting signal ("**LAMP**"). LAMP directs the telomerase RNA to the lysosome, the subcellular organelle that directs the RNA to a particular part of the cell membrane. AST-VAC1 is injected into the patient's skin and the dendritic cells travel to the lymph nodes and instruct cytotoxic T cells to kill cancerous tumor cells that express telomerase on their surface; helper T cells are also induced and are also theoretically capable of killing cancer cells.

Asterias does not currently plan to develop AST-VAC1.

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Intellectual Property

The patent portfolio that Asterias acquired pursuant to the Asset Contribution Agreement with Geron, dated January 4, 2013 (the "**Asset Contribution Agreement**"), currently includes approximately 420 patents and patent applications owned by or licensed to Asterias that are directed to pluripotent stem ("**pPS**") cell-, hES cell-, and dendritic cell-based product opportunities. The portfolio encompasses methods for making a number of cell types from hES or other pPS cells, including hepatocytes (liver cells), cardiomyocytes (heart muscle cells), neural cells (nerve cells, including dopaminergic neurons and oligodendrocytes), chondrocytes (cartilage cells), pancreatic islet cells, osteoblasts (bone cells), hematopoietic cells (blood-forming cells) and dendritic cells, and related compositions. Also included in the patent portfolio are technologies for culture and scalable expansion of undifferentiated hES cells or other pPS cells, including methods for culturing without the need for cell feeder layers or conditioned media, and methods for culturing undifferentiated hES or pPS cells in suspension. The patent portfolio also encompasses novel synthetic surfaces for culturing certain hES or pPS-derived differentiated cell types, including oligodendrocytes and oligodendrocyte progenitor cells. In the past 12 months (during a period commencing on February 15, 2017 and ending on February 14, 2018), 46 new patents were issued that are either owned by Asterias or exclusively licensed to us. Included in the 46 new patents issued in the United States, Europe, Japan, Canada, China, Australia, Israel and South Korea are patents for differentiating pPS cells to hematopoietic progenitors and immature and mature dendritic cells (supporting Asterias' AST-VAC2 program) as well as patents covering differentiation of pPS cells to various other lineages, including neural cells, cardiomyocytes and hepatocytes. Other patents that issued during the same period include patents related to various aspects of culture and expansion of undifferentiated hES or pPS cells. With respect to patents that are not specific to Asterias' core programs (AST-OPC1, AST-VAC1, and AST-VAC2), Asterias is evaluating licensing and other partnering opportunities, including assignment of certain patents to third parties, on an ongoing basis. Asterias is also evaluating maintenance costs relative to remaining patent term and may choose to no longer maintain certain of these patents. Collectively, these activities may result in a decrease in the total number of patents owned or controlled by Asterias that are not specific to Asterias' core programs.

In February 2016, Asterias executed a broad, non-exclusive cross-license (the "**Cross-License**") with BioTime and its subsidiary ES Cell International Pte Ltd. ("**ESI**"). Under the Cross-License, Asterias received: (i) non-exclusive worldwide rights in a range of therapeutic fields to over 30 patents and applications relating to hES cells, and (ii) non-exclusive worldwide rights for therapeutic applications of pluripotent stem cell-derived neural and cardiac cells to over 20 patents and applications relating to hydrogel formulations. Under the Cross-License, BioTime and ESI received a broad, non-exclusive license to certain of Asterias' patents and related patent rights for all purposes in the BioTime Licensed Field during the term of the Cross-License. The BioTime Licensed Field includes all fields of use except any and all applications (a) to treat disorders of the nervous system, and (b) utilizing the immune system to prevent, treat, or cure cancer, and (c) involving the use of cells comprising, derived from, or manufactured using, hES cells or human induced pluripotent stem cells for in vitro assay applications, including but not limited to drug discovery and development, drug monitoring, drug toxicology testing, and consumer products testing.

The patent positions for Asterias' core programs (AST-OPC1, AST-VAC1, and AST-VAC2) are summarized below.

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

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

In addition, Asterias has patent protection in the Unites States and various other jurisdictions for producing cardiomyocytes, pancreatic islet cells, hepatocytes, chondrocytes, and osteoblasts. The expiration dates of these patents range from 2020 to 2032. Should a competitor not be able to market a product covered by these patents or if Asterias cannot license these patents before their expiration, the benefits for procurement and maintenance of these rights would not be fully realized and the associated costs would not be fully reimbursed.

Licensed Stem Cell Technology and Stem Cell Product Development Agreements

Telomerase Sublicense

Asterias received the Telomerase Sublicense from Geron in connection with Asterias' acquisition of Geron's stem cell assets. The Telomerase Sublicense grants Asterias an exclusive sublicense under certain patents owned by the University of Colorado's University License Equity Holdings, Inc. relating to telomerase and entitles Asterias to use the technology covered by the patents in the development of AST-VAC1 and AST-VAC2 as immunological treatments for cancer. Under the Telomerase Sublicense, Asterias paid Geron a one-time upfront license fee of $65,000, and Asterias will pay Geron an annual license maintenance fee of $10,000 due on each anniversary of the effective date of the agreement, and a 1% royalty on sales of any products that Asterias may develop and commercialize that are covered by the sublicensed patents. The Telomerase Sublicense will expire concurrently with the expiration of Geron's license. That license will terminate in November 2018 when the last of the licensed patents expires. The Telomerase Sublicense may also be terminated by Asterias by giving Geron 90 days written notice, by Asterias or by Geron if the other party breaches its obligations under the sublicense agreement and fails to cure their breach within the prescribed time period, or by Asterias or by Geron upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or upon an assignment of a substantial portion of the assets for the benefit of creditors by the other party.

Asterias is obligated to indemnify Geron, Geron's licensor, and certain other parties for certain liabilities, including those for personal injury, product liability, or property damage relating to or arising from the manufacture, use, promotion or sale of a product, or the use by any person of a product made, created, sold or otherwise transferred by Asterias or Asterias' sublicensees that is covered by the patents sublicensed under this agreement.

License Agreement with University of California

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 pPS 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 Asterias' 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 Asterias 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 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.

World-Wide Non-Exclusive WARF License

On October 7, 2013, Asterias entered into a Non-Exclusive License Agreement with the 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. The licensed patents include patents covering methods for growth and differentiation of primate embryonic stem cells. The licensed stem cell lines include the H1, H7, H9, H13, and H14 hES cell lines.

In consideration of the rights licensed to us, Asterias has agreed to pay WARF an upfront license fee and have agreed to additional 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 Asterias may grant to use the licensed patents or stem cell lines.

The license agreement will terminate with respect to licensed patents upon the expiration of the last licensed patent to expire; with respect to the licensed stem cell lines, the license agreement will remain in force until terminated by either party in accordance with the termination provisions. Asterias may terminate the license agreement at any time by giving WARF prior written notice. WARF may terminate the license agreement if payments of earned royalties, once begun, cease for a specified period of time or if Asterias and any third parties collaborating or cooperating with Asterias in the development of products using the licensed patents or stem cell lines fail to spend a specified minimum amount on research and development of products relating to the licensed patents or stem cell lines for a specified period of time.

WARF also has the right to terminate the license agreement if Asterias breaches the license agreement or become bankrupt or insolvent or if any of the licensed patents or stem cell lines are offered to creditors.

Asterias will indemnify WARF and certain other designated affiliated entities from liability arising out of or relating to the death or injury of any person or damage to property due to the sale, marketing, use, or manufacture of products that are covered by the licensed patents, or licensed stem cells, or inventions or materials developed or derived from the licensed patents or stem cell lines.

Royalty Agreement with Geron

In connection with Asterias' 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 Asterias' affiliates or sales agents, of any products that Asterias develops and commercializes that are covered by the patents Geron contributed to us. In the case of sales of such products by a person other than Asterias or one of Asterias' affiliates or sales agents, Asterias will be required to pay Geron 50% of all royalties and cash payments received by Asterias or by Asterias' 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.

Protecting Asterias' Intellectual Property

Asterias seeks to protect its intellectual property by, among other methods, filing United States and foreign patent applications related to Asterias' patentable intellectual property that Asterias considers important to the development and implementation of Asterias' business and strategy. In addition to relying on patents, Asterias relies on trade secrets, know-how, and contractual agreements to protect Asterias' intellectual property.

Asterias' success depends, in part, upon Asterias' ability to obtain and maintain patent and other intellectual property protection for Asterias' product candidates including compositions-of-matter, dosages, and formulations, manufacturing methods, and novel applications, uses and technological innovations related to Asterias' product candidates and core technologies. Asterias' business would be negatively impacted if Asterias is not successful in developing additional proprietary technologies that are protected either as trade secrets or by filing additional patent applications.

Asterias cannot ensure that patents will be granted with respect to any of Asterias' pending patent applications or with respect to any patent applications that may be filed by Asterias in the future, nor can Asterias ensure that any of Asterias' existing or subsequently granted patents will be useful in protecting Asterias' drug candidates, technological innovations, and processes. The claims of any patents that are issued may not provide meaningful protection, may not provide a basis for commercially viable products or may not provide Asterias with any competitive advantages. Because of the extensive time required for clinical development and regulatory review of a product candidate, certain patents related to Asterias' product candidates will expire before any of Asterias' product candidates can be commercialized, while other patents may remain in force for only a short period of time following commercialization, thereby reducing the advantage afforded by any such patent. In addition, others may independently develop similar or alternative technologies, duplicate any of Asterias' technologies and, if patents are licensed or issued to us, design around the patented technologies licensed to or developed by us. Therefore, Asterias' competitors may be able to commercialize similar products, or may be able to duplicate Asterias' business strategy, without infringing Asterias' patents or otherwise using Asterias' intellectual property.

The protection afforded by any particular patent depends upon many factors, including the type of patent, scope of coverage encompassed by the granted claims, availability of extensions of patent term and legal interpretation of patent laws in the United States and other countries that could diminish Asterias' ability to protect Asterias' inventions and to enforce Asterias' intellectual property rights. Furthermore, others may have patents that relate to Asterias' technology or business that may prevent Asterias from marketing Asterias' product candidates unless Asterias is able to obtain a license to those patents. Accordingly, while Asterias' ability to maintain and solidify Asterias' proprietary position for Asterias' products and core technologies will depend, in part, on Asterias' success in obtaining and enforcing valid patent claims, Asterias cannot predict with certainty the enforceability of any granted patent claims or of any claims that may be granted from Asterias' patent applications.

The biotechnology and pharmaceutical industries are characterized by extensive litigation and other challenges regarding patents and other intellectual property rights that involve complex legal and factual questions making Asterias' patent position generally uncertain. Any existing or subsequently granted patents may be challenged, invalidated, found unenforceable, circumvented or infringed. Asterias has been involved in the past in administrative proceedings with respect to Asterias' patents and patent applications and may, as a result of Asterias' extensive portfolio, be involved in such proceedings in the future. Additionally, in the future, Asterias may claim that a third-party infringes Asterias' intellectual property or a third party may claim that Asterias infringes its intellectual property. In any of the administrative proceedings or in litigation, Asterias may incur significant expenses, damages, attorneys' fees, costs of proceedings and experts' fees, and management and employees may be required to spend significant time in connection with these actions.

A patent interference proceeding may be instituted with the United States Patent and Trademark Office ("**USPTO**") when more than one person files a patent application covering the same technology, or if someone wishes to challenge the validity of an issued patent on patents and applications filed before March 16, 2013. At the completion of the interference proceeding, the USPTO will determine which competing applicant is entitled to the patent, or whether an issued patent is valid. Patent interference proceedings are complex, highly contested legal proceedings, and the USPTO's decision is subject to appeal. This means that if an interference proceeding arises with respect to any of Asterias' patent applications, Asterias may experience significant expenses and delay in obtaining a patent, and if the outcome of the proceeding is unfavorable to us, the patent could be issued to a competitor rather than to us. For patents and applications filed after March 16, 2013 a derivation proceeding may be initiated where the USPTO may determine if one patent was derived from the work of an inventor on another patent. Inventorship may also be challenged in litigation.

In addition to interference proceedings, the USPTO can reevaluate issued patents at the request of a third party seeking to have the patent invalidated. There are proceedings at the USPTO (*ex parte* reexamination, post grant review, or *inter partes* review proceeding), which allow third parties to challenge the validity of an issued patent where there is a reasonable likelihood of invalidity. As with the USPTO interference proceedings, these USPTO proceedings will be very expensive to contest and can result in the cancelation of a patent. This means that patents owned or licensed by Asterias may be subject to further administrative challenges and may be lost if the outcome of the challenge is unfavorable to us.

There are also challenges to obtaining patents in countries outside of the United States. In particular, under European patent law and the patent laws of certain other countries, oppositions to the issuance of patents may be filed. These foreign proceedings can be very expensive to contest and can result in significant delays in obtaining a patent or can result in a denial of a patent application. Also, in certain countries, there is uncertainty about the eligibility of hES cell subject matter for a patent under so-called morality clauses. Following a December 2014 decision at the Court of Justice of the European Union, the European Patent Office now recognizes that human pluripotent stem cells (including hES cells) can be created without a destructive use of human embryos as of June 5, 2003. Consequently, patent applications relating to hES cell subject matter with a filing and priority date after this date are no longer automatically excluded from patentability under Article 53 (a) EPC and Rule 28(c) EPC. In other countries such as India and China, uncertainty about the eligibility of hES cell subject matter for patentability has not been resolved.

Asterias may benefit from a variety of regulatory frameworks in the United States, Europe, China and other territories that provide periods of non-patent-based exclusivity for qualifying drug products. See the section entitled "*Asterias Business—Government Regulation—FDA and Foreign Regulation*."

Manufacturing

Asterias currently subleases part of a facility located in Fremont, CA. The subleased facilities are being used by Asterias as an office and research facility laboratory space and a GMP manufacturing suite. Asterias has used this facility to work on updating the manufacturing process for AST-OPC1.

Competition

The industry for stem-cell derived therapeutics and other cell therapies is characterized by rapidly evolving technology and intense competition. Asterias' competitors include major multinational pharmaceutical companies, specialty biotechnology companies, and chemical and medical products companies operating in the fields of regenerative medicine, cell therapy, tissue engineering, and tissue regeneration. Many of these companies are well-established and possess technical, research and development, financial, and sales and marketing resources

significantly greater than Asterias'. In addition, certain smaller biotech companies have formed strategic collaborations, partnerships and other types of joint ventures with larger, well established industry competitors that afford these companies' potential research and development and commercialization advantages. Academic institutions, governmental agencies, and other public and private research organizations are also conducting and financing research activities which may produce products directly competitive to those Asterias is developing. This intense competition leads to a rapidly evolving landscape on several fronts that creates risks for companies in this space, including changes in standard of care for certain disease states or conditions that Asterias may be targeting for development and new intellectual property related to developing cell therapies that may impact Asterias' operations.

Some of Asterias' competitors may be trying to develop cell-based technologies and products that may compete with Asterias' potential products based on efficacy, safety, cost, and intellectual property positions.

Asterias may also face competition from companies that have filed patent applications relating to the growth, differentiation and therapeutic use of stem cells and dendritic cells. Asterias may be required to seek licenses from these competitors in order to commercialize certain of Asterias' proposed products, and such licenses may not be granted.

Government Regulation

Government authorities at the federal, state and local level, and in other countries, extensively regulate among other things, the development, testing, manufacture, quality, approval, distribution, labeling, packaging, storage, record keeping, marketing, import/export and promotion of drugs, biologics, and medical devices. Authorities also heavily regulate many of these activities for human cells, tissues and cellular and tissue-based products.

FDA and Foreign Regulation

Asterias believes that the FDA will regulate most of Asterias' proposed products as biologics. In the United States, the FDA regulates drugs and biologics under the Federal Food, Drug and Cosmetic Act, the Public Health Service Act, and is responsible for implementing regulations. In addition, establishments that manufacture human cells, tissues, and cellular and tissue-based products are subject to additional registration and listing requirements, including current good tissue practice regulations. Many of Asterias' proposed products will be reviewed by the FDA staff in its Center for Biologics Evaluation and Research ("**CBER**") Office of Tissues and Advanced Therapies ("**OTAT**", formerly known as the Office of Cellular, Tissue and Gene Therapies, or "**OCTGT**").

In the United States, biologic products like Asterias' are subject to rigorous FDA review and approval procedures. After testing in animals to evaluate the potential efficacy and safety of the product candidate, an Investigational New Drug application ("**IND**") must be submitted to the FDA to obtain authorization for human testing. Extensive clinical testing, which is generally done in three phases, must then be undertaken at one or more hospitals or medical centers to demonstrate optimal use, safety, and efficacy of each product in humans. The FDA closely monitors the progress of each of the three phases of clinical testing and may, at its discretion, re-evaluate, alter, suspend, or terminate the clinical trial based upon the data which have been accumulated to that point and its assessment of the risk/benefit ratio to the intended patient population. All adverse events must be reported to the FDA. Monitoring of all aspects of the study to minimize risks is a continuous process. The time and expense required to perform this clinical testing can far exceed the time and expense of the research and development required to create the product.

In additional to regulating the clinical development of Asterias' products, the FDA regulates in the United States other areas involving Asterias' product, including:

Applications for Marketing Approval: No action can be taken to market any therapeutic product in the United States until an appropriate application, which in the case of a cell therapy or vaccine product will be a Biologics License Application ("**BLA**"), has been approved by the FDA. FDA regulations also restrict the export of therapeutic products for clinical use prior to BLA approval. To date, the FDA has not granted marketing approval to any hES-based therapeutic products and it is possible that the FDA or foreign regulatory agencies may subject Asterias' product candidates to additional or more stringent review than drugs or biologics derived from other technologies.

Combination Products: If Asterias develops any products that are used with medical devices, they may be considered combination products, which are defined by the FDA to include products comprised of two or more regulated components or parts such as a biologic and a device. The regulatory requirements for a combination product comprised of a biologic administered with a delivery device can be more complex, because in addition to the individual regulatory requirements for each component, additional combination product regulatory requirements may apply.

Post-Approval Matters: Even after initial FDA approval has been obtained, further studies may be required to provide additional data on safety or to gain approval for the use of a product as a treatment for clinical indications other than those initially targeted. Data resulting from these clinical trials may result in expansions or restrictions to the labeled indications for which a product has already been approved.

Manufacturing: The FDA regulates the manufacturing process of pharmaceutical products, and human tissue and cell products, requiring that they be produced in compliance with cGMP.

FDA Regulation of Advertising and Product Promotion: The FDA also regulates the content of advertisements used to market pharmaceutical and biological products. Claims made in advertisements concerning the safety and efficacy of a product, or any advantages of a product over another product, must be supported by clinical data filed as part of a BLA or an amendment to a BLA, and must be consistent with the FDA approved labeling and dosage information for that product.

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

California State Regulations

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

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

In compliance with state regulations, Asterias has formed a SCRO Committee which reviews each of Asterias' projects that involve the use of pluripotent stem cells. The committee reviews and confirms that Asterias is using only hES cell lines that have been acceptably derived and that the research conducted using these cells lines is both scientifically and ethically justified. The AST-OPC1 and AST-VAC2 programs have been reviewed by the SCRO Committee and have been deemed to comply with federal and state guidelines. The hES cell lines that Asterias uses are all on the National Institutes of Health ("**NIH**") registry of lines that have been reviewed and meet standards for federal funding grants.

California Proposition 71

During November 2004, California State Proposition 71 ("**Prop. 71**"), the California Stem Cell Research and Cures Initiative, was adopted by state-wide referendum. Prop. 71 provides for a state-sponsored program designed to encourage stem cell research in the State of California, and to finance such research with State funds totaling approximately $295,000,000 annually for an initially scheduled 10 years beginning in 2005. This initiative created CIRM, which will provide grants, primarily but not exclusively, to academic institutions to advance both hES cell research and adult stem cell research. On October 16, 2014, Asterias signed a NGA with CIRM, effective October 1, 2014, with respect to a $14.3 million grant award for clinical development of Asterias' product, AST-OPC1. As of September 30, 2018, Asterias has received the entire $14.3 million.

Employees

In 2017, Asterias made adjustments to Asterias' operating expenses as appropriate by reducing staffing allocated to non-clinical activities as a part of a broader effort to more closely align operating expenses with Asterias' primary goal of continuing to generate clinical data in Asterias' clinical stage programs. The reduction in staffing reduced Asterias' number of employees by approximately 25 employees.

As of December 1, 2018, Asterias employed 30 persons on a full-time basis, with 37% of Asterias' employees holding M.D. and/or Ph.D. degrees in one or more fields of medicine or science. None of Asterias' employees are subject to a collective bargaining agreement. All of Asterias' employees except for one individual located in the United Kingdom are based in the United States.

Research and Development

Asterias' research and development expenses were $10.8 million for the nine months ending September 30, 2018 and $26.6 million, $25.5, million and $17.3 million for the years ended December 31, 2017, 2016, and 2015 respectively.

Description of Property

Asterias entered into a sublease agreement for Asterias' Fremont office and research facility on September 28, 2018. This sublease initially consists with approximately of a total of 31,373 square feet of space of which 16,452 square feet of space is for the exclusive use of Asterias and 14,921 square feet of space that will be shared with the sublessor. The leased facilities are being used by Asterias as a combined office and research facility. Under the terms of the sublease, the initial monthly rent for the subleased space is $67,814. As a result of the sublease, Asterias expects to lower its facilities related costs over the next several years by approximately $1.0 million annually. The sublease expires on December 31, 2021. Asterias may terminate the sublease, with no penalty, prior to its expiration upon three months prior written notice.

Legal Proceedings

From time to time, Asterias may be involved in routine litigation incidental to the conduct of Asterias' business. Asterias is not presently involved in any material litigation or proceedings, and to Asterias' knowledge no such litigation or proceedings are contemplated.

UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

The following sets forth the unaudited pro forma condensed combined financial statements (the "**Pro Forma Financial Statements**") of BioTime after giving effect to the proposed Merger with Asterias (the "**Merger**"). The Unaudited Pro Forma Condensed Combined Statements of Operations (the "**Pro Forma Statement(s) of Operations**") give effect to the Merger as if it was consummated on January 1, 2017. The "Unaudited Pro Forma Condensed Combined Balance Sheet" (the "**Pro Forma Balance Sheet**") gives effect to the Merger as if it was consummated on September 30, 2018, using the per share closing price of BioTime Common Shares as of January 30, 2019, as quoted on the NYSE American, to determine the preliminary estimated purchase price. The Pro Forma Balance Sheet as of September 30, 2018 combines the consolidated balance sheets of BioTime and Asterias as of September 30, 2018. The Pro Forma Statement of Operations for the year ended December 31, 2017 combines the results of operations of BioTime and Asterias for the year ended December 31, 2017. The Pro Forma Statement of Operations for the nine months ended September 30, 2018 combines the results of operations of BioTime and Asterias for the nine months ended September 30, 2018. The historical consolidated financial information has been adjusted in the Pro Forma Financial Statements to reflect the pro forma impact of events that are directly attributable to the transactions contemplated by the Merger Agreement, factually supportable and, with respect to the Pro Forma Statements of Operations, are expected to have a continuing impact on the combined results. These Pro Forma Financial Statements do not include the effects of any transactions that took place subsequent to September 30, 2018 or any potential debt or equity offerings, including BioTime's distribution of the AgeX shares to its shareholders, on a pro rata basis, which occurred on November 28, 2018.

The Pro Forma Financial Statements have been prepared using the acquisition method of accounting for business combinations under U.S. GAAP. The acquisition method of accounting is dependent upon certain valuations and other studies that are in progress. Accordingly, the pro forma adjustments are preliminary, have been made solely for the purpose of preparing the Pro Forma Financial Statements and are subject to revision based on a final determination of fair value as of the date of acquisition. Differences between these preliminary estimates and the final acquisition accounting may have a material impact on the accompanying Pro Forma Financial Statements and BioTime's future results of operations and financial position.

The Pro Forma Financial Statements do not reflect any cost savings or associated costs to achieve such savings from operating efficiencies, synergies, debt or equity financing or other restructuring that may result from the Merger. The Pro Forma Financial Statements are presented for illustrative purposes only and are not necessarily indicative of the operating results or financial position that would have occurred if the Merger had been completed on the dates assumed, nor are they necessarily indicative of the future operating results or financial position of the combined company. In addition, the Pro Forma Financial Statements include adjustments which are preliminary and may be revised. There can be no assurance that such revisions will not result in material changes to the information presented. Transactions and balances between BioTime and Asterias during the periods presented in the Pro Forma Financial Statements have been eliminated as if BioTime and Asterias were consolidated during the periods presented.

The Pro Forma Financial Statements have been derived from and should be read in conjunction with the consolidated financial statements and the related notes of BioTime and Asterias included in their respective Annual Reports on Form 10-K and Quarterly Reports on Form 10-Q, incorporated herein by reference.

BioTime, Inc.

Unaudited Pro Forma Condensed Combined Balance Sheet as of September 30, 2018

(in thousands)

	Historical		Pro Forma Adjustments		Pro Forma
	BioTime	Asterias	(Note 4)		Combined
ASSETS					
CURRENT ASSETS					
Cash and cash equivalents	$19,467	$6,424	$ -		$25,891
Marketable equity securities	1,972	6,161	(6,161)	(a)	1,972
Trade accounts and grants receivable, net	721	-	-		721
Receivable from affiliates, net	2,185	-	-		2,185
Receivable from Juvenescence	10,800	-	-		10,800
Other receivables	-	2,429	-		2,429
Prepaid expenses and other current assets	1,761	748	-		2,509
Total current assets	36,906	15,762	(6,161)		46,507
Property, plant and equipment, net	5,117	598	-		5,715
Deposits and other long-term assets	518	24	-		542
Promissory note from Juvenescence	21,730	-	-		21,730
Equity method investment in AgeX, at fair value	43,248	-	-		43,248
Equity method investment in OncoCyte, at fair value	36,686	-	-		36,686
Equity method investment in Asterias, at fair value	28,272	-	(28,272)	(b)	-
Goodwill	-	-	14,889	(c)	14,889
Intangible assets, net	3,600	13,430	29,640	(d)	46,670
TOTAL ASSETS	$176,077	$29,814	$ 10,096		$215,987
LIABILITIES AND SHAREHOLDERS' EQUITY					
CURRENT LIABILITIES					
Accounts payable and accrued liabilities	$4,082	$2,017	$ 5,000	(e)	$11,099
Capital lease and lease liability, current portion	231	7	-		238
Promissory notes, current portion	70	-	-		70
Deferred rent and lease incentives, current portion	-	402	(402)	(f)	-
Asterias warrants	-	-	816	(h)	816
Deferred license and subscription revenues	77	-	-		77
Deferred grant revenue	43	-	-		43
Total current liabilities	4,503	2,426	5,414		12,343
LONG-TERM LIABILITIES					
Deferred rent liabilities, net of current portion	238	1,171	(1,171)	(f)	238
Lease liability, net of current portion	1,221	-	-		1,221

Capital lease liability, net of current portion	110	9	-		119
Deferred license revenue	-	1,000	(700)	(g)	300
Liability classified warrants and other long-term liabilities	447	703	(703)	(h)	447
Deferred income tax liability	-	-	12,051	(i)	12,051
TOTAL LIABILITIES	6,519	5,309	14,891		26,719
Commitments and contingencies					
SHAREHOLDERS' EQUITY					
BioTime Preferred Shares, no par value, authorized 2,000 shares; none issued and outstanding as of September 30, 2018	-	-	-		-
Asterias Common Stock, $0.0001 par value, authorized 125,000 shares of Series A Common Stock and 75,000 shares of Series B Common Stock; 55,659 shares of Series A Common Stock and no shares of Series B Common Stock issued and outstanding at September 30, 2018, respectively	-	6	(6)	(j)	-
Asterias Additional paid-in capital	-	156,760	(156,760)	(j)	-
BioTime Common Shares, no par value, 250,000 shares authorized; 126,884 shares issued and outstanding, actual; and 151,376 shares issued and outstanding, pro forma, as of September 30, 2018	386,858	-	(3,723)	(k)	417,914
			34,779	(k)	
Accumulated other comprehensive loss	1,174	-	-		1,174
Accumulated deficit	(216,905)	(132,261)	132,261	(j)	(228,251)
			(11,346)	(e)(m)	
BioTime, Inc. shareholders' equity	171,127	24,505	(4,795)		190,837
Noncontrolling interest (deficit)	(1,569)	-	-		(1,569)
Total shareholders' equity	169,558	24,505	(4,795)		189,268
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$176,077	$29,814	$ 10,096		$215,987

See accompanying notes to the Unaudited Pro Forma Condensed Combined Financial Information

BioTime, Inc.

Unaudited Pro Forma Condensed Combined Statement of Operations

For the year ended December 31, 2017

(in thousands, except for per share amounts)

	Historical BioTime Consolidated	Asterias	Pro Forma Adjustments (Note 5)		Pro Forma Combined
REVENUES:					
Grant income	$1,666	$3,711	$ -		$5,377
Royalties from product sales and license fees	389	331	-		720
Subscription and advertisement revenues	1,395	-	-		1,395
Sale of research products and services	8	-	-		8
Total revenues	3,458	4,042	-		7,500
Cost of sales	(168)	(165)	-		(333)
Gross profit	3,290	3,877	-		7,167
OPERATING EXPENSES:					
Research and development	(24,024)	(26,640)	2,686	(a)	(47,978)
General and administrative	(19,922)	(10,488)	-		(30,410)
Total operating expenses	(43,946)	(37,128)	2,686		(78,388)
Gain on sale of assets	1,754	-	-		1,754
Loss from operations	(38,902)	(33,251)	2,686		(69,467)
OTHER INCOME/(EXPENSES):					
Interest expense, net	(692)	(465)	-		(1,157)
Gain on deconsolidation of OncoCyte	71,697	-	-		71,697
Loss on equity method investment in OncoCyte at fair value	(2,935)	-	-		(2,935)
Loss on equity method investment in Asterias at fair value	(51,107)	-	51,107	(b)	-
Loss on extinguishment of related party convertible debt	(2,799)	-	-		(2,799)
Gain from change in fair value of warrant liability		5,908	-		5,908
Other income/(expense), net	1,449	(564)	395	(c)	1,280
Total other income, net	15,613	4,879	51,502		71,994
NET INCOME (LOSS)	(23,289)	(28,372)	54,188		2,527
Net loss attributable to noncontrolling interest	3,313	-	-		3,313
NET INCOME (LOSS) ATTRIBUTABLE TO BIOTIME, INC.	$(19,976)	$(28,372)	$ 54,188		$5,840
NET INCOME (LOSS) PER COMMON SHARE: BASIC AND DILUTED	$(0.17)				$0.04
WEIGHTED AVERAGE NUMBER OF SHARES OF COMMON STOCK OUTSTANDING:					

BASIC AND DILUTED	114,476	138,968 (d)

See accompanying notes to the Unaudited Pro Forma Condensed Combined Financial Information

BioTime, Inc.

Unaudited Pro Forma Condensed Combined Statement of Operations

For the nine months ended September 30, 2018

(in thousands, except for per share amounts)

	Historical		Pro Forma Adjustments		**Pro Forma**
	BioTime	Asterias	(Note 5)		Combined
REVENUES:					
Grant income	$2,985	$-	$ -		$2,985
Royalties from product sales and license fees	312	703	-		1,015
Subscription and advertisement revenues	691	-	-		691
Sale of research products and services	242	-	-		242
Total revenues	4,230	703	-		4,933
Cost of sales	(250)	(177)	-		(427)
Gross profit	3,980	526	-		4,506
OPERATING EXPENSES:					
Research and development	(17,175)	(10,753)	2,014	(a)	(25,914)
Acquired in-process research and development	(800)	-	-		(800)
General and administrative	(17,585)	(5,809)	-		(23,394)
Total operating expenses	(35,560)	(16,562)	2,014		(50,108)
Loss from operations	(31,580)	(16,036)	2,014		(45,602)
OTHER INCOME/(EXPENSES):					
Interest income/(expense), net	278	(289)	-		(11)
Gain on sale of equity method investment in Ascendance	3,215	-	-		3,215
Gain on deconsolidation of AgeX	78,511	-	-		78,511
Loss on equity method investment in OncoCyte at fair value	(31,550)	-	-		(31,550)
Loss on equity method investment in Asterias at fair value	(20,660)	-	20,660	(b)	-
Unrealized gain on marketable securities	635	570	(857)	(c)	348
Gain from change in fair value of warrant liability	-	2,054	-		2,054
Other expense, net	(649)	(47)	-		(696)
Total other income, net	29,780	2,288	19,803		51,871
NET INCOME (LOSS)	(1,800)	(13,748)	21,817		6,269
Net loss attributable to noncontrolling interest	762	-	-		762
NET INCOME (LOSS) ATTRIBUTABLE TO BIOTIME, INC.	$(1,038)	$(13,748)	$ 21,817		$7,031
NET INCOME (LOSS) PER COMMON SHARE:					
BASIC AND DILUTED	$(0.01)				$0.05

WEIGHTED AVERAGE NUMBER OF SHARES OF COMMON STOCK OUTSTANDING: BASIC AND DILUTED	126,872	151,364 (d)

See accompanying notes to the Unaudited Pro Forma Condensed Combined Financial Information

Notes to Unaudited Pro Forma Condensed Combined Financial Information

Note 1. Basis of presentation

The Pro Forma Financial Statements are derived from the historical financial statements of BioTime and Asterias, as adjusted to give effect to the proposed Merger with Asterias. The Pro Forma Statements of Operations for the year ended December 31, 2017 and the nine months ended September 30, 2018 give effect to the proposed Merger as if it had occurred on January 1, 2017. The Pro Forma Balance Sheet as of September 30, 2018 gives effect to the proposed Merger as if it had occurred on September 30, 2018, using the per share closing price of BioTime Common Shares as of January 30, 2019, as quoted on the NYSE American, to determine the preliminary estimated purchase price. These Pro Forma Financial Statements do not include the effects of any transactions that took place subsequent to September 30, 2018 or any potential debt or equity offerings, including BioTime's distribution of the AgeX shares to its shareholders, on a pro rata basis, which occurred on November 28, 2018.

The Pro Forma Financial Statements have been prepared using the acquisition method of accounting for business combinations under U.S. GAAP. The acquisition method of accounting is dependent upon certain valuations and other studies that are in progress. The final determination of fair value of assets acquired and liabilities assumed could result in material changes to the Pro Forma Financial Statements.

In order to prepare the Pro Forma Financial Statements, BioTime performed a preliminary review of Asterias' accounting policies to identify significant differences from BioTime's accounting policies used to prepare BioTime's historical financial statements. After the Merger is completed, BioTime will conduct an additional review of Asterias' accounting policies to determine if differences in accounting policies require further adjustment or reclassification of Asterias' results of operations, assets or liabilities to conform to BioTime's accounting policies and classifications. As a result of that review, BioTime may identify additional differences between the accounting policies of the two companies that, when conformed, could have a material impact on its future consolidated financial statements.

The Pro Forma Financial Statements are preliminary, provided for illustrative purposes only and do not purport to represent what the Combined Company's actual consolidated results of operations or consolidated financial position would have been had the Merger occurred on the date assumed, nor are they indicative of the Combined Company's future consolidated results of operations or financial position. The actual results reported in periods following the Merger may differ significantly from those reflected in these Pro Forma Financial Statements for a number of reasons, including, but not limited to, differences between the assumptions used to prepare these Pro Forma Financial Statements and actual amounts, cost savings or associated costs to achieve such savings from operating efficiencies, synergies, debt or equity financing, or other restructuring that may result from the Merger. Non-recurring items related to the Merger were not included in the Pro Forma Statements of Operations.

Note 2. Calculation of preliminary estimated purchase price

The calculation of the preliminary estimated purchase price for Asterias presented below is based on the terms of the Merger. The Pro Forma Financial Statements include various assumptions, including those related to BioTime shares to be issued in connection with the merger and the fair value of BioTime stock.

The actual purchase price may be materially different from the estimated purchase price.

The calculation of the estimated purchase price is as follows (in thousands, except for share and per share amounts):

	BioTime (39% ownership interest)	Shareholders other than BioTime (approximate 61% ownership interest)	Total
Outstanding Asterias Common Stock as of September 30, 2018	21,747,569	34,496,241 (1)	56,243,810 (1)
Exchange ratio	0.710	0.710	0.710
Estimated number of BioTime Common Shares issuable	15,440,774 (2)	24,492,331	39,933,105
Per share price of BioTime Common Shares as of January 30, 2019	$1.42	$1.42	$1.42
Preliminary estimated purchase price (in $000s)	$21,926 (2)	$34,779	$56,705

(1) Includes 585,126 shares of Asterias restricted stock unit awards which will vest in full immediately prior to the effective time of the Merger and will be cancelled and converted into the right to receive 0.71 BioTime Common Shares. Because the majority of the restricted stock units are expected to vest at the time of the Merger according to their original vesting terms, these restricted stock units are principally attributable to precombination services and any remaining restricted stock units that are accelerated to vest at the time of the Merger, as postcombination services, are immaterial. Accordingly, the Asterias restricted stock unit awards outstanding as of September 30, 2018 are considered to be part of the total outstanding Asterias Common Stock owned by shareholders other than BioTime and included as part of the preliminary estimated purchase price in accordance with ASC 805. The final purchase price and the allocation of the purchase price will be dependent on the number of Asterias restricted stock units outstanding as well as the fair value of BioTime Common Shares at the effective date of the Merger.

(2) Estimated fair value for BioTime's previously held 39% ownership interest in Asterias Common Stock is part of the total preliminary estimated purchase price of Asterias for purposes of the purchase price allocation under ASC 805 and for BioTime's adjustment of its 39% interest to fair value at the effective date of the Merger. No actual BioTime Common Shares will be issuable to BioTime in connection with the Merger (see Notes 3 and 4).

Sensitivity of common stock price

The following table shows sensitivities to changes in the preliminary estimated purchase price allocated to goodwill resulting from a 10% increase or decrease in the assumed per share price of BioTime Common Shares. For purposes of this calculation, the total number of shares of Asterias Common Stock outstanding was assumed to be 56,243,810, which was the number shares outstanding and RSUs, including the shares held by BioTime, as of September 30, 2018, shown in the table above (in thousands, except per share amounts).

(in thousands, except per share amounts)	Price of BioTime Common Stock	Calculated Value of Stock Consideration	Estimated Goodwill
As of January 30, 2019	$ 1.42	$ 56,705	$ 14,889
Increase of 10%	$ 1.56	$ 62,376	$ 20,187
Decrease of 10%	$ 1.28	$ 51,035	$ 9,591

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Note 3. Preliminary estimated purchase price allocation

Under the acquisition method of accounting, the total purchase price is allocated to the tangible and identifiable intangible assets acquired and liabilities assumed based on their estimated fair values as of the date of the acquisition. The preliminary allocation of the estimated purchase price is based on the terms of the Merger Agreement and BioTime management's preliminary estimates of the fair value of Asterias' assets and liabilities as of September 30, 2018, derived from the historical balance sheet of Asterias as of September 30, 2018. As of the date of this document, BioTime management has not finalized the detailed valuation studies necessary to arrive at the required estimates of the fair value of Asterias' assets to be acquired and the liabilities to be assumed and the related allocations of purchase price. Additional intangible asset classes may be identified as the valuation process continues. Therefore, the allocation of the purchase price to assets acquired and liabilities assumed is based on preliminary fair value estimates and is subject to final analysis by BioTime management following the consummation of the Merger.

The following table sets forth a preliminary allocation of the preliminary estimated purchase price to Asterias' identifiable tangible and intangible assets acquired and liabilities assumed, with the excess recorded as goodwill (in thousands):

Assets acquired:	
Cash and cash equivalents	$6,424
Other receivables	2,429
Prepaid expenses and other assets, current and noncurrent	772
Property and equipment	598
Acquired in-process research and development intangible assets	43,070
Total assets acquired	53,293
Liabilities assumed:	
Accrued liabilities and accounts payable	2,033
Liability classified warrants	816
Deferred license revenue	300
Long-term deferred income tax liability	12,051
Total liabilities assumed	15,200
Net assets acquired, excluding goodwill (a)	38,093
Fair value of BioTime Common Shares held by Asterias (b)	3,723
Total preliminary estimated purchase price (c)	56,705
Estimated goodwill (c-a-b)	$14,889

The following is a discussion of the valuation methods used to determine the fair value of Asterias' significant assets and liabilities in connection with the preparation of these Pro Forma Financial Statements:

Acquired In-Process Research and Development ("IPR&D") and Deferred Income Tax Liability: For purposes of these Pro Forma Financial Statements, preliminary identifiable acquired in-process research and development intangible assets consist of the AST-OPC1 program that is currently in a Phase 1/2a clinical trial for spinal cord injuries ("**SCI**"), which has been partially funded by the California Institute for Regenerative Medicine and the AST-VAC2 program, which is a non-patient-specific ("**off-the-shelf**") cancer immunotherapy derived from pluripotent stem cells for which a clinical trial in non-small cell lung cancer is being funded and sponsored by Cancer Research UK, the world's largest independent cancer research charity. The preliminary identification of these intangible assets are based on consideration of historical experience and a market participant's view. These intangible assets are valued primarily through the use of the discounted cash flow method under the income approach. BioTime considered the AST-VAC1 program, an autologous product candidate, manufactured from cells that come from the patient, and due to significant risks, substantial costs and limited opportunities in its current state associated with the AST-VAC1 program, BioTime management considered this program to have de minimis value.

These IPR&D assets are indefinite-lived intangible assets until the completion or abandonment of the associated R&D efforts. Once the R&D efforts are completed or abandoned, the IPR&D will either be amortized over the asset life as a finite-lived intangible asset or be impaired, respectively, in accordance with ASC 350, *Intangibles – Goodwill and Other*. In accordance with ASC 350, goodwill and acquired IPR&D are determined to have indefinite lives and, therefore, are not amortized. Instead, they are tested for impairment at least annually and between annual tests if BioTime becomes aware of an event or a change in circumstances that would indicate the asset may be impaired.

Because the IPR&D (prior to completion or abandonment of the R&D) is considered an indefinite-lived asset for accounting purposes, the fair value of the IPR&D on the acquisition date creates a deferred income tax liability ("**DTL**") in accordance with ASC 740, *Income Taxes*. This DTL is computed using the fair value of the IPR&D assets on the acquisition date multiplied by BioTime's federal and state income tax rates, net of the federal benefit. While this DTL would reverse on impairment or sale or commencement of amortization of the related intangible assets, those events are not anticipated under ASC 740 for purposes of predicting reversal of a temporary difference to support the realization of deferred tax assets. As a result, the reversal of the DTL with respect to the acquired IPR&D is not considered a source of future taxable income in accordance with ASC 740. BioTime has a full valuation allowance on its deferred tax assets for all periods presented and this IPR&D DTL is not expected to have any impact on the valuation allowance at the effective date of the Merger or in BioTime's historical consolidated financial statements for any period presented.

Deferred license revenue: Deferred license revenue in the context of a business combination represents an obligation to provide future products or services when payment for such products or services has been made prior to the products being delivered or services being rendered. In September 2018, Asterias and Novo Nordisk A/S ("Novo Nordisk") entered into an option for Novo Nordisk or its designated U.S. affiliate to license, on a non-exclusive basis, certain intellectual property related to culturing pluripotent stem cells, such as hES cells, in suspension. Under the terms of the option, Asterias received a one-time upfront payment of $1.0 million, in exchange for a 24-month period to negotiate a non-exclusive license during which time Asterias has agreed to not grant any exclusive licenses inconsistent with the Novo Nordisk option. This option is considered a performance obligation as it provides Novo Nordisk with a material right that it would not receive without entering into the contract.

For business combination purposes under ASC 805, the fair value of this performance obligation to BioTime, from a market participant perspective, is the estimated costs BioTime may incur, plus a normal profit margin for the level of effort required to perform under the contract after the acquisition date, assuming Novo Nordisk exercised its option, including, but not limited to, negotiation costs, legal fees, arbitration, if any, and other related costs. Management has estimated those costs, plus a normal profit margin, to be approximately $300,000 in the preliminary purchase price allocation.

Liability classified warrants: On May 13, 2016, in connection with a common stock offering, Asterias issued 2,959,559 warrants (the "Asterias Warrants") with an exercise price of $4.37 per share that expire in five years from the issuance date, or May 13, 2021. As of September 30, 2018, there were 2,813,159 Asterias Warrants outstanding. The

Asterias Warrants contain certain provisions in the event of a Fundamental Transaction, as defined in the warrant agreement governing the Asterias 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 Warrants for cash. This cash settlement will be in an amount equal to the calculated value of the unexercised portion of such holder's warrants, determined in accordance with the Black-Scholes option pricing model with significant inputs as specified in the Warrant Agreement. The Merger, if completed, will be considered a Fundamental Transaction.

The estimated fair value of the Asterias Warrants for purposes of the Pro Forma Financial Statements was determined by using a combination of the Binomial Lattice and Black-Scholes option pricing models under various probability-weighted outcomes which take into consideration the probability of the fundamental transaction, which for purposes of the above valuation was assumed to be at 100% and net cash settlement occurring, using the contractual remaining term of the warrants. In applying these models, these inputs have included assumptions related to the estimated future price of BioTime Common Shares, using the per share price as of January 30, 2019, the assumed Merger date (see Note 2), volatility and the timing of, and varying probabilities that certain events will occur. Changes in any of the key assumptions used to value the Asterias Warrants could materially impact the fair value of the Asterias Warrants and ultimately the settlement amount of those warrants at the time of the Merger.

Fair value of BioTime Common Shares held by Asterias: As of September 30, 2018, Asterias holds 2,621,811 BioTime Common Shares as marketable securities on its standalone financial statements. For purposes of the Pro Forma Financial Statements and ASC 805, the fair value of those shares acquired by BioTime from Asterias is determined based on the $1.42 per share closing price of BioTime Common Shares on January 30, 2019, the assumed Merger date, as quoted on the NYSE American. Although treasury shares are not considered an asset and are assumed to be immediately retired upon acquisition by BioTime, the fair value of those shares is a part of the preliminary estimated purchase price. Changes in the closing price of BioTime Common Shares will result in changes to the fair value and could materially impact the fair value of the BioTime Common Shares acquired from Asterias at the time of the Merger.

Goodwill: Goodwill is calculated as the difference between the acquisition date fair value of the consideration expected to be transferred and the values assigned to the assets acquired and liabilities assumed. Goodwill is not amortized but is tested for impairment at least annually, or more frequently if circumstances indicate potential impairment.

Note 4. Adjustments to the Pro Forma Balance Sheet

(a) To record the elimination of the fair value of BioTime Common Shares held by Asterias as of September 30, 2018 (see Note 3).

(b) To record the elimination of BioTime's approximate 39% equity method investment in Asterias, at fair value, as of September 30, 2018.

(c) To record the preliminary estimate of goodwill recognized as a result of the Merger, which represents the amount by which the estimated consideration transferred exceeds the fair value of Asterias' assets acquired and the liabilities assumed, including the fair value of BioTime Common Shares acquired held by Asterias, on the Merger date.

(d) To record the preliminary estimate of identifiable acquired IPR&D intangible assets consisting of $28.3 million in fair value pertaining to the AST-OPC1 program and $14.8 million pertaining to the AST-VAC2 program (see Note 3). BioTime considered the AST-VAC1 program to have de minimis value.

(e) To record estimated transaction costs of $3.0 million to be incurred by BioTime and Asterias directly attributable to the Merger. The costs that BioTime and Asterias may ultimately incur could differ materially from this amount. Transaction costs include fees for investment banking, advisory, legal, valuation, and other professional fees. As the transaction costs will not have a continuing impact, BioTime has not shown the estimated transaction costs in the Pro Forma Statements of Operations. No material transaction costs were incurred by BioTime or Asterias during the periods covered by the historical financial statements (see Note 4 (m)).

To accrue an estimated $2.0 million of change in control payment obligation to executives expected to be paid at the time of the Merger. Asterias has previously entered into employment contracts with certain executive officers in which Asterias may be required to incur severance obligations for matters relating to changes in control, as

defined, and involuntary terminations. The Merger, if completed, will be considered a change in control of Asterias. For the severance payment to be made, there must be a change in control and a termination event of the executive, as defined in the employment agreements, referred to as a “double trigger” contingent payment. Since the Pro Forma Balance Sheet assumes the Merger has occurred and it is probable that the payments will be made to those executives, the estimated obligation has been accrued in the Pro Forma Balance Sheet as of September 30, 2018. Dual trigger contingent payments are accounted for outside of the business combination and not included in the preliminary estimated purchase price, instead, recorded as compensation expense in the post-acquisition financial statements of the combined entity. As the change in control payment will not have a continuing impact, BioTime has not shown this amount in the Pro Forma Statements of Operations (see Note 4 (m)).

(f) To record the elimination of Asterias' deferred rent and lease incentives, current and noncurrent portions, for an at-market operating lease. For business combination purposes under ASC 805, acquired operating leases are assessed to determine if the lease terms are favorable or unfavorable given market conditions on the acquisition date. To the extent the lease arrangement is favorable or unfavorable relative to market on the acquisition date, an asset or liability, respectively, is recognized at fair value in the business combination. On September 28, 2018, Asterias terminated its lease agreement with its landlord. Simultaneously, with the termination of the lease, Novo Nordisk, a Denmark-based multinational pharmaceutical company, entered into a new lease agreement with the landlord for the leased space, whereupon Asterias and Novo Nordisk immediately entered into a new sublease agreement for Asterias to occupy and use part of the leased space, for a term of up to 39 months. Asterias did not incur any early termination fees in in connection with the termination of its original lease with its landlord. Therefore, the operating sublease in place for the Asterias' facilities as of September 30, 2018 is at market considering the timing of the new lease agreement and the new sublease agreement, entered into with and among unrelated parties, resulting in no asset or liability in the business combination.

(g) To record the elimination of Asterias' deferred license revenue as of September 30, 2018 and to record the fair value of BioTime's performance obligation. As a result of purchase accounting, deferred license revenue is valued based on the performance obligation of the acquiror. The fair value of this performance obligation is the estimated costs BioTime may incur, plus a normal profit margin for the level of effort required to perform under the contract after the acquisition, assuming Novo Nordisk exercised its option (see Note 3). These costs include, but are not limited to, negotiation costs, legal fees, valuation and appraisal costs, arbitration, if necessary, and other related costs. Management has estimated those costs, plus a normal profit margin, to be approximately $300,000 in the preliminary purchase price allocation.

(h) To record the adjustment of the Asterias Warrants to fair value pursuant to the Warrant Agreement's Fundamental Transaction provisions and classified as a current liability on the on the Pro Forma Balance Sheet as of September 30, 2018 (see Note 3).

(i) To record the deferred income tax liability for acquired IPR&D intangible assets (see Note 3).

(j) Reflects the elimination of Asterias' historical common stock par value, additional paid-in capital and accumulated deficit.

(k) To record the acquisition date fair value of BioTime Common Shares held by Asterias (see Note 3) as a direct charge against BioTime Common Shares. As a California corporation, BioTime does not have or present treasury stock on its consolidated balance sheet. Accordingly, the BioTime Common Shares acquired at fair value will be immediately retired at the effective date of the Merger.

To record the estimated consideration of $34.8 million of BioTime Common Shares to be issued for the approximate 61% remaining ownership interest in Asterias' common stock including RSUs (see Note 2), which includes the issuance of 24.5 million BioTime Common Shares to Asterias stockholders other than BioTime (see Note 5). The actual number of BioTime Common Shares to be issued to Asterias stockholders other than BioTime will be based on the actual number of shares of Asterias common stock and restricted stock units outstanding when the transaction closes, and the fair value of those shares will be based on the closing price of BioTime Common Shares at that time.

(l) Not used.

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(m) To record the $6.3 million unrealized loss of BioTime's previously held 39% ownership interest in Asterias common stock from September 30, 2018 to January 30, 2019, immediately preceding the consummation of the assumed date of the Merger. This amount was determined as the difference in the $28.3 million fair value of Asterias common stock held by BioTime as of September 30, 2018 (see (b) above) and the $22.0 million estimated fair value for BioTime's previously held 39% ownership interest in Asterias on January 30, 2019, computed as part of the preliminary estimated purchase price shown in the table in Note 2. The actual fair value adjustment could be materially different at the time of the Merger and the amount of the adjustment will depend on the number of shares of Asterias held by BioTime, Asterias stock price and the BioTime stock price used to determine the fair value of the consideration to be paid at the time of the Merger.

As the transaction costs and the change in control payment obligation discussed in Note 4(e), and the fair value adjustment of BioTime's previously held 39% ownership interest in Asterias discussed above will not have a continuing impact, BioTime has not shown these adjustments in the Pro Forma Statements of Operations.

Note 5. Adjustments to the Pro Forma Statements of Operations

(a) Reflects the elimination of historical amortization expense related to Asterias' existing finite-lived intangible assets. The acquired IPR&D assets are indefinite-lived intangible assets until the completion or abandonment of the associated R&D efforts. Accordingly, in accordance with ASC 350, goodwill and acquired IPR&D assets are determined to have indefinite lives and are not amortized.

(b) To record the elimination of BioTime's unrealized loss on its equity method investment in Asterias, at fair value.

(c) To record the elimination of Asterias' gain or loss on shares of BioTime Common Shares owned by Asterias, at fair value.

(d) The following table shows the calculation of pro forma combined basic and diluted net income per share of common stock, after giving effect to the preliminary estimated number of shares of BioTime Common Shares to be issued in exchange for the outstanding Asterias Common Stock and restricted stock units calculated using the Exchange Ratio, for the year ended December 31, 2017 and the nine months ended September 30, 2018 (in thousands, except per share amounts):

	Year Ended December 31, 2017	Nine Months Ended September 30, 2018
Pro forma net income attributable to BioTime Inc.	$ 5,840	$ 7,031
Weighted average BioTime Common Shares outstanding - basic and diluted	114,476	126,872
Asterias shares converted to BioTime shares (see Note 2)	24,492	24,492
Pro forma weighted average shares outstanding – basic and diluted[1]	138,968	151,364

Pro forma net income per BioTime Common Share – basic and diluted	$ 0.04	$ 0.05

(1) Potentially dilutive BioTime Common Shares was immaterial for all periods presented.

MANAGEMENT AND OTHER INFORMATION OF THE COMBINED COMPANY

Directors and Executive Officers of the Combined Company

Directors of the Combined Company

The BioTime Board is currently comprised of eight directors.

Pursuant to the Merger Agreement, the parties agreed to use commercially reasonable efforts to ensure that immediately following the effective time of the Merger, the BioTime Board shall consist of the following individuals: Deborah Andrews, Don M. Bailey, Neal C. Bradsher, Brian M. Culley, Stephen C. Farrell, Alfred D. Kingsley, Michael H. Mulroy, Cavan Redmond and Angus C. Russell. Each of Ms. Andrews and Messrs. Bradsher, Culley, Farrell, Kingsley, Mulroy, Redmond and Russell currently serve on the BioTime Board. Mr. Bailey will be appointed to serve on the BioTime Board promptly after the effective time of the Merger.

The following table lists the names and ages as of December 17, 2018, and positions of the individuals who are currently expected to serve as directors of BioTime immediately following the completion of the merger. However, as of the date of this joint proxy statement/prospectus, a final determination as to who will be appointed to the BioTime Board has not been made and the requisite corporate action to appoint the persons who will serve as directors of BioTime following the completion of the Merger has not been effected; accordingly, the persons who will serve as directors BioTime following the completion of the Merger may differ from the persons currently expected to serve in such capacity. For example, a person currently expected to serve as a BioTime director immediately following the completion of the Merger may determine, prior to the completion of the merger, not to serve in such capacity (or may be unable to so serve).

Name	**Age**	**Position**
Brian M. Culley	47	Chief Executive Officer and Director
Alfred D. Kingsley	76	Chairman of the Board
Deborah Andrews	61	Director
Don M. Bailey	73	Director
Neal C. Bradsher	53	Director
Stephen C. Farrell	53	Director
Michael H. Mulroy	52	Director
Cavan Redmond	58	Director
Angus C. Russell	63	Director

Brian M. Culley, Chief Executive Officer and Director. Mr. Culley has served as a director and the Chief Executive Officer of BioTime since September 2018. Prior to joining BioTime, Mr. Culley served from August 2017 to September 17, 2018 as Interim Chief Executive Officer at Artemis Therapeutics, Inc., a, where he was responsible for the management of the company. Mr. Culley previously served as Chief Executive Officer of Mast Therapeutics, Inc. ("**Mast**"), from February 2010, and was also a member of its Board of Directors from December 2011, until Mast's merger with Savara, Inc. in April 2017. Mr. Culley served from January 2007 to February 2010 as Mast's Chief Business Officer and Senior Vice President, from February 2006 to January 2007 as Mast's Senior Vice President, Business Development, and from December 2004 to February 2006 as Mast's Vice President, Business Development. From 2002 until 2004, Mr. Culley was Director of Business Development and Marketing for Immusol, Inc. From 1999 until 2000, he worked at the University of California, San Diego (UCSD) Department of Technology Transfer & Intellectual Property Services and from 1996 to 1999 he conducted drug development research for Neurocrine Biosciences, Inc. Mr. Culley has more than 25 years of business and scientific experience in the life sciences industry. He received a B.S. in biology from Boston College, a masters in biochemistry and molecular biology from the University of California, Santa Barbara, and an M.B.A. from The Johnson School of Business at Cornell University.

Alfred D. Kingsley, Chairman of the Board. Mr. Kingsley has served the BioTime Board and became Chairman of the Board during July 2009. Mr. Kingsley has been general partner of Greenway Partners, L.P., a private investment firm, and President of Greenbelt Corp., a business consulting firm, since 1993. Greenbelt Corp. served as our financial advisor from 1998 until June 30, 2009. Mr. Kingsley was Senior Vice-President of Icahn and Company and its affiliated entities for more than 25 years. Mr. Kingsley also serves as a director of Asterias and OncoCyte Corporation. Mr. Kingsley holds a BS degree in economics from the Wharton School of the University of Pennsylvania, and a J.D. degree and LLM in taxation from New York University Law School.

Deborah Andrews, Director. Ms. Andrews joined the BioTime Board during April 2014. Ms. Andrews has served as Chief Financial Officer of STAAR Surgical Company since 2017 after serving as Vice President, Chief Accounting Officer since 2013. Ms. Andrews also served as STAAR Surgical's Vice President, Chief Financial Officer from 2005 to 2013, as its Global Controller from 2001 to 2005, and as its Vice President, International Finance from 1999 to 2001. Ms. Andrews previously worked as a senior accountant for a major public accounting firm. Ms. Andrews holds a B.S. degree in Accounting from California State University at San Bernardino.

Don M. Bailey, Director. Mr. Bailey joined the Asterias Board and became the chairman during February 2016. Mr. Bailey served as President and Chief Executive Officer of Questcor Pharmaceuticals, Inc. from November 2007 until Questcor was acquired by Mallinckrodt plc in August 2014. He was also a director of Mallinckrodt plc from August 2014 to March 2016, and during this time he was the Chairman of its portfolio committee. He initially joined the Questcor board in 2006 as an independent director and Chairman of its Audit Committee. From August 2016 until November 2017, Mr. Bailey also served as an independent director on the board of Oncocyte Corporation where he was also a member of its Audit Committee and its Science Committee. From June 2015 until May 2016 Mr. Bailey was also an independent director and audit committee Chair of Biotie Therapeutics Corp., a clinical-stage pharmaceutical company headquartered in Turku, Finland. Mr. Bailey was an independent director and the non-executive Chairman of the Board of Directors of STAAR Surgical Company from April 2005 until January 2014 and a member of its board until June 2014. Mr. Bailey served on its audit committee and was chair of its nominating and corporate governance committee. STAAR Surgical Company is a leader in the development, manufacture, and marketing of minimally invasive ophthalmic products employing proprietary technologies. Mr. Bailey was the Chairman of the Board of Directors of Comarco, Inc., a defense services company transformed into a wireless communication products company, from 1998 until 2007, where he served as Chief Executive Officer from 1991 until 2000. Mr. Bailey holds a B.S. degree in mechanical engineering from the Drexel Institute of Technology, an M.S. degree in operations research from the University of Southern California, and an M.B.A. from Pepperdine University. Mr. Bailey has also served as a board member on several non-profit and academic enterprises. Mr. Bailey is a Founding Board member of the University of California Irvine's (UCI) Applied Innovation Institute.

Neal C. Bradsher, CFA, Director. Mr. Bradsher joined the BioTime Board during July 2009. Mr. Bradsher has been President of Broadwood Capital, Inc., a private investment firm, since 2002. Mr. Bradsher holds a B.A. degree in economics from Yale College and is a Chartered Financial Analyst. Mr. Bradsher was a director of Questcor Pharmaceuticals, Inc., from March 2004 until August 2014, when Questcor was acquired by Mallinckrodt plc. Questcor was a biopharmaceutical company focused on the treatment of patients with serious, difficult-to-treat autoimmune and inflammatory disorders.

Stephen C. Farrell, Director. Mr. Farrell joined the BioTime Board during March 2013. Mr. Farrell currently serves as Chief Executive Officer and Director of Convey Health Solutions (formerly known as NationsHealth, Inc.), a healthcare business process outsourcing company headquartered in Fort Lauderdale, Florida. Convey Health Solutions utilizes both technology and staff to manage end-to-end insurance processes for business clients. Before joining Convey Health Solutions in 2011, he served as President of PolyMedica Corporation, a publicly traded provider of diabetes supplies and related services that was acquired in 2007 by Medco Health Solutions. During his eight-year tenure at PolyMedica, Mr. Farrell served as its President, Chief Operating Officer, and as Chief Financial Officer, Chief Compliance Officer, and Treasurer. Mr. Farrell previously served as Executive Vice President and Chief Financial Officer of Stream Global Services, Inc., a business process outsourcing company. Earlier in his career, Mr. Farrell served as Senior Manager at PricewaterhouseCoopers LLP. Mr. Farrell holds an A.B. from Harvard University, and an M.B.A. from the Darden School at the University of Virginia. Mr. Farrell served on the board and was chairman of the Audit Committee of Questcor Pharmaceuticals, Inc., a biopharmaceutical company focused on the treatment of patients with serious, difficult-to-treat autoimmune and inflammatory disorders from November 2007 to until August 2014, when Questcor was acquired by Mallinckrodt plc. Mr. Farrell also currently serves as a director of STAAR Surgical Company, a designer and developer of implantable lenses for the eye.

Michael H. Mulroy, Director. Mr. Mulroy joined the BioTime Board during October 2014. Since June 2017, Mr. Mulroy has served as the Chief Executive Officer of Asterias. Prior to joining Asterias, Mr. Mulroy served as a Senior Advisor to CamberView Partners, LLC, which assists companies in connection with investor engagement and complex corporate governance issues. Mr. Mulroy served until September 2014 as Executive Vice President - Strategic Affairs and General Counsel of the Autoimmune and Rare Diseases Business Unit of Mallinckrodt plc following its acquisition of Questcor Pharmaceuticals, Inc. in August 2014. Mr. Mulroy was appointed Executive Vice President, Strategic Affairs and General Counsel and Corporate Secretary of Questcor during February 2014, having previously served as Chief Financial Officer, General Counsel and Corporate Secretary since January 2011. From 2003 to 2011, Mr. Mulroy was employed by the law firm of Stradling Yocca Carlson & Rauth, where he served as a partner from 2004, and represented Questcor and other publicly-traded companies. From 1997 to 2003, Mr. Mulroy was an investment banker at Citigroup and Merrill Lynch. Mr. Mulroy also serves as a director of Asterias. From July 2011 to August 2014, Mr. Mulroy served as a member of the Board of Directors of Comarco, Inc., which developed and designed innovative technologies and intellectual property used in power adapters. Mr. Mulroy earned his J.D. degree from the University of California, Los Angeles and his B.A. (Economics) from the University of Chicago.

Cavan Redmond, Director. Mr. Redmond joined the BioTime Board during February 2018. Mr. Redmond is a seasoned healthcare strategist, who has held a number of global leadership positions. He currently is a partner at Zarsy, LLC. His global leadership roles include: CEO of WebMD Health Corp., where he oversaw cost rationalizations and streamlined operations to position the company for growth; Senior Vice President and Group President, Pfizer Diversified Businesses. The Diversified Business included Animal Health, Consumer Healthcare, Capsugel and Nutrition. While at Pfizer he also became the head of Corporate Strategy. While at Wyeth he was the first EVP and General Manager Wyeth Biopharma and President of Wyeth Consumer Healthcare. Mr. Redmond also serves as a director of OncoCyte Corporation and he is currently a member of the Board of Directors for the Arthritis Foundation, where he has served since 2014. Mr. Redmond holds a MAS degree from Johns Hopkins University and a BA from the University of Maryland at College Park. He was a 2012 recipient of The Johns Hopkins University Distinguished Alumnus Award.

Angus C. Russell, Director. Mr. Russell joined the BioTime Board during December 2014. Mr. Russell served as the Chief Executive Officer of Shire plc, a biopharmaceutical company, from June 2008 to April 2013. Mr. Russell served as the Chief Financial Officer of Shire from 1999 to 2008 and also served as its Principal Accounting Officer and Executive Vice President of Global Finance. Prior to joining Shire, Mr. Russell served at ICI, Zeneca and AstraZeneca for 19 years, most recently as Vice President of Corporate Finance at AstraZeneca plc. He is a Chartered Accountant, having qualified with Coopers & Lybrand (now PriceWaterhouseCoopers LLP). Mr. Russell also serves as a director of Mallinckrodt plc and Therapeutics MD, Inc., and as Chairman of the Board of Directors of Revance Therapeutics, Inc. Mr. Russell previously served as a director of Shire plc, Questcor Pharmaceuticals, Inc. until it was acquired by Mallinckrodt plc in August 2014, and InterMune, Inc. prior to its acquisition by Roche Holdings, Inc. during September 2014.

Executive Officers of the Combined Company

It is currently expected that the executive officers of BioTime following the Merger will be substantially similar to the current executive officers of BioTime. In addition, following the effective time of the merger BioTime contemplates that certain employees of Asterias will join BioTime as officers of BioTime and thus may become executive officers of BioTime. In the event that new personnel become executive officers of BioTime, certain persons who currently serve as executive officers of BioTime may no longer serve in such capacity. As of the date of this joint proxy statement/prospectus it is not known which Asterias employees, if any, will become executive officers of BioTime and no determinations by BioTime have been made in this regard. Similarly, it is not known which of BioTime's current executive officers, if any, will cease to serve in such capacity. Any executive officers of BioTime following the completion of the merger will serve in such capacity at the discretion of the BioTime Board. The following table lists the names, ages and positions of the individuals who are currently serving as executive officers of BioTime.

Name	Age	Current Position with BioTime
Brian M. Culley	47	Chief Executive Officer and Director
Brandi Roberts	45	Chief Financial Officer and Senior Vice President, Finance
Stephana E. Patton, Ph.D., J.D.	48	General Counsel

Brandi Roberts, Chief Financial Officer and Senior Vice President, Finance. Ms. Roberts was appointed as BioTime's Chief Financial Officer and Senior Vice President, Finance effective January 7, 2019. Ms. Roberts previously served as Chief Financial Officer of REVA Medical, Inc. from August 2017 until December 2018. From March 2011 through August 2017, Ms. Roberts served in various roles at Mast Therapeutics, Inc., including Chief Financial Officer from January 2013 to April 2017 and Senior Vice President, Finance, from March 2011 to January 2013. Previously, Ms. Roberts held senior positions at Alphatec Holdings, Inc., Artes Medical, Inc., Stratagene California and Pfizer Inc. Ms. Roberts is a certified public accountant with the State of California and received her B.S. in Business Administration from the University of Arizona and her M.B.A. from the University of San Diego.

Stephana E. Patton, Ph.D., J.D., General Counsel and Corporate Secretary. Dr. Patton was appointed as BioTime's General Counsel during February 2017. Dr. Patton brings 20 years of experience creating portfolio value at publicly-traded biotechnology and pharmaceutical companies. Dr. Patton was formerly the General Counsel and Commercial Compliance Officer at BioDelivery Sciences from 2015 - 2017, a publicly-traded specialty pharmaceutical company. Prior to BioDelivery Sciences, she held various senior management positions, including leading Intellectual Property ("**IP**") and Licensing at Salix Pharmaceuticals from 2007 - 2015, a global pharmaceutical company that was acquired for $11.2 Billion in 2015. Prior to joining Salix, Dr. Patton was in private practice from 1999-2007 at a large international law firm known for its IP and corporate securities practices and at a boutique IP firm. Her practice focused on counseling clients on IP-related matters as well as licensing transactions for biotechnology and pharmaceutical companies at varying stages of product development. Dr. Patton earned a Juris Doctor (J.D.) degree from the Boston University School of Law and a Ph.D. in Biochemistry, Cell and Developmental Biology from Emory University.

The executive officers are elected by, and serve at the discretion of, the board of directors. There are no family relationships among any of the currently expected directors and current executive officers of BioTime.

Director Independence

Of the eight current members of the BioTime Board, six have been determined to be "independent" in accordance with Section 803(A) of the NYSE American Company Guide. These six current BioTime directors are Deborah Andrews, Neal C. Bradsher, Stephen C. Farrell, Michael H. Mulroy, Cavan Redmond, and Angus C. Russell. Brian M. Culley, a current member of BioTime's board and BioTime's Chief Executive Officer, is not independent within the meaning of applicable NYSE American Rules. Alfred D. Kingsley does not qualify as "independent" because he receives

compensation for serving in an executive role as Chairman of certain of BioTime's subsidiaries. Prior to the appointment of Don M. Bailey to the BioTime Board, the BioTime Board will determine whether these individuals are independent (as to BioTime) within the meaning of applicable NYSE American Rules, and whether Mr. Bailey is expected to serve as members of BioTime's audit committee immediately following the completion of the merger meet the additional independence requirements set forth in Rule 10A-3 under the Securities Exchange Act of 1934, as amended.

Board Committees of the Combined Company

Following the completion of the Merger, the BioTime Board will have an audit committee, a compensation committee and a nominating and corporate governance committee.

Audit Committee

The responsibilities of the audit committee of the BioTime Board following the completion of the Merger will include: recommending the engagement of BioTime's independent registered public accountants, reviewing their performance and the plan, scope, and results of the audit, reviewing and approving the fees BioTime pays to its independent registered public accountants, reviewing BioTime's accounting and financial reporting procedures and controls, and all transactions between BioTime and its executive officers, directors, and shareholders who beneficially own 5% or more of the BioTime Common Shares.

Immediately following completion of the Merger, it is currently expected that Ms. Andrews, as the chairperson, Mr. Farrell and Mr. Russell will serve on the audit committee. The BioTime Board has previously determined that each of Ms. Andrews and Mr. Russell, who currently serve on BioTime's audit committee, is an "audit committee financial expert" as defined in Item 407(d)(5)(ii) of Regulation S-K.

Compensation Committee

The responsibilities of the compensation committee of the BioTime Board following the completion of the Merger will include: overseeing BioTime's compensation and employee benefit plans and practices, including executive compensation arrangements and incentive plans and awards of stock options and other equity-based awards under BioTime's Equity Incentive Plan, and recommending to the BioTime Board the terms and amount of executive compensation and grants of equity-based awards to executives, key employees, consultants, and independent contractors.

Immediately following completion of the Merger, it is currently expected that Ms. Andrews, Mr. Farrell and Mr. Redmond, as the chairperson, will serve on the compensation committee.

Nominating and Corporate Governance Committee

The responsibilities of the nominating and corporate governance committee of the BioTime Board following the completion of the Merger will include: recommending to the BioTime Board individuals qualified to serve as directors and on committees of the BioTime Board, and to make recommendations to the BioTime Board on issues and proposals regarding corporate governance matters.

Immediately following completion of the Merger, it is currently expected that Mr. Bradsher, as the chairperson, Mr. Farrell and Mr. Russell will serve on the nominating and corporate governance committee.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF

OPERATIONS OF ASTERIAS

The matters addressed in this section that are not historical information constitute "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, including statements about any of the following: any projections of earnings, revenue, gross profit, cash, effective tax rate, use of net operating losses, or any other financial items; the plans, strategies and objectives of management for future operations or prospects for achieving such plans, and any statements of assumptions underlying any of the foregoing. Any statements contained herein that are not statements of historical fact may be deemed to be forward-looking statements. Without limiting the foregoing, the words "believes," "anticipates," "plans," "expects," "seeks," "estimates," and similar expressions are intended to identify forward-looking statements. While Asterias may elect to update forward-looking statements in the future, it specifically disclaims any obligation to do so, even if the Asterias' estimates change and readers should not rely on those forward-looking statements as representing Asterias' views as of any date subsequent to the date of the filing of this proxy statement. Although Asterias believes that the expectations reflected in these forward-looking statements are reasonable, such statements are inherently subject to risks and Asterias can give no assurances that its expectations will prove to be correct. Actual results could differ materially from those described in this report because of numerous factors, many of which are beyond the control of Asterias. A number of important factors could cause the results of Asterias to differ materially from those indicated by such forward-looking statements, including those detailed in the section entitled "*Risk Factors*" and the "*Risk Factors*" in Part I, Item 1A of Asterias' Form 10-K for the year ended December 31, 2017 which are incorporated by reference herein.

The following discussion should be read in conjunction with Asterias' audited financial statements for the year ended December 31, 2017 and the related notes provided, as well as the interim financial statements and the related notes provided.

Critical Accounting Policies and Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts in Asterias' financial statements and related notes. Asterias' significant accounting policies are described in Note 2 to Asterias' audited financial statements for the year ended December 31, 2017. Note 2 of Asterias' unaudited interim financial information for the period ended September 30, 2018 sets forth a summary of changes in significant accounting policies. Asterias has identified below Asterias' critical accounting policies and estimates that Asterias believes require the greatest amount of judgment. On an ongoing basis, Asterias evaluates estimates which are subject to significant judgment, including those related to the going concern assessment of Asterias' financial statements, useful lives associated with long-lived assets, including an 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. On an ongoing basis, Asterias evaluates its estimates compared to

historical experience and trends which form the basis for making judgments about the carrying value of assets and liabilities. To the extent that there are material differences between Asterias' estimates and Asterias' actual results, Asterias' future financial statement presentation, financial condition, results of operations and cash flows will be affected.

Asterias believes the assumptions and estimates associated with the following have the greatest potential impact on Asterias' financial statements.

Going concern assessment – With the implementation of FASB's new standard on going concern, ASU No. 2014-15, beginning with the year ended December 31, 2016 and all annual and interim periods thereafter, Asterias will assess going concern uncertainty for Asterias' 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 us, 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 Asterias' 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 record 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.

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 Asterias 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 American and are held principally for future working capital purposes, as necessary. These shares are measured at fair value and reported as current assets on the balance sheet based on the closing trading price of the security as of the date being presented (see Note 4 to Asterias' financial statements included in this joint proxy statement/prospectus). Unrealized holding gains, and losses are excluded from the statements of operations and reported in equity as part of other accumulated comprehensive income or loss until realized.

Realized gains and losses on 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 over us, as discussed in Note 1 to Asterias' financial statements included in this joint proxy statement/prospectus, 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 Asterias held, 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 Asterias should recognize an other-than-temporary impairment charge for Asterias' available-for-sale securities, including Asterias' intent and ability to hold the investment for a period of time sufficient for any anticipated recovery in market value, and the length of time and extent to which the fair value has been less than its cost basis. Based on consideration of these factors, as of December 31, 2017 and 2016, no other -than-temporary impairment was recognized.

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, an impairment charge 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 are issued, 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 Asterias Common Stock and whether the warrants are classified as equity under ASC 815-40 or other applicable U.S. GAAP. After all relevant assessments are made, Asterias concludes whether the warrants are classified as liability or equity. Liability classified warrants are required to be accounted for at fair value both on the date of issuance and on subsequent accounting period ending dates, with all changes in fair value after the issuance date recorded in the statements of operations as a gain or loss. Equity classified warrants are accounted for at fair value on the issuance date with no changes in fair value recognized subsequent to the issuance date.

Historically, Asterias has issued warrants that are classified as equity and as a liability (see Note 6 to Asterias' financial statements included in this joint proxy statement/prospectus).

Research and development – Research and development expenses consist of costs incurred for company- sponsored, collaborative and contracted research and development activities. These costs include direct and research-related overhead expenses including compensation and related benefits, stock-based compensation, consulting fees, research and laboratory fees, rent of research facilities, amortization of intangible assets, patent applications and prosecutions, 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.

Income taxes – As of October 1, 2013, Asterias 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 recognizes accrued interest and penalties related to unrecognized tax benefits as income tax expense. No amounts were accrued for the payment of interest and penalties as of December 31, 2017 and 2016.

Stock-based compensation – Asterias accounts for share-based payments in accordance with ASC 718, *Compensation – Stock Compensation,* which require the measurement and recognition of compensation expense for all share-based payment awards made to directors and employees, including employee stock options, based on estimated fair values. Consistent with those guidelines, Asterias utilizes the Black-Scholes-Merton option pricing model. Asterias' determination of fair value of share-based payment awards on the date of grant using that option-pricing model is affected by Asterias' stock price as well as by assumptions regarding a number of complex and subjective variables. These variables include, but are not limited to, Asterias' expected stock price volatility over the term of the awards; the expected term of options granted; and a risk-free rate based on the U.S. Treasury rates in effect during the corresponding expected term of the grant. The expected term 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, as applicable. Asterias recognizes stock-based compensation on a straight-line basis over the requisite service period. Through January 1, 2017, Asterias recorded stock-based compensation expense net of estimated forfeitures. Upon the adoption of ASU 2016-09, Asterias accounts for forfeitures as they occur (See *Accounting changes* in Note 2).

Asterias also, at times, issues restricted stock or restricted stock units to Asterias' executive officers, employees, and members of the Asterias Board, which are restricted and unvested common shares issued or shares issuable as restricted stock unit awards vest. Restricted stock and restricted stock unit 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 restricted stock units are not until restricted stock units vest. Once the restricted stock units are vested, equivalent shares of Asterias Common Stock will be issued or issuable to the grantee and therefore the restricted stock unit awards are not included in total common shares issued and outstanding until vested.

Asterias accounts for share-based payments to non-employees in accordance with ASC 505-50, *Equity-Based Payments to Non-Employees* ("**ASC 505-50**"). Stock option awards issued to non-employees, principally consultants

and employees of BioTime or employees of BioTime subsidiaries who perform services for us, are accounted for at fair value using the Black-Scholes-Merton option pricing model. Asterias believes that the fair value of the stock options is more reliably measured than the fair value of services received. Asterias records compensation expense based on the then-current fair values of the stock options at each financial reporting date. Compensation expense recorded during the service period is adjusted in subsequent periods for changes in the fair value of the stock options until the earlier of the date at which the non-employee's performance is complete or a performance commitment is reached, which is generally when the stock option award vests. Compensation expense for non-employee grants is recorded on a straight-line basis in the statements of operations.

Fair value of financial instruments – ASC 820*, Fair Value Measurements*, clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability.

ASC 820 requires that the valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. ASC 820 establishes a three tier value hierarchy, which prioritizes inputs that may be used to measure fair value as follows:

Level 1 – Observable inputs that reflect quoted prices for identical assets or liabilities in active markets.

Level 2 – Observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 – Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The carrying amounts of current assets and current liabilities approximate their fair value because of the relatively short period until they mature or are required to be settled, except for money market funds and the investment in BioTime and OncoCyte shares, which are carried at fair value based on Level 1 inputs, and the warrant liability which is carried at fair value based on Level 3 inputs (see Note 6 to Asterias' financial statements included in this joint proxy statement/prospectus for a discussion on the valuation of warrants classified as liabilities).

Results of Operations

Comparison of Years Ended December 31, 2017, 2016 and 2015

For the years ended December 31, 2017, 2016 and 2015 Asterias recorded net losses of $28.4 million, $35.5 million, and $15.0 million, respectively.

Revenues

The following table shows certain information about Asterias' revenues for the years ended December 31, 2017, 2016 and 2015 (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Grant income	$3,711	$6,572	$3,007
Sale of cell lines	—	—	40
License revenue	—	125	—
Royalties from product sales	331	257	535
Total revenues	4,042	6,954	3,582
Cost of sales	(165)	(128)	(268)
Total gross profit	$3,877	$6,826	$3,314

Grant income in 2017 is entirely from the NGA with CIRM which awarded Asterias a $14.3 million grant for clinical development of Asterias' product, AST-OPC1. Asterias received $1.5 million, $6.2, million and $5.6 million in cash during fiscal years 2017, 2016, and 2015, respectively. Revenues pursuant to the NGA recognized during the fiscal years ended December 31, 2017, 2016 and 2015 were $3.7 million, $6.6 million, and $3.0 million, respectively. Although the cash payments from CIRM were dependent on achieving certain milestones pursuant to the contract with CIRM, Asterias recognizes grant income as related research expenses are incurred.

Asterias' royalty revenues from product sales is entirely from non-exclusive license agreements with Ajinomoto, GE Healthcare, Stem Cell Technologies, Inc., Corning Life Science, Life Technologies, and Millipore which Asterias assumed as part of the consideration received from Geron under the Asset Contribution Agreement. Asterias' other licensing revenue in 2016 comes from the licensing of certain intellectual property that is unrelated to Asterias' core development programs to third parties.

Operating Expenses

The following table shows Asterias' operating expenses for the years ended December 31, 2017, 2016 and 2015 (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Research and development expenses	$26,640	$25,467	$17,321
General and administrative expenses	10,488	15,482	7,901

Research and development expenses – Research and development expenses increased by approximately $1.2 million to $26.6 million for the year ended December 31, 2017 compared to $25.5 million for the year ended December 31, 2016. The increase in research and development expenses for the fiscal year ended December 31, 2017 compared to the same period in 2016 is primarily attributed a $2.1 million increase in spending related to Asterias' AST-OPC1 clinical trial and AST-OPC1-related manufacturing planning expenses offset by decreased patent related legal spending of $0.6 million.

Research and development expenses increased by approximately $8.2 million to $25.5 million for the year ended December 31, 2016 compared to $17.3 million for the year ended December 31, 2015. The increase in research and development expenses for the fiscal year ended December 31, 2016 compared to the same period in 2015 is primarily attributed to the following: an increase of $4.4 million in salaries, bonuses and stock-based compensation expense due to an increase in headcount related to hiring personnel to support Asterias' AST-OPC1 program; a $0.9 million increase in scientific and related consulting services; a $0.8 million increase in clinical laboratory supplies for Asterias' laboratory and production facility in Fremont; a $0.7 million increase in outside service fees related to analytical testing; a $0.6 million increase in vendor fees related to process development activities for Asterias' AST-VAC1 program; a $0.5 million increase in clinical trial costs associated with Asterias' Phase 1/2a study for the AST-OPC1 program and a $0.5 million increase in depreciation expense.

General and administrative expenses – General and administrative expenses decreased by approximately $5.0 million to $10.5 million for the year ended December 31, 2017 compared to $15.5 million for the year ended December 31, 2016. The decrease in general and administrative expenses in 2017 is primarily attributed to a decrease of $3.8 million in shareholder warrant distribution expense related to revaluing warrants outstanding. Additionally, Asterias had a decrease of $0.3 million in legal related expenses for the fiscal year ended December 31, 2017 offset by an increase in fourth quarter of 2017 of $0.4 million in connection with the reduction in staffing, consisting of severance and other employee termination benefits.

General and administrative expenses increased by approximately $7.6 million to $15.5 million for the year ended December 31, 2016 compared to $7.9 million for the year ended December 31, 2015. The increase in general and administrative expenses in 2016 is primarily attributed to the following: an increase of $5.3 in shareholder warrant distribution expense; an increase of $3.3 million in salaries, bonuses, stock-based compensation, severance and related expenses; and an increase of $0.2 million in depreciation expense. These increases were in part offset by a decrease of $1.5 million in general and administrative expenses related to consulting services and tax payments.

Other income and expenses, net

Other income and expenses, net, is mainly comprised of the non-cash gain (loss) pertaining to Asterias' liability classified warrants issued in May 2016, as discussed in Note 6 to Asterias' financial statements. These warrants are recorded at fair value with all changes in fair value included in Asterias' statements of operations. Increases in fair value are recognized as noncash losses and decreases are recognized as noncash gains included in other income and expenses, net. For the year ended December 31, 2017 Asterias generated other income of $4.9 million as the fair value of these warrants decreased. For the year ended December 31, 2016 and 2015, Asterias generated other expenses, net, of $3.7 million and $0.3 million, respectively, the increase principally due to the $3.1 million loss recognized from these warrants in 2016.

Income Taxes

Asterias recorded a deferred income tax benefit of approximately $2.3 million for the year ended December 31, 2016 related to a federal tax benefit. No state tax provision or benefit was recorded for year ended December 31, 2016. A deferred income tax benefit of $7.3 million was recorded for the year ended December 31, 2015, of which $7.4 million was related to federal taxes and $0.1 million was related to state taxes.

As of December 31, 2015, Asterias did not have any valuation allowance on Asterias' federal deferred tax assets since Asterias' deferred tax liabilities exceeded Asterias' deferred tax assets as of that date. Asterias' deferred tax liabilities are primarily related to Asterias' acquisition of certain intellectual property and available for sale securities held in BioTime and OncoCyte common stock and are a source of taxable income for Asterias' deferred tax assets. During the year ended December 31, 2016, as Asterias continued to generate net operating losses and Asterias' deferred tax assets exceeded Asterias' deferred tax liabilities, Asterias established a full valuation allowance for federal deferred tax assets as of December 31, 2016. For the California deferred tax assets, Asterias established a valuation allowance as of December 31, 2016 and 2015. Due to the full valuation allowance on Asterias' federal and California deferred tax assets as of December 31, 2017, Asterias does not expect to record an income tax provision or benefit as long as Asterias' deferred tax assets continue to exceed Asterias' deferred tax liabilities.

Comparison of three and nine months ended September 30, 2018 and 2017.

For the three months ended September 30, 2018 and 2017, Asterias recorded net losses of $4.5 million and $6.8 million, respectively. For the nine months ended September 30, 2018 and 2017, Asterias recorded net losses of $13.7 million and $21.8 million, respectively.

Revenues

The following table shows certain information about Asterias' revenues for the three and nine months ended September 30, 2018 and 2017 (in thousands, except for percentages):

	Three Months Ended September 30,		**$ Increase/ Decrease**	**% Increase/ Decrease**
	2018	2017		
Grant income	$—	$1,526	$ (1,526)	(100)%
Royalties from product sales	116	162	(46)	(28)%
Total revenues	116	1,688	(1,572)	(93)%
Cost of sales	(57)	(81)	24	30 %
Gross profit	$59	$1,607	$ (1,548)	(96)%

	Nine Months Ended September 30,		**$ Increase/ Decrease**	**% Increase/ Decrease**
	2018	2017		
Grant income	$—	$3,711	$ (3,711)	(100)%
License revenue	366	—	366	100 %
Royalties from product sales	337	303	34	11 %
Total revenues	703	4,014	(3,311)	(82)%
Cost of sales	(177)	(151)	(26)	(17)%
Gross profit	$526	$3,863	$ (3,337)	(86)%

Grant income in 2017 was entirely from CIRM, which awarded Asterias a $14.3 million grant for clinical development of AST-OPC1. For the three and nine months ended September 30, 2018 Asterias had no grant or

income. For the three and nine months ended September 30, 2017, Asterias recognized $1.5 million and $3.7 million of this grant income, respectively. Since the clinical trial for AST-VAC2 is being paid for and carried out by CRUK, Asterias does not recognize grant income related to this trial.

License revenue for the nine months ended September 30, 2018 results from licensing of certain intellectual property and a material transfer agreement for certain hESC-derived differentiated cells that are unrelated to Asterias' core programs.

Royalty revenues from product sales are substantially from non-exclusive license agreements with StemCell Technologies, Inc., Corning Life Sciences, Life Technologies, GE Healthcare and EMD Millipore, each of which Asterias assumed as part of the consideration received from Geron under the 2013 Asset Contribution Agreement. Additional royalty revenues come from a non-exclusive license agreement with Ajinomoto, Inc.

Operating Expenses

The following table shows Asterias' operating expenses for the three and nine months ended September 30, 2018 and 2017 (in thousands, except for percentages):

	Three Months Ended September 30,		**$ Increase/ Decrease**	**% Increase/ Decrease**
	2018	2017		
Research and development expenses	$3,510	$6,624	$ (3,114)	(47)%
General and administrative expenses	1,910	2,046	(136)	(7)%

	Nine Months Ended September 30,		**$ Increase/ Decrease**	**% Increase/ Decrease**
	2018	2017		
Research and development expenses	$10,753	$20,206	$ (9,453)	(47)%
General and administrative expenses	5,809	8,360	(2,551)	(31)%

Research and development expenses – Research and development expenses decreased $3.1 million to $3.5 million for the three months ended September 30, 2018 compared to $6.6 million for the three months ending September 30, 2017. This decrease was largely associated with a reduction in staffing and related costs of $1.4 million, clinical trial expenses of $0.6 million, and contract manufacturing and process development costs of $0.1 million. In December 2017, Asterias completed a significant reduction in staffing and curtailed certain operations, which resulted in a reduction of Asterias's operating expenses and cash utilization.

Research and development expenses decreased $9.5 million to $10.8 million for the nine months ended September 30, 2018 compared to $20.2 million for the nine months ending September 30, 2017. This decrease was largely associated with a reduction in staffing and related costs of $4.6 million, clinical trial expenses of $1.7 million, outside research and quality control testing of $1.3 million and contract manufacturing and process development costs of $0.7 million. In December 2017, Asterias completed a significant reduction in staffing and curtailed certain operations, which resulted in a reduction of Asterias' operating expenses and cash utilization.

General and administrative expenses – General and administrative expenses remained relatively flat for the three months ended September 30, 2018 compared to the same period in 2017.

General and administrative expenses decreased by approximately $2.6 million to $5.8 million for the nine months ended September 30, 2018 compared to $8.4 million for the same period in 2017. The decrease in general and administrative expense is primarily attributable to a decrease of $2.0 million in shareholder warrant distribution expense related to revaluing warrants outstanding and $0.3 million in reduced staffing related expenses resulting from the December 2017 reduction in staffing.

Other income/(expense), net

Other expense, net, in 2018 and 2017 consists primarily of the change in fair value of the warrants classified as liabilities and the changes in fair value of Asterias' investments in marketable equity securities.

Income Taxes

Management believes that Asterias' net operating losses incurred during the three and nine months ended September 30, 2018 will result in no income tax benefits in the current year due to the full valuation allowance as of December 31, 2017 and a full valuation allowance expected on Asterias' net deferred tax assets for the year ending December 31, 2018.

Liquidity and Capital Resources

At September 30, 2018, Asterias had $6.5 million of cash, cash equivalents and restricted cash, held 2,621,811 BioTime Common Shares, with a market value of $6.2 million, and $2.4 million of receivables largely related to Asterias' Novo agreements (payments were received in early October 2018) as of September 30, 2018. Asterias may raise capital from time to time through the sale of shares of Asterias Common Stock or other derivatives, and Asterias' BioTime Common Shares. Asterias may sell shares of Asterias Common Stock or other securities in public offerings registered under the Securities Act of 1933, as amended (the "**Securities Act**"), including in at-the-market transactions, or in private placements to select investors. Asterias may sell its BioTime Common Shares, from time to time, by any method that is deemed to be an "at-the-market" equity offering as defined in Rule 415 promulgated under the Securities Act, including sales made directly on or through the NYSE American or any other existing trading market for the common shares in the U.S. or to or through a market maker, at prices related to the prevailing market price, or through block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction, or through one more of the foregoing transactions. Asterias may also sell some or all of Asterias' BioTime Common Shares by any other method permitted by law, including in privately negotiated transactions. Asterias will bear all broker-dealer commissions payable in connection with the sale of shares of Asterias Common Stock, Asterias' BioTime Common Shares, or other securities. Broker-dealers may receive commissions or discounts from Asterias (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The prices at which Asterias may issue and sell shares of Asterias Common Stock, Asterias' BioTime Common Shares, or other securities in the future are not presently determinable and will depend upon many factors, including prevailing prices for those securities in the public market.

On March 28, 2017, Asterias entered into an amendment to Asterias' at-the-market (ATM) Sales Agreement, dated April 10, 2015, with MLV. The amendment to the Sales Agreement was entered into by us, 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 Asterias 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 Asterias' previously filed and currently effective shelf registration statement on Form S-3 (File No. 333-215154). For the nine months ended September 30, 2018, Asterias sold 713,430 shares of Asterias Common Stock for gross proceeds of approximately $1.2 million under this ATM agreement with approximately $21.5 million of Asterias Common Stock available for issuance and sale pursuant to the terms of the ATM Sales Agreement. For the nine months ended September 30, 2017, Asterias sold 2.0 million shares of Asterias Common Stock for gross proceeds of approximately $8.0 million.

Asterias plans to use the proceeds and other cash Asterias has available for general corporate purposes, including to fund Asterias' ongoing clinical programs, to develop certain of Asterias' product candidates and technology, to acquire new stem cell products and technology through licenses or similar agreements from other companies, and to defray overhead expenses and to pay general and administrative expenses.

Since inception, Asterias has incurred net losses and have funded Asterias' operations primarily through the sales of Asterias' marketable equity securities, issuance of common stock, warrants, license fees, payments from research grants, and royalties from product sales. At September 30, 2018 Asterias had an accumulated deficit of $132.3 million, working capital of $13.3 million and stockholders' equity of $24.5 million. Asterias has evaluated its projected cash flows and believe that Asterias' cash, cash equivalents, and restricted cash of $6.5 million as of September 30, 2018, Asterias' marketable equity securities of $6.2 million as of September 30, 2018, and $2.4 million of receivables largely related to Asterias' Novo agreements (payments were received in early October 2018) will be sufficient to fund Asterias' operations through at least the next twelve months from the issuance date of these financial statements. Additionally, in December 2017 Asterias expanded its operating expense reduction efforts in order to further reduce Asterias' cash usage. If the value of Asterias' marketable equity securities decreases or Asterias is unable to obtain future adequate financing or other funding for Asterias' clinical trials, Asterias may be required to delay, postpone, or cancel Asterias' clinical trials or limit the number of clinical trial sites, or otherwise reduce or curtail Asterias' operations. Future financings or other funding may not be available to Asterias at acceptable terms, or at all. Sales of additional issued equity securities would result in the dilution of interests of current Asterias stockholders.

During the nine months ended September 30, 2018, Asterias' total research and development expenditures were $10.8 million and Asterias' general and administrative expenses were $5.8 million. Asterias' sources of cash during the nine months ended September 30, 2018 primarily consisted of $2.7 million from sales of Asterias' marketable equity securities and $1.2 million in from sales of Asterias equity securities. As of September 30, 2018 and December 2017, Asterias had a working capital surplus of $13.3 million and $19.2 million, respectively.

Cash used in operations

Net cash used in operating activities during the nine months ended September 30, 2018 amounted to $10.0 million. The difference between the net loss and net cash used in operating activities during the period was primarily attributable to the following non-cash items: $2.1 million of stock-based compensation, $2.0 million in amortization of intangible assets, $643,000 of stock issued in lieu of cash to a contract vendor, $761,000 in depreciation and amortization expense, and a $570,000 gain on the change in fair value of equity investment securities offset by $2.1 million in non-cash decrease on the Asterias Warrants classified as a liability. The remaining $819,000 is associated with changes in Asterias' operating assets and liabilities, primarily related to decreases in accounts payable and other accrued liabilities.

Net cash used in operating activities during the nine months ended September 30, 2017 amounted to $18.7 million. The difference between the net loss and net cash used in operating activities during the period was primarily attributable to the following non-cash items: Asterias Warrants classified as equity non-cash expense in the amount of $2.0 million related to the modification of expiration date, stock-based compensation of $2.9 million, $2.0 million in amortization of intangible assets, $858,000 of stock issued in lieu of cash to a contract vendor and $840,000 in depreciation and amortization expense offset by $3.4 million in non-cash decrease on the Asterias Warrants classified as a liability. The remaining $2.3 million is associated with changes in Asterias' operating assets and liabilities; of which $2.2 million is associated with decreases in Asterias' deferred grant income, and $0.8 million is associated with decreases in accounts payable and other accrued liabilities offset by a $608,000 decrease in Asterias' prepaid and other current assets and other assets.

Investing and financing activities

During the nine months ended September 30, 2018, Asterias had $2.7 million for cash provided by investing activities, which was related to the sales of Asterias' marketable equity securities.

During the nine months ended September 30, 2018, Asterias raised $1.2 million in gross proceeds under its ATM from the sale of 713,430 shares of Asterias Common Stock at a weighted average price of $1.64 per share, offset by $414,000 related to the payment of capital lease liabilities and lease liabilities $160,000 related to payments of taxes for vesting of employees restricted stock units.

During the nine months ended September 30, 2017, Asterias had $44,000 of cash provided by investing activities, which was related to the $281,000 sales of Asterias' marketable equity securities. This amount was offset by $237,000 used to purchase equipment.

During the nine months ended September 30, 2017, Asterias raised approximately $8.0 million in gross proceeds under its ATM from the sale of 2,005,784 shares of Asterias Common Stock at a weighted average price of $3.99 per share.

Contractual Obligations

As of September 30, 2018, Asterias' contractual obligations for the next five years and thereafter were as follows (in thousands):

	Payments Due by Period				
Contractual Obligations [1]	Total	**Less than 1 year**	1-3 Year	4-5 years	After 5 years
Operating leases [2]	$2,516	$814	$1,416	$286	$ —
Capital lease [3]	$16	$7	$9	$—	$ —
Total Contractual Obligation	$2,532	$821	$1,425	$286	$ —

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

(2) Includes the lease of Asterias' principal office and research facilities in Fremont, California (see Note 8 to Asterias' financial statements included in this joint proxy statement/prospectus).

(3) Includes one capital lease for phone equipment.

Off-Balance Sheet Arrangements

As of September 30, 2018 and December 31, 2017, Asterias did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

Quantitative and Qualitative Disclosures about Market Risk

Foreign Currency Exchange Risk

Asterias is not presently exposed in a significant degree to foreign exchange currency risks because Asterias is not otherwise conducting international business at this time, and Asterias does not engage in foreign currency hedging activities. If Asterias engages in international transactions, Asterias will need to translate foreign currencies into U.S. dollars for reporting purposes, and currency fluctuations could have a greater impact on Asterias' financial results.

Credit Risk

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

Interest Rate Risk

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

Market Risk

As of February 1, 2019, Asterias held 2,621,811 BioTime Common Shares at fair value. Asterias' marketable equity securities' values are subject to changes in the stock price of BioTime. BioTime Common Shares trade on the NYSE American under the ticker "BTX". As of February 1, 2019 the 52-week high/low stock price per share range for BioTime shares were $2.89 - $0.86.

COMPARISON OF THE RIGHTS OF HOLDERS OF BIOTIME COMMON SHARES AND HOLDERS

OF ASTERIAS COMMON STOCK

If the Merger is consummated, stockholders of Asterias will become stockholders of BioTime. Asterias is organized under the laws of the State of Delaware and BioTime is organized under the laws of the State of California. Certain differences in the rights of holders of Asterias capital stock and BioTime capital stock arise from differences in the corporate laws of each state and their respective charters, bylaws and any certificates of designation. As holders of BioTime Common Shares, your rights with respect thereto will be governed by California law, including the CCC, as well as BioTime's constituent documents. This section summarizes material differences between the rights of Asterias and BioTime shareholders.

The following summary is not a complete statement of the rights of the stockholders of either of the two companies or a complete description of the specific provisions referred to below. The identification of specific differences is not intended to indicate that other equally significant or more significant differences do not exist. This summary is qualified in its entirety by reference to the CCC, the DGCL and BioTime's and Asterias' constituent documents, which you are urged to read carefully. BioTime and Asterias have filed with the SEC their respective constituent documents and will send copies of these documents to you, without charge, upon your request. For additional information, please see the section entitled "*Where You Can Find More Information*."

BioTime, Inc.	**Asterias Biotherapeutics, Inc.**
Organizational Documents	
The rights of BioTime's shareholders are currently governed by BioTime's Restated Articles of Incorporation (the "**BioTime Articles**"), BioTime's Amended and Restated Bylaws (the "**BioTime Bylaws**"), as amended and California law, including the CCC.	The rights of Asterias' stockholders are currently governed by Asterias' Charter, Asterias' Bylaws and Delaware law, including the DGCL.
Authorized Capital Stock	
The authorized capital stock of BioTime is 252,000,000 shares of capital stock, consisting of (i) 250,000,000 common shares, no par value per share, and (ii) 2,000,000 preferred shares, no par value per share.	The authorized capital stock of Asterias is 205,000,000 shares of capital stock, consisting of (i) 125,000,000 shares of Series A common stock, par value of $0.0001 per share, (ii) 75,000,000 shares of Series B common stock, par value of $0.0001 per share and (iii) 5,000,000 shares of preferred stock, par value $0.0001 per share preferred stock, of Asterias (the "**Asterias Preferred Stock**").
Common Stock	

Each holder of a common share is entitled to one vote for each share held of record on the applicable record date on each matter voted on at a meeting of shareholders. See also “Term of Directors; Election of Directors” below.	Each holder of a share of common stock is entitled to one vote for each share held of record on the applicable record date on each matter voted on at a meeting of stockholders.

BioTime, Inc.	**Asterias Biotherapeutics, Inc.**
Preferred Stock	
The BioTime Articles and the BioTime Bylaws grant the BioTime Board the power to authorize, without shareholder approval, the designation and issuance of one or more series of preferred shares, without shareholder approval. The BioTime Board is authorized to fix the number of shares of any series of preferred shares and to determine or alter the rights, preferences, privileges, and restrictions granted to or imposed upon the preferred shares as a class, or upon any wholly unissued series of preferred shares. The BioTime Board may, by resolution, increase or decrease (but not below the number of shares of such series then outstanding) the number of shares of any series of preferred shares subsequent to the issue of shares of that series.	Asterias' Charter authorizes the Asterias Board, without any further stockholder action or approval, to establish from time to time one or more series of preferred stock, the number of shares to be included in any series of preferred stock and to fix designations, powers, preferences and rights, and the qualifications, limitations or restrictions thereof, of any wholly unissued series of Asterias Preferred Stock, including without limitation authority to fix the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption (including sinking fund provisions), redemption price or prices, and liquidation preferences of any such series, and the number of shares constituting any such series and the designation thereof, or any of the foregoing.
Number and Qualification of Directors	
Under the BioTime Bylaws, the number of directors shall be not more than 13 and not less than seven, and the exact number of directors shall be fixed, within the limits specified, by approval of the BioTime Board or the shareholders. No reduction of the authorized number of directors shall have the effect of removing any director before that director's term of office expires.	The DGCL provides that a corporation's board of directors must consist of one or more individuals, with the number fixed by, or in the manner provided in, the Bylaws, unless the certificate of incorporation fixes the number of directors, in which case a change in the number of directors may be made only by amendment of the certificate. The DGCL further provides that directors need not be stockholders of the corporation unless the corporation's certificate of incorporation or Bylaws so provide. The certificate of incorporation and Bylaws may also prescribe other qualifications for directors.
Provisions of the BioTime Bylaws relating to the number and qualification of directors may be changed only by a duly adopted amendment adopted by the vote or written consent of holders of a majority of outstanding shares entitled to vote, in accordance with the CCC.	The Asterias Board currently consists of nine members.
The BioTime Board currently consists of eight members.	Asterias' Bylaws provide that the business and affairs of Asterias shall be managed under the direction of the Asterias Board. The Bylaws also specify that the Asterias Board shall consist of not less than three members, and the number of directors shall be fixed and may be changed, from time to time, by resolution of the Asterias Board.
Pursuant to the BioTime Bylaws, the business and affairs of BioTime shall be managed and all corporate powers shall be exercised by or under the direction of	

the BioTime Board, subject to the provisions of the CCC and any limitations in the BioTime Articles or the BioTime Bylaws relating to action required to be approved by the shareholders or by the outstanding shares.

BioTime, Inc.	Asterias Biotherapeutics, Inc.
Term of Directors; Election of Directors	
Under the BioTime Bylaws, directors shall be elected at each annual meeting of shareholders or at any special meeting of shareholders held for that purpose. All directors hold office until their respective successors are elected, or until death, resignation or removal. Any director may resign effective on giving written notice to the Chairman of the BioTime Board, the President, the Secretary, or the BioTime Board, unless the notice specifies a later time for that resignation to become effective. Unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective. If the resignation of a director is effective at some future time, the BioTime Board may elect a successor to take office when the resignation becomes effective.	The DGCL provides that, unless otherwise provided in the certificate of incorporation or Bylaws, directors shall be elected by a by a plurality of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the election of directors.
The BioTime Bylaws provide that a shareholder shall be entitled to cumulate votes only if the candidate or candidates' names have been placed in nomination prior to commencement of the voting and the shareholder has given notice prior to commencement of the voting of the shareholder's intention to cumulate votes. If any shareholder has given such a notice, then every shareholder entitled to vote may cumulate votes. A written consent to elect directors shall be effective only if signed by the holders of all outstanding shares entitled to vote for the election of directors, provided, however, that a director may be elected at any time to fill a vacancy on the BioTime Board other than a vacancy created by removal of a director, that has not been filled by the directors, by the written consent of the holders of a majority of the outstanding shares entitled to vote for the election of directors. See "Stockholder Action by Written Consent," below.	Asterias' Charter and Bylaws do not modify these provisions. A director holds office until the next annual meeting and until his or her successor is elected and qualified, subject to prior death, resignation or removal.
Removal of Directors	
Under the CCC, any or all of the directors may be removed without cause if the removal is approved by the outstanding shares, except in certain circumstances. When holders of the shares of any class or series are entitled to elect one or more directors, the CCC provides that any director so elected may be removed only by the applicable vote of the holders of the shares of that class or series. Neither the BioTime Articles nor the BioTime Bylaws modify these provisions.	The DGCL provides that any director or the entire board of directors may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors, except in certain circumstances. Whenever the holders of any class or series are entitled to elect one or more directors, the DGCL provides that the preceding sentence shall apply in respect to the removal without cause of a director or directors to the vote of the holders of the outstanding shares of that class or series and

not the vote of the outstanding shares as a whole.

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BioTime, Inc.	Asterias Biotherapeutics, Inc.
Vacancies on the Board of Directors	
The BioTime Bylaws provide that vacancies in the BioTime Board may be filled by a majority of the remaining directors, though less than a quorum, or by a sole remaining director. The shareholders may elect a director or directors at any time to fill any vacancy or vacancies not filled by the directors, but any such election by written consent shall require the consent of a majority of the outstanding shares entitled to vote.	The DGCL provides that, unless otherwise provided in the certificate of incorporation or Bylaws, vacancies and newly created directorships resulting from any increase in the authorized number of directors may be filled by a majority of the directors then in office, although less than a quorum, or by a sole remaining director.
A vacancy created upon the removal of a director by the shareholders or by court order may be filled only by the vote of a majority of the shares entitled to vote represented at a duly held meeting at which a quorum is present, or by the written consent of holders of a majority of the outstanding shares entitled to vote.	
A vacancy or vacancies in the BioTime Board shall be deemed to exist in the event of the death, resignation, or removal of any director, or if the BioTime Board declares vacant the office of a director who has been declared of unsound mind by an order of court or convicted of a felony, or if the shareholders fail to elect the number of directors to be voted for at that meeting.	Asterias' Charter and Bylaws do not modify these provisions.
Stockholder Action by Written Consent	
The BioTime Bylaws provide that, except for the election of directors, any action that may be taken at any annual or special meeting of shareholders may be taken without a meeting and without prior notice, if a consent in writing, setting forth the action so taken, is signed by the holders of outstanding shares having not less than the minimum number of votes that would be necessary to authorize or take that action at a meeting at which all shares entitled to vote on that action were present and voted. In the case of election of directors, such a consent shall be effective only if signed by the holders of all outstanding shares entitled to vote for the election of directors, provided, however, that a director may be elected at any time to fill a vacancy on the BioTime Board other than a vacancy created by removal of a director, that has not been filled by the directors, by the written consent of the holders of a majority of the outstanding shares entitled to vote for the election of directors.	Under the DGCL, unless otherwise provided in the certificate of incorporation, any action required to be taken at an annual or special meeting of the stockholders of a corporation, or any action which may be taken at an annual or special meeting of such stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent or consents in writing, setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the corporation.

All such consents shall be filed with the Secretary of the corporation and shall be maintained in the corporate records. Any shareholder giving a written consent, or the shareholder's proxy holders, or a transferee of the shares or a personal representative of the shareholder or their respective proxy holders, may revoke the consent by a writing received by the Secretary of the corporation before written consents of the number of shares to authorize the proposed action have been filed with the Secretary.

If the consents of all shareholders entitled to vote have not been solicited in writing, and if the unanimous written consent of all such shareholders shall not have been received, the Secretary shall give prompt notice of the action approved by the shareholders without a meeting in accordance with the provisions of the CCC.

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Asterias' Bylaws provides that with respect to any action taken without a meeting by less than unanimous written consent of stockholders, the Asterias Secretary shall give prompt notice of the taking of the corporate action to those stockholders who have not consented in writing and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting.

BioTime, Inc.	Asterias Biotherapeutics, Inc.
Quorum	
The BioTime Bylaws provide that a quorum for an annual or special shareholder meeting consists of a majority of shares entitled to vote present in person or by proxy at such meeting. A majority of shares present in person or by proxy at any annual or special meeting may adjourn such meeting, whether or not a quorum is present.	The DGCL provides that a quorum for a stockholder meeting consists of a majority of shares entitled to vote present in person or represented by proxy at such special meeting, unless the certificate of incorporation or Bylaws of the corporation provide otherwise. Asterias' Bylaws provide that the holders of a majority of the stock of Asterias entitled to vote must be present in person or by proxy at each meeting of the stockholders to constitute a quorum. However, less than a quorum has the power to adjourn.
Special Meeting of Stockholders	
The BioTime Bylaws provide that special meetings of the shareholders may be called by (i) the Chairman of the BioTime Board, (ii) BioTime's Chief Executive Officer or President, (iii) the BioTime Board or (iv) one or more shareholders entitled to cast not less than 10% of the votes eligible to be cast at that meeting. See "Notice of Stockholder Meetings," below.	The DGCL provides that special meetings of the stockholders may be called by the board of directors or by such persons as may be authorized by the certificate of incorporation or by the Bylaws. Asterias' Bylaws provide that special meetings of stockholders may be called at any time by the Chairman of the Board, a majority of the directors then in office even if less than a quorum of the authorized number of directors, or by one or more stockholders entitled to cast not less than 10% of the votes eligible to the cast at that meeting.
Notice of Stockholder Meetings	
All notices of meetings of shareholders shall be sent or otherwise given not less than 10 nor more than 60 days before the date of the meeting and otherwise in accordance with the BioTime Bylaws. The notice shall specify the place, date and hour of the meeting and, in the case of a special meeting, the general nature of the business to be transacted, or, in the case of the annual meeting, those matters which the BioTime Board, at the time of giving the notice, intends to present for action by the shareholders. The notice of any meeting at which directors are to be elected shall include the name of any nominee or nominees whom, at the time of the notice,	As permitted under the DGCL, Asterias' Bylaws provide that written notice of the time and place of every meeting of stockholders and, in the case of a special meeting, the business to be acted on at such meeting shall be given at least 10 days before the meeting to each stockholder of record having voting power and entitled to such notice. The DGCL and Asterias' Bylaws provide that written notice of any meeting shall be given not less than 10, nor more than 60, days before the date of a stockholder's meeting to each stockholder entitled to vote at such meeting as of the record date for determining the stockholders entitled to notice of the meeting.

management intends to present for election.

Upon written request by a party entitled to call a special meeting of shareholders, the Chairman of the BioTime Board, the President, any Vice President or the Secretary of BioTime shall cause notice to be given to the shareholders entitled to vote that a special meeting will be held, provided that the date of the requested special meeting shall be not less than 35 nor more than 60 days after the receipt of such request.

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BioTime, Inc.	**Asterias Biotherapeutics, Inc.**
Advance Notice Requirements for Stockholder Nominations and Other Provisions	
The BioTime Bylaws provide that at any annual meeting of the shareholders, only such business shall be conducted as shall have been brought before the meeting by or at the direction of the BioTime Board or any shareholder who is entitled to vote with respect thereto and who complies with the notice procedures for shareholder proposals set forth in the BioTime Bylaws.	Asterias' Bylaws provide that, at any meeting of its stockholders, only such business shall be conducted as shall have been properly brought before such meeting. Nominations of persons for election to the Asterias Board and the proposal of business to be considered by Asterias stockholders may be made at an annual meeting of stockholders only (i) pursuant to Asterias' proxy materials with respect to such meeting, (ii) by or at the direction of the Asterias Board or (iii) by any stockholder of Asterias who (a) was a stockholder of record of Asterias at the time he delivers notice to Asterias with respect to the proposal in accordance with Asterias' Bylaws; (b) will be entitled to vote at such meeting and (c) complies with the notice provisions (timing and informational) set forth in Asterias' Bylaws. Nominations of persons for election to the Asterias Board may be made at a special meeting at which directors are to be elected (i) by or at the direction of the Asterias Board or (ii) by any stockholder of Asterias who (a) is a stockholder of record at the time of giving of the notice required; (b) is a stockholder entitled to vote at the special meeting; and (c) delivers a proper and timely written notice of the nomination to the secretary of Asterias.
For business to be properly brought before an annual meeting by a shareholder, such shareholder must have given timely notice thereof in proper written form to BioTime's Secretary and any such proposed business must constitute a proper matter for shareholder action under the CCC. To be timely, a shareholder's notice must be delivered or mailed to and received at the principal executive offices of the corporation not less ninety (90) days prior to the one-year anniversary of the preceding year's annual meeting; *provided, however*, that if the date of the annual meeting is more than thirty (30) days before or more than sixty (60) days after such anniversary date, or if no annual meeting was held in the preceding year, notice must be so delivered, or mailed and received, not later than the ninetieth (90th) day prior to such annual meeting or, if later, the tenth (10th) day following the day on which public disclosure of the date of such annual meeting was first made. To be in proper written form, a shareholder's notice to the secretary of BioTime shall set forth the information required by the BioTime Bylaws. A shareholder shall update and supplement their notice of intent to bring business before the meeting (a) no later than ten (10) days after the record date for the meeting so that the information provided or required to be provided in such notice shall be true and correct as of the record date for the meeting, and (b) not later than the date that is ten (10) business days prior to the meeting or any adjournment or postponement of the meeting if such information is no longer true and correct as of such date, provided, that no such update shall include any new or additional matters or proposals, or any amendment or revisions to any proposals, to be brought before the annual meeting. Each such update and supplement must be delivered to, or mailed and received by, the secretary of the corporation at the principal executive offices of the corporation not later than the date specified in the Bylaws. No business shall be brought before or conducted at an annual meeting except in accordance with the BioTime Bylaws. The officer of the corporation or other person presiding at the annual meeting of shareholders shall, if the facts so warrant, determine and declare to the meeting that business was not properly brought before the meeting in accordance with the provisions of the Bylaws, if	To be timely with respect to business to be conducted at an annual meeting, a stockholder's notice must be delivered to the secretary of Asterias at its principal executive offices not later than the close of business on the 120th day before the one-year anniversary of the date on which Asterias first mailed its proxy materials or a notice of availability of proxy materials (whichever is earlier) for the preceding year's annual meeting; *provided*, *however*, that in the event that the date of the annual meeting is more

he should so determine, he shall so declare to the meeting and any such business so determined to be not properly brought before the meeting shall not be transacted.

than 30 days before or more than 60 days after such anniversary date, notice by the stockholder must be so delivered not earlier than the close of business on the 90th day prior to such annual meeting or, if later, the 10th day following the day on which public announcement of the date of such meeting is first made by Asterias.

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BioTime, Inc.

Only persons who are nominated in accordance with the procedures set forth in the BioTime Bylaws shall be eligible for election or re-election as directors at an annual meeting of shareholders. Nominations of persons for election to the BioTime Board shall be made at an annual meeting of shareholders only (A) by or at the direction of the BioTime Board or by a committee of directors appointed by the BioTime Board and authorized to nominate persons for election as directors, or (B) by a shareholder of the corporation who (1) was a shareholder of record at the time of the giving of the notice required and on the record date for the determination of shareholders entitled to vote at the annual meeting and (2) has complied with the notice procedures set forth in the BioTime Bylaws, for a nomination to be made by a shareholder, the shareholder must have given timely notice thereof in proper written form to BioTime's Secretary. A nomination to the BioTime Board by a shareholder must be received by the secretary of BioTime at its principal executive offices of the corporation in the time frames specified above; *provided, however*, that if, after a shareholder gives timely notice in proper written form that includes such shareholder's nominees for election as directors at the annual meeting, the corporation makes a public announcement or that the number of directors to be elected to the BioTime Board at an annual meeting will be increased from the previously authorized number of directors, the shareholder may supplement its notice by including additional nominees for any new positions on the BioTime Board, if such supplement to the notice is delivered to the BioTime Secretary not later than the close of business on the 10th day following the day on which such public announcement is first made and such notice meets certain other requirements as set forth in the Bylaws. To be in proper written form, a shareholder's notice to the secretary of BioTime shall set forth the information required by the BioTime Bylaws. At the request of the BioTime Board, any BioTime Board nominee must furnish to the Secretary of BioTime, within ten (10) days after request, in addition to the information required to be set forth in the shareholder's notice of nomination, such other information as may reasonably be required by the Secretary of BioTime to determine the eligibility of such proposed nominee to serve as an "independent" director of the corporation under the rules of the principal national

Asterias Biotherapeutics, Inc.

If the notice relates to the nomination of persons for election as directors, to be in proper form, a stockholder's notice to the secretary of Asterias must be in writing and must set forth: (a) as to each person whom the stockholder proposes to nominate for election as director, (i) the name, age, business address and residence address of the nominee; (ii) the principal occupation or employment of the nominee; (iii) the class and number of shares of the corporation that are held of record or are beneficially owned by the nominee and any derivative positions held or beneficially held by the nominee; (iv) whether and the extent to which any hedging or other transaction or series of transactions has been entered into by or on behalf of the nominee with respect to any securities of the corporation, and a description of any other agreement, arrangement or understanding (including any short position or any borrowing or lending of shares), the effect or intent of which is to mitigate loss to, or to manage the risk or benefit of share price changes for, or to increase or decrease the voting power of the nominee; (v) a description of all arrangements or understandings between the stockholder and each nominee and any other person or persons (naming such person or persons) pursuant to which the nominations are to be made by the stockholder; (vi) a written statement executed by the nominee acknowledging that as a director of the corporation, the nominee will owe a fiduciary duty under Delaware law with respect to the corporation and its stockholders; and (vii) any other information relating to the nominee that would be required to be disclosed about such nominee if proxies were being solicited for the election or reelection of the nominee as a director, or that is otherwise required, in each case pursuant to Regulation 14A under the 1934 Act (including without limitation the nominee's written consent to being named in the proxy statement, if any, as a nominee and to serving as a director if elected or reelected, as the case may be); and (b) as to such stockholder giving notice, (i) the name and address, as they appear on the corporation's books, of the stockholder nominating the director; (ii) the class and number of shares of the corporation that are held of record or are beneficially owned by the stockholder or any "Stockholder Associated Person" (as defined in Asterias' Bylaws) and any derivative positions held or beneficially held by the stockholder or any Stockholder Associated Person; (iii) whether and the extent to which any hedging or other transaction or series of transactions has been entered into by or on behalf of

securities exchange on which the common shares or shares of any other class of capital stock of the corporation are listed (or under the Exchange Act, or any Bylaw of the corporation if the corporation does not have a class of capital stock listed on a national securities exchange), or that could be material to a reasonable shareholder's understanding of the independence, or lack thereof, of such nominee; if such information is requested but not delivered to the Secretary by the nominee, such shareholder's nomination shall not be considered in proper written form. No person shall be eligible for election or re-election as a director of the corporation at an annual meeting of shareholders unless nominated in accordance with the provisions set forth in the BioTime Bylaws. The chairperson of the annual meeting shall, if the facts warrant, determine and declare at the annual meeting that a nomination was not made in accordance with the provisions prescribed by such Bylaws, and if the chairperson should so determine, he or she shall so declare at the annual meeting, and the defective nomination shall be disregarded.

such stockholder or any Stockholder Associated Person with respect to any securities of the corporation, and a description of any other agreement, arrangement or understanding (including any short position or any borrowing or lending of shares), the effect or intent of which is to mitigate loss to, or to manage the risk or benefit from share price changes for, or to increase or decrease the voting power of, such stockholder or any Stockholder Associated Person with respect to any securities of the corporation; (iv) any material interest of the stockholder or a Stockholder Associated Person in such business; and (v) a statement whether either such stockholder or Stockholder Associated Person will deliver a proxy statement and form of proxy to holders of a number of the corporation's voting shares reasonably believed by such stockholder or Stockholder Associated Person to be necessary to elect or re-elect such nominee.

BioTime, Inc.	Asterias Biotherapeutics, Inc.
For a special meeting of shareholders at which directors are to be elected, nominations of persons for election to the BioTime Board shall be made only (A) by or at the direction of the BioTime Board or by a committee of directors appointed by the BioTime Board of the corporation and authorized to nominate persons for election as directors, or (B) by any shareholder who (1) is a shareholder of record at the time of the giving of the relevant notice on the record date for the determination of shareholders entitled to vote at the special meeting and (2) delivers a timely written notice of the nomination to the secretary. To be timely, such notice must be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the later of the 90th day prior to such special meeting or the tenth (10th) day following the day on which a public announcement is first made of the date of the special meeting and of the nominees proposed by the BioTime Board to be elected at such meeting. In no event shall any adjournment, rescheduling or postponement of a special meeting or the announcement thereof commence a new time period for the giving of a shareholder's notice. A person shall not be eligible for election or re-election as a director at a special meeting unless nominated in accordance with the provisions set forth in the BioTime Bylaws The chairperson of the special meeting shall, if the facts warrant, determine and declare at the meeting that a nomination or business was not made in accordance with the procedures prescribed by the BioTime Bylaws, and if the chairperson should so determine, he or she shall so declare at the meeting, and the defective nomination or business shall be disregarded.	If the notice relates to business (other than the nomination of persons for election as directors) that the stockholder proposes to bring before the meeting, to be in proper form, a stockholder's notice to the secretary of Asterias must be in writing and must set forth: (i) a brief description of the business desired to be brought before the annual meeting and the reasons for conducting such business at the annual meeting, (ii) the text of the proposal or business, including the text of any resolutions proposed for consideration, (iii) the name and address, as they appear on the corporation's books, of the proposing stockholder, (iv) the class, series, and number of shares of the corporation's capital stock that are "beneficially owned" within the meaning of Rule 13d-3 under the Exchange Act by such proposing stockholder, (v) any material interest of the proposing stockholder in such business or proposal, (vi) a reasonably detailed description of all agreements, arrangements and understandings between the proposing stockholder and any other stockholder of the corporation or any other person or entity, including the name and address of each other stockholder or other person or entity, in connection with the proposal of such business by such stockholder, and (vii) any other information relating to such proposing stockholder that would be required to be disclosed in a proxy statement or other filing required to be made in connection with solicitations of proxies or consents by such proposing stockholder in support of the business proposed to be brought before the meeting pursuant to Section 14(a) of the Exchange Act.

BioTime, Inc.	**Asterias Biotherapeutics, Inc.**
Amendment of Charter	
The CCC provides that, after any shares have been issued, amendments to a corporation's articles of incorporation may be adopted if approved by the board and approved by the outstanding shares, either before or after the approval by the board; *provided, however*, that the following may be approved by the board alone: (a) unless the corporation has more than one class of shares outstanding, an amendment effecting only a stock split; or (b) an amendment deleting the initial street address and initial mailing address of the corporation, the names and addresses of the first directors, or the name and address of the initial agent.	The DGCL provides that an amendment to a corporation's certificate of incorporation requires that (i) the board of directors adopt a resolution setting forth the proposed amendment and either call a special meeting of the stockholders entitled to vote in respect thereof for consideration of such amendment or direct that the amendment be considered at the next annual meeting of the stockholders and (ii) the stockholders approve the amendment by a majority of outstanding shares entitled to vote (and a majority of the outstanding shares of each class entitled to vote, if any).
Where the articles require for corporate action the vote of a larger proportion or of all of the shares of any class or series, or of a larger proportion or of all of the directors, than is otherwise required by the CCC, the provision in the articles requiring such greater vote shall not be altered, amended or repealed except by such greater vote unless otherwise provided in the articles.	Asterias' Charter does not modify these provisions.
The BioTime Articles do not modify these provisions.	
Amendment of Bylaws	
The BioTime Bylaws may be amended or repealed by the vote or written consent of holders of a majority of the outstanding shares entitled to vote, *provided, however*, that, if BioTime's Articles set forth the number of authorized directors of the corporation, the authorized number of directors may be changed only by an amendment of the articles of incorporation.	Under the DGCL, the power to adopt, amend or repeal Bylaws shall be in the stockholders entitled to vote. Notwithstanding the foregoing, a corporation may, in its certificate of incorporation, confer the power to adopt, amend or repeal Bylaws upon the directors. The fact that such power has been so conferred upon the directors, will not divest the stockholders or members of the power, nor limit their power, to adopt, amend or repeal Bylaws.
Subject to the rights of the shareholders to amend the BioTime Bylaws and other than a bylaw or an amendment of a bylaw changing the authorized number of directors of BioTime, the Bylaws may be adopted, amended or repealed by the BioTime Board.	Asterias' Charter and Bylaws provides that the Asterias Board is expressly authorized to adopt, amend or repeal Asterias' Bylaws.

Limitation on Director Liability

BioTime's Articles provide that the liability of directors to BioTime for monetary damages shall be eliminated to the fullest extent permissible under California law. The CCC permits a California corporation to adopt a such a provision reducing or eliminating the liability of a director for breach of the fiduciary duty of care, provided that such liability does not arise from certain proscribed conduct (including intentional misconduct and breach of duty of loyalty). The CCC in this regard relates only to derivative actions (those brought by shareholders on behalf of the corporation) and does not apply to claims brought by third parties.	The DGCL provides that a corporation may include in its certificate of incorporation a provision eliminating the liability of a director to the corporation or its stockholders for monetary damages for a breach of the director's fiduciary duties, except liability for any breach of the director's duty of loyalty to the corporation's stockholders, for acts or omissions not in good faith or that involve intentional misconduct or knowing violation of law, under Section 174 of the DGCL (which deals generally with unlawful payments of dividends, stock repurchases and redemptions) and for any transaction from which the director derived an improper personal benefit. Asterias' Charter provides that, to the fullest extent permitted by the DGCL, directors of Asterias shall not be liable to Asterias or its stockholders for monetary damages for breach of fiduciary duty as a director.

BioTime, Inc.	**Asterias Biotherapeutics, Inc.**
Indemnification	
	Under the DGCL, a Delaware corporation must indemnify its present or former directors and officers against expenses (including attorneys' fees) actually and reasonably incurred to the extent that the officer or director has been successful on the merits or otherwise in defense of any action, suit or proceeding brought against him or by reason of the fact that he or she is or was a director or officer of the corporation
Under the BioTime Bylaws, BioTime shall, to the maximum extent permitted by the CCC, indemnify any person who was or is a party, or is threatened to be made a party, to any proceeding (other than an action by or in the right of the corporation) by reason of the fact that such person is or was an agent (as defined in the CCC) of the corporation, against expenses, judgments, fines, settlements, and other amounts actually and reasonably incurred in connection with such proceeding if that person acted in good faith and in a manner that person reasonably believed to be in the best interests of BioTime and, in the case of a criminal proceeding, had no reasonable cause to believe his conduct of was unlawful.	The DGCL further provides that a corporation may indemnify its officers, directors, employees and agents against liabilities and expenses incurred in proceedings if the person acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, the best interest of the corporation and, with respect to any criminal action, had no reasonable cause to believe that the person's conduct was unlawful. However, under the DGCL, no indemnification is available in respect of a claim as to which the person has been adjudged to be liable to the corporation, unless and only to the extent that a court determines that in view of all the circumstances, such person is fairly and reasonably entitled to indemnity for such expenses that the court deems proper.
The termination of any proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent shall not, of itself, create a presumption that the person did not act in good faith and in a manner which the person reasonably believed to be in the best interests of the corporation or that the person had reasonable cause to believe that his conduct was unlawful.	Asterias' Bylaws provides that directors and officers and former directors and officers of Asterias, acting in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of Asterias or, with respect to criminal matters, had no reasonable cause to believe such person's conduct was unlawful, shall be fully protected and indemnified against any personal liability to others that may arise by reason of the fact that such person is or was a director of the corporation or an officer of the corporation.
Preemptive Rights	
BioTime's shareholders do not have preemptive rights. Thus, if additional shares of BioTime capital stock are issued, the current holders of BioTime capital stock will own a proportionately smaller interest in a larger number of outstanding common shares to the extent that	Asterias' stockholders do not have preemptive rights. Thus, if additional shares of Asterias Common Stock are issued, the current holders of Asterias Common Stock will own a proportionately smaller interest in a larger number of outstanding shares of common stock to the extent that they

they do not participate in the additional issuance.

do not participate in the additional issuance.

BioTime, Inc.	Asterias Biotherapeutics, Inc.
Dividends and Share Repurchases	
The CCC provides that neither a corporation nor any of its subsidiaries shall make any distribution to the corporation's shareholders unless the board of directors has determined in good faith either that: (1) the amount of retained earnings of the corporation immediately prior to the distribution equals or exceeds the sum of (A) the amount of the proposed distribution plus (B) the preferential dividends arrears amount; or (2) immediately after the distribution, the value of the corporation's assets would equal or exceed the sum of its total liabilities plus the preferential rights amount.	The DGCL provides that, subject to any restrictions in a corporation's certificate of incorporation, dividends may be declared from the corporation's surplus, or if there is no surplus, from its net profits for the fiscal year in which the dividend is declared and for the preceding fiscal year. Dividends may not be declared out of net profits, however, if the corporation's capital has been diminished to an amount less than the aggregate amount of all capital represented by the issued and outstanding stock of all classes having a preference upon the distribution of assets until the deficiency in the amount of capital represented by the issued and outstanding stock of all classes having a preference upon the distribution of assets is repaired. Furthermore, the DGCL generally provides that a corporation may redeem or repurchase its shares only if the redemption or repurchase would not impair the capital of the corporation. The Asterias Board has never approved or declared a dividend on Asterias' capital stock. Asterias does not currently have any share repurchase programs in place.
Under the BioTime Bylaws and the CCC, the BioTime Board may fix, in advance, a record date for the payment of any dividend or other distribution or allotment of any rights. Such date shall not be more than 60 days before the taking of such action and only shareholders of record on the date so fixed are entitled to receive such dividend, distribution, or allotment of rights.	
Stockholder Rights Plan	
BioTime does not currently have a shareholders' rights plan in effect.	Asterias does not currently have a stockholders' rights plan in effect.
Business Combination or Antitakeover Statutes	
The CCC does not provide for any specific anti-takeover provisions.	Section 203 of the DGCL generally prohibits "business combinations," including mergers, sales and leases of assets, issuances of securities and similar transactions by a corporation or a subsidiary with an interested stockholder who beneficially owns 15% or more of a corporation's voting stock, within three years after the person or entity becomes an interested stockholder, unless: (i) the board of directors of the target corporation has

The BioTime Articles and BioTime Bylaws include a number of provisions that may have the effect of deterring takeovers, including, but not limited to: (1) the ability to issue shares of capital stock or rights to purchase shares of capital stock, which could be used to discourage an attempt to obtain control of BioTime; (2) advance notice procedures for shareholders seeking to bring business before the BioTime annual meeting of shareholders, or to nominate candidates for election as directors at any meeting of shareholders; and (3) limitations on who may call special meetings of shareholders and the matters for which they may call them.	approved, before the acquisition time, either the business combination or the transaction that resulted in the person becoming an interested stockholder; (ii) upon consummation of the transaction that resulted in the person becoming an interested stockholder, the person owns at least 85% of the corporation's voting stock (excluding shares owned by directors who are officers and shares owned by employee stock plans in which participants do not have the right to determine confidentially whether shares will be tendered in a tender or exchange offer); or (iii) after the person or entity becomes an interested stockholder, the business combination is approved by the board of directors and authorized at a meeting of stockholders by the affirmative vote of at least 66 2/3% of the outstanding voting stock not owned by the interested stockholder.
	Asterias has not opted out of the protections of Section 203 of the DGCL. As a result, the statute applies to Asterias.

BioTime, Inc.	**Asterias Biotherapeutics, Inc.**
Appraisal Rights	
BioTime's shareholders are entitled to appraisal and dissenters' rights under Sections 1300 through 1313 of the CCC. Under the CCC, shareholders who do not vote in favor of a merger, who properly make a demand for appraisal of their shares, and who otherwise comply strictly with the provisions of the CCC with respect to dissenters' rights, will be entitled to exercise dissenters' rights and to obtain payment in cash for the fair market value of their shares.	Under the DGCL, a stockholder may dissent from, and receive payments in cash for, the fair value of his or her shares as appraised by the Delaware Court of Chancery in the event of certain mergers and consolidations. However, stockholders do not have appraisal rights if the shares of stock they hold, at the record date for determination of stockholders entitled to vote at the meeting of stockholders to act upon the merger or consolidation, or on the record date with respect to action by written consent, are either (i) listed on a national securities exchange or (ii) held of record by more than 2,000 holders. Further, no appraisal rights are available to stockholders of the surviving corporation if the merger did not require the vote of the stockholders of the surviving corporation. Notwithstanding the foregoing, appraisal rights are available if stockholders are required by the terms of the Merger Agreement to accept for their shares anything other than (a) shares of stock of the surviving corporation, (b) shares of stock of another corporation that will either be listed on a national securities exchange or held of record by more than 2,000 holders, (c) cash instead of fractional shares or (d) any combination of clauses (a)-(c). Appraisal rights are also available under the DGCL in certain other circumstances, including in certain parent-subsidiary corporation mergers and in certain circumstances where the certificate of incorporation so provides.
Under the CCC, a shareholder has the right to dissent from a merger and to have the fair market value of such shareholder's shares paid in cash if: (1) such shareholder's shares were outstanding on the record date for the determination of shareholders entitled to vote on the merger; (2) the merger is completed; (3) such shareholder otherwise complies with the requirements of the CCC; and such shareholder's shares do not otherwise lose their status as dissenting shares under Section 1309 of the CCC.	Asterias Charter does not provide for appraisal rights in any additional circumstance.
In such event, the fair market value of such shares would be determined as of the day of, and immediately prior to the first public announcement of, the terms of the proposed merger.	

The BioTime Articles do not provide for appraisal rights in any additional circumstance.

STOCK OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT/DIRECTORS OF

BIOTIME

The following table sets forth certain information with respect to the beneficial ownership of BioTime Common Shares as of December 17, 2018, for:

- each of the BioTime directors;
- each of the BioTime Named Executive Officers identified in the BioTime Proxy Statement on Schedule 14A filed with the SEC on March 29, 2018;
- all of BioTime's current directors and executive officers as a group; and
- each person or group known by BioTime or Asterias, based on the filings pursuant to Section 13(d) or Section 13(g) under the Exchange Act, to own beneficially more than 5% of BioTime Common Shares.

The beneficial ownership set forth in the following table has been determined in accordance with the rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Except as indicated by the footnotes below, BioTime and Asterias believe, based on the information furnished to them, that the persons and entities named in the table below have sole voting and investment power with respect to all BioTime Common Shares that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership is based on 126,964,037 BioTime Common Shares outstanding at December 17, 2018. In computing the number of BioTime Common Shares beneficially owned by a person and the percentage ownership of such person, all BioTime Common Shares subject to options that are currently exercisable or exercisable within 60 days of December 17, 2018 and restricted stock unit awards subject to release within 60 days of December 17, 2018 are deemed to be outstanding. However, these shares are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person.

Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o BioTime, Inc., 1010 Atlantic Avenue, Suite 102, Alameda, CA 94501.

Beneficial Owner Name	Shares Beneficially Owned	Percentage of Shares Beneficially Owned

5% Stockholders			
Neal C. Bradsher [1]	30,184,469	23.8	%
Broadwood Partners, L.P.			
Broadwood Capital, Inc.			
724 Fifth Avenue, 9th Floor			
New York, NY 10019			
Alfred D. Kingsley [2]	7,140,252	5.6	%
Greenbelt Corp.			
Greenway Partners, L.P.			
150 E. 57th Street			
New York, NY 10022			
Named Executive Officers & Directors			
Neal C. Bradsher [1]	30,184,469	23.8	%
Alfred D. Kingsley [2]	7,140,252	5.6	%
Brian M. Culley [3]	100,000	*	
Stephana E. Patton [4]	172,745	*	
Stephen C. Farrell [5]	217,450	*	
Deborah Andrews [6]	110,000	*	
Michael H. Mulroy [7]	112,550	*	
Angus C. Russell [7]	147,500	*	
Cavan Redmond [8]	-	*	
All current executive officers and directors as a group (10 persons) [9]	38,761,824	30.2	%

* Represents beneficial ownership of less than 1%.

(1) Includes 29,971,561 shares owned by Broadwood Partners, L.P., 50,000 shares that Broadwood Partners, L.P. may acquire from another shareholder upon the exercise of an option, 62,908 shares owned by Neal C. Bradsher, and 100,000 shares that may be acquired by Mr. Bradsher upon the exercise of certain stock options that are presently exercisable or may become exercisable within 60 days. Excludes 40,000 shares that may be acquired by Mr. Bradsher upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days. Broadwood Capital, Inc. is the general partner of Broadwood Partners, L.P., and Mr. Bradsher is the President of Broadwood Capital, Inc. Mr. Bradsher and Broadwood Capital, Inc. may be deemed to beneficially own the shares that Broadwood Partners, L.P. owns.

(2) Includes 1,043,346 shares presently owned by Greenbelt Corp, 375,351 shares owned by Greenway Partners, L.P., 5,471,555 shares owned solely by Alfred D. Kingsley, and 250,000 shares that may be acquired by Mr. Kingsley upon the exercise of certain stock options that are presently exercisable or may become exercisable within 60 days. Excludes 70,000 shares that may be acquired by Mr. Kingsley upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days. Mr. Kingsley controls Greenbelt Corp. and Greenway Partners, L.P. and may be deemed to beneficially own the shares that Greenbelt Corp. and Greenway Partners, L.P. own.

(3) Entirely Restricted Stock Units that will vest within 60 days. Excludes 200,000 Restricted Stock Units that will not vest within the next 60 days and 1,500,000 shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

(4) Includes 156,250 shares that may be acquired upon the exercise of certain options that are presently exercisable or that may become exercisable within 60 days. Excludes 13,750 Restricted Stock Units that will not vest and expire if the relevant milestone is not achieved by December 31, 2018 and 218,750 shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

(5) Includes 120,000 shares that may be acquired upon the exercise of certain options that are presently exercisable or that may become exercisable within 60 days. Excludes 40,000 shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

(6) Includes 100,000 shares that may be acquired upon the exercise of certain options that are presently exercisable or that may become exercisable within 60 days. Excludes 40,000 shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

(7) Includes 80,000 shares that may be acquired upon the exercise of certain options that are presently exercisable or that may become exercisable within 60 days. Excludes 40,000 shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

(8) Excludes 100,000 shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

(9) Includes 50,000 shares that may be acquired upon the exercise of certain private options, 100,000 shares issuable upon the vesting of certain Restricted Stock Units that vest within 60 days, and 1,453,749 shares that may be acquired upon the exercise of certain options that are presently exercisable or that may become exercisable within 60 days. Excludes 225,000 Restricted Stock Units that will not vest within 60 days or will expire if the relevant milestone is not met by December 31, 2018, and 2,421,251 shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and will not become exercisable within 60 days.

STOCK OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT/DIRECTORS OF

ASTERIAS

The following table sets forth certain information with respect to the beneficial ownership of Asterias Common Stock as of December 17, 2018, for:

- each of the Asterias directors;
- each of the Asterias Named Executive Officers identified in the Asterias Proxy Statement on Schedule 14A filed with the SEC on April 30, 2018;
- all of Asterias' current directors and executive officers as a group; and
- each person or group known by BioTime or Asterias, based on the filings pursuant to Section 13(d) or (g) under the Exchange Act, to own beneficially more than 5% of Asterias Common Stock.

The beneficial ownership set forth in the following table has been determined in accordance with the rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Except as indicated by the footnotes below, BioTime and Asterias believe, based on the information furnished to them, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of Asterias Common Stock that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership is based on 58,140,554 shares of Asterias Common Stock outstanding at December 17, 2018. In computing the number of shares of Asterias Common Stock beneficially owned by a person and the percentage ownership of such person, all shares of common stock subject to options that are currently exercisable or exercisable within 60 days of December 17, 2018 and restricted stock unit awards subject to release within 60 days of December 17, 2018 are deemed to be outstanding. However, these shares are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person.

Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o Asterias Biotherapeutics, Inc., 3055 Clearview Way, San Mateo, California 94402.

Name of Beneficial Owner	Shares Beneficially Owned	
	Number	Percentage (%)

Directors and Named Executive Officers:			
Michael H. Mulroy[1]	414,254	*	
Ryan Chavez[2]	394,140	*	
Edward Wirth[3]	437,258	*	
Stephen L. Cartt[4]	702,783	1.2	%
Aditya Mohanty	-	*	
Alfred D. Kingsley[5]	254,000	*	
Richard LeBuhn[6]	127,500	*	
Andrew Arno[7]	100,000	*	
Natale S. Ricciardi[8]	122,059	*	
Donald Bailey[9]	338,602	*	
Howard I. Scher[10]	55,000	*	
All executive officers and directors as a group (11 persons)[11]	2,945,596	5.07	%
Other 5% Stockholders:			
BioTime	21,747,569	33.1	%
Broadwood	5,292,156	8.1	%

* Less than 1%.

(1) Includes 283,315 Shares that may be acquired upon the exercise of certain stock options, 33,335 Shares that may be acquired upon the exercise of certain stock options that will become exercisable within 60 days of December 17, 2018. Excludes 683,350 Shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

(2) Includes 229,583 Shares that may be acquired upon the exercise of certain stock options, 7,917 Shares that may be acquired upon the exercise of certain stock options that will become exercisable within 60 days of December 17, 2018 and 50,000 Shares that will be acquired upon the vesting of certain Restricted Stock Units within 60 days of December 17, 2018. Excludes 292,500 Shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days, and 56,250 shares of Restricted Stock Units which will not vest within 60 days and will not expire within 60 days.

(3) Includes 330,416 Shares that may be acquired upon the exercise of certain stock options, 7,084 Shares that may be acquired upon the exercise of certain option that will become exercisable within 60 days of December 17, 2018 and 50,000 Shares that will be acquired upon the vesting of certain Restricted Stock Units within 60 days of December 17, 2018. Excludes 175,000 Shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days, and 56,250 shares of Restricted Stock Units which will not vest within 60 days and will not expire within 60 days.

(4) Includes 405,000 Shares that may be acquired upon the exercise of certain stock options, 5,000 Shares that may be acquired upon the exercise of certain option that will become exercisable within 60 days of December 17, 2018. Excludes 5,000 Shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days.

(5) Includes 245,000 Shares that may be acquired upon the exercise of certain stock options.

(6) Includes 90,000 Shares that may be acquired upon the exercise of certain stock options, 5,000 Shares that may be acquired upon the exercise of certain option that will become exercisable within 60 days of December 17, 2018, and 7,500 Shares that may be acquired upon the exercise of warrants. Excludes 5,000 Shares that may be acquired upon the exercise of certain options that are not presently exercisable and that will not become exercisable within 60 days.

(7) Includes 90,000 Shares that may be acquired upon the exercise of certain stock options and 5,000 Shares that may be acquired upon the exercise of certain option that will become exercisable within 60 days of December 17, 2018. Excludes 5,000 Shares that may be acquired upon the exercise of certain options that are not presently exercisable and that will not become exercisable within 60 days.

(8) Includes 90,000 Shares that may be acquired upon the exercise of certain stock options, 5,000 Shares that may be acquired upon the exercise of certain option that will become exercisable within 60 days of December 17, 2018, and 7,353 Shares that may be acquired upon the exercise of warrants. Excludes 5,000 Shares that may be acquired upon the exercise of certain options that are not presently exercisable and that will not become exercisable within 60 days.

(9) Includes 187,500 Shares that may be acquired upon the exercise of certain stock options, 18,750 Shares that may be acquired upon the exercise of certain option that will become exercisable within 60 days of December 17, 2018, and 44,117 Shares that may be acquired upon the exercise of warrants. Excludes 18,750 Shares that may be acquired upon the exercise of certain options that are not presently exercisable and that will not become exercisable within 60 days.

(10) Includes 50,000 Shares that may be acquired upon the exercise of certain stock options and 5,000 Shares that may be acquired upon the exercise of certain option that will become exercisable within 60 days of December 17, 2018. Excludes 5,000 Shares that may be acquired upon the exercise of certain options that are not presently exercisable and that will not become exercisable within 60 days.

(11) Includes 2,000,814 Shares that may be acquired upon the exercise of certain stock options, 92,086 Shares that may be acquired upon the exercise of certain option that will become exercisable within 60 days of December 17, 2018, 100,000 Shares that will be acquired upon the vesting of certain Restricted Stock Units within 60 days of December 17, 2018 and 58,970 Shares that may be acquired upon the exercise of warrants. Excludes 1,194,600 Shares that may be acquired upon the exercise of certain stock options that are not presently exercisable and that will not become exercisable within 60 days, and 112,500 shares of Restricted Stock Units which will not vest within 60 days and will not expire within 60 days.

NO APPRAISAL RIGHTS

Appraisal rights are statutory rights that, if applicable under law, enable stockholders to dissent from an extraordinary transaction, such as a Merger, and to demand that the corporation pay the fair value for their shares as determined by a court in a judicial proceeding instead of receiving the consideration offered to stockholders in connection with the extraordinary transaction.

Appraisal rights are not available in all circumstances, and exceptions to these rights are provided under the DGCL. Section 262 of the DGCL provides that stockholders have the right, in some circumstances, to dissent from certain corporate actions and to instead demand payment of the fair value of their shares. Stockholders do not have appraisal rights with respect to shares of any class or series of stock if such shares of stock, or depositary receipts in respect thereof, are either (i) listed on a national securities exchange or (ii) held of record by more than 2,000 holders, unless the stockholders receive in exchange for their shares anything other than shares of stock of the surviving or resulting corporation (or depositary receipts in respect thereof), or of any other corporation that is publicly listed or held by more than 2,000 holders of record, cash in lieu of fractional shares or fractional depositary receipts described above or any combination of the foregoing. Therefore, because Asterias Common Stock is listed on NYSE American, and will receive in the Merger only BioTime Common Shares, which will be publicly listed on NYSE American, and cash in lieu of fractional shares, holders of Asterias Common Stock will not be entitled to appraisal rights in the Merger with respect to their shares of Asterias Common Stock.

Under the CCC, the holders of BioTime Common Shares are not entitled to appraisal rights in connection with the BioTime Share Issuance Proposal.

LEGAL MATTERS

The validity of the BioTime Common Shares to be issued in connection with the Merger and being offered hereby will be passed upon for BioTime by Cooley LLP. Certain U.S. federal income tax consequences relating to the Merger will also be passed upon for BioTime by Cooley LLP and for Asterias by Dentons US LLP.

EXPERTS

BioTime

The consolidated financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) incorporated in this joint proxy statement/prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2017 have been so incorporated in reliance on the report of OUM & CO. LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Asterias

The financial statements of Asterias appearing in Asterias' Annual Report on Form 10-K for the year ended December 31, 2017 and included herein have been audited by OUM & CO. LLP, an independent registered public accounting firm, as set forth in their report thereon and included herein. Such financial statements are so included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

FUTURE STOCKHOLDER PROPOSALS

BioTime

BioTime will hold an annual meeting in 2019 regardless of whether the Merger has been completed. BioTime's amended and restated bylaws require stockholders to furnish timely written notice of their intent to nominate a director or bring any other matter before a stockholder meeting, whether or not they wish to include their proposal in BioTime's proxy materials. In general, notice must be received by the BioTime's Corporate Secretary at its principal executive offices no later than January 31, 2019 and must contain specified information concerning, among other things, the matters to be brought before such meeting and concerning the stockholder proposing such matters. If the date of the 2019 annual meeting is advanced by more than 30 days or delayed by more than 60 days from May 1, 2019, notice must be received by BioTime's Corporate Secretary on the later of the 90th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made by BioTime.

Additional information regarding BioTime's procedures is located in BioTime's Proxy Statement on Schedule 14A filed March 29, 2018, which is incorporated by reference into this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*."

Asterias

Asterias will hold an annual meeting in 2018 only if the Merger has not already been completed. If an annual meeting is held, Asterias' Bylaws require stockholders to furnish timely written notice of their intent to nominate a director or bring any other matter before a stockholder meeting, whether or not they wish to include their proposal in Asterias' proxy materials. In general, notice must be received by the secretary of Asterias at its principal executive offices no later than January 4, 2018 and must contain specified information concerning, among other things, the matters to be brought before such meeting and concerning the stockholder proposing such matters. If the date of the annual meeting is advanced by more than 30 days or delayed by more than 60 days from June 7, 2018, a stockholder notice must be received by Asterias' Corporate Secretary on the later of the 90th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made by Asterias.

Additional information regarding Asterias' procedures is located in Asterias' Statement on Schedule 14A filed April 30, 2018, which is incorporated by reference into this joint proxy statement/prospectus. See the section entitled "*Where You Can Find More Information*."

OTHER MATTERS

As of the date of this joint proxy statement/prospectus, neither the BioTime Board nor the Asterias Board knows of any matters that will be presented for consideration at either the BioTime Special Meeting or the Asterias Special Meeting other than as described in this joint proxy statement/prospectus. If any other matters come before either of the meetings or any adjournments or postponements of the meetings and are voted upon, the enclosed proxies will confer discretionary authority on the individuals named as proxies to vote the shares represented by the proxies as to any other matters. The individuals named as proxies intend to vote in accordance with their best judgment as to any other matters.

HOUSEHOLDING OF PROXY MATERIALS

The SEC has adopted rules that permit companies and intermediaries such as brokers to satisfy delivery requirements for proxy statements and annual reports with respect to two or more stockholders sharing the same address by

delivering a single proxy statement or annual report, as applicable, addressed to those stockholders. This process, which is commonly referred to as “householding,” potentially provides extra convenience for stockholders and cost savings for companies.

Each of BioTime and Asterias have elected to implement the SEC’s householding rules. Accordingly, only one copy of this joint proxy statement/prospectus is being delivered to BioTime shareholders and Asterias stockholders, respectively residing at the same address, unless such shareholders or stockholders have notified BioTime or Asterias, respectively, of their desire to receive multiple copies of the joint proxy statement/prospectus. If you are a BioTime shareholder and, at any time, you no longer wish to participate in householding and would prefer to receive a separate joint proxy statement/prospectus, or if you are receiving multiple copies of this joint proxy statement/prospectus and wish to receive only one, please call BioTime Investor Relations at 510-871-4188, or write to BioTime, Inc., 1010 Atlantic Avenue, Suite 102, Alameda, California 94501, Attn: Investor Relations. Please also contact BioTime Investor Relations if you are a BioTime shareholder and hold shares in street name and wish to request a separate copy of the joint proxy statement/prospectus.

If you are an Asterias stockholder and, at any time, you no longer wish to participate in householding and would prefer to receive a separate joint proxy statement/prospectus, or if you are receiving multiple copies of this joint proxy statement/prospectus and wish to receive only one, please call Advantage Proxy, the proxy solicitor for Asterias, toll-free at 877-870-8565 or international at +206-870-8565 or write to Advantage Proxy at P.O. Box 13581, Des Moines, WA 98198. If you are an Asterias stockholder and hold shares in street name, you may request a separate copy by calling Investor Relations at 510 456-3892, or by writing to Investor Relations, Asterias Biotherapeutics, Inc. 6300 Dumbarton Circle, Fremont, California, 94555.

For future annual or special meetings, BioTime shareholders and Asterias stockholders may request separate voting materials, or request that BioTime or Asterias, respectively, send only one set of proxy materials by contacting Investor Relations at the above phone number or address.

WHERE YOU CAN FIND MORE INFORMATION

BioTime and Asterias file annual, quarterly and special reports, proxy statements and other information with the SEC under the Exchange Act. You may read and copy any of this information at the SEC's Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room. The SEC also maintains an Internet website that contains reports, proxy and information statements, and other information regarding issuers, including BioTime and Asterias, who file electronically with the SEC. The address of that site is www.sec.gov.

Investors may also consult BioTime's or Asterias' website for more information concerning the Merger described in this joint proxy statement/prospectus. BioTime's website is www.biotimeinc.com. Asterias' website is www.asteriasbiotherapeutics.com. Information included on either website is not incorporated by reference into this joint proxy statement/prospectus. The information contained on the websites of BioTime, Asterias and the SEC (except for the filings described below) is expressly not incorporated by reference into this joint proxy statement/prospectus.

BioTime has filed with the SEC a Registration Statement of which this joint proxy statement/prospectus forms a part. The registration statement registers the BioTime Common Shares to be issued to Asterias stockholders in connection with the Merger. The registration statement, including the attached exhibits and schedules, contains additional relevant information about BioTime Common Shares. The rules and regulations of the SEC allow BioTime and Asterias to omit certain information included in the registration statement from this joint proxy statement/prospectus.

In addition, the SEC allows BioTime and Asterias to disclose important information to you by referring you to other documents filed separately with the SEC. This information is considered to be a part of this joint proxy

statement/prospectus, except for any information that is superseded by information included directly in this joint proxy statement/prospectus.

This joint proxy statement/prospectus incorporates by reference the documents listed below that BioTime has previously filed or will file with the SEC (other than information furnished pursuant to Item 2.02 or Item 7.01 of a Current Report on Form 8-K). They contain important information about BioTime, its financial condition and other matters.

Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

Proxy Statement on Schedule 14A filed March 29, 2018.

Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2018, June 30, 2018 and September 30, 2018.

Current Reports on Form 8-K dated September 18, 2018, October 5, 2018, November 8, 2018, December 20, 2018 and January 4, 2019 (other than the portions of those documents deemed to be furnished and not filed).

The description of BioTime Common Shares on Form 8-A (File No. 001-12830) filed with SEC on October 26, 2009, as amended.

In addition, BioTime incorporates by reference any future filings it makes with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than information furnished pursuant to Item 2.02 or Item 7.01 of a Current Report on Form 8-K) after the date of this joint proxy statement/prospectus and prior to the date of the BioTime Special Meeting. Such documents are considered to be a part of this joint proxy statement/prospectus, effective as of the date such documents are filed. In the event of conflicting information in these documents, the information in the latest filed document should be considered correct.

You may obtain any of the documents listed above from the SEC, through the SEC's website and the address described above or from BioTime by requesting them in writing or by telephone at the following address:

BioTime, Inc.

1010 Atlantic Avenue

Suite 102

Alameda, California 94501

Attention: Investor Relations

Telephone: (510) 521-3390

These documents are available from BioTime without charge, excluding any exhibits to them unless the exhibit is specifically listed as an exhibit to the Registration Statement of which this joint proxy statement/prospectus forms a part.

This joint proxy statement/prospectus also incorporates by reference the documents listed below that Asterias has previously filed or will file with the SEC (other than information furnished pursuant to Item 2.02 or Item 7.01 of a Current Report on Form 8-K). They contain important information about Asterias, its financial condition and other matters.

Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

Proxy Statement on Schedule 14A filed April 30, 2018.

Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2018, June 30, 2018 and September 30, 2018.

In addition, Asterias incorporates by reference any future filings it makes with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (other than information furnished pursuant to Item 2.02 or Item 7.01 of a Current Report on Form 8-K) after the date of this joint proxy statement/prospectus and prior to the date of the Asterias Special Meeting. Such documents are considered to be a part of this joint proxy statement/prospectus, effective as of the date such documents are filed. In the event of conflicting information in these documents, the information in the latest filed document should be considered correct.

These documents are available from Asterias without charge, excluding any exhibits to them unless the exhibit is specifically listed as an exhibit to the registration statement of which this joint proxy statement/prospectus forms a part.

If you are a stockholder of BioTime or Asterias and would like to request documents, please do so by February 25, 2019 to receive them before the BioTime Special Meeting and the Asterias Special Meeting. If you request any documents from BioTime or Asterias, BioTime or Asterias will mail them to you by first class mail, or another equally prompt means, within one business day after BioTime or Asterias receives your request.

This joint proxy statement/prospectus is a prospectus of BioTime and is a joint proxy statement of BioTime and Asterias for the BioTime Special Meeting and the Asterias Special Meeting. You should rely only on the information contained or incorporated by reference in this joint proxy statement/prospectus. Neither BioTime nor Asterias has authorized anyone to give any information or make any representation about the Merger or BioTime or Asterias that is different from, or in addition to, that contained in this joint proxy statement/prospectus or in any of the materials that BioTime or Asterias has incorporated by reference into this joint proxy statement/prospectus. Therefore, if anyone does give you information of this sort, you should not rely on it. The information contained in this joint proxy statement/prospectus speaks only as of the date of this joint proxy statement/prospectus unless the information specifically indicates that another date applies. Neither our mailing of this joint proxy statement/prospectus to BioTime or Asterias stockholders, nor the issuance by BioTime of shares of common stock pursuant to the Merger, will create any implication to the contrary.

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Report of Independent Registered Public Accounting Firm

Stockholders and Board of Directors

Asterias Biotherapeutics, Inc.

Fremont, California

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Asterias Biotherapeutics, Inc. (the "Company") as of December 31, 2017 and 2016, the related statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2017, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017**,** in conformity with U.S. GAAP.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

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

/s/ OUM & CO. LLP

San Francisco, California

March 15, 2018

We have served as the Company’s auditor since 2014.

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

	December 31, 2017	2016
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$13,266	$19,800
Available-for-sale securities, at fair value	8,329	15,269
Prepaid expenses and other current assets	1,121	1,921
Total current assets	22,716	36,990
NONCURRENT ASSETS		
Intangible assets, net	15,444	18,130
Property, plant and equipment, net	4,543	5,475
Other assets	389	415
TOTAL ASSETS	$43,092	$61,010
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Amount due to BioTime, Inc.	$—	$288
Accounts payable	401	1,076
Accrued expenses	2,557	2,495
Capital lease liability, current	7	7
Lease liability, current	556	484
Deferred grant income	—	2,185
Total current liabilities	3,521	6,535
LONG-TERM LIABILITIES		
Warrant liability	2,757	8,665
Capital lease liability, noncurrent	14	20
Deferred rent liability	316	266
Lease liability, noncurrent	2,941	3,496
TOTAL LIABILITIES	9,549	18,982
Commitments and contingencies (see Note 8)		
STOCKHOLDERS' EQUITY		
Preferred Stock, $0.0001 par value, authorized 5,000 shares; none issued and outstanding	—	—
Common Stock, $0.0001 par value, authorized 75,000 Series A Common Stock and 75,000 Series B Common Stock; 54,051 and 47,467 shares Series A Common Stock issued and outstanding at December 31, 2017 and 2016, respectively; no Series B Common Stock issued and outstanding at December 31, 2017 and 2016	5	5
Additional paid-in capital	152,136	126,829

Accumulated other comprehensive loss	(6,498)	(1,078)
Accumulated deficit	(112,100)	(83,728)
Total stockholders' equity	33,543	42,028
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$43,092	$61,010

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

ASTERIAS BIOTHERAPEUTICS, INC.
STATEMENTS OF OPERATIONS
(IN THOUSANDS, EXCEPT PER SHARE DATA)

	Year Ended December 31,		
	2017	2016	2015
REVENUES:			
Grant income	$3,711	$6,572	$3,007
Sale of cell lines	—	—	40
License revenue	—	125	—
Royalties from product sales	331	257	535
Total revenues	4,042	6,954	3,582
Cost of sales	(165)	(128)	(268)
Total gross profit	3,877	6,826	3,314
OPERATING EXPENSES:			
Research and development	(26,640)	(25,467)	(17,321)
General and administrative	(10,488)	(15,482)	(7,901)
Total operating expenses	(37,128)	(40,949)	(25,222)
Loss from operations	(33,251)	(34,123)	(21,908)
OTHER INCOME/(EXPENSES):			
Gain/(loss) from change in fair value of warrant liability	5,908	(3,108)	—
Interest expense, net	(465)	(546)	(341)
Other expense, net	(564)	(37)	(6)
Total other income (expenses), net	4,879	(3,691)	(347)
LOSS BEFORE INCOME TAX BENEFIT	(28,372)	(37,814)	(22,255)
Deferred income tax benefit	—	2,325	7,252
NET LOSS	$(28,372)	$(35,489)	$(15,003)
BASIC AND DILUTED NET LOSS PER SHARE	$(0.56)	$(0.83)	$(0.42)
WEIGHTED AVERAGE SHARES OUTSTANDING: BASIC AND DILUTED	50,271	42,934	35,443

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

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

	Years Ended December 31,		
	2017	2016	2015
NET LOSS	$(28,372)	$(35,489)	$(15,003)
Other comprehensive income/(loss):			
Unrealized (loss)/gain on available-for-sale securities, net of tax	(5,927)	(1,512)	937
Reclassification of realized loss on available-for-sale securities, net of taxes	508	—	—
Total other comprehensive income/(loss)	(5,419)	(1,512)	937
COMPREHENSIVE LOSS	$(33,791)	$(37,001)	$(14,066)

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

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

	Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	**Stockholders**
	Shares	Amount	Capital	Income (Loss)	Deficit	Equity
Balance as of December 31, 2014	30,902	$ 3	$ 66,367	$ (503)	$ (33,236)	$ 32,631
Stock-based compensation	145	—	3,625	—	—	3,625
Shares retired to pay employee taxes	(24)	—	(98)	—	—	(98)
Unrealized gain on available-for-sale securities, net of taxes	—	—	—	937	—	937
Sale of common stock under at-the-market transactions	686	—	4,839	—	—	4,839
Financing costs to issue common stock	—	—	(665)	—	—	(665)
Issuance of common stock upon exercise of warrants	5,000	1	11,700	—	—	11,701
Common stock issued at Private Placement	1,026	—	4,000	—	—	4,000
Common stock issued in public offering	385	—	1,500	—	—	1,500
Issuance of common stock upon exercise of stock options	12	—	29	—	—	29
OncoCyte common stock received as a dividend from BioTime, net of taxes	—	—	1,117	—	—	1,117
Common stock issued for services	96	—	486	—	—	486
Net loss	—	—	—	—	(15,003)	(15,003)
Balance as of December 31, 2015	38,228	4	92,900	434	(48,239)	45,099
Stock-based compensation	457	—	4,797	—	—	4,797
Shares retired to pay employee taxes	(37)	—	(168)	—	—	(168)
Unrealized loss on available-for-sale securities, net of taxes	—	—	—	(1,512)	—	(1,512)
Sale of common stock under at-the-market transactions	1,812	—	7,969	—	—	7,969
Financing costs for at-the-market sales	—	—	(328)	—	—	(328)
Issuance of common stock upon exercise of stock options	827	—	2,026	—	—	2,026
Issuance of common stock upon exercise of warrants, including fair value of warrants	148	—	1,102	—	—	1,102
Issuance of common stock in public offering	5,889	1	14,014	—	—	14,015
Financing costs of public offering	—	—	(1,275)	—	—	(1,275)
Distribution of warrants to shareholders other than BioTime	—	—	5,285	—	—	5,285
Common stock issued for services	219	—	922	—	—	922

Cross-License and Share Transfer with BioTime, net	(76)	—	(415)	—	—	(415)
Net loss	—	—	—	—	(35,489)	(35,489)
Balance as of December 31, 2016	47,467	5	126,829	(1,078)	(83,728)	42,028
Stock-based compensation	251	—	4,444	—	—	4,444
Unrealized loss on available-for-sale securities, net of taxes	—	—	—	(5,420)	—	(5,420)
Sale of common stock under at-the-market transactions	2,005	—	8,002	—	—	8,002
Financing costs for at-the-market sales	—	—	(238)	—	—	(238)
Issuance of common stock upon exercise of stock options	8	—	18	—	—	18
Costs associated with the extension of warrants	—	—	2,042	—	—	2,042
Issuance of common stock upon exercise of warrants, including fair value of warrants	1	—	5	—	—	5
Issuance of common stock in public offering	4,000	—	10,400	—	—	10,400
Financing costs of public offering	—	—	(517)	—	—	(517)
Common stock issued for services	319	—	1,151	—	—	1,151
Net loss	—	—	—	—	(28,372)	(28,372)
Balance as of December 31, 2017	54,051	$ 5	$ 152,136	$ (6,498)	$ (112,100)	$ 33,543

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

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

	Year Ended December 31,		
	2017	2016	2015
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	$(28,372)	$(35,489)	$(15,003)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization expense	1,110	1,176	564
Stock-based compensation	4,444	4,797	3,625
Amortization of intangible assets	2,686	2,686	2,686
Realized loss on sale of available-for-sale securities	508	—	—
Amortization of prepaid rent	—	—	85
Deferred income tax benefit	—	(2,325)	(7,252)
Common stock issued for services in lieu of cash	1,151	922	486
Gain (loss) from change in fair value of warrant liability	(5,908)	3,108	—
Distribution of Asterias warrants to shareholders other than BioTime	2,042	5,285	—
Loss on disposal of equipment	112	—	—
Changes in operating assets and liabilities:			
Grant receivable	—	—	118
Prepaid expenses and other current assets	13	(887)	(680)
Other assets	846	10	(95)
Accounts payable	(675)	329	(24)
Accrued expenses	62	1,863	584
Deferred rent liability	50	87	85
Deferred grant income	(2,185)	(328)	2,513
Amount due to BioTime	(321)	(242)	(85)
Net cash used in operating activities	(24,437)	(19,008)	(12,393)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of property, plant and equipment, including leasehold improvements	(290)	(894)	(313)
Payments on construction in progress	—	—	(4,279)
Proceeds from the sale of available-for-sale securities	1,012	—	—
Reimbursement (payment) of security deposit, net	—	31	(1)
Net cash provided by/(used in) investing activities	722	(863)	(4,593)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from sale of common shares under at-the-market transactions	8,002	7,969	4,839
Financing costs for at-the-market sales	(238)	(328)	(157)
Proceeds from sale of common shares in public offering	10,400	14,014	5,500
Proceeds allocated to warrants classified as liabilities	—	6,009	—
Proceeds from exercise of warrants	5	651	11,700
Financing costs for sale of common stock in public offering	(517)	(1,275)	(508)

Financing costs allocated to warrants classified as liabilities	—	(550)	—
Proceeds from exercises of stock options	18	2,026	29
Repayment of lease liability and capital lease obligation	(489)	(427)	(1)
Shares retired to pay for employees' taxes	—	(168)	(98)
Reimbursement from landlord on construction in progress	—	567	3,789
Net cash provided by financing activities	17,181	28,488	25,093
NET (DECREASE)/INCREASE IN CASH AND CASH EQUIVALENTS	(6,534)	8,617	8,107
At beginning of year	19,800	11,183	3,076
At end of year	$13,266	$19,800	$11,183
SUPPLEMENTAL SCHEDULE OF NON-CASH FINANCING AND INVESTING ACTIVITIES:			
OncoCyte common stock received as a dividend in kind from BioTime, net of taxes	$—	$—	$1,117
Landlord receivable	$—	$—	$(189)
Lease liability	$—	$—	$189
Cross-License and Share Transfer with BioTime Inc., net	$—	$415	$—

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

ASTERIAS BIOTHERAPEUTICS, INC.
NOTES TO 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 U.S. GAAP.

Asterias is a clinical-stage biotechnology company dedicated to developing cell-based therapeutics to treat neurological conditions associated with demyelination and cellular immunotherapies to treat cancer. Asterias has industry-leading technology in two cell types, each with broad potential applicability: oligodendrocyte progenitor cells which, as oligodendrocytes, re-myelinate axons within the central nervous system and perform other restorative functions, and antigen presenting dendritic cells which train T-cells in the immune system to attack and destroy solid or liquid tumor cells across multiple types of cancer.

The financial statements and the notes thereto are presented in accordance with accounting principles generally accepted in the U.S. ("U.S. GAAP") and with the accounting and reporting requirements to Form 10-K and Article 10 of Regulation S-X of the Securities and Exchange Commission ("SEC").

Prior to May 13, 2016, BioTime consolidated the results of Asterias into BioTime's consolidated results based on BioTime's ability to control Asterias' operating and financial decisions and policies through a majority ownership of Asterias Common Stock. On May 13, 2016, Asterias completed the sale and the underwriters' exercise of the overallotment for 5,889,480 shares of its common stock and warrants to purchase 2,959,559 shares of its common stock, through an underwritten public offering (the "Asterias Offering") (see Note 6). BioTime did not participate in the Asterias Offering. As a result of the sale of Asterias Common Stock in the Asterias Offering and the issuance of 708,333 shares of Asterias Common Stock upon the exercise of certain stock options by a former Asterias executive, BioTime's percentage ownership of the outstanding common stock of Asterias declined to less than 50% on May 13, 2016. Under U.S. GAAP, loss of control of a subsidiary is deemed to have occurred when, among other things, a parent company owns less than a majority of the outstanding shares of common stock of the subsidiary, lacks a controlling financial interest in the subsidiary, and is unable to unilaterally control the subsidiary through other means such as having, or having the ability to obtain, a majority of the subsidiary's Board of Directors. BioTime determined that all of these loss of control factors were present for BioTime as of May 13, 2016. Accordingly, BioTime deconsolidated Asterias' financial statements and results of operations from those of BioTime, effective May 13, 2016, in accordance with ASC, 810-10-40-4(c), *Consolidation*.

BioTime continues to allocate expenses such as salaries and payroll related expenses incurred and paid on behalf of Asterias based on the amount of time that particular employees of BioTime devote to Asterias affairs. Other expenses such as legal, accounting, travel, and entertainment expenses are allocated to Asterias to the extent that those expenses are incurred by or on behalf of Asterias. These allocations are made based upon activity-based allocation drivers such as time spent, percentage of square feet of office or laboratory space used, if applicable, and percentage of personnel devoted to Asterias operations or management. These allocated and overhead expenses have decreased during 2017 as Asterias continued to hire its operations and management personnel. Management evaluates the appropriateness of the percentage allocations on a quarterly basis and believes that this basis for allocation is reasonable.

In connection with the services performed by employees of BioTime, or employees of other BioTime commonly controlled and consolidated subsidiaries within the BioTime group of affiliated entities, Asterias has in the past granted stock options to those performing services for Asterias, for which Asterias records stock-based compensation expense in its statements of operations for such services performed in the relevant periods (see Note 9).

Reclassifications – Certain reclassifications have been made to the 2016 financial statements to conform to the 2017 financial statement presentation. These reclassifications had no effect on net earnings or cash flows as previously reported.

Liquidity – Since inception, Asterias has incurred operating losses and has funded its operations primarily through issuance of equity securities, warrants, payments from research grants, and royalties from product sales, and the support from BioTime. At December 31, 2017, Asterias had an accumulated deficit of $112.1 million, working capital of $19.2 million and stockholders' equity of $33.5 million. Asterias has evaluated its projected cash flows and believes that its cash and cash equivalents of $13.3 million and available-for-sale securities of $8.3 million as of December 31, 2017, will be sufficient to fund Asterias' operations through at least twelve months from the issuance date of these financial statements, or at least through March 15, 2019. Some of the clinical trials being conducted by Asterias have historically been funded in part with funds from the $14.3 million grant awarded in 2014 by the California Institute for Regenerative Medicine ("CIRM") and not from cash on hand, and the value of our available-for-sale securities is subject to market risk. If Asterias were unable to obtain future grant funding from CIRM, the value of its available-for-sale securities decreases, or it is unable to obtain future adequate financing for its clinical trials, it may be required to delay, postpone, or cancel its clinical trials or limit the number of clinical trial sites, or otherwise reduce or curtail its operations. Future financings, if necessary, may not be available to Asterias at acceptable terms, or if at all. Sales of additional equity securities would result in the dilution of interests of current shareholders.

2. Summary of Significant Accounting Policies

Use of estimates – The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period with consideration given to materiality. Significant estimates and assumptions used include those related to the going concern assessment of our financial statements, useful lives associated with long-lived assets, including evaluation of asset impairment, loss contingencies, deferred income taxes and tax reserves, including valuation allowances related to deferred income taxes, and assumptions used to value stock-based awards, liability or other equity instruments. Actual results could differ materially from those estimates.

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

Revenue recognition – Asterias complies with ASC 605-10 and records revenue when persuasive evidence of an arrangement exists, delivery has occurred, or services have been rendered, the price is fixed or determinable, and collectability is reasonably assured. Grant income is recognized as revenue when the related research and development expenses are incurred. Royalty revenues consist of royalty payments on sales of products under license agreements.

Asterias recognizes revenue in the quarter in which the royalty reports are received rather than the quarter in which the sales took place. When Asterias is entitled to receive up-front nonrefundable licensing or similar fees pursuant to agreements under which Asterias has no continuing performance obligations, the fees are recognized as revenues when collection is reasonably assured. When Asterias receives up-front nonrefundable licensing or similar fees pursuant to agreements under which Asterias does have continuing performance obligations, the fees are deferred and amortized ratably over the performance period. If the performance period cannot be reasonably estimated, Asterias amortizes nonrefundable fees over the life of the contract until such time that the performance period can be more reasonably estimated. Milestone payments, if any, related to scientific or technical achievements, subject to substantial uncertainty, are recognized in income when the milestone is accomplished if (a) substantive effort was required to achieve the milestone, (b) the amount of the milestone payment appears reasonably commensurate with the effort expended, and (c) collection of the payment is reasonably assured.

Cash and cash equivalents – Asterias considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents. As of December 31, 2017 and 2016, Asterias had $5.3 million and $13.7 million in money market funds, respectively, considered to be cash equivalents.

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

Comprehensive income/loss – ASC 220, *Comprehensive Income*, requires that an entity's change in equity or net assets during a period from transactions and other events from non-owner sources be reported. Asterias reports unrealized gains and losses on its available-for-sale securities as other comprehensive income/(loss).

Available-for-sale securities, at fair value – Marketable equity and debt securities not classified as held-to-maturity are classified as available-for-sale. Available-for-sale securities are carried at fair value, with the unrealized gains and losses, net of tax, reported in other comprehensive income/(loss). Realized gains and losses and declines in value judged to be other-than-temporary related to equity securities, are included in other income/(expenses), net.

Asterias accounts for the BioTime and OncoCyte shares it holds as available-for-sale securities in accordance with ASC 320-10-25, *Investments-Debt and Equity Securities*, as the shares have a readily determinable fair value quoted on the NYSE American and are held principally for future working capital purposes, as necessary. These shares are measured at fair value and reported as current assets on the balance sheet based on the closing trading price of the security as of the date being presented (see Note 4). Unrealized holding gains and losses are excluded from the statements of operations and reported in equity as part of other comprehensive income/(loss) until realized.

Realized gains and losses on the sale of BioTime shares prior to May 13, 2016, were reclassified out of other comprehensive income/(loss) and included in equity, as an increase or decrease in additional paid-in capital consistent with, and pursuant to, ASC 805-50, *Transactions Between Entities Under Common Control*. Beginning on May 13, 2016, due to the deconsolidation of Asterias, financial statements from BioTime and loss of control experienced by BioTime in Asterias, as discussed in Note 1, realized gains and losses, and declines in value judged to be other-than-temporary related to equity securities, are included in other income/(expense), net. For OncoCyte shares that Asterias holds, realized gains and losses, and declines in value judged to be other-than-temporary related to equity securities, are included in other income/(expense), net.

Asterias reviews various factors in determining whether it should recognize an other-than-temporary impairment charge for its available-for-sale securities, including its intent and ability to hold the investment for a period of time sufficient for any anticipated recovery in market value, and the length of time and extent to which the fair value has been less than its cost basis. Based on consideration of these factors, as of December 31, 2017 and 2016, no other-than-temporary impairment loss was recognized on the available-for-sales securities held on these respective dates.

Property, plant and equipment – Property, plant and equipment includes equipment, fixtures and leasehold improvements stated at cost. Depreciation is calculated using the straight-line method over the period of their estimated useful lives ranging from 36 to 120 months. Leasehold improvements are amortized using the shorter of the useful life or the lease term.

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

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

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

Historically, Asterias has issued warrants that are classified as equity and as a liability (see Note 6).

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

General and administrative – General and administrative expenses consist of compensation and related benefits, including stock-based compensation, for executive and corporate personnel; professional and consulting fees; and allocated overhead. General and administrative expenses also include costs allocated from BioTime pursuant to the Shared Facilities and Services Agreement (see Note 9).

Income taxes – As of October 1, 2013, Asterias has filed its own U.S. federal tax returns. Operations prior to that period were included in BioTime's consolidated U.S. federal tax return. For California purposes Asterias' activity through May 12, 2016 was included in BioTime's combined tax return. Activity from May 13, 2016 on will be included in Asterias' separate California income tax return filing due to the deconsolidation of Asterias from BioTime as of that date. Asterias accounts for income taxes in accordance with ASC 740, *Income Taxes*, which prescribes the use of the asset and liability method, whereby deferred tax asset or liability account balances are calculated at the balance sheet

date using current tax laws and rates in effect. Valuation allowances are established when necessary to reduce deferred tax assets when it is more likely than not that a portion or all of the deferred tax assets will not be realized. The guidance also prescribes a recognition threshold and a measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken in a tax return. For those benefits to be recognized, a tax position must be more-likely-than-not sustainable upon examination by taxing authorities. For federal purposes Asterias is no longer subject to tax examination for years before 2013. For California purposes Asterias is subject to income tax examinations by tax authorities for all years since inception. Although the statute is closed for purposes of assessing additional income and tax in those years, the taxing authorities may still make adjustments to the net operating loss and credit carryforwards used in open years. Therefore, the statute should be considered open as it relates to the net operating loss and credit carryforwards. Asterias will recognize accrued interest and penalties related to unrecognized tax benefits as income tax expense. No amounts were accrued for the payment of interest and penalties as of December 31, 2017 and 2016.

Stock-based compensation – Asterias accounts for share-based payments in accordance with ASC 718, *Compensation – Stock Compensation,* which require the measurement and recognition of compensation expense for all share-based payment awards made to directors and employees, including employee stock options, based on estimated fair values. Consistent with those guidelines, Asterias utilizes the Black-Scholes-Merton option pricing model. Asterias' determination of fair value of share-based payment awards on the date of grant using that option-pricing model is affected by Asterias' stock price as well as by assumptions regarding a number of complex and subjective variables. These variables include, but are not limited to, Asterias' expected stock price volatility over the term of the awards; the expected term of options granted; and a risk-free rate based on the U.S. Treasury rates in effect during the corresponding expected term of the grant. Expected term is derived from a combination of Asterias own, historical experience, to the extent available, and using the simplified method under SEC *Staff* Accounting *Bulletin* Topic 14, as applicable. Asterias recognizes stock-based compensation on a straight-line basis over the requisite service period. Through January 1, 2017 Asterias recorded stock-based compensation expense net of estimated forfeitures. Upon the adoption of ASU 2016-09, Asterias accounts for forfeitures as they occur.

Asterias also, at times, issues restricted stock or restricted stock units ("RSUs") to its executive officers, employees, and members of its Board of Directors, which are restricted and unvested common shares issued or shares issuable as RSUs vest. Restricted stock and RSU compensation expense is recognized on a straight-line basis over the requisite service period of generally four years, based on the grant-date fair value of the stock. Restricted stock is considered legally issued and outstanding on the grant date, while RSUs are not until RSUs vest. Once the RSUs are vested, equivalent common shares will be issued or issuable to the grantee and therefore the RSUs are not included in total common shares issued and outstanding until vested.

Stock-based compensation expense for non-employee stock-based awards is recognized in accordance with ASC 505-50, *Equity-Based Payments to Non-Employees* ("ASC 505-50"). Stock option awards issued to non-employees, principally consultants and employees of BioTime or employees of BioTime subsidiaries who perform services for Asterias, are accounted for at fair value using the Black-Scholes-Merton option pricing model. Management believes that the fair value of the stock options is more reliably measured than the fair value of services received. Asterias records compensation expense based on the then-current fair values of the stock options at each financial reporting date. Compensation expense recorded during the service period is adjusted in subsequent periods for changes in the fair value of the stock options until the earlier of the date at which the non-employee's performance is complete or a performance commitment is reached, which is generally when the stock option award vests. Compensation expense for non-employee grants is recorded on a straight-line basis in the statements of operations.

Fair value of financial instruments – ASC 820*, Fair Value Measurements*, clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability.

ASC 820 requires that the valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. ASC 820 establishes a three-tier value hierarchy, which prioritizes inputs that may be used to measure fair value as follows:

Level 1– Observable inputs that reflect quoted prices for identical assets or liabilities in active markets.

Level 2– Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3– Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The carrying amounts of current assets and current liabilities approximate their fair value because of the relatively short period until they mature or are required to be settled, except for money market funds and the investment in BioTime and OncoCyte shares, which are carried at fair value based on Level 1 inputs, and the warrant liability which is carried at fair value based on Level 3 inputs (see Note 6).

The following table shows the activity in warrants classified as a liability discussed in Note 6 (in thousands):

	Warrant Liability	Warrant Shares
Fair value of warrants issued on May 13, 2016	$ 6,009	2,959
Fair value of warrants exercised on December 2, 2016	(452)	(146)
Increase in fair value of warrants during 2016	3,108	—
Fair value of warrants at December 31, 2016	8,665	2,813
Decrease in fair value of warrants during 2017	(5,908)	—
Fair value of warrants at December 31, 2017	$ 2,757	2,813

Basic and diluted net loss per share – Basic net loss per share is computed by dividing net loss by the weighted-average number of shares of common stock outstanding for the year. Diluted net loss per share reflects the weighted-average number of shares of common stock outstanding plus the potential effect of dilutive securities or contracts which are convertible to common stock, such as options and warrants (using the treasury stock method) and shares issuable in future periods, such as restricted stock or RSU awards, except in cases where the effect would be anti-dilutive.

The computations of basic and diluted net loss per share are as follows (in thousands, except per share data):

	Year Ended December 31,		
	2017	2016	2015
Net loss	$(28,372)	$(35,489)	$(15,003)
Weighted average common shares outstanding – basic and diluted	50,271	42,934	35,443
Net loss per share – basic and diluted	$(0.56)	$(0.83)	$(0.42)

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

	Year Ended December 31,		
	2017	2016	2015
Stock options and restricted stock units	7,066	6,432	5,123
Warrants	2,813	6,552	3,500

Recently Adopted Accounting Pronouncements – The following Accounting Standard(s) were effective during 2017:

In March 2016, the FASB issued ASU 2016-09, *Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting ("ASU 2016-09")*, which simplifies several aspects of the accounting for share-based payment transactions, including the income tax consequences, forfeitures, classification of awards as either equity or liabilities, and classification on the statement of cash flows. Forfeitures are now accounted for as they occur instead of based on the number of awards that were expected to vest. Based on the nature and timing of Asterias equity grants, straight-line expense attribution of stock-based compensation for the entire award and the relatively low forfeiture rate on Asterias experience, the impact of adoption of ASU 2016-09 pertaining to forfeitures was not significant to Asterias' financial statements (see Note 7).

In connection with the adoption of ASU 2016-09, Asterias changed how it accounts for excess tax benefits and deficiencies, if any, and forfeitures, as applicable. All excess tax benefits and tax deficiencies from stock-based compensation awards accounted for under ASC 718 are recognized as an income tax benefit or expense, respectively, in the statements of operations. Prior to the adoption of ASU 2016-09, Asterias recognized excess tax benefits, if any, in additional paid-in capital only if the tax deduction reduced cash income taxes payable and excess tax deficiencies were recognized either as an offset to accumulated excess tax benefits, if any, on Asterias' statements of operations. An excess income tax benefit arises when the tax deduction of a share-based award for income tax purposes exceeds the compensation cost recognized for financial reporting purposes and, a tax deficiency arises when the compensation cost exceeds the tax deduction. Because Asterias has a full valuation allowance, there was no impact to Asterias' statements

of operations for any excess tax benefits or deficiencies, as any excess benefit or deficiency would be offset by the change in the valuation allowance (see Note 10). Asterias adopted ASU 2016-09 beginning on January 1, 2017.

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

On January 5, 2016, the FASB issued Accounting Standards Update 2016-01, *Financial Instruments–Overall: Recognition and Measurement of Financial Assets and Financial Liabilities* (ASU No. 2016-01). Changes to the current U.S. GAAP model primarily affect the accounting for equity investments, financial liabilities under the fair value option, and the presentation and disclosure requirements for financial instruments. In addition, ASU No. 2016-01 clarified guidance related to the valuation allowance assessment when recognizing deferred tax assets resulting from unrealized losses on available-for-sale debt securities. The accounting for other financial instruments, such as loans, investments in debt securities, and financial liabilities is largely unchanged. The more significant amendments are to equity investments in unconsolidated entities.

In accordance with ASU No. 2016-01, all equity investments in unconsolidated entities (other than those accounted for using the equity method of accounting) will generally be measured at fair value through earnings. There will no longer be an available-for-sale classification (changes in fair value reported in other comprehensive income) for equity securities with readily determinable fair values. The classification and measurement guidance will be effective for public business entities in fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. Upon the adoption of ASU No. 2016-01, Asterias will record a cumulative-effect adjustment to the balance sheet as of January 1, 2018, the date of adoption. Asterias has completed its assessment of the impact from adoption and estimates that an adjustment of approximately $6.5 between accumulated other comprehensive income and accumulated deficit will be recorded. The adjustment represents the cumulative unrealized holding loss from the date that the securities were acquired through the date of adoption. Refer to Note 4 for discussion regarding Asterias' available-for-sale securities.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842),* which requires lessees to recognize assets and liabilities for leases with lease terms greater than twelve months in the statement of financial position. Leases will be classified as either financing or operating, with classification affecting the pattern of expense recognition in the statements of operations. ASU 2016-02 also requires improved disclosures to help users of financial statements better understand the amount, timing and uncertainty of cash flows arising from leases. The update is effective for fiscal years beginning after December 15, 2018, including interim reporting periods within that reporting period. Early adoption is permitted. Although Asterias has not completed its evaluation of the impact of the adoption of ASU 2016-02, Asterias currently holds a significant portion of its operating leases, related to tenant improvements on Asterias' balance sheet (see Note 8), the adoption of ASU 2016-02 is expected to have a material impact to Asterias' financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers*, which requires an entity to recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which Asterias expects to be entitled in exchange for those goods or services. In doing so, companies will need to use more judgment and make more estimates than under today's guidance. These may include identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. The ASU will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective. In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date*, which provided for the adoption of the new standard for fiscal years beginning after December 15, 2017. Accordingly, ASU No. 2014-09 is effective for Asterias in the first quarter of 2018. Upon adoption, ASU No. 2014-09 can be applied retrospectively to all periods presented or only to the most current period presented with the cumulative effect of changes reflected in the opening balance of retained earnings in the most current period presented. The FASB has also issued the following standards which clarify ASU No. 2014-09 and have the same effective date as the original standard:

ASU No. 2016-08, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)*;

ASU No. 2016-10, *Identifying Performance Obligations and Licensing (Topic 606);*

ASU No. 2016-11, *Revenue Recognition (Topic 605) and Derivatives and Hedging (Topic 815): Rescission of SEC Guidance Because of Accounting Standards Updates 2014-09 and 2014-16 Pursuant to Staff Announcements at the March 3, 2016, EITF Meeting;*

ASU No. 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients; and*

ASU No. 2016-20, Revenue from Contracts with Customers (Topic 606): Technical Corrections and Improvements.

Asterias expects to adopt ASU 2014-09 effective January 1, 2018, using the modified retrospective transition method. Asterias has completed a quantitative analysis of the impact to its customer contracts in transition at the adoption date and is currently evaluating the effect that the new standard will have on its internal processes, financial statements,

and related disclosures.

In the third quarter of 2017, Asterias recognized the final CIRM milestone payment under legacy U.S. GAAP. Therefore, the CIRM contract falls out of scope and is not considered in transition at adoption. Asterias has also reviewed each of its license agreements and has determined that while there will be changes to its policies related primarily to the way that Asterias classifies contract consideration, and when variable consideration is deemed probable, the quantitative impact from adoption of the new standard will not be material to the financial statements at adoption.

Asterias will continue to monitor additional modifications, clarifications or interpretations undertaken by the FASB that may impact its current conclusions and will expand its analysis to include any new revenue arrangements initiated before adoption. As Asterias completes its evaluation of the new standard, new information may arise that could change Asterias's understanding of the impact to its financial statements.

In May 2017, the FASB issued ASU 2017-09, *Compensation – Stock Compensation: Scope of Modification Accounting* to clarify the scope of modification accounting for share-based compensation. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. The new guidance will reduce diversity in practice and result in fewer changes to the terms of an award being accounted for as modifications. The new authoritative guidance will be effective for public business entities in fiscal years beginning after December 15, 2017. The authoritative guidance will be effective for Asterias beginning in fiscal year 2018. Asterias does not anticipate that adoption of this guidance will have a material impact on its financial statements.

In February 2018, the FASB issued ASU 2018-02, *Income Statement – Reporting Comprehensive Income (Topic 220).* The amendments ASU 2018-02 allow a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. Consequently, the amendments eliminate the stranded tax effects resulting from the Tax Cuts and Jobs Act and will improve the usefulness of information reported to financial statement users. The new authoritative guidance will be effective for all entities for fiscal years beginning after December 15, 2018. For public business entities, early adoption is permitted at any time, including interim periods, for reporting periods for which financial statement have not yet been issued. Asterias does not currently expect that the impact from the adoption of this guidance to have a material impact on its financial statements, as the adoption of ASU 2016-01 on January 1, 2018 will eliminate the current accumulated other comprehensive loss balance.

3. Balance Sheet Components

Property, plant and equipment, net

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

	December 31,	
	2017	2016
Computers, machinery and equipment	$2,112	$2,545

Furniture, fixtures and leasehold improvements	5,275	5,421
	7,387	7,966
Less - accumulated depreciation and amortization	(2,844)	(2,491)
Property, plant and equipment, net	$4,543	$5,475

Depreciation and amortization expense amounted to $1.1 million, $1.2 million, and $564,000 for the years ended December 31, 2017, 2016 and 2015, respectively.

Accrued expenses

As of December 31, 2017 and 2016, accrued expenses were comprised of the following (in thousands):

	December 31,	
	2017	2016
Accrued compensation and benefits	$1,561	$1,770
Other accrued expenses	996	725
Accrued expenses	$2,557	$2,495

On November 2, 2017, we began making adjustments to our operating expenses as appropriate by reducing staffing allocated to non-clinical activities as a part of a broader effort to more closely align operating expenses with Asterias' primary goal of continuing to generate clinical data in our clinical stage programs which we believe are the activities that have the greatest potential to create value for shareholders over the next several years. The reduction in staffing affected approximately 25 employees and was completed in the fourth quarter of 2017. Asterias recognized approximately $0.5 million of pre-tax restructuring charges in the fourth quarter of 2017 in connection with the reduction in staffing, consisting of severance and other employee termination benefits, substantially all of which are expected to be settled in cash. As of December 31, 2017, $0.3 million in severance and other termination benefits are still due to employees and included in accrued compensation and benefits.

4. Investments in BioTime and OncoCyte Common Stock

Investment in BioTime Common Shares

BioTime common shares (traded on NYSE American under the symbol “BTX”) are included at fair value in current assets on the balance sheets as the shares are available for use and could be sold at fair value for working capital purposes. During the year ended December 31, 2017, Asterias sold 371,795 of its BTX shares at a weighted-average price of $2.60. As of December 31, 2017 and 2016, Asterias held 3,481,085 and 3,852,880 BioTime shares, respectively. As of December 31, 2017 and 2016 these shares are valued at $7.5 million and $13.9 million, respectively, based on the closing price on those dates.

Investment in OncoCyte Common Stock

On December 31, 2015, in connection with BioTime’s distribution of OncoCyte common stock to BioTime shareholders, on a pro rata basis, Asterias received 192,644 shares of OncoCyte common stock from BioTime as a dividend in kind. On this date, BioTime shareholders, including Asterias, received one share of OncoCyte common stock for every twenty BioTime Common Shares held. Asterias recorded the fair value of the OncoCyte common stock as contributed capital from BioTime. The OncoCyte common stock distribution resulted in a taxable gain to Asterias of $819,000 (see Note 10).

The OncoCyte shares are included in available-for-sale securities at fair value in current assets in Asterias’ balance sheets as the shares are traded on NYSE American (symbol “OCX”) and available for working capital purposes. As of December 31, 2017 and 2016, Asterias held 181,756 and 192,644 shares of OncoCyte, respectively. As of December 31, 2017 and 2016, the OncoCyte shares are valued at $0.8 million and $1.4 million, respectively, based on the OncoCyte closing price on those dates.

5. Intangible assets, net

As of December 31, 2017 and, 2016, Asterias had capitalized intangible assets acquired from Geron Corporation, primarily related to patents and other intellectual property rights related to hES cells. These assets are being amortized over their estimated useful lives of 10 years.

Intangible assets, net at December 31, 2017 and, 2016 are shown in the following table (in thousands):

	December 31,	
	2017	2016
Intangible assets	$26,860	$26,860
Less - accumulated amortization	(11,416)	(8,730)
Intangible assets, net	$15,444	$18,130

Asterias recognized $2.7 million in amortization expense of intangible assets for the years ended December 31, 2017, 2016 and 2015, respectively.

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

Year Ending December 31,	Amortization Expense
2018	2,686
2019	2,686
2020	2,686
2021	2,686
2022	2,686
Thereafter	2,014
Total	$ 15,444

6. Common Stock and Warrants

At December 31, 2017, Asterias had outstanding 54,051,142 Series A Shares and no Series B Shares. At December 31, 2016, Asterias had outstanding 47,466,596 Series A Shares and no Series B Shares. All outstanding Series B Shares were converted into Series A Shares on October 3, 2014.

Common Stock Issuance

On October 16, 2017, Asterias completed the sale, in a registered direct offering, of 4,000,000 shares of its common stock, at an offering price of $2.60 per share, or net proceeds of $9.9 million.

On May 13, 2016, Asterias completed the sale and the underwriters' exercise of the overallotment for 5,889,480 shares of its common stock and warrants to purchase 2,959,559 shares of its common stock, through an underwritten public offering (the "Asterias Offering"), for $3.40 per unit, or net proceeds to Asterias of $18.2 million. Total financing costs were approximately $1.8 million, of which $1.3 million were allocated to the Asterias Common Stock (see *Warrants classified as liability* below). The net proceeds allocated to the common stock were $12.7 million and the net proceeds allocated to the warrants were $5.5 million. During the year ended December 31, 2016, Asterias received approximately $2.7 million in net proceeds from exercise of stock options and warrants.

During the year ended December 31, 2015, Asterias raised approximately $5.5 million in aggregate gross proceeds from the sale of 1,410,255 shares of common stock at a price of $3.90 per share through an underwritten public offering and a private placement. Broadwood Partners, L.P., British & American Investment Trust PLC and Pedro Lichtinger, related parties, purchased an aggregate of 1,025,640 of the shares.

On April 10, 2015, Asterias entered into an at-the-market (ATM) Sales Agreement with MLV & Co., which is now owned by B. Riley FBR, Inc., pursuant to which Asterias may sell up to a maximum of $20.0 million of its common stock from time to time through the Sales Agent under Asterias' previously filed and currently effective shelf registration statement on Form S-3 (File No. 333-200745). On March 28, 2017, Asterias entered into an amendment to this Sales Agreement. Under the Sales Agreement, as amended, Asterias may issue and sell shares of its Series A common stock having an aggregate offering price of up to an additional $25.0 million. During the fiscal year ended December 31, 2017, Asterias raised approximately $8.0 million in gross proceeds under the ATM from the sale of 2,005,784 shares of its common stock at a weighted average price of $3.99. During the fiscal year ended December 31, 2016, Asterias raised approximately $8.0 million in gross proceeds under the ATM from the sale of 1,811,522 shares of its common stock at a weighted average price of $4.41 per share. During the fiscal year ended December 31, 2015, Asterias raised approximately $4.8 million in gross proceeds from the sale of 685,465 shares of its common

stock at a weighted average price of $7.01 per share. As of December 31, 2017, up to approximately $22.7 million of shares of Asterias Common Stock are available for issuance and sale pursuant to the terms of the ATM Sales Agreement.

During 2017, 2016 and 2015, pursuant to a services agreement with Cell Therapy Catapult Services Limited, Asterias had issued 318,748 shares, 218,520 shares and 94,479 shares, respectively of Asterias Series A common stock with a fair value of $1.2 million, $922,000 and $486,000, respectively to pay for services in lieu of cash (see Note 13).

Asterias issued 148,594 shares of common stock for proceeds of $1.1 million, pursuant to the exercise of warrants in 2016. Asterias issued 5,000,000 shares of common stock pursuant to the exercise of warrants in 2015, for net proceeds of $11.7 million.

Warrants classified as a liability

On May 13, 2016, included in the Asterias Offering, Asterias issued 2,959,559 warrants (the “Asterias Offering Warrants”). The Asterias Offering Warrants have an exercise price $4.37 per share and expire in five years of the issuance date, or May 13, 2021. The Asterias Offering Warrants also contain certain provisions in the event of a Fundamental Transaction, as defined in the warrant agreement governing the Asterias Offering Warrants (“Warrant Agreement”), that Asterias or any successor entity will be required to purchase, at a holder’s option, exercisable at any time concurrently with or within thirty days after the consummation of the fundamental transaction, the Asterias Offering Warrants for cash. This cash settlement will be in an amount equal to the value of the unexercised portion of such holder’s warrants, determined in accordance with the Black Scholes-Merton option pricing model as specified in the Warrant Agreement.

In accordance with ASC 815-40, *Accounting for Derivative Financial Instruments Indexed to, and Potentially Settled in, a Company's Own Stock*, contracts that require or may require the issuer to settle the contract for cash are liabilities recorded at fair value, irrespective of the likelihood of the transaction occurring that triggers the net cash settlement feature. Changes to the fair value of those liabilities are recorded in the statements of operations. Accordingly, since Asterias may be required to net cash settle the Asterias Offering Warrants in the event of a Fundamental Transaction; the Asterias Offering Warrants are classified as noncurrent liabilities at fair value, with changes in fair value recorded in other income or expense, net, in the statements of operations.

The fair value of the Asterias Offering Warrants at the time of issuance was determined by using a combination of the Binomial Lattice and Black-Scholes-Merton option pricing models under various probability-weighted outcomes which take into consideration the probability of the fundamental transaction and net cash settlement occurring, using the contractual term of the warrants. In applying these models, the fair value is determined by applying Level 3 inputs, as defined by ASC 820; these inputs have included assumptions around the estimated future stock price of Asterias Common Stock, volatility and the timing of, and varying probabilities that certain events will occur. The Asterias Offering Warrants are revalued each reporting period using the same methodology described above. Changes in any of the key assumptions used to value the Asterias Offering Warrants could materially impact the fair value of the warrants and Asterias' financial statements.

On May 13, 2016, the fair value of the Asterias Offering Warrants was approximately $6.0 million. Because the Asterias Offering Warrants are accounted for as liabilities, the total proceeds from the Asterias Offering were allocated first entirely to the Asterias Offering Warrants' fair value and the remaining residual proceeds to the Asterias Common Stock. In addition, of the total $1.8 million of the Asterias Offering discounts and expenses incurred, $0.6 million were allocated to the Asterias Offering Warrants, based on the full fair value of the Asterias Offering Warrants and total gross proceeds, and immediately expensed as general and administrative expenses. Total net proceeds allocated to the Asterias Offering Warrants were $5.5 million.

On December 2, 2016, certain investors exercised 146,400 Asterias Offering Warrants for cash proceeds to Asterias of approximately $640,000 (see Note 2).

At December 31, 2017 and 2016, based on valuations performed by Asterias using the methodology described above, the fair value of the Asterias Offering Warrants liability was $2.8 million and $8.7 million, respectively, resulting in Asterias recording an unrealized gain of $5.9 million for the year ended December 31, 2017 and an unrealized loss of $3.1 million for the year ended December 31, 2016, which are included in other income and expenses, net, in the statements of operations.

Warrants classified as equity

On March 30, 2016, Asterias' board of directors declared a distribution of Asterias Common Stock purchase warrants to all Asterias shareholders other than BioTime, in the ratio of one warrant for every five shares of Asterias Common Stock owned of record as of the close of business on April 11, 2016. On April 25, 2016, Asterias distributed 3,331,229 warrants (the "Distribution Warrants"). The distribution of the Distribution Warrants was treated as a disproportionate distribution since, in accordance with the terms of the Share Transfer with BioTime, no warrants were distributed to BioTime (see Note 15). The Distribution Warrants are classified as equity, have an exercise price of $5.00 per share, and were set to expire on September 30, 2016. Asterias recorded the Distribution Warrants at a fair value of approximately $3.1 million with a noncash charge to shareholder expense included in general and administrative expenses and a corresponding increase to equity as of March 30, 2016 as the Distribution Warrants were deemed to be issued for accounting purposes on that date.

On September 19, 2016 and February 3, 2017, Asterias extended the expiration date of the Distribution Warrants to February 15, 2017 and September 29, 2017, respectively, no other terms were changed. As a result of the extension of the expiration date of these warrants, Asterias recorded a $2.0 million and $1.7 million noncash charges to shareholder expense included in general and administrative expenses and a corresponding increase to equity for the years ended December 31, 2016 and 2017. These warrants expired unexercised on September 29, 2017.

In connection with the warrant distribution to shareholders discussed above, 350,000 warrants with an exercise price of $5.00 per share held by Romulus Films, Ltd. were adjusted to become exercisable into 409,152 shares at an exercise price of $4.28 per share (the “Romulus Warrants”). These warrants had an original expiration date of September 30, 2016. On September 19, 2016, Asterias extended the expiration date of the Romulus Warrants to February 15, 2017, no other terms were changed. As a result of the extension of the expiration date of these warrants, Asterias recorded a $0.2 million noncash charge to shareholder expense included in general and administrative expenses and a corresponding increase to equity for the year ended December 31, 2016. On February 3, 2017, Asterias extended the expiration date of the Romulus Warrants to September 29, 2017. These warrants expired unexercised on September 29, 2017.

Warrants Outstanding in 2017, 2016 and 2015

At December 31, 2014, warrants to purchase 8,500,000 common shares with a weighted average exercise price of $3.44 and a weighted average remaining contractual life of 0.99 years were outstanding. At December 31, 2015, warrants to purchase 3,500,000 common shares with an exercise price of $5.00 and a weighted average remaining contractual life of 0.75 years were outstanding (see Note 15).

In February 2016, of the warrants to purchase 3,500,000 shares, 3,150,000 were returned to Asterias by BioTime as part of the Share Transfer between Asterias and BioTime (see Note 9). As of March 20, 2016, these warrants to purchase 3,150,000 shares were retired by Asterias. Asterias warrants outstanding ending December 31, 2016 was 6,552,479. In September 2017, 3,328,033 shares of unexercised Distribution Warrants and 409,152 shares of unexercised Romulus Warrants expired. Asterias warrants outstanding at December 31, 2017 was 2,813,159.

Activity related to equity and liability classified warrants in 2017 and 2016, is presented in the table below (in thousands, except per share and weighted average exercise prices):

	Number of Warrants	Per share exercise price	Weighted Average Exercise Price
Outstanding, December 31, 2015	3,500	$5.00	$ 5.00
Issued in 2016	6,350	4.28-5.00	4.69
Exercised in 2016	(148)	4.37-5.00	4.38
Retired in 2016	(3,150)	5.00	5.00
Outstanding, December 31, 2016	6,552	$4.28-5.00	$ 4.68
Expired in 2017	(3,738)	5.00	5.00
Exercised in 2017	(1)	5.00	5.00

Outstanding, December 31, 2017	2,813	$4.37	$ 4.37

7. Equity Incentive Plan

During March 2013, Asterias' Board of Directors approved an Equity Incentive Plan (the "Plan") under which Asterias has reserved 4,500,000 shares of common stock for the grant of stock options or the sale of restricted stock. Initially, Asterias issued Series B Shares under the Plan. Since the date on which all of the outstanding Series B Shares were converted into Series A Shares, Asterias has issued Series A Shares under the Plan. The Plan also permits Asterias to issue such other securities as its Board of Directors or the Compensation Committee administering the Plan may determine. Asterias' stockholders approved the Plan in September 2013.

During May 2015, Asterias' Board of Directors approved an amendment to increase the number shares authorized for issuance under the Plan by 3,500,000 shares. This amendment was approved by the shareholders at the 2015 annual meeting of shareholders held on July 9, 2015.

During May 2016, Asterias' Board of Directors approved an amendment to increase the number of shares authorized for issuance under the Plan by 3,000,000 shares. This amendment was approved by the shareholders at the 2016 annual meeting of shareholders held on June 9, 2016.

During May 2017, Asterias' Board of Directors approved an amendment to increase the number of shares authorized for issuance under the Plan by 2,500,000 shares. This amendment was approved by the shareholders at the 2017 annual meeting of shareholders held on June 14, 2017.

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

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

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

Stock Options

As of December 31, 2017, Asterias had outstanding to certain officers, employees, and directors, options to purchase a total of 6,375,828 shares of common stock at a weighted average exercise price of $3.31 per share and 690,000 restricted stock/RSUs.

The following table summarizes the stock option activity related to shares of common stock under Asterias' Option Plan:

	Number of Options Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value (in thousands)
Options outstanding at December 31, 2014	3,101	$ 2.42	5.64	$ 2,724
Options granted	2,000	4.33		
Options exercised	(12)	2.34		
Options forfeited/cancelled	(14)	3.45		
Options outstanding at December 31, 2015	5,075	$ 3.17	6.37	$ 4,835
Options granted	2,975	3.56		
Options exercised	(827)	2.45		
Options forfeited/cancelled	(991)	3.86		
Options outstanding at December 31, 2016	6,232	$ 3.34	6.96	$ 8,183
Options granted	1,690	3.57		
Options exercised	(8)	2.34		
Options forfeited/cancelled	(1,538)	3.72		
Options outstanding at December 31, 2017	6,376	$ 3.31	6.01	$ —
Options vested and expected to vest at December 31, 2017	6,376	$ 3.31	6.01	$ —
Options exercisable at December 31, 2017	4,219	$ 3.17	4.61	$ —

The aggregate intrinsic value represents the difference between the exercise price of the awards and Asterias' fair value per share of $2.25, $4.60 and $3.93 as of December 31, 2017, 2016, and 2015, respectively.

Additional information regarding Asterias' outstanding stock options and vested and exercisable stock options is summarized below:

	As of December 31, 2017				
	Options Outstanding			Options Exercisable	
Exercise Prices	Number of Shares	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Number of shares	Weighted-Average Exercise Price per Share
$2.34 - $3.60	2,794	4.09	$ 2.58	2,238	$ 2.47
$3.64 - $6.17	3,478	7.69	$ 3.82	1,879	$ 3.85
$6.22 - $6.25	104	1.69	$ 6.23	102	$ 6.23
	6,376	6.01	$ 3.31	4,219	$ 3.17

Restricted Stock and Restricted Stock Units

The following table summarizes the restricted stock award and restricted stock unit activity under Asterias' Option Plan:

Restricted Stock Award/Unit	Number of RSUs Outstanding	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value (in thousands)
RSUs outstanding at December 31, 2014	100	$ 3.64	0.23	$ 324
RSUs granted	194	2.67		
RSUs vested	(245)	1.58		
RSUs canceled	(1)	2.62		
RSUs outstanding at December 31, 2015	48	$ 2.67	0.25	$ 114
RSAs/RSUs granted	515	3.54		
RSAs/RSUs vested	(360)	3.51		
RSUs canceled	(3)	3.49		
RSUs outstanding at December 31, 2016	200	$ 3.39	1.22	$ 380
RSUs granted	1,007	3.25		
RSAs/RSUs vested	(351)	3.53		
RSUs canceled	(166)	3.58		
RSUs outstanding at December 31, 2017	690	$ 3.06	2.31	$ 1,553

RSUs vested and expected to vest at December 31, 2017	690	$ 3.06	2.31	$ 1,553

The aggregate intrinsic value for RSUs represents Asterias' fair market value per share of the awards and Asterias' fair value per share of $2.25, $4.60, and $3.93 as of December 31, 2017, 2016, and 2015, respectively for the total number of underlying RSUs.

Stock-Based Compensation Expense

The weighted-average estimated fair value of stock options granted during the years ended December 31, 2017, 2016 and 2015 was $3.57, $3.56, and $4.33 per share respectively, using the Black-Scholes-Merton option pricing model with the following weighted-average assumptions:

	Years Ended December 31,		
	2017	2016	2015
Expected life (in years)	5.76	5.88	3.41
Risk-free interest rates	1.89 %	1.33 %	1.01 %
Volatility	74.64 %	75.6 %	34.67 %
Dividend yield	0 %	0 %	0 %

The risk-free rate is based on the rates in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to each grant's expected life. A dividend yield of zero is applied since Asterias has not historically paid dividends and does not expect to pay dividends in the foreseeable future. The expected volatility is based upon the volatility of Asterias' own trading stock and of a group of publicly traded industry peer companies. The expected term of options granted is derived from a combination of Asterias historical experience, to the extent available, and using the simplified method under SEC *Staff Accounting Bulletin* Topic 14.

Prior to the adoption of ASU 2016-09 in 2017 stock-based compensation expense was recognized based on awards that are ultimately expected to vest, and as a result, the amount has been reduced by estimated forfeitures. Forfeitures were estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differed from those estimates. Forfeitures were estimated based on Asterias' historical experience and future expectations. Subsequent to the adoption of ASU 2016-09 on January 1, 2017, forfeitures are accounted for as they occur.

The determination of stock-based compensation is inherently uncertain and subjective and involves the application of valuation models and assumptions requiring the use of judgment. If Asterias had made different assumptions, its stock-based compensation expense, and net loss for years ended December 31, 2017, 2016 and 2015, may have been significantly different.

Asterias does not recognize deferred income taxes for incentive stock option compensation expense, and records a tax deduction only when a disqualified disposition has occurred.

Operating expenses include stock-based compensation expense as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Research and development	$2,469	$2,655	$1,604
General and administrative	1,975	2,142	2,021
Total stock-based compensation expense	$4,444	$4,797	$3,625

As of December 31, 2017, unrecognized compensation expense related to stock options and RSUs was $4.8 million and $1.7 million, respectively with a weighted-average remaining amortization period of 2.75 years and 2.31 years, respectively.

Common Stock Reserved for Future Issuance

Asterias had the following shares of common stock reserved for future issuance under the Equity Incentive Plan:

	As of December 31,	
	2017	2016
Equity Incentive Plan:		
Common stock subject to options outstanding	6,376	6,232
RSUs outstanding	690	200
Shares available for future grants	2,782	2,115
Common stock reserved for future issuances	9,848	8,547

8. Commitments and Contingencies

Development and Manufacturing Services Agreement

On August 3, 2016, Asterias entered into a Development and Manufacturing Services Agreement (the "Services Agreement") with Cognate BioServices, Inc. ("Cognate"), a fully-integrated contract bioservices organization providing development and current Good Manufacturing Practice ("cGMP") manufacturing services to companies and institutions engaged in the development of cell-based products.

Under the Services Agreement, Cognate is performing under an Initial Statement of Work process development studies in support of Asterias' clinical and commercial development activities of AST-VAC1 and production and manufacturing services of AST-VAC1 under cGMP under the Second Statement of Work. In consideration for the process development services set forth in the Initial Statement of Work, Asterias agreed to make aggregate payments of up to approximately $1.7 million in fees over the term of the Initial Statement of Work and pay for additional pass through costs for materials and equipment estimated by management to be approximately $0.5 million. In consideration of the production and manufacturing services set forth in the Second Statement of Work, once the services under the Initial Statement of Work are completed and if Asterias receives FDA concurrence on the clinical protocol for an AST-VAC1 trial, then Asterias will make an initial start-up payment, a monthly payment for dedicated manufacturing capacity, and certain other manufacturing fees.

On August 16, 2017, Asterias amended SOW 1 (“Amended SOW 1”) and entered into a Statement of Work 1.5 (“SOW 1.5”) with Cognate to modify the timing of certain process development studies being performed by Cognate under the Services Agreement. Under Amended SOW 1 and SOW 1.5, Cognate will perform certain process development studies initially contemplated by SOW 1 under SOW 1.5 after Cognate has completed the activities under Amended SOW 1 and Asterias provides written notice to commence the activities under SOW 1.5.

The Services Agreement will expire on the later of (a) August 3, 2019; or (b) the completion of all services contracted for by the parties in the Statements of Work under the Services Agreement prior to August 3, 2019. The term of the Services Agreement and any then pending Statements of Work thereunder may be extended by Asterias continuously for additional two-year periods upon written notice to Cognate with at least thirty days prior to the expiration of the then-current term.

The Services Agreement provides certain termination rights to each party and customary provisions relating to indemnity, confidentiality and other matters. Asterias incurred $1.1 million and $574,000 of expenses payable to Cognate pursuant to the Services Agreement for the years ended December 31, 2017 and 2016.

Fremont Lease

On December 30, 2013, Asterias entered into a lease for an office and research facility located in Fremont, California, consisting of an existing building with approximately 44,000 square feet of space. The building is being used by Asterias as a combined office, laboratory and production facility that can be used to produce hES and related products under current good manufacturing procedures. Asterias completed the tenant improvements in November 2015, which cost approximately $4.9 million, of which the maximum of $4.4 million was paid to Asterias by the landlord. Asterias placed the asset into service in November 2015 and is amortizing the leasehold improvements and the landlord liability over the remaining lease term through September 30, 2022.

As of December 31, 2017 and 2016, the landlord liability was $3.5 million and $4.0 million, respectively and the deferred rent liability was $316,000 and $266,000, respectively.

Beginning on October 1, 2016, base rent increased to $105,000 per month and will increase by approximately 3% annually on every October 1 thereafter. On October 1, 2017, the base rent increased to $108,000 per month.

In addition to monthly base rent, Asterias will pay all real estate taxes, insurance and the cost of maintenance, repair and replacement of the leased premises. During the first 15 months of the lease term, Asterias paid only 50% of the real estate taxes assessed on the premises. Beginning January 1, 2016, Asterias will pay 100% of the taxes levied on the excess assessed valuation.

Asterias is considered the owner of the asset for accounting purposes only under build-to-suit accounting under ASC 840-40-55, *Accounting for Leases, Sale-leaseback transactions,* as Asterias, among other things, has the primary obligation to pay for construction costs and Asterias will retain exclusive use of the building for its office and research facility requirements after construction is completed. In addition, the lease does not qualify for sale-leaseback accounting due to Asterias' significant continuing involvement with the facility that Asterias considers to be other than a normal leaseback as defined by U.S. GAAP. In accordance with this guidance, amounts previously expended by Asterias for construction would continue to be reported as construction in progress in Asterias' financial statements, and the landlord reimbursement proceeds received, including amounts earned by Asterias but not yet paid by the landlord at period end, are reported as a lease liability. The property was placed in service in November 2015 and Asterias commenced depreciating the property. Lease payments allocated to the landlord liability are accounted for as debt service payments on that liability using the finance method of accounting. As of December 31, 2015, Asterias had incurred $4.9 million of construction costs included in property, plant and equipment (see Note 3), of which $4.4 million was the lease liability included in long term liabilities at December 31, 2015. The lease liability is being amortized using the effective interest method.

Total rent expense for all rented facilities for the years ended December 31, 2017, 2016, and 2015 was $0.4 million, $0.5 million, and $1.0 million, respectively.

Future minimum annual lease payments, including the lease liability, under the Fremont Lease for the years ending after December 31, 2017 are as follows (in thousands):

Year Ending December 31,	Minimum Lease Payments
2018	$ 1,308
2019	1,346
2020	1,389
2021	1,431
2022	1,097
Total	$ 6,571

Litigation – General

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

Employment Contracts

Asterias has entered into employment contracts with certain executive officers. Under the provisions of the contracts, Asterias may be required to incur severance obligations for matters relating to changes in control, as defined and involuntary terminations. In 2016, Asterias paid $309,000 in severance to two former executives in accordance with their respective separation agreements.

At December 31, 2017, total potential severance obligations in connection with the termination of employment contracts approximated $1.3 million for termination without cause and $2.0 million for termination due to a change in control.

Indemnification

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

9. Shared Facilities and Service Agreement

On April 1, 2013, Asterias and BioTime executed a Shared Facilities and Services Agreement ("Shared Facilities Agreement"). Under the terms of the Shared Facilities Agreement, BioTime will allow Asterias to use its premises and equipment located at Alameda, California for the sole purpose of conducting business. BioTime will provide basic accounting, billing, bookkeeping, payroll, treasury, collection of accounts receivable (excluding the institution of legal proceedings or taking of any other action to collect accounts receivable), payment of accounts payable, and other similar administrative services to Asterias. BioTime may also provide the services of attorneys, accountants, and other professionals who may also provide professional services to BioTime and its other subsidiaries. BioTime will also provide Asterias with the services of its laboratory and research personnel, including BioTime employees and contractors, for the performance of research and development work for Asterias at BioTime's premises.

BioTime will charge Asterias a fee for the services and usage of facilities, equipment, and supplies aforementioned. For each billing period, BioTime will equitably prorate and allocate its employee costs, equipment costs, insurance costs, lease costs, professional costs, software costs, supply costs, and utilities costs, between BioTime and Asterias based upon actual documented use and cost by or for Asterias or upon proportionate usage by BioTime and Asterias, as reasonably estimated by BioTime. Asterias shall pay 105% of the allocated costs (the "Use Fee"). The allocated cost of BioTime employees and contractors who provide services will be based upon records maintained of the number of hours of such personnel devoted to the performance of services.

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

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

Asterias in turn may charge BioTime or any Other Subsidiary for similar services provided by Asterias at the same rate and terms as aforementioned. “Other Subsidiary” means a subsidiary of BioTime other than Asterias and other than a subsidiary of Asterias.

The Shared Facilities Agreement’s term ended on December 31, 2017 but the Shared Facilities Agreement was automatically renewed for an additional year and will expire on December 31, 2018. Under the Shared Facilities Agreement, the term of the Shared Facilities Agreement will automatically be renewed and the termination date will be extended for an additional year each year, unless either party gives the other party written notice stating that the Shared Facilities Agreement will terminate on December 31 of that year.

General and administrative expenses include costs allocated from BioTime pursuant to the Shared Facilities Agreement. BioTime allocated $129,000, $265,000, and $282,000, of general overhead expenses to Asterias during the years ended December 31, 2017, 2016 and 2015, respectively. At December 31, 2017 Asterias had a receivable due from BioTime of $33,000. As of December 31, 2016, Asterias had a $288,000 payable to BioTime under the Shared Facilities Agreement.

10. Income Taxes

The primary components of the deferred tax assets and liabilities at December 31, 2017 and 2016 were as follows (in thousands):

	December 31,	
	2017	2016
Deferred tax assets:		
Net operating loss carryforwards	$15,110	$16,844
Research and development credits	5,643	2,395
Stock based compensation and other	2,130	2,597
Valuation allowance	(17,691)	(8,081)
Total deferred tax assets	5,192	13,755
Deferred tax liabilities:		
Patents and licenses	(3,488)	(7,564)
Securities held as available for sale	(1,704)	(6,191)
Total deferred tax liabilities	(5,192)	(13,755)
Net deferred tax liabilities	$—	$—

Income taxes differed from the amounts computed by applying the U.S. federal income tax of 34% to pretax losses from operations as a result of the following:

	Years Ended December 31,	
	2017	2016
Computed tax benefit at federal statutory rate	34 %	34 %
Permanent differences	3 %	(10)%
State tax benefit, net of effect on federal income taxes	5 %	(3)%
Change in valuation allowance	(29)%	(16)%
Research and development credits	7 %	1 %
Tax reform – tax rate change	(20)%	—
	— %	6 %

As of December 31, 2017, Asterias has net operating loss carryforwards of approximately $62.3 million and $29.1 million, respectively, for federal and California tax purposes, which expire between 2032 and 2037 for federal and between 2033 and 2037 for California. In addition, as of December 31, 2017, Asterias has federal and California research tax credit carry forwards of $4.1 million and $2.0 million, respectively. The federal tax credits expire between 2033 and 2036, while the state tax credits have no expiration date.

No federal and state tax provision or benefit was recorded for year ended December 31, 2017. A deferred income tax benefit of approximately $2.3 million was recorded for the year ended December 31, 2016 related to federal taxes. No state tax provision or benefit was recorded for year ended December 31, 2016. A deferred income tax benefit of approximately $7.3 million was recorded for the year ended December 31, 2015, of which approximately $7.4 million was related to federal taxes and $0.1 million was related to state taxes.

Asterias established deferred tax liabilities primarily related to its acquisition of certain intellectual property and available for sale securities held in BioTime and OncoCyte common stock. Asterias has established a valuation allowance for California deferred tax assets as of December 31, 2015. In assessing the realization of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon future generation of taxable income during the periods in which temporary differences representing net future deductible amounts become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. After consideration of all the information available, management believes that significant uncertainty exists with respect to future realization of the deferred tax assets and has therefore established a full valuation allowance for federal and California deferred tax assets as of December 31, 2016 and 2017. For the years ended December 31, 2017 and 2016, the change in the valuation allowance was approximately $9.6 million and $5.2 million, respectively.

On February 16, 2016, Asterias entered into a Cross-License Agreement and Share Transfer Agreement with BioTime and BioTime’s wholly owned subsidiary ES Cell International Pte. Ltd. (“ESI”). The transfer of assets was a taxable transaction to Asterias generating a taxable gain of approximately $3.1 million. Asterias has sufficient current year losses from operations in 2016 to offset the entire gain resulting in no income taxes due. As the transfer of assets and the resulting taxable gain is due to a direct effect of transactions between Asterias and its then parent company, BioTime, Asterias recorded the tax effect of this gain through equity with a corresponding release of the valuation allowance, in accordance with ASC 740-20-45-11(g), during the year ended December 31, 2016.

On December 31, 2015, BioTime distributed 4.7 million shares of OncoCyte common stock to its shareholders, including Asterias, on a pro rata basis as a dividend in kind. As part of the distribution of OncoCyte common stock, Asterias, as it also holds BioTime Common Shares, received 192,644 shares of OncoCyte common stock as contributed capital from BioTime resulting in a taxable gain to Asterias of $819,000. Asterias has sufficient current year losses from operations in 2015 to offset the entire taxable gain resulting in no income taxes due. As the distribution was treated as contributed capital for financial reporting purposes, Asterias recorded the tax effect of this gain through equity consistent with BioTime's treatment of the distribution in accordance with ASC 740-20-45-11(g).

Code Section 382 places a limitation ("Section 382 Limitation") on the amount of taxable income that can be offset by net operating loss carryforwards after an ownership change (generally greater than 50% change in ownership within a three-year-period) of a loss corporation. California has similar rules. Generally, after an ownership change, a loss corporation cannot deduct net operating loss carryforwards in excess of the Section 382 Limitation. Similar rules exist under Code Section 383 that may limit the use of credits in the future. The future utilization of the net operating loss carryforwards and tax credits to offset future taxable income may be subject to an annual limitation, as a result of ownership changes that may have occurred previously of that could occur in the future. A Section 382 analysis to determine the limitation of the net operating loss carryforwards has not been performed.

On December 22, 2017 the Tax Cuts and Jobs Act (the "Act") was signed into law. Among other provisions, the Act reduces the Federal statutory corporate income tax rate from 34% to 21%. This rate reduction has a significant impact on our provisions for income taxes for periods beginning after December 31, 2017, including a one-time impact resulting from the revaluation of our deferred tax assets and liabilities to reflect the new lower rate. However, we still maintain a full valuation allowance against our deferred taxes. Thus, the impact of the change is fully offset by our valuation allowance.

As of December 31, 2017, Asterias had no unrecognized tax benefits and has recorded no liability related to uncertain tax positions. Asterias did not record a change in its unrecorded tax benefits during the year ended December 31, 2017, and expects no change in its unrecorded tax benefits in the next 12 months.

Asterias files tax returns in the U.S. federal and state jurisdictions and is subject to examination by tax authorities. Asterias is not currently under examination by income tax authorities in federal or state. Due to net operating loss and research credit carryforwards, substantially all of Asterias' tax years, from 2012 through 2017, remain open to U.S. federal and state tax examinations.

11. Segment Information

Operating segments are defined as components of an enterprise that engage in business activities for which separate financial information is available and evaluated by the chief operating decision maker in deciding how to allocate resources and assess performance. Asterias' executive management team represents its chief operating decision maker. The executive management team reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance and there are no managers who are held accountable for levels or components below the consolidated unit level. Asterias executive management views Asterias' operations as one segment.

12. Selected Quarterly Financial Information (unaudited) (in thousands)

Asterias has derived this data from the unaudited interim financial statements that, in Asterias' opinion, have been prepared on substantially the same basis as the audited financial statements contained in this report and include all normal recurring adjustments necessary for a fair presentation of the financial information for the periods presented. These unaudited quarterly results should be read in conjunction with the financial statements and notes thereto included in this report. The operating results in any quarter are not necessarily indicative of the results that may be expected for any future period.

Year Ended December 31, 2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenues, net	$1,958	$298	$1,607	$14
Operating expenses	11,065	8,831	8,670	8,562
Loss from operations before deferred tax benefits	(6,287)	(8,728)	(6,809)	(6,548)
Basic and diluted net loss per share	(0.13)	(0.18)	(0.14)	(0.12)
Year Ended December 31, 2016				
Revenues, net	$1,541	$1,526	$2,017	$1,742
Operating expenses	12,633	8,600	9,442	10,274
Loss from operations before deferred tax benefits	(11,239)	(5,610)	(11,550)	(9,415)
Basic and diluted net loss per share	(0.27)	(0.12)	(0.24)	(0.20)

13. License and Royalty Obligations

Services Agreement with Cell Therapy Catapult Services Limited

In October 2015, Asterias entered into a Services Agreement (the "Services Agreement") with Cell Therapy Catapult Services Limited ("Catapult"), a research organization specializing in the development of technologies which speed the growth of the cell and gene therapy industry. Under the Services Agreement, Catapult will license to Asterias, certain background intellectual property and will develop a scalable manufacturing and differentiation process for Asterias' human embryonic stem cell derived dendritic cell cancer vaccine development program. In consideration for the license and Catapult's performance of services, Asterias agreed to make aggregate payments of up to GBP £4,350,000 over the next five years (approximately $5.9 million based on the foreign currency exchange rate on December 31, 2017). At the option of Asterias, up to GBP £3,600,000 (approximately $4.9 million based on the foreign currency exchange rate on December 31, 2017) of such payments may be settled in shares of Asterias Series A Common Stock instead of cash. If Asterias elects to pay for the services in stock and Catapult is unable to sell the stock in the market within 60 days of issuance, after reasonable and diligent efforts through its broker, Catapult may request that the unsold portion of the stock payment, if any, be paid by Asterias in cash at a value equal to approximately 91% of the total amount that was issued in stock. This right by Catapult to put the unsold shares back to Asterias for cash expires the earlier to occur of the sale of the stock in the market or after 60 days of issuance. As of December 31, 2017, we have incurred costs since commencement of the Services Agreement of GBP £3,200,000 under the Services Agreement.

The Services Agreement may be terminated by Asterias for any reason upon 60 days prior written notice. Catapult may terminate the Services Agreement on 60 days prior written notice if it encounters a technical issue that would prevent it from completing the services at all or without obtaining additional resources, or if the estimated time and cost of completing the services will be exceeded and Catapult and Asterias do not reach agreement on revised time and cost terms. Catapult may terminate the Services Agreement in the event Asterias fails to pay any amount due under the Services Agreement 30 days after Catapult makes a written demand for payment. In addition, a non-breaching party may terminate the Services Agreement upon the occurrence a material breach that is not remedied within 30 days. Either party may terminate the Services Agreement in the event the other party becomes subject to insolvency, receivership, liquidation, or a similar event.

Advance payments for research and development services to be performed by Catapult are deferred and recognized as research and development expense ratably as the services are performed. Advance payments related to licenses will be expensed when paid due to the experimental nature of the project. Pursuant to the Services Agreement, if there are any issued, but unsold Asterias stock, to Catapult for payment of services and the 60-day put right has not expired as of the period end being reported on, Asterias will present that amount as "temporary" equity in accordance with ASC 480-10-S99 *Distinguishing Liabilities from Equity – SEC Materials*. Once the put right expires or the shares are sold by Catapult, the temporary equity amount will be reclassified by Asterias to permanent equity without adjustment to the carrying value of the stock

In the fiscal years ended December 31, 2017, 2016 and 2015 Asterias paid $1.6 million, $1.7 million and $1.2 million, respectively, for services pursuant to the Services Agreement. Asterias paid $385,000, $815,000, and $713,000, respectively, in cash for these services and the remainder was paid with Asterias Series A Common Stock. Asterias issued 318,748, 218,520, and 96,479 shares of Asterias Series A Common Stock with fair market values of $1.2 million, $922,000, and $486,000 at the time of issuance which Asterias reclassified into permanent equity.

Royalty Agreement with Geron

In connection with our acquisition of Geron's stem cell assets, Asterias entered into a royalty agreement with Geron (the "Royalty Agreement") pursuant to which Asterias agreed to pay Geron a 4% royalty on net sales (as defined in the Royalty Agreement), by Asterias or any of its affiliates or sales agents, of any products that Asterias develops and commercializes that are covered by the patents Geron contributed to Asterias. In the case of sales of products covered by the patents Geron contributed to Asterias by a person other than Asterias or one of its affiliates or sales agents, Asterias will be required to pay Geron 50% of all royalties and cash payments received by Asterias or by its affiliate in respect of a product sale. Royalty payments will be subject to proration in the event that a product covered by a patent acquired from Geron is sold in combination with another product that is not covered by a patent acquired from Geron. The Royalty Agreement will terminate at the expiration or termination date of the last issued patent contributed by Geron under the Royalty Agreement. Asterias estimates that the latest patent expiration date will be in 2032. In 2017, 2016 and 2015 Asterias paid Geron $165,000, $134,000, and $281,000, respectively under this agreement in royalty fees.

Asterias License from WARF

Asterias has entered into a Non-Exclusive License Agreement with Wisconsin Alumni Research Foundation ("WARF") under which Asterias was granted a worldwide non-exclusive license under certain WARF patents and WARF-owned embryonic stem cell lines to develop and commercialize therapeutic, diagnostic and research products.

In consideration of the rights licensed, Asterias has agreed to pay WARF an upfront license fee, payments upon the attainment of specified clinical development milestones, royalties on sales of commercialized products, and, subject to certain exclusions, a percentage of any payments that Asterias may receive from any sublicenses that it may grant to use the licensed patents or stem cell lines.

The license agreement will terminate with respect to licensed patents upon the expiration of the last licensed patent to expire; with respect to the licensed stem cell lines, the license agreement will remain in force until terminated by either party in accordance with the termination provisions. Asterias may terminate the license agreement at any time by giving WARF prior written notice. WARF may terminate the license agreement if payments of earned royalties, once begun, cease for a specified period of time or if Asterias and any third parties collaborating or cooperating with Asterias in the development of products using the licensed patents or stem cell lines fail to spend a specified minimum amount on research and development of products relating to the licensed patents or stem cell lines for a specified period of time. WARF also has the right to terminate the license agreement if Asterias breaches the license agreement or becomes bankrupt or insolvent or if any of the licensed patents or stem cell lines are offered to creditors. The payments to WARF were a recurring $25,000 license maintenance fee for each of the years 2017, 2016, and 2015.

Asterias License from the University of California

Geron assigned to Asterias its Exclusive License Agreement with The Regents of the University of California (the "University") for patents covering a method for directing the differentiation of multipotential hES cells to glial-restricted progenitor cells that generate pure populations of oligodendrocytes for remyelination and treatment of spinal cord injury. Pursuant to this agreement, Asterias has an exclusive worldwide license under such patents, including the right to grant sublicenses, to create products for biological research, drug screening, and human therapy using the licensed patents. Under the license agreement, Asterias will be obligated to pay the University a royalty of 1% from sales of products that are covered by the licensed patent rights, and a minimum annual royalty of $5,000 starting in the year in which the first sale of a product covered by any licensed patent rights occurs, and continuing for the life of the applicable patent right under the agreement. The royalty payments due are subject to reduction, but not by more than 50%, to the extent of any payments that Asterias may be obligated to pay to a third party for the use of patents or other intellectual property licensed from the third party in order to make, have made, use, sell, or import products or otherwise exercise its rights under the Exclusive License Agreement. Asterias will be obligated to pay the University 7.5% of any proceeds, excluding debt financing and equity investments, and certain reimbursements, that its receives from sublicensees, other than Asterias' affiliates and joint ventures relating to the development, manufacture, purchase, and sale of products, processes, and services covered by the licensed patent. Asterias had no expenses related to these fees in the years 2017, 2016, and 2015, respectively. The license agreement will terminate on the expiration of the last-to-expire of the university's issued licensed patents. If no further patents covered by the license agreement are issued, the license agreement would terminate in 2024. The university may terminate the agreement in the event of Asterias' breach of the agreement. Asterias can terminate the agreement upon 60 days' notice.

Telomerase Sublicense from Geron

Asterias received the Telomerase Sublicense from Geron in connection with our acquisition of Geron's stem cell assets. The Telomerase Sublicense grants Asterias an exclusive sublicense under certain patents owned by the University of Colorado's University License Equity Holdings, Inc. relating to telomerase and entitles Asterias to use the technology covered by the patents in the development of AST-VAC1 and AST-VAC2 as immunological treatments for cancer. Under the Telomerase Sublicense, Asterias paid Geron a one-time upfront license fee of $65,000, and Asterias will pay Geron an annual license maintenance fee of $10,000 due on each anniversary of the effective date of the agreement, and a 1% royalty on sales of any products that Asterias may develop and commercialize that are covered by the sublicensed patents. The Telomerase Sublicense will expire concurrently with the expiration of Geron's license. That license will terminate in November 2018 when the last of the licensed patents expires. The Telomerase Sublicense may also be terminated by Asterias by giving Geron 90 days written notice, by us or by Geron if the other party breaches its obligations under the sublicense agreement and fails to cure their breach within the prescribed time period, or by Asterias or by Geron upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or upon an assignment of a substantial portion of the assets for the benefit of creditors by the other party.

Asterias is obligated to indemnify Geron, Geron's licensor, and certain other parties for certain liabilities, including those for personal injury, product liability, or property damage relating to or arising from the manufacture, use, promotion or sale of a product, or the use by any person of a product made, created, sold or otherwise transferred by us or our sublicensees that is covered by the patents sublicensed under this agreement.

14. Clinical Trial and Option Agreement with CRUK and CIRM Grant Award

During September 2014, Asterias entered into a Clinical Trial and Option Agreement (the "CRUK Agreement") with Cancer Research UK ("CRUK") and Cancer Research Technology Limited, a wholly-owned subsidiary of CRUK, pursuant to which CRUK has agreed to fund Phase 1 clinical development of Asterias' human embryonic stem cell derived AST-VAC2 allogeneic (non-patient specific) dendritic cancer vaccine product candidate. Asterias, at its own cost, completed process development and manufacturing scale-up of the AST-VAC2 manufacturing process and transferred the resulting cGMP-compatible process to CRUK. CRUK will, at its own cost, manufacture clinical grade AST-VAC2 and will carry out the Phase 1 clinical trial of AST-VAC2 in cancer patients both resected early-stage and advanced forms of lung cancer. Asterias will have an exclusive first option to obtain a license to use the data from the clinical trial. If Asterias exercises that option, then Asterias will be obligated to make payments upon the execution of the License Agreement, upon the achievement of various milestones, and royalties on sales of products. In connection with the CRUK Agreement, Asterias sublicensed to CRUK for use in the clinical trials and product manufacturing process certain patents that have been licensed or sublicensed to us by third parties. Asterias would also be obligated to make payments to those licensors and sublicensors upon the achievement of various milestones, and then royalties on sales of products if AST-VAC2 is successfully developed and commercialized.

On October 16, 2014 Asterias signed a Notice of Grant Award ("NGA") with CIRM, effective October 1, 2014, with respect to a $14.3 million grant award for clinical development of Asterias' product, AST-OPC1. The NGA was subsequently amended effective November 26, 2014 and March 2, 2016. The NGA includes the terms under which CIRM will release grant funds to Asterias. Under the NGA as amended on March 2, 2016, CIRM will disburse the grant funds to Asterias based on Asterias' attainment of certain progress milestones.

Asterias received $5.6 million under the NGA during 2015. During the fiscal year ended December 31, 2016, Asterias received an additional $6.2 million under the NGA grant. In September 2017, we received the final $1.5 million payment under the CIRM grant which was due upon achievement of certain clinical milestones. Revenues pursuant to the NGA recognized during the fiscal years ended December 31, 2017, 2016 and 2015 were $3.7 million, $6.6 million and $3.0 million, respectively. Although the cash payments from CIRM were dependent on achieving certain milestones pursuant to the contract with CIRM, Asterias recognized grant income as related research expenses are incurred. We had no deferred revenues related to the CIRM grant as of December 31, 2017. Deferred revenues relating to the CIRM grant were $2.2 million at December 31, 2016.

15. Cross-License and Share Transfer with BioTime and Subsidiaries

On February 16, 2016, Asterias entered into a Cross-License Agreement (the "Cross-License") with BioTime and BioTime's wholly owned subsidiary ESI. Under the terms of the Cross-License, Asterias received a fully-paid, non-royalty-bearing, world-wide, non-exclusive, sub-licensable license under certain BioTime patents and related patent rights and ESI patents and related patent rights specified in the Cross-License, for all purposes in the Asterias Licensed Field, as defined in the Cross-License agreement, during the term of the license.

Under the terms of the Cross-License, BioTime and ESI received a fully-paid, non-royalty-bearing, world-wide, non-exclusive, sub-licensable license in, to, and under the certain Asterias patents and related patent rights for all purposes in the BioTime/ESI Licensed Field, as defined in the Cross-License agreement, during the term of the license.

On February 16, 2016, Asterias also entered into a Share Transfer Agreement ("Share Transfer") with BioTime and ESI pursuant to which (a) Asterias transferred to BioTime 2,100,000 shares of common stock of OrthoCyte Corporation ("OrthoCyte") and 21,925 ordinary shares of Cell Cure Neurosciences Ltd ("Cell Cure"), each a majority-owned subsidiary of BioTime, with an aggregate carrying value at the time of the transaction of approximately $416,000 and (b) BioTime transferred to Asterias 75,771 shares of Series A common stock of Asterias with a carrying value at the time of the transaction of approximately $197,000 and warrants to purchase 3,150,000 Series A common stock of Asterias at an exercise price of $5.00 per share, with a carrying value at the time of the transaction of approximately $2.0 million, as additional consideration for the license of patents and patent rights from Asterias under the Cross License. On March 20, 2016, the warrants to purchase 3,150,000 shares of Series A common stock were retired by Asterias in addition to 75,771 shares of Series A common stock retired.

The Cross-License and Share Transfer transaction was accounted for as a transfer of assets between entities under common control and recorded at carrying value, with the resulting gain on transfer of approximately $1.8 million recorded by Asterias in equity as contributed capital to BioTime in accordance with, and pursuant to ASC 805-50, *Transactions Between Entities Under Common Control*. Accordingly, the net financial reporting impact of the Cross-License and Share Transfer of $0.4 million charged to additional paid-in capital was comprised of the retirement of the aggregate $2.2 million carrying value of the warrants and the Series A Common Stock offset by the $1.8 million transfer gain.

The transfer of assets was also a taxable transaction to Asterias generating a taxable gain of approximately $3.1 million as further discussed in Note 10.

ASTERIAS BIOTHERAPEUTICS, INC.

CONDENSED BALANCE SHEETS

(IN THOUSANDS EXCEPT PAR VALUE AMOUNTS)

	September 30, 2018	**December 31, 2017**
	(Unaudited)	**(Note 1)**
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 6,424	$ 13,166
Marketable equity securities	6,161	8,329
Receivables	2,429	34
Prepaid expenses and other current assets	748	1,187
Total current assets	15,762	22,716
NONCURRENT ASSETS		
Intangible assets, net	13,430	15,444
Property, plant and equipment, net	598	4,543
Other assets	24	389
TOTAL ASSETS	$ 29,814	$ 43,092
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable and accrued expenses	$ 2,017	$ 2,958
Deferred rent and lease incentives, current	402	—
Capital lease liability, current	7	7
Lease liability, current	—	556
Total current liabilities	2,426	3,521
NONCURRENT LIABILITIES		
Warrant liability	703	2,757
Deferred revenue	1,000	—
Capital lease liability, noncurrent	9	14
Deferred rent and lease incentives, noncurrent	1,171	316
Lease liability, noncurrent	—	2,941
TOTAL LIABILITIES	5,309	9,549
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 125,000 shares of Series A Common Stock and 75,000 shares of Series B Common Stock; 55,659 and 54,051 shares of Series A Common Stock issued and outstanding at September 30, 2018 and December 31, 2017, respectively; no shares of Series B Common Stock issued and outstanding at September 30, 2018 and December 31, 2017	6	5
Additional paid-in capital	156,760	152,136
Accumulated other comprehensive loss	—	(6,498)
Accumulated deficit	(132,261)	(112,100)
Total stockholders' equity	24,505	33,543
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 29,814	$43,092

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

ASTERIAS BIOTHERAPEUTICS, INC.

CONDENSED STATEMENTS OF OPERATIONS

(IN THOUSANDS, EXCEPT PER SHARE DATA)

(UNAUDITED)

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2018	2017	2018	2017
REVENUE				
Grant income	$—	$1,526	$—	$3,711
License revenue	—	—	366	—
Royalties from product sales	116	162	337	303
Total revenue	116	1,688	703	4,014
Cost of sales	(57)	(81)	(177)	(151)
Gross profit	59	1,607	526	3,863
EXPENSES				
Research and development	3,510	6,624	10,753	20,206
General and administrative	1,910	2,046	5,809	8,360
Total operating expenses	5,420	8,670	16,562	28,566
Loss from operations	(5,361)	(7,063)	(16,036)	(24,703)
OTHER INCOME/(EXPENSE)				
Gain from change in fair value on warrant liability	169	506	2,054	3,404
Gain from change in fair value of marketable equity securities	830	—	570	—
Interest expense, net	(88)	(112)	(289)	(351)
Other expense, net	(4)	(140)	(47)	(174)
Total other income/(expense), net	907	254	2,288	2,879
NET LOSS	$(4,454)	$(6,809)	$(13,748)	$(21,824)
BASIC AND DILUTED NET LOSS PER SHARE	$(0.08)	$(0.14)	$(0.25)	$(0.44)
WEIGHTED AVERAGE SHARES OUTSTANDING: BASIC AND DILUTED	55,531	49,771	54,956	49,110

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

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ASTERIAS BIOTHERAPEUTICS, INC.

CONDENSED STATEMENTS OF COMPREHENSIVE LOSS

(IN THOUSANDS)

(UNAUDITED)

	Three Months Ended		**Nine Months Ended**	
	September 30,		**September 30,**	
	2018	2017	2018	2017
NET LOSS	$(4,454)	$(6,809)	$(13,748)	$(21,824)
Other comprehensive loss:				
Unrealized loss on marketable equity securities, net of taxes	—	(764)	—	(2,892)
Realized gain on marketable equity securities, net of taxes	—	118	—	118
Total other comprehensive loss	—	(646)	—	(2,774)
COMPREHENSIVE LOSS	$(4,454)	$(7,455)	$(13,748)	$(24,598)

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

ASTERIAS BIOTHERAPEUTICS, INC.

CONDENSED STATEMENTS OF CASH FLOWS

(IN THOUSANDS)

(UNAUDITED)

	Nine Months Ended September 30,	
	2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	$(13,748)	$(21,824)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization expense	761	840
Stock-based compensation	2,060	2,895
Amortization of intangible assets	2,014	2,014
Common stock issued for services in lieu of cash	643	858
Gain from change in fair value of warrant liability	(2,054)	(3,404)
Expense related to distribution warrant extension	—	2,042
(Gain)/loss from change in fair value of marketable equity securities	(570)	118
Loss on disposal of property, plant, and equipment	38	112
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	340	13
Other assets	237	595
Accounts payable, accrued expenses and other current liabilities	(73)	(770)
Deferred rent and lease incentives	315	44
Deferred grant income	—	(2,185)
Net cash used in operating activities	(10,037)	(18,652)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchase of property, plant and equipment	—	(237)
Proceeds from the sale of marketable equity securities	2,738	281
Net cash provided by investing activities	2,738	44
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from sale of common stock under at-the-market transactions	1,167	8,003
Financing costs for at-the-market sales	(36)	(238)
Proceeds from exercise of stock options	—	23
Repayment of lease liability and capital lease obligation	(414)	(360)
Shares retired to pay for employees' taxes	(160)	—
Net cash provided by financing activities	557	7,428

NET DECREASE IN CASH, CASH EQUIVALENTS AND RESTRICTED CASH	(6,742)	(11,180)
CASH, CASH EQUIVALENTS AND RESTRICTED CASH:		
At beginning of period	13,266	19,800
At end of period	$6,524	$8,620
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:		
Interest paid during the period	$351	$274
Fully vested common stock and restricted stock units issued in payment for accrued employee bonuses	$951	$720

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

ASTERIAS BIOTHERAPEUTICS, INC.

NOTES TO CONDENSED FINANCIAL STATEMENTS

(UNAUDITED)

1. Organization, Basis of Presentation and Liquidity

Asterias Biotherapeutics, Inc. (“Asterias” or “the Company”) is a clinical-stage biotechnology company dedicated to developing pluripotent stem cell-derived therapies to treat neurological conditions associated with demyelination and cellular immunotherapies to treat cancer. We have industry-leading technology in two cell types, each with broad potential applicability: (1) oligodendrocyte progenitor cells, which become oligodendrocytes that have the potential to remyelinate axons within the central nervous system and perform other restorative functions, and (2) antigen-presenting dendritic cells, which train T-cells in the immune system to attack and destroy solid or liquid tumor cells across multiple types of cancer. Asterias currently has three clinical-stage therapeutic programs:

Spinal Cord Injury. AST-OPC1 is an oligodendrocyte progenitor cell population derived from pluripotent stem cells that is currently in a Phase 1/2a clinical trial for spinal cord injuries (“SCI”) that has been partially funded by the California Institute for Regenerative Medicine (“CIRM”).

Non-Small Cell Lung Cancer. AST-VAC2 is a non-patient-specific (“off-the-shelf”) cancer immunotherapy derived from pluripotent stem cells that is currently in a Phase 1 clinical trial in non-small cell lung cancer (“NSCLC”). The trial is being funded and sponsored by Cancer Research UK (“CRUK”), the world’s largest independent cancer research charity.

Acute Myeloid Leukemia. AST-VAC1 is a patient-specific cancer immunotherapy which has generated positive Phase 2 data in the treatment of acute myeloid leukemia (“AML”). Because AST-VAC1 and AST-VAC2 are both dendritic cells presenting the telomerase antigen, an antigen presented by 90% of all cancers, we believe that AST-VAC1 provides supportive evidence for the use of AST-VAC2 in the treatment of AML.

The accompanying unaudited condensed financial statements have been prepared in accordance with accounting principles generally accepted in the United States (“U.S. GAAP”) for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X of the Securities Exchange Commission. In accordance with those rules and regulations certain information and footnote disclosures normally included in comprehensive financial statements have been condensed or omitted pursuant to such rules and regulations. The balance sheet as of

December 31, 2017 was derived from the audited financial statements at that date, but does not include all the information and footnotes required by U.S. GAAP. These financial statements should be read in conjunction with the audited financial statements and notes thereto included in Asterias' Annual Report on Form 10-K for the year ended December 31, 2017.

The accompanying interim condensed financial statements, in the opinion of management, include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of Asterias' financial condition and results of operations. The condensed results of operations are not necessarily indicative of the results to be expected for any future interim period or for the entire year.

Liquidity – Since inception, Asterias has incurred operating losses and has funded its operations primarily through the issuance of shares of Asterias Common Stock, sales of marketable equity securities that we hold, warrant exercise proceeds, payments from research grants, and royalties from product sales. At September 30, 2018, Asterias had an accumulated deficit of $132.3 million, working capital of $13.3 million and stockholders' equity of $24.5 million. Asterias has evaluated its projected cash flows and believes that its cash, cash equivalents, and restricted cash of $6.5 million, marketable equity securities of $6.2 million, and $2.4 million of receivables largely related to our Novo agreements (payments were received in early October 2018) as of September 30, 2018, will be sufficient to fund Asterias' operations through at least twelve months from the issuance date of these financial statements. If the value of Asterias' marketable equity securities decreases or it is unable to obtain adequate future financing or other sources of funding, it may be required to reduce or curtail its operations. Future financings or other sources of funding may not be available to Asterias at acceptable terms, or at all. Sales of additional issued equity securities would result in the dilution of interests of current shareholders.

2. Summary of Significant Accounting Policies

Revenue Recognition

Beginning January 1, 2018, the Company follows the provisions of ASC Topic 606, *Revenue from Contracts with Customers*. The guidance provides a unified model to determine how revenue is recognized.

In determining the appropriate amount of revenue to be recognized as it fulfills its obligations under the Company's agreements, the Company performs the following steps: (i) identifies the promised goods or services in the contract; (ii) determines whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measures the transaction price, including the constraint on variable consideration; (iv) allocates the transaction price to the performance obligations based on estimated selling prices; and (v) recognizes revenue when (or as) the Company satisfies each performance obligation.

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the unit of account in ASC Topic 606. The Company's performance obligations generally included in customer contracts are research and development services for clinical studies or licenses to use intellectual property. Customer contracts for research and development services require significant management judgment to determine the level of effort required under an arrangement and the period over which the Company expects to complete its performance obligation. If the Company cannot reasonably estimate when its performance obligations either are completed or become inconsequential, then revenue recognition is deferred until the Company can reasonably make such estimates. Revenue is then recognized over the remaining estimated period of performance using the cumulative catch-up method. The Company considers licenses for the use of intellectual property "right of use" licenses. The Company recognizes revenues from non-refundable, up-front fees allocated to the license when the license is transferred to the customer, and the customer can use and benefit from the license. At September 30, 2018, all the performance obligations under the Company's license agreements have been satisfied as control transferred at contract inception when the customer could benefit from the right of use license. Currently, since none of the Company's contracts contain more than one performance obligation, no allocation of the transaction price is necessary. However, if the Company enters into an arrangement containing more than one performance obligation the total transaction price will be allocated to each performance obligation based on the estimated relative standalone selling prices of the promised goods or service.

Grant income: The Company generates grant income from award contracts to support the clinical development of AST-OPC1. These contracts provide for the reimbursement of qualified expenses for research and development activities. Revenue under these arrangements is recognized when the related qualified research expenses are incurred.

Milestone payments: At the inception of each arrangement that includes milestone payments, the Company evaluates whether the milestones are considered probable of being achieved and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the value of the associated milestone (such as completion of a therapeutic administration of a licensed product to a certain number of patients by the Company) is included in the transaction price. Milestone payments that are not within the control of the Company are not considered probable of being achieved until the contingent event has occurred.

License and Royalties: The Company considers licenses for the use of intellectual property "right of use" licenses. The Company recognizes revenues from non-refundable, up-front fees allocated to the license when the license is transferred to the customer, and the customer can use and benefit from the license. For arrangements that include sales-based royalties and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (a) when the related sales occur, or (b) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). The Company's arrangement that contain royalty minimums also contain termination clauses, therefore these royalties are considered variable consideration and included in the transaction price when the notice period has lapsed.

Option to License Patents: The Company recognizes revenues from up-front fees associated with granting a material right to, or an option to license certain intellectual property to certain third parties ("optionees"), whereby the option itself is deemed to be a performance obligation of the Company, upon the earlier of a) the date the Company and the optionee enter into a license agreement or b) if no license is consummated, at the end of the period to negotiate a license.

Comprehensive 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. Total comprehensive loss has been disclosed in the Condensed Statements of Comprehensive Loss.

Investments in Equity Securities – Beginning January 1, 2018, the Company adopted the provisions of ASU Topic 2016-01, *Financial Instruments–Overall: Recognition and Measurement of Financial Assets and Financial Liabilities*. The guidance eliminated the available-for-sale classification for equity securities and requires unrealized holding gains/losses to be reported through earnings. Prior to the adoption of the new guidance, unrealized gains and losses, net of tax from the Company's financial instruments categorized as available-for-sale securities were reported in other comprehensive income/(loss) until realized. Realized gains and losses and declines in value judged to be other-than-temporary related to equity securities, were included in other income/(expense), net.

Asterias accounts for its marketable equity securities in BioTime and OncoCyte at fair value in accordance with ASC 321-10 *Investments-Equity Securities*, as the shares have a readily determinable fair value as specified by ASC 820-10 *Fair Value Measurement.* The securities are quoted on the NYSE American and are held principally for future working capital purposes, as necessary. These securities 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).

Basic and diluted net loss per share – The computations of basic and diluted net loss per share are as follows (in thousands, except per share data) (unaudited):

	Three Months Ended		**Nine Months Ended**	
	September 30,		**September 30,**	
	2018	2017	2018	2017
Net loss	$(4,454)	$(6,809)	$(13,748)	$(21,824)
Weighted average common shares outstanding – basic and diluted	55,531	49,771	54,956	49,110
Net loss per share – basic and diluted	$(0.08)	$(0.14)	$(0.25)	$(0.44)

The following common stock equivalents were excluded from the computation of diluted net loss per share of common stock for the periods presented as they are anti-dilutive (in thousands) (unaudited):

Three Months Ended	**Nine Months Ended**

	September 30,		September 30,	
	2018	2017	2018	2017
Stock options and restricted stock units	7,047	7,272	7,047	7,272
Warrants	2,813	2,813	2,813	2,813

Recently Adopted Accounting Pronouncements – The following Accounting Standards became effective during 2018:

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, to provide guidance on revenue recognition. During 2015 and 2016, the FASB issued additional amendments to the revenue guidance in Topic 606 relating to reporting revenue on a gross versus net basis, identifying performance obligations, licensing arrangements, collectability, noncash consideration, presentation of sales tax, transition, and clarifying examples. ASU No. 2014-09 replaces all current U.S. GAAP guidance on this topic and eliminates all industry-specific guidance. The new revenue recognition guidance provides a unified model to determine how revenue is recognized. The core principal of the guidance is that an entity should recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. In doing so, companies will need to use more judgment and make more estimates than under today's guidance. These may include identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. Topic 606, as amended, is effective for interim and annual reporting periods beginning after December 15, 2017, with early adoption permitted one year earlier.

The Company adopted the new standard effective January 1, 2018 under the modified retrospective transition method applied to those contracts which were not completed as of January 1, 2018. Results for reporting periods beginning after January 1, 2018, are presented under Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with the Company's historical accounting under Topic 605. Upon adoption there was an immaterial cumulative effect to the opening accumulated deficit based on the Company's analysis of the contracts in scope at the transition date.

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 U.S. 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 (with changes in fair value reported in other comprehensive loss) for marketable equity securities with readily determinable fair values. The classification and measurement guidance is effective for public business entities in fiscal years beginning after December 15, 2017, including interim periods within those fiscal years.

The Company adopted ASU No. 2016-01 effective January 1, 2018 and has recorded a cumulative-effect adjustment under the modified retrospective transition method of $6.5 million between accumulated other comprehensive loss and the accumulated deficit in the balance sheet. The adjustment represents the cumulative unrealized holding loss from the date that the securities were acquired through the date of adoption. Refer to Note 4 for discussion regarding Asterias' marketable equity securities.

In November 2016, the FASB issued Accounting Standards Update ASU 2016-18, *Statement of Cash Flows (Topic 230); Restricted Cash* (ASU 2016-18), which defines new requirements for the presentation of restricted cash and restricted cash equivalents in the statement of cash flows. The amendments in this ASU require retrospective application to each period presented. The Company adopted this guidance effective January 1, 2018 retrospectively. This ASU requires entities to present a statement of cash flows in a manner such that it reconciles beginning and ending totals of cash, cash equivalents, restricted cash or restricted cash equivalents. Also, when cash, cash equivalents, restricted cash or restricted cash equivalents are presented in more than one line item within the statement of financial position, an entity should, for each period that a statement of financial position is presented, present on the face of the statement of cash flows or disclose in the notes to the financial statements, the line items and amounts of cash, cash equivalents, and restricted cash or restricted cash equivalents reported within the statement of financial

position. The amounts, disaggregated by the line item in which they appear within the statement of financial position, shall sum to the total amount of cash, cash equivalents, and restricted cash or restricted cash equivalents at the end of the corresponding period shown in the statement of cash flows. The Company has adopted this guidance and the ending cash, cash equivalents, and restricted cash balance includes the $100,000 Asterias holds as restricted cash.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation – Stock Compensation: Scope of Modification Accounting* to clarify the scope of modification accounting for share-based compensation. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. The new guidance will reduce diversity in practice and result in fewer changes to the terms of an award being accounted for as modifications. The Company adopted ASU No. 2017-01 effective January 1, 2018. Upon adoption of the new standard there is no change to the Company's historical financial statements as the new guidance will be applied prospectively to awards modified on or after the adoption date.

Recently Issued Accounting Pronouncements Not Yet Adopted – 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.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842),* which requires lessees to recognize assets and liabilities for leases with lease terms greater than twelve months in the statement of financial position. Leases will be classified as either financing or operating, with classification affecting the pattern of expense recognition in the statements of operations. ASU 2016-02 also requires improved disclosures to help users of financial statements better understand the amount, timing and uncertainty of cash flows arising from leases. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, including interim reporting periods within that reporting period. Early adoption is permitted. Although Asterias has not completed its evaluation of the impact of the adoption of ASU 2016-02, Asterias currently holds operating leases (see Note 8). As a result, the adoption of ASU 2016-02 could have a material impact to Asterias' financial statements.

In June 2018, the FASB issued ASU No. 2018-07, Compensation - Stock Compensation (Topic 718) - Improvements to Nonemployee Share-Based Payment Accounting. ASU No. 2018-07 supersedes the guidance for equity-based payments to non-employees (Topic ASC 505-50). Under the new standard, an entity should treat equity-based payments to nonemployees the same as stock-based compensation to employees in most cases. The new guidance is effective for interim and annual periods beginning after December 15, 2018, with early adoption permitted. The Company is assessing ASU 2018-07 and does not expect it to have a material impact on its financial statements.

In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement, which modifies the disclosure requirements on fair value measurements. The new guidance is effective for interim and annual periods beginning after December 15, 2019. The Company is assessing ASU 2018-13 and does not expect it to have a material impact on its consolidated financial statements.

3. Balance Sheet Components

Property, plant and equipment, net

As of September 30, 2018 and December 31, 2017, property, plant and equipment consisted of the following (in thousands):

	September 30, 2018	**December 31, 2017**
	(Unaudited)	

Furniture, fixtures and leasehold improvements	$ 40	$ 5,275
Computers, machinery and equipment	1,753	2,112
	1,793	7,387
Less - accumulated depreciation and amortization	(1,195)	(2,844)
Property, plant and equipment, net	$ 598	$ 4,543

Depreciation and amortization expense for the three and nine months ended September 30, 2018 was $248,000 and $761,000, respectively. Depreciation and amortization expense for the three and nine months ended September 30, 2017 was $285,000 and $840,000, respectively.

On September 28, 2018, the Company’s office and research facility lease in Fremont, California (Fremont Lease) was terminated (see Note 8). Upon of the termination of the Fremont Lease, Novo Nordisk Research Center Seattle Inc. (“NNRCSI”) entered into a new lease of the facilities with the landlord and a sublease agreement with the Company for part of the facility. As a result, the Company derecognized its leasehold improvements at the office and research facility with a net book value of $3.0 million and the related lease liability to the landlord of $3.1 million. This resulted in a net gain of $76,000 which is included in the deferred rent and lease incentives on the balance sheet at September 30, 2018 and will be amortized over the term of the sublease.

Additionally, on September 28, 2018, the Company sold certain laboratory equipment to NNRCSI which it is leasing back under the sublease agreement (see Note 8). The gain on the asset sale and lease back totaling $116,000 is included in the deferred rent and lease incentives on the balance sheet at September 30, 2018 and will be amortized over the term of the sublease for the research facility space.

Receivables

As of September 30, 2018 and December 31, 2017 the Company had a receivables balance of $2.4 million and $34,000, respectively. The balance as of September 30, 2018, was largely comprised of amounts related to the Novo Nordisk option agreement payment due of $1.0 million combined with the NNRCSI lease incentive and sale of fixed asset payments due of $750,000 and $250,000, respectively. Additionally, the deposit previously held by the Landlord for our Fremont lease, which is now payable to the Company is included in the receivables balance as of September 30, 2018.

Prepaid and other current assets

Restricted cash in the amount of $100,000 is included in prepaid and other current assets on the balance sheet as of September 30, 2018 and December 31, 2017. This certificate of deposit is held as customary collateral for the Company’s credit card program.

Deferred revenue

During the three months ended September 30, 2018, the Company and Novo Nordisk A/S (“Novo Nordisk”) entered into an option for Novo Nordisk or its designated U.S. affiliate to license, on a non-exclusive basis, certain intellectual property related to culturing pluripotent stem cells, such as hES cells, in suspension. Under the terms of the option, Asterias will receive a one-time upfront payment of $1.0 million, in exchange for a 24-month period to negotiate a non-exclusive license during which time Asterias has agreed to not grant any exclusive licenses inconsistent with the Novo Nordisk option. This option is considered a performance obligation as it provides NNRCSI with a material right that NNRCSI would not receive without entering into the contract. This $1.0 million has been included in deferred revenue on the Company’s balance sheet at September 30, 2018. The Company will recognize revenue from the option agreement at the earlier of a) the date the Company and Novo Nordisk enter into a license agreement or b) if no license agreement is consummated, at the end of the 24-month period to negotiate a non-exclusive license.

4. Investments in BioTime and OncoCyte

Investment in BioTime

The BioTime Common Shares held by the Company are included in marketable equity securities at fair value in current assets on the balance sheets because the shares are traded on NYSE American under the (symbol “BTX”) and are available for working capital purposes. During the three months ended September 30, 2018, Asterias did not sell any BioTime shares. During the nine months ended September 30, 2018 Asterias sold 859,274 of its BioTime Common Shares. The weighted-average price of the shares sold for the nine months ended September 30, 2018 was $2.59. As of September 30, 2018 and December 31, 2017, Asterias held 2,621,811 and 3,481,085 BioTime shares, respectively. As of September 30, 2018 and December 31, 2017, the BioTime Common Shares were valued at $6.2 million and $7.5 million, respectively, based on the closing price on those dates.

Investment in OncoCyte

The OncoCyte common shares are included in marketable equity securities at fair value in current assets on the balance sheets because the shares are traded on NYSE American (symbol “OCX”) and are available for working capital purposes. During the three and nine months ended September 30, 2018, Asterias sold 73,175 and 181,756 of its OncoCyte common shares at a weighted-average price of $3.56 and $3.12, respectively. As of September 30, 2018, Asterias did not hold any OncoCyte common shares. As of December 31, 2017, Asterias held 181,756 OncoCyte common shares valued at $0.8 million, based on the closing price on that date.

Adoption of ASU No. 2016-01, Financial Instruments–Overall: Recognition and Measurement of Financial Assets and Financial Liabilities

On January 1, 2018, the Company adopted ASC Topic 321 using the modified retrospective method. Results for reporting periods beginning after January 1, 2018, are presented under ASC Topic 321, while prior period amounts are not adjusted and continue to be reported in accordance with the Company’s historical accounting under ASC Topic 320 (see Note 2).

The adoption of the new guidance resulted in a cumulative effect adjustment to the accumulated deficit and accumulated other comprehensive loss of $6.5 million as of January 1, 2018.

The unrealized gains for the three and nine months ended September 30, 2018 related to marketable equity securities held is calculated as follows (in thousands) (unaudited):

	Three Months Ended September 30, 2018	Nine Months Ended September 30, 2018
Net gains recognized on marketable equity securities	$ 830	$ 570
Less: Net gains recognized on marketable equity securities sold	69	46
Unrealized gains recognized on marketable equity securities held at September 30, 2018	$ 761	$ 524

5. Intangible Assets

Intangible assets net of accumulated amortization at September 30, 2018 and December 31, 2017 are shown in the following table (in thousands):

	September 30, 2018 (Unaudited)	December 31, 2017
Intangible assets	$ 26,860	$ 26,860
Less- accumulated amortization	(13,430)	(11,416)
Intangible assets, net	$ 13,430	$ 15,444

Asterias recognized $0.7 million and $2.0 million in amortization expense of intangible assets during the three and nine months ended September 30, 2018 and 2017, respectively.

6. Common Stock and Warrants

As of September 30, 2018 and December 31, 2017, Asterias had issued and outstanding 55,658,684 and 54,051,142 shares of Series A common stock and no shares of Series B common stock, respectively.

Common Stock Issuance

On March 28, 2017, Asterias entered into an amendment to its at-the-market (ATM) Sales Agreement, dated April 10, 2015, with MLV & Co. (“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. In June 2017, FBR was acquired by B. Riley, and together operates as B. Riley FBR, Inc. 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”). For the nine months ended September 30, 2018, Asterias sold 713,430 shares of Series A common stock for gross proceeds of approximately $1.2 million under this ATM agreement with approximately $21.5 million of Asterias Common Stock available for issuance and sale pursuant to the terms of the ATM Sales Agreement. For the nine months ended September 30, 2017, Asterias sold 2.0 million shares of Series A common stock for gross proceeds of approximately $8.0 million.

For the nine months ended September 30, 2018 and 2017, pursuant to a services agreement with Cell Therapy Catapult Services Limited, Asterias issued 364,727 and 217,193 shares of Asterias Series A common stock with a fair value of $643,000 and $858,000 respectively (see Note 11).

For the nine months ended September 30, 2018, Asterias issued 487,529 shares of Series A common stock with a fair value of $951,000 in payment of accrued employee bonuses. For the nine months ended September 30, 2017, Asterias issued 201,112 shares of Series A common stock with a fair value of $720,000 in payment of accrued employee bonuses.

Warrants classified as a liability

On May 13, 2016, as part of the Asterias Series A Common Stock Offering, Asterias issued 2,959,559 warrants (the "Asterias Offering Warrants"). The Asterias Offering Warrants have an exercise price of $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 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 Condensed 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 Condensed 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 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 related to 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.

At September 30, 2018, based on a valuation performed on the Asterias Offering Warrants using the methodology described above, the fair value of the Asterias Offering Warrants liability was $0.7 million, resulting in Asterias

recording a noncash gain of $2.1 million for the nine months ended September 30, 2018, included in other income and expenses, net, in the Condensed 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 no warrants were distributed to BioTime. The Distribution Warrants were 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 $3.1 million with a non-cash 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 non-cash 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. As a result of this extension, Asterias recorded a $1.7 million non-cash charge to shareholder expense included in general and administrative expenses and a corresponding increase to equity for the quarter ended March 31, 2017. These warrants expired unexercised on September 29, 2017.

In connection with the warrant distribution to shareholders discussed above, 350,000 warrants with an exercise price of $5.00 per share held by Romulus Films, Ltd. were adjusted to become exercisable into 409,152 shares at an exercise price of $4.28 per share (the “Romulus Warrants”). These warrants had an original expiration date of September 30, 2016. On September 19, 2016, Asterias extended the expiration date of the Romulus Warrants to February 15, 2017, no other terms were changed. As a result of the extension of the expiration date of these warrants, Asterias recorded a $0.2 million non-cash 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. As a result of this extension of the expiration date of these warrants, Asterias recorded a $0.3 million non-cash charge to shareholder expense included in general and administrative expenses and a corresponding increase to equity for the quarter ended March 31, 2017. These warrants expired on September 29, 2017.

7. Stock-Based Compensation

The following table shows the stock-based compensation expenses included in the operating expenses for the three and nine months ended September 30, 2018 and 2017 (in thousands) (unaudited):

	Three Months Ended		**Nine Months Ended**	
	September 30,		**September 30,**	
	2018	2017	2018	2017
Research and development	$355	$518	$1,076	$1,598
General and administrative	364	389	984	1,297
Total stock-based compensation expense	$719	$907	$2,060	$2,895

The weighted average assumptions used to calculate the grant date fair value of the Company’s stock options granted during the three and nine month periods ended September 30, 2018 and 2017 are as follows (unaudited):

	Three Months Ended		**Nine Months Ended**	
	September 30,		**September 30,**	
	2018	2017	2018	2017
Expected life (in years)	6.08	6.08	5.96	5.76
Risk-free interest rates	2.86 %	1.85 %	2.68 %	1.88 %

Volatility	73.15%	73.31%	71.27%	74.73%
Dividend yield	—	—	—	—

The risk-free interest rate is based on the interest rates in effect at the date of grant for zero coupon U.S. Treasury notes with maturities approximately equal to each grant's expected term. 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 a group of publicly traded industry peer companies. The expected term of options granted is derived using the simplified method under SEC *Staff Accounting Bulletin* Topic 14.

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 the three and nine months ended September 30, 2018 and 2017 may have been significantly different.

8. Commitments and Contingencies

Development and Manufacturing Services Agreement

On August 3, 2016, Asterias entered into a Development and Manufacturing Services Agreement (the "Services Agreement") with Cognate BioServices, Inc. ("Cognate"), a fully-integrated contract bioservices organization providing development and current Good Manufacturing Practice ("cGMP") manufacturing services to companies and institutions engaged in the development of cell-based products.

Under the Services Agreement, Cognate is performing under an Initial Statement of Work process development studies in support of Asterias' clinical and commercial development activities of AST-VAC1 and production and manufacturing services of AST-VAC1 under cGMP under the Second Statement of Work. In consideration for the process development services set forth in the Initial Statement of Work, Asterias agreed to make aggregate payments of up to approximately $1.7 million in fees over the term of the Initial Statement of Work and pay for additional pass through costs for materials and equipment estimated by management to be approximately $0.5 million. In consideration of the production and manufacturing services set forth in the Second Statement of Work, once the services under the Initial Statement of Work are completed and if Asterias receives United States Food and Drug Administration ("FDA") concurrence on the clinical protocol for an AST-VAC1 trial, then Asterias will make an initial start-up payment, a monthly payment for dedicated manufacturing capacity, and certain other manufacturing fees.

On August 16, 2017, the Company amended SOW 1 ("Amended SOW 1") and entered into a Statement of Work 1.5 ("SOW 1.5") with Cognate to modify the timing of certain process development studies being performed by Cognate under the Services Agreement. Under Amended SOW 1 and SOW 1.5, Cognate will perform certain process development studies initially contemplated by SOW 1 under SOW 1.5 after Cognate has completed the activities under Amended SOW 1 and the Company provides written notice to commence the activities under SOW 1.5.

The Services Agreement will expire on the later of (a) August 3, 2019; or (b) the completion of all services contracted for by the parties in the Statements of Work under the Services Agreement prior to August 3, 2019. The term of the Services Agreement and any then pending Statements of Work thereunder may be extended by Asterias continuously for additional two year periods upon written notice to Cognate with at least 30 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 $47,000 and $536,000 of expense to Cognate pursuant to the Services Agreement for the nine months ended September 30, 2018 and 2017, respectively. As of January 31,

2018, Cognate has completed the activities under SOW 1 but the Company has not provided notice to commence activities under SOW 1.5.

Fremont Lease

On December 30, 2013, Asterias entered into a lease for an office and research facility located in Fremont, California ("Fremont Lease"), consisting of an existing building with approximately 44,000 square feet of space ("Leased Space"). 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.

On September 28, 2018, the Company terminated the Fremont Lease agreement with the landlord. Simultaneously with the termination of the Lease, Novo Nordisk Research Center Seattle, Inc. ("NNRSCI"), an affiliate of Novo Nordisk, a Denmark-based multinational pharmaceutical company, entered into a new lease agreement with the landlord for the Leased Space, whereupon the Company and NNRSCI immediately entered into a sublease agreement for the Company to occupy and use part of the Leased Space (the "Sublease"). Upon execution of the Sublease, the Company received approximately $1.1 million from Novo Nordisk. The Company did not incur any early termination fees in in connection with the termination of the Fremont Lease.

The Company has accounted for the Fremont Lease termination, Sublease, and other related agreements with the landlord and the affiliate of Novo Nordisk and as follows:

1) The $1.1 million received from Novo Nordisk has been accounted for as lease incentives to enter into the sublease under ASC 840-10-35, and will be recognized as a reduction of rent expense over the Sublease term for the office space of 39 months. This amount is included in the deferred rent and lease incentives on the balance sheet. As of September 30, 2018 and December 31, 2017, the deferred rent and lease incentives were $1.6 million and $316,000, respectively.

2) Upon termination of the Fremont Lease agreement with the landlord, the leasehold improvements of $3.0 million (net of accumulated depreciation) and the related lease liability of $3.1 million to the landlord were derecognized and the resulting gain of $76,000 is included in the deferred rent and lease incentives and will be recognized over the Sublease term under ASC 840. Additionally, Asterias sold certain fixed assets (laboratory equipment) to Novo Nordisk. This equipment had a net book value of $134,000. The gain on the sale of the laboratory equipment of $116,000 is included in the deferred rent and lease incentives and will be recognized over the sublease term, for the research space of 25 months, as this transaction is deemed to be a sale-leaseback transaction.

On September 28, 2018, Asterias entered into a Sublease agreement for office and research facilities located at its current location in Fremont, California. This sublease initially consists of a total of 31,373 square feet of space of which 16,452 square feet of space is for the exclusive use of Asterias and 14,921 square feet of space that will be shared with the sublessor. On October 31, 2020, the sublease space will be reduced to 23,108 square feet of space, excluding the research space. The leased facilities are being used by Asterias as a combined office and research facility. Under the terms of the Sublease, the initial monthly rent for the subleased space is $67,814. As a result of the Sublease, the Company expects to lower its facilities related costs over the next several years by approximately $1.0 million annually. The Sublease expires on December 31, 2021. The Company may terminate the Sublease, with no penalty, prior to its expiration upon three months prior written notice.

As of September 30, 2018, minimum sublease payments are as follows (in thousands) (unaudited):

Year	Minimum Lease Payments
2018	$ 203
2019	820
2020	812
2021	681
Total	$ 2,516

Litigation – General

Asterias is subject to various claims and contingencies in the ordinary course of its business, including those related to litigation, business transactions, employee-related matters, and others. When Asterias is aware of a claim or potential claim, it assesses the likelihood of any loss or exposure. If it is probable that a loss will result and 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.

Indemnification

In the normal course of business, Asterias may provide indemnifications of varying scope under Asterias' agreements with 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 also 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 September 30, 2018 and December 31, 2017.

9. Shared Facilities and Services Agreement

BioTime

On April 1, 2013, Asterias and BioTime executed a Shared Facilities and Services Agreement ("Shared Services Agreement"). Under the terms of the Shared Services Agreement, Asterias has the right to use BioTime's premises and equipment located at Alameda, California, for the sole purpose of conducting Asterias' business. BioTime charges Asterias a fee for the services and usage of facilities, equipment, and supplies provided under the shared services agreement. For each billing period, BioTime equitably prorates and allocates its employee costs, equipment costs, insurance costs, lease costs, professional costs, software costs, supply costs, and utilities costs, if any, 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 pays 105% of the allocated costs (the "Use Fee"). The allocated cost of BioTime employees and contractors who provide services is based upon records maintained of the number of hours of such personnel devoted to the performance of services.

The Use Fee is determined and invoiced to Asterias on a quarterly basis for each calendar quarter of each calendar year. If the Shared Services 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 Services Agreement. Each invoice is 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.

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 a subsidiary of Asterias.

The Shared Services Agreement was renewed through December 31, 2018. The term of the Shared Services 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 Services Agreement will terminate on December 31 of that year.

BioTime allocated $10,000 and $117,000 of general overhead expenses to Asterias during the nine months ended September 30, 2018, and 2017, respectively. At September 30, 2018, Asterias had no net payable to BioTime under the Shared Services Agreement.

Novo Nordisk Research Center Seattle, Inc.

On September 28, 2018, Asterias and Novo Nordisk Research Center Seattle, Inc. (“NNRCSI”) executed a Sublease Agreement which includes a provision for shared facilities and services costs. Under the terms of this agreement, Asterias has the right to exclusive use a certain portion of the facilities and a shared use of a certain portion of the facilities. Additionally, it allows for shared use of certain equipment located at Fremont, California, for the sole purpose of conducting Asterias’ business. For each billing period, the common facilities costs will be prorated and allocated (based on space usage) between NNRCSI and Asterias.

10. Income Taxes

The provision for income taxes is determined using an estimated annual effective tax rate. The effective tax rate may be subject to fluctuations during the year as new information is obtained, which may affect the assumptions used to estimate the annual effective tax rate, including factors such as valuation allowances against deferred tax assets, the recognition or de-recognition of tax benefits related to uncertain tax positions, if any, and changes in or the interpretation of tax laws in jurisdictions where Asterias conducts business.

Management believes that the Asterias net operating losses generated during the nine months ended September 30, 2018 will result in no income tax benefit or provision in the current year due to the full valuation allowance on its net deferred tax assets for the year ended December 31, 2017 and a full valuation allowance expected on its net deferred tax assets for the year ending December 31, 2018.

For state income tax purposes, Asterias has a full valuation allowance on its state deferred tax assets as of September 30, 2018 and December 31, 2017. Accordingly, no state tax provision or benefit was recorded for any period presented.

On December 22, 2017 the Tax Cuts and Jobs Act (the "Act") was signed into law. Among other provisions, the Act reduces the federal statutory corporate income tax rate to 21%. This rate reduction has a significant impact on Asterias' net deferred tax assets as of December 31, 2017, resulting in a one-time revaluation of its deferred tax assets and liabilities to reflect the new lower rate. However, because Asterias maintains a full valuation allowance against its deferred taxes, the impact of the change is fully offset by the valuation allowance.

11. 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, at the time of the Services Agreement Asterias agreed to make

aggregate payments of up to GBP £4,350,000 over the period from October 2015 through January 2020 (approximately $5.7 million based on the foreign currency exchange rate on September 30, 2018). At the option of Asterias, up to GBP £3,600,000 (approximately $4.7 million based on the foreign currency exchange rate on September 30, 2018) of such payments historically may have been settled in shares of Asterias Series A common stock instead of cash. Commencing January 1, 2018, all payments due will be made in shares of Asterias Series A common stock. If 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 have unsold shares redeemed by to Asterias for cash expires upon the earlier to occur of the sale of the stock in the market or after 60 days of issuance.

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 are 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 the nine months ended September 30, 2018 and 2017 Asterias paid $643,000 and $1.2 million, respectively, for services pursuant to the Services Agreement. Asterias paid $295,000 in cash for these services for the nine months ended September 30, 2017 and the remainder was paid with Asterias Series A common stock. Asterias issued Series A common stock to pay for services for the nine months ended September 30, 2018. For the nine months ended September 30, 2018 and 2017 Asterias issued 364,727 and 217,193 shares of Asterias Series A common stock, respectively, with fair values of $643,000 and $858,000, respectively, at the time of issuance which Asterias subsequently reclassified into permanent equity.

12. Clinical Trial and Option Agreement with CRUK and CIRM Grant Award

During September 2014, Asterias entered into a Clinical Trial and Option Agreement (the "CRUK Agreement") with Cancer Research UK ("CRUK") and Cancer Research Technology Limited, a wholly-owned subsidiary of CRUK, pursuant to which CRUK has agreed to fund Phase 1 clinical development of Asterias' human embryonic stem cell derived AST-VAC2 allogeneic (non-patient specific) dendritic cancer vaccine product candidate. Asterias, at its own cost, completed process development and manufacturing scale-up of the AST-VAC2 manufacturing process and transferred the resulting cGMP-compatible process to CRUK. CRUK will, at its own cost, manufacture clinical grade AST-VAC2 and will carry out the Phase 1 clinical trial of AST-VAC2 in cancer patients both resected early-stage and advanced forms of lung cancer. Asterias will have an exclusive first option to obtain a license to use the data from the clinical trial. If Asterias exercises that option, then Asterias will be obligated to make payments upon the execution of the License Agreement, upon the achievement of various milestones, and royalties on sales of products. In connection with the CRUK Agreement, Asterias sublicensed to CRUK for use in the clinical trials and product manufacturing process certain patents that have been licensed or sublicensed to it 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 disbursed the grant funds to Asterias based on Asterias' attainment of certain progress milestones.

Asterias received an initial payment from CIRM in the amount of $917,000 during October 2014 and had received $12.8 million through December 31, 2016. In September 2017, Asterias received the final $1.5 million payment under the CIRM grant which was due upon achievement of certain progress milestones. Asterias had no deferred grant income relating to the CIRM grant as of September 30, 2018 and December 31, 2017. Asterias recognized no grant income for the three and nine months ended September 30, 2018 and $1.5 million and $3.7 million in grant income for the three and nine months ended September 30, 2017, respectively.

13. Subsequent Events

On November 7, 2018, we entered into a definitive agreement with BioTime, pursuant to which BioTime will acquire all of our outstanding shares that BioTime does not already own, in a stock-for-stock transaction pursuant to which our shareholders will receive 0.71 common shares of BioTime for every share of our common stock. Following the transaction, our shareholders will own approximately 16.2% of BioTime, based on the number of BioTime shares outstanding on November 7, 2018. If the transaction is consummated, we would cease to exist as a public company

and BioTime will consolidate our operations and results with its consolidated results beginning upon the consummation of the transaction. The transaction is subject to certain customary closing conditions, including approval of our shareholders, as well as the shareholders of BioTime.

Annex A

AGREEMENT AND PLAN OF MERGER

by and among

BIOTIME, INC.,

PATRICK MERGER SUB, INC.

and

Asterias biotherapeutics, inc.

dated as of November 7, 2018

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AGREEMENT AND PLAN OF MERGER

This AGREEMENT AND PLAN OF MERGER, dated November 7, 2018 (this "Agreement"), is made by and among BioTime, Inc., a California corporation ("BioTime"), Patrick Merger Sub, Inc., a Delaware corporation and a direct wholly owned subsidiary of BioTime ("Merger Sub"), and Asterias Biotherapeutics, Inc., a Delaware corporation ("Asterias"). BioTime, Merger Sub and Asterias each are sometimes referred to herein as a "Party" and collectively as the "Parties." Capitalized terms used in this Agreement but not otherwise defined shall be given the meanings ascribed to them in Section 9.5 of this Agreement.

Recitals

A. The Parties wish to effect a business combination through the merger of Merger Sub with and into Asterias, with Asterias being the surviving entity (the "Merger");

B. In connection with the Merger, each outstanding share of Asterias Common Stock issued and outstanding immediately prior to the Effective Time will be automatically converted into the right to receive 0.71 (the "Exchange Ratio") voting common shares, no par value, of BioTime ("BioTime Common Shares"), upon the terms and conditions set forth in this Agreement and in accordance with the General Corporation Law of the State of Delaware (the "DGCL");

C. The board of directors of Asterias (the "Asterias Board of Directors") (by unanimous vote of the disinterested members of the Asterias Board of Directors), acting upon the unanimous recommendation of a committee of the Asterias Board of Directors consisting only of independent and disinterested directors of Asterias (the "Asterias Special Committee"), has approved the Merger and the other transactions contemplated by this Agreement (the "Transactions"), approved this Agreement and declared its advisability, and resolved to recommend that Asterias' stockholders adopt this Agreement pursuant to Section 251 of the DGCL;

D. The board of directors of BioTime (the "BioTime Board of Directors"), acting upon the unanimous recommendation of a committee of the BioTime Board of Directors consisting only of independent and disinterested directors of BioTime (the "BioTime Special Committee"), has approved the Merger and the other Transactions and this Agreement and resolved to recommend that BioTime's shareholders approve the issuance of BioTime Common Shares contemplated by this Agreement (by unanimous vote of the disinterested members of the BioTime Board of Directors);

E. The board of directors of Merger Sub has approved this Agreement and declared its advisability, and BioTime, as the sole stockholder of Merger Sub, has adopted this Agreement;

F. The Parties intend that (i) the Merger will be treated for United States federal income tax purposes as a reorganization within the meaning of Section 368(a) of the Code and (ii) each of BioTime, Merger Sub and Asterias will be a party to that reorganization within the meaning of Section 368(b) of the Code; and

G. The Parties desire to make certain representations, warranties, covenants and agreements in connection with the Merger and prescribe certain conditions to the Merger.

In consideration of the mutual covenants and agreements contained in this Agreement and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties agree as follows:

Article I
The Merger

Section 1.1 The Merger. Upon the terms and subject to the satisfaction or waiver of the conditions set forth in this Agreement and in accordance with the DGCL, Merger Sub will be merged with and into Asterias, whereupon the separate existence of Merger Sub will cease and Asterias will continue as the surviving entity in the Merger (the "Surviving Corporation"), such that following the Merger, the Surviving Corporation will be a subsidiary of BioTime. The Merger will have the effects provided in this Agreement and as specified in the DGCL.

Section 1.2 Closing. The closing of the Merger (the "Closing") will take place at 7:00 a.m., Pacific Time, at the offices of Cooley LLP, 3175 Hanover Street, Palo Alto, California, on the second business day after the satisfaction or waiver of the last of the conditions set forth in Article VII to be satisfied or waived (other than any such conditions that by their nature are to be satisfied at the Closing, but subject to the satisfaction or waiver of such conditions at the Closing), unless another date or place is agreed to in writing by Asterias and BioTime. The date on which the Closing actually takes place is referred to as the "Closing Date".

Section 1.3 Effective Time. On the Closing Date, the Parties will cause a certificate of merger with respect to the Merger (the "Certificate of Merger") to be duly executed and filed with the DSOS as provided under the DGCL and make any other filings, recordings or publications required to be made by Asterias or Merger Sub under the DGCL in connection with the Merger. The Merger will become effective at such time as the Certificate of Merger is duly filed with the DSOS or on such other date and time as will be agreed to by Asterias and BioTime and specified in the Certificate of Merger (such date and time being hereinafter referred to as the "Effective Time").

Section 1.4 Certificate of Incorporation; Bylaws. At the Effective Time and subject to Section 6.4 the certificate of incorporation of Merger Sub, as in effect immediately prior to the Effective Time, will be the certificate of incorporation of the Surviving Corporation until thereafter amended as provided by the DGCL and such certificate of incorporation, except that Article I of the certificate of incorporation of the Surviving Corporation will be amended as of the Effective Time to read: "The name of the corporation is Asterias Biotherapeutics, Inc." At the Effective Time and subject to Section 6.4, the bylaws of Merger Sub, as in effect immediately prior to the Effective Time, will be the bylaws of the Surviving Corporation until thereafter amended as provided by such bylaws, the certificate of

incorporation of the Surviving Corporation or the DGCL.

Section 1.5 Directors and Officers of the Surviving Corporation. The directors of Merger Sub immediately prior to the Effective Time shall be the directors of the Surviving Corporation, serving until the earlier of their resignation or removal or until their respective successors are duly elected and qualified, as the case may be. The officers of Merger Sub immediately prior to the Effective Time shall be the officers of the Surviving Corporation, serving until the earlier of their resignation or removal or until their respective successors are duly elected and qualified, as the case may be.

Section 1.6 Post-Merger Operations. The Parties shall use commercially reasonable efforts to ensure that effective immediately following the Effective Time, the BioTime Board of Directors shall consist of the members listed on Schedule 1.6 (unless otherwise agreed between the parties in writing prior to the Effective Time), each hold office from and after the Effective Time until the earliest of appointment of his or her respective successor, resignation or proper removal.

Article II

Effects on Capital Stock; Exchange of Securities

Section 2.1 Effects on Capital Stock.

(a) Conversion of Asterias Common Stock. At the Effective Time, by virtue of the Merger and without any action on the part of the Parties or holders of any securities of Asterias or of Merger Sub, subject to Section 2.1(c), Section 2.5 and Section 2.6, each share of Asterias Common Stock that is issued and outstanding immediately prior to the Effective Time (other than shares of Asterias Common Stock to be cancelled in accordance with Section 2.1(b)) will be automatically converted into the right to receive that number of fully paid and nonassessable BioTime Common Shares equal to the Exchange Ratio (the "Per Share Merger Consideration"). From and after the Effective Time, all such shares of Asterias Common Stock will no longer be outstanding and will automatically be cancelled and will cease to exist, and each applicable holder of such shares of Asterias Common Stock will cease to have any rights with respect thereto, except the right to receive, upon the surrender of such shares of Asterias Common Stock in accordance with Section 2.2, the Per Share Merger Consideration and cash in lieu of any fractional BioTime Common Shares pursuant to Section 2.6 (the "Fractional Share Consideration") into which such shares of Asterias Common Stock have been converted pursuant to this Section 2.1(a), together with the amounts, if any, payable pursuant to Section 2.2(g).

(b) Cancellation of Asterias Common Stock. At the Effective Time, all shares of Asterias Common Stock owned by BioTime, Asterias or any of their respective wholly owned Subsidiaries will be cancelled and will cease to exist, and no consideration will be delivered in exchange therefor.

(c) Adjustment. The Exchange Ratio and the Fractional Share Consideration and any other similarly dependent items, as the case may be, will be adjusted appropriately to reflect the effect of any stock split, reverse stock split, stock dividend (including any dividend or distribution of securities convertible into shares of Asterias Common Stock or BioTime Common Shares, as applicable), reorganization, recapitalization, reclassification, combination, exchange of shares or other like change with respect to the number of shares of Asterias Common Stock or BioTime Common Shares outstanding after the date hereof and prior to the Effective Time in order to provide the holders of Asterias Common Stock the same economic effect as contemplated by this Agreement prior to such event.

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Section 2.2 Payment for Securities; Surrender of Certificates.

(a) Exchange Fund. Prior to the Effective Time, BioTime will designate American Stock Transfer & Trust Company, LLC to act as the exchange agent in connection with the Merger (the "Exchange Agent"). The Exchange Agent will also act as the agent for Asterias' stockholders for the purpose of receiving and holding their Certificates and Book-Entry Shares and will obtain no rights or interests in the shares represented thereby. At or promptly after the Effective Time, BioTime will deposit, or cause to be deposited, with the Exchange Agent (i) a sufficient number of BioTime Common Shares (whether represented in certificated or non-certificated direct registration form) to issue the aggregate Per Share Merger Consideration and (ii) cash sufficient to make payments of Fractional Share Consideration and any dividends under Section 2.2(g) to be paid in the Merger. All such cash and BioTime Common Shares that are deposited with the Exchange Agent are referred to as the "Exchange Fund." The Exchange Fund will be for the sole benefit of the holders of shares of Asterias Common Stock. BioTime will cause the Exchange Agent to make, and the Exchange Agent will make, delivery of the Merger Consideration out of the Exchange Fund in accordance with this Agreement. The Exchange Fund will not be used for any purpose that is not expressly provided for in this Agreement.

(b) Procedures for Surrender of Book Entry Shares. At the Effective Time and without any action on the part of any holder, all non-certificated shares of Asterias Common Stock represented by book-entry ("Book-Entry Shares") shall be deemed surrendered to the Exchange Agent, and BioTime shall cause the Exchange Agent to (i) deliver to each holder of Book-Entry Shares that number of uncertificated whole BioTime Common Shares that the holder is entitled to receive pursuant to Section 2.1 and cancel such Book-Entry Shares and (ii) mail to each holder of Book-Entry Shares a check in the amount of any Fractional Share Consideration, and any dividends or other distributions on BioTime Common Shares in accordance with Section 2.2(g), in each case payable in respect of such holder Book-Entry Shares pursuant to Section 2.1.

(c) Procedures for Surrender of Certificates. Promptly after the Effective Time, BioTime will, and will cause the Surviving Corporation to, cause the Exchange Agent to mail to each holder of record of a certificate or certificates that immediately prior to the Effective Time represented outstanding shares of Asterias Common Stock (the "Certificates") and whose shares of Asterias Common Stock were converted pursuant to Section 2.1 into the right to receive the Per Share Merger Consideration (1) a letter of transmittal, which will specify that delivery will be effected, and risk of loss and title to the Certificates will pass, only upon delivery of the Certificates (or affidavits of loss in lieu thereof) to the Exchange Agent and will be in such form and have such other provisions as BioTime may reasonably specify and (2) instructions for effecting the surrender of the Certificates (or affidavits of loss in lieu thereof) in exchange for payment of the Per Share Merger Consideration into which such shares of Asterias Common Stock have been converted pursuant to Section 2.1, including any Fractional Share Consideration payable in accordance with Section 2.6, and any dividends or other distributions on BioTime Common Shares in accordance with Section 2.2(g). Upon surrender of a Certificate (or an affidavit of loss in lieu thereof) for cancellation to the Exchange Agent or to such other agent or agents as may be appointed by BioTime or the Surviving Corporation, together with such letter of transmittal duly completed and validly executed in accordance with the instructions thereto, and such other documents as may be reasonably required pursuant to such instructions, the holder of such Certificate will be entitled to receive in exchange therefor the applicable Merger Consideration pursuant to the provisions of this Article II for each share of Asterias Common Stock formerly represented by such Certificate, to be mailed within ten (10) business days following the later to occur of (x) the Effective Time or (y) the Exchange Agent's receipt of such Certificate (or affidavit of loss in lieu thereof), and the Certificate (or affidavit of loss in lieu thereof) so surrendered will be forthwith cancelled. The Exchange Agent will accept such Certificates (or affidavits of loss in lieu thereof) upon compliance with such reasonable terms and conditions as the Exchange Agent may impose to effect an orderly exchange thereof in accordance with normal exchange practices. If payment of the Merger Consideration is to be made to a Person other than the Person in whose name the surrendered Certificate is registered, it will be a condition precedent of payment that (A) the Certificate so surrendered will be properly endorsed or will be otherwise in proper form for transfer and (B) the Person requesting such payment has paid any transfer and other similar Taxes required by reason of the payment of the Merger Consideration to a Person other than the registered holder of the Certificate surrendered or has established to the satisfaction of the Surviving Corporation that such Tax either has been paid or is not required to be paid. Until surrendered as contemplated by this Section 2.2, each Certificate will be deemed at any time after the Effective Time to represent only the right to receive the applicable Merger Consideration as contemplated by this Article II, without interest thereon.

(d) Transfer Books; No Further Ownership Rights in Shares of Asterias Common Stock. At the Effective Time, the stock transfer books of Asterias will be closed and thereafter there will be no further registration of transfers of shares of Asterias Common Stock on the records of Asterias. From and after the Effective Time, the holders of Certificates and Book-Entry Shares outstanding immediately prior to the Effective Time will cease to have any rights with respect to such shares of Asterias Common Stock except as otherwise provided for herein or by applicable Law. If, after the Effective Time, Certificates or Book-Entry Shares are presented to the Surviving Corporation for any reason, they will be cancelled and exchanged as provided in this Agreement.

(e) Termination of Exchange Fund; No Liability. At any time following the first anniversary of the Effective Time, BioTime will be entitled to require the Exchange Agent to deliver to it any funds (including any interest received with respect thereto) remaining in the Exchange Fund that have not been disbursed, or for which disbursement is pending subject only to the Exchange Agent's routine administrative procedures, to holders of Certificates, and thereafter such holders (as well as any holders of Book-Entry Shares who have not theretofore cashed any check payable to them in

accordance with Section 2.2(b)) will be entitled to look only to the Surviving Corporation and BioTime (subject to abandoned property, escheat or other similar Laws) as general creditors thereof with respect to the applicable Merger Consideration, payable upon due surrender of their Certificates and compliance with the procedures in Section 2.2(b) and Section 2.2(c), without any interest thereon. Notwithstanding the foregoing, none of the Surviving Corporation, BioTime, Merger Sub or the Exchange Agent will be liable to any holder of a Certificate for any Merger Consideration, dividends, or other amounts delivered to a public official pursuant to any applicable abandoned property, escheat or similar Law.

(f) Lost, Stolen or Destroyed Certificates. In the event that any Certificates have been lost, stolen or destroyed, the Exchange Agent will issue in exchange for such lost, stolen or destroyed Certificates, upon the making of an affidavit of that fact by the holder thereof (such affidavit to be in a form reasonably satisfactory to BioTime and the Exchange Agent), the Merger Consideration payable in respect thereof and any dividends or other distributions on BioTime Common Shares in accordance with Section 2.2(g).

(g) Dividends or Distributions with Respect to BioTime Common Shares. No dividends or other distributions with respect to BioTime Common Shares with a record date after the Effective Time will be paid to the holder of any unsurrendered Certificate or Book-Entry Share with respect to the BioTime Common Shares represented thereby, and all such dividends and other distributions will be paid by BioTime to the Exchange Agent and will be included in the Exchange Fund, in each case until the surrender of such Certificate or Book-Entry Share (or affidavit of loss in lieu thereof) in accordance with this Agreement. Subject to applicable Laws, following surrender of any such Certificate or Book-Entry Share (or affidavit of loss in lieu thereof) there will be paid to the holder thereof, without interest, (1) promptly, the amount of dividends or other distributions with a record date after the Effective Time theretofore paid with respect to such BioTime Common Shares to which such holder is entitled pursuant to this Agreement and (2) at the appropriate payment date, the amount of dividends or other distributions with a record date after the Effective Time but prior to such surrender and with a payment date subsequent to such surrender payable with respect to such BioTime Common Shares.

Section 2.3 Treatment of Asterias Equity Awards.

(a) No Asterias Equity Awards shall be assumed or continued by BioTime in connection with the Merger or the other Transactions.

(b) Upon the terms and subject to the conditions set forth in this Agreement, at the Effective Time, by virtue of the Merger and without any action on the part of BioTime, Merger Sub, Asterias, or the holders or recipients of Asterias Stock Options, each Asterias Stock Option that is outstanding immediately prior to the Effective Time shall be cancelled and extinguished for no consideration and shall cease to exist.

(c) Upon the terms and subject to the conditions set forth in this Agreement, immediately prior to the Effective Time, by virtue of the Merger and without any action on the part of BioTime, Merger Sub, Asterias, or the holders or recipients of Asterias RSU Awards, (i) each Asterias RSU Award that is held by any Worker and is outstanding as of immediately prior to the Effective Time shall vest in full and (ii) each Asterias RSU Award shall be cancelled and converted automatically into the right to receive, as soon as reasonably practicable after the Effective Time (but no later than five (5) business days thereafter), the Merger Consideration in respect of each share of Asterias Common Stock underlying the vested portion of the Asterias RSU Award.

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(d) Prior to the Effective Time, and subject to the prior review and approval of BioTime, Asterias shall take all actions necessary to effect the transactions anticipated by this Section 2.3 under the Asterias Equity Plan and any Contract applicable to any Asterias Equity Awards (whether written or oral, formal or informal), including delivering all required notices, obtaining all necessary approvals and consents, and delivering evidence satisfactory to BioTime that all necessary determinations by Asterias Board of Directors or applicable committee thereof to cancel all Asterias Equity Awards in accordance with this Section 2.3 have been made. At the Effective Time, BioTime shall assume sponsorship of the Asterias Equity Plan, provided that references to Asterias in the Asterias Equity Plan and award agreements for the Asterias Equity Awards shall thereupon be deemed references to BioTime and references to shares therein shall be deemed references to BioTime Common Shares with appropriate equitable adjustments to reflect the Transactions.

Section 2.4 Treatment of Warrants. Prior to the Effective Time, Asterias shall take any necessary actions in accordance with the terms of the Asterias Warrants, including the giving of any notices that may be required as a result of the Transactions constituting a “Fundamental Transaction” as such terms are defined in the Asterias Warrants. Asterias and BioTime shall take all actions as may be necessary to ensure that the Asterias Warrants are treated in accordance with Section 4(b) of the Asterias Warrants.

Section 2.5 Withholding. Notwithstanding any other provision of this Agreement, each of BioTime, Merger Sub, the Surviving Corporation, and the Exchange Agent will be entitled to deduct and withhold from the consideration otherwise payable to a holder of shares of Asterias Common Stock and Asterias Equity Awards pursuant to this Agreement, any amounts as are required to be withheld or deducted with respect to such consideration under the Code, or any applicable provisions of state, local or non-U.S. Tax Law unless such Person receives the requisite certification or documents to eliminate such withholding obligation. To the extent that amounts are so withheld and remitted to the appropriate Governmental Authority, such withheld amounts will be treated for all purposes of this Agreement as having been paid to the holder of shares of Asterias Common Stock and Asterias Equity Awards (to the extent applicable) in respect of which such deduction and withholding was made.

Section 2.6 Fractional Shares.

(a) No certificates, receipts or scrip representing fractional BioTime Common Shares will be issued upon the surrender or transfer for exchange of Certificates or Book-Entry Shares, no dividend or distribution of BioTime will relate to such fractional BioTime Common Shares, and such fractional BioTime Common Shares will not entitle the owner thereof to vote or to any rights of a stockholder of BioTime.

(b) BioTime shall pay to the Exchange Agent an amount in cash in United States dollars, to be deposited promptly following the Effective Time, sufficient for the Exchange Agent to pay each holder of Certificates or Book-Entry Shares an amount in cash equal to the product obtained by multiplying (1) the fraction of a BioTime Common Share to which such holder would otherwise have been entitled by (2) the closing price for a BioTime Common Share on

NYSE American on the last complete trading day immediately prior to the Effective Time.

Article III

Representations and Warranties of Asterias

Except as disclosed in (a) the Asterias SEC Reports filed on or after January 1, 2016 and prior to the date of this Agreement (excluding any amendment thereto made after the date of this Agreement, any forward looking disclosures set forth in any "risk factors" section, any disclosures in any "forward looking statements" section and any other disclosures included therein to the extent they are predictive or forward-looking in nature); provided that the exception set forth in this clause (a) will not apply to the representations set forth in Section 3.3 (Capitalization), Section 3.4 (Authority) or Section 3.8(a) (Absence of Certain Changes or Events) or (b) with respect to each section and subsection within this Article III, the corresponding section or subsection of the disclosure letter delivered by Asterias to BioTime immediately prior to the execution of this Agreement (the "Asterias Disclosure Letter") (disclosure of any item in any section or subsection of the Asterias Disclosure Letter being deemed disclosure with respect to any other Section or subsection of this Agreement to which the relevance of such item is reasonably apparent), Asterias represents and warrants to BioTime and the Merger Sub as set forth below.

Section 3.1 Organization and Power and Subsidiaries.

(a) Asterias is a corporation duly organized, validly existing and in good standing under the Laws of the State of Delaware and has the requisite corporate power and authority to own, lease and operate its properties and assets and to carry on its business as it is now being conducted. Asterias is duly qualified or licensed as a foreign corporation to do business, and is in good standing, in each jurisdiction where the character of the properties owned, leased or operated by it or the nature of its business makes such qualification or licensing necessary, except where the failure to be so duly qualified or licensed and in good standing would not have, individually or in the aggregate, an Asterias Material Adverse Effect.

(b) Asterias has no Subsidiaries and does not directly or indirectly own any equity or similar interest in, or any interest convertible into or exchangeable or exercisable for, any equity or similar interest in, any Person.

Section 3.2 Certificate of Incorporation and Bylaws. Asterias has made available to BioTime a complete and correct copy of the certificate of incorporation and the bylaws, each as amended to date, of Asterias. Such certificate of incorporation and bylaws are in full force and effect. Asterias is not in material violation of any of the provisions of its certificate of incorporation or bylaws.

Section 3.3 Capitalization.

(a) The authorized capital stock of Asterias consists of (i) 125,000,000 shares of Series A Common Stock, par value $0.0001 per share (the "Asterias Common Stock"); (ii) 75,000,000 shares of Series B Common Stock, par value $0.0001 per share (the "Asterias Series B Common Stock"); and (iii) 5,000,000 shares of preferred stock, par value $0.0001 per share ("Asterias Preferred Stock"). All outstanding shares of Asterias Common Stock are validly issued, fully paid and nonassessable and are issued free of any preemptive rights. All shares of Asterias Common Stock subject to issuance upon the exercise, vesting or conversion of any convertible security will, upon issuance on the terms and conditions specified in the instruments pursuant to which they are issuable, be duly authorized, validly issued, fully paid and nonassessable and free of any preemptive rights.

(b) As of the close of business on November 7, 2018:

(1) 55,658,684 shares of Asterias Common Stock were issued and outstanding;

(2) no shares of Asterias Series B Common Stock were issued and outstanding;

(3) 75,771 shares of Asterias Common Stock were held in treasury;

(4) 5,962,213 shares of Asterias Common Stock were subject to outstanding Asterias Stock Options, of which Asterias Stock Options to purchase 3,744,559 shares of Asterias Common Stock were vested;

(5) 13,500,000 shares of Asterias Common Stock were reserved for issuance pursuant to Asterias' 2013 Equity Incentive Plan;

(6) 585,126 shares of Asterias Common Stock were subject to outstanding Asterias RSU Awards;

(7) 2,813,159 shares of Asterias Common Stock were subject to outstanding Asterias Warrants; and

(8) no shares of Asterias Preferred Stock were issued or outstanding.

(c) Except for changes since the date specified in Section 3.3(b) resulting from the exercise or vesting of Asterias Equity Awards outstanding on such date, the exercise of Asterias Warrants outstanding on such date or actions taken after the date of this Agreement in compliance with Section 5.1, there are no outstanding (1) options, warrants or other Contracts of Asterias relating to the issued or unissued capital stock of Asterias or obligating Asterias to issue, grant or sell any shares of capital stock of, or other equity interests in, Asterias, (2) shares of capital stock of, or other voting securities or ownership interests in, Asterias or (3) restricted shares, restricted share units, stock appreciation rights, performance shares, contingent value rights, "phantom" stock or similar securities or rights that are derivative of or provide economic benefits based, directly or indirectly, on the value or price of any capital stock or other voting securities (including any bonds, debentures, notes or other indebtedness having voting rights or convertible into securities having voting rights) or ownership interests in Asterias (the items in clauses (1) through (3) being referred

to collectively as the "Asterias Securities"), other than as described in Section 3.3(b). There are no voting trusts or other Contracts to which Asterias is a party with respect to the voting of any capital stock of, or other equity interest in, Asterias. Section 3.3(c)(1) of the Asterias Disclosure Letter contains, as of November 7, 2018, a complete and correct list of each outstanding Asterias Equity Award, including (A) the employee identification number or name of the holder of such Asterias Equity Award, (B) the date of grant, (C) if applicable, the date of expiration, (D) the number of shares of Asterias Common Stock subject to such award as of the date of this Agreement, (E) for each Asterias Stock Option, the exercise price, (F) the vesting schedule (including any rights to acceleration of vesting) and any right to exercise unvested options, (G) the number of shares of Asterias Common Stock subject to such award that are vested and unvested as of the date of this Agreement. Section 3.3(c)(2) of the Asterias Disclosure Letter contains with respect to the Asterias Warrants: (i) the date of issuance, (ii) the date of expiration, (iii) the aggregate number of shares of Asterias Common Stock subject to such Asterias Warrant, (iv) the exercise price, and (v) the aggregate number of shares of Asterias Common Stock subject to such Asterias Warrants.

(d) Except with respect to the Asterias Warrants, there are no outstanding contractual obligations of Asterias to repurchase, redeem or otherwise acquire any shares of Asterias Common Stock or any other Asterias Securities or to provide funds to, or make any investment (in the form of a loan, capital contribution or otherwise) in, any other Person that would be material to Asterias.

Section 3.4 Authority.

(a) Asterias has all necessary corporate power and authority to execute and deliver this Agreement, to perform its obligations hereunder and, subject to obtaining the Asterias Stockholder Approval, to consummate the Transactions, including the Merger. The execution, delivery and performance of this Agreement by Asterias and the consummation by Asterias of the Transactions have been duly and validly authorized by all necessary corporate action, and no other corporate proceedings on the part of Asterias are necessary to authorize this Agreement or to consummate the Transactions (other than, with respect to the Merger, (1) receipt of the Asterias Stockholder Approval and (2) the filing of the Certificate of Merger with the DSOS). This Agreement has been duly and validly executed and delivered by Asterias and, assuming due authorization, execution and delivery by BioTime and Merger Sub, constitutes a legal, valid and binding obligation of Asterias, enforceable against Asterias in accordance with its terms, except that (x) such enforcement may be subject to applicable bankruptcy, insolvency, reorganization, moratorium or other similar Laws, now or hereafter in effect, affecting creditors' rights generally and (y) the remedy of specific performance and injunctive and other forms of equitable relief may be subject to equitable defenses and to the discretion of the court before which any proceeding therefor may be brought.

(b) The Asterias Board of Directors by the unanimous vote of the disinterested members of the Asterias Board of Directors (acting upon the unanimous recommendation of the Asterias Special Committee) have adopted resolutions (1) determining that this Agreement and the Transactions, including the Merger, are fair to, and in the best interests of, Asterias and the stockholders of Asterias, (2) approving and declaring advisable this Agreement, in accordance with the requirements of the DGCL, (3) directing that this Agreement be submitted to the stockholders of Asterias for adoption and (4) subject to Section 5.3, resolving to make the Asterias Board Recommendation.

Section 3.5 No Conflicts; Required Filings and Consents.

(a) The execution and delivery of this Agreement by Asterias do not, and the performance of this Agreement by Asterias will not, (1) conflict with or violate the certificate of incorporation or bylaws of Asterias, (2) assuming that the Asterias Stockholder Approval and all consents, approvals, authorizations and other actions described in Section 3.5(b) have been obtained and all filings and obligations described in Section 3.5(b) have been made, conflict with or violate any Law or Order applicable to Asterias or by which any property or asset of Asterias is bound or (3) subject to obtaining the consents listed in Section 3.5(a) of the Asterias Disclosure Letter, result in any breach of, constitute a default (or an event that, with notice or lapse of time or both, would become a default or breach) under, constitute or be deemed an impermissible or void assignment (by operation of Law or otherwise) by Asterias of, result in the acceleration of any obligation of Asterias or right of a Third Party, or result in the creation of an Encumbrance on any property or asset of Asterias pursuant to, any Asterias Material Contract.

(b) The execution and delivery of this Agreement by Asterias do not, and the performance of this Agreement by Asterias will not, require any consent, approval, authorization or permit of, or filing with or notification to, any Governmental Authority, except for (1) any filings as may be required under the rules and regulations of NYSE American, (2) the filing of the Joint Proxy Statement and the Registration Statement with the SEC and the declaration of effectiveness of the Registration Statement, (3) applicable requirements, if any, of the Exchange Act and state securities or "blue sky" Laws ("Blue Sky Laws"), and (4) the filing of the Certificate of Merger with the DSOS.

Section 3.6 Permits; Compliance. Asterias is in possession of all material franchises, licenses, permits, consents, approvals and Orders of any Governmental Authority necessary for Asterias to own, lease and operate its properties or to carry on its business as it is now being conducted (the "Asterias Permits"). No suspension or cancellation of any of the Asterias Permits is pending or, to the knowledge of Asterias, threatened in writing, and to the knowledge of Asterias, there are no defaults under, violations of, or events giving rise to a right of termination, amendment or cancellation of any Asterias Permits (with or without notice, the lapse of time or both). Asterias is not, and has been since January 1, 2015, in conflict with, or in default, breach or violation of, in any material respect, (1) any Law or Order applicable to Asterias or by which any property or asset of Asterias is bound or, to the knowledge of Asterias, affected, or (2) any Asterias Permit, in each case where such conflict, default, breach or violation would be material to Asterias and except for any past noncompliance as has been remedied, imposes no continuing obligations or costs on Asterias and is set forth on Section 3.6 of the Asterias Disclosure Letter.

Section 3.7 SEC Filings; Financial Statements.

(a) Asterias has filed or furnished all forms, reports and other documents required to be filed or furnished by it with the SEC since January 1, 2015 (such documents filed, including any amendments thereof, the "Asterias SEC Reports"). Each Asterias SEC Report (1) complied as to form in all material respects with the applicable requirements of the Securities Act, or the Exchange Act, as the case may be, and the Sarbanes-Oxley Act of 2002 ("SOX") and the

applicable rules and regulations promulgated thereunder and (2) did not, at the time it was filed (or, if amended prior to the date hereof, as of the date of such amendment), contain any untrue statement of a material fact, or omit to state a material fact, required to be stated therein or necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading.

(b) Each of the financial statements contained in the Asterias SEC Reports and all related compilations, reviews and other reports issued by Asterias' accountants with respect thereto included in the Asterias SEC Reports (1) complied as of their respective dates of filing with the SEC, in all material respects with applicable accounting requirements and the published rules and regulations of the SEC with respect thereto, (2) was prepared in accordance with U.S. generally accepted accounting principles ("GAAP") applied on a consistent basis with Asterias' past practices throughout the periods indicated (except as may be indicated in the notes thereto or, in the case of unaudited statements, as permitted by the rules and regulations of the SEC) and (3) fairly present, in all material respects, the financial position, results of operations and cash flows of Asterias as at the respective dates thereof and for the respective periods indicated therein (subject, in the case of unaudited interim statements, to normal and recurring year-end adjustments).

(c) Except as and to the extent set forth in the balance sheet of Asterias as of June 30, 2018, including the notes thereto (the "2018 Asterias Balance Sheet"), Asterias has no liability or obligation of any nature (whether accrued, absolute, contingent or otherwise) required to be disclosed by GAAP except for liabilities and obligations (1) incurred in the ordinary course of business and consistent with past practices since the date of the 2018 Asterias Balance Sheet, (2) executory obligations explicitly included under any written Contract to which Asterias is a party or is bound (that are not in the nature of breaches and that are not required by GAAP to be disclosed on a balance sheet), (3) incurred in connection with the preparation and negotiation of this Agreement and (4) that are not material to Asterias, individually or in the aggregate. Except as required by GAAP, Asterias has not, since January 1, 2017, made or adopted any material change in its accounting methods, practices or policies in effect on January 1, 2017.

(d) Since January 1, 2015, each of the principal executive officer of Asterias and the principal financial officer of Asterias (and each former principal executive officer of the Asterias and each former principal financial officer of Asterias, as applicable) has made all certifications required by Rule 13a-14 or 15d-14 under the Exchange Act or Sections 302 and 906 of SOX and the rules and regulations of the SEC promulgated thereunder with respect to the Asterias SEC Reports, and since January 1, 2015, neither Asterias nor any of its executive officers has received written notice from any Governmental Authority challenging or questioning the accuracy, completeness, form or manner of filing such certifications. For purposes of this Section 4.7(d), "principal executive officer" and "principal financial officer" have the meanings given to such terms in SOX. Asterias has no outstanding, or has arranged any outstanding, "extensions of credit" to directors or executive officers within the meaning of Section 402 of SOX. Asterias is in compliance in all material respects with SOX.

(e) Asterias maintains a system of internal controls over financial reporting designed to provide reasonable assurances regarding the reliability of financial reporting and the preparation of financial statements for external purposes, including to provide reasonable assurance that: (1) transactions are executed in accordance with management's general or specific authorizations, (2) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP, (3) access to assets that could have a material effect on Asterias' financial statements is permitted only in accordance with management's general or specific authorization and (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Neither Asterias nor, to the knowledge of Asterias, any of its officers or employees identified or is aware of (i) any significant deficiencies or material weaknesses in the design or operation of Asterias' internal control over financial reporting that could adversely affect Asterias' ability to record, process, summarize and report financial information or (ii) any fraud, whether or not material, that involves management or other employees who have a role

in Asterias' internal control over financial reporting or the preparation of financial statements.

(f) Since January 1, 2015, neither Asterias nor Asterias' independent auditors has identified or been made aware of (i) any material weakness in the system of internal accounting controls utilized by Asterias, (ii) any fraud, whether or not material, that involves Asterias' management or other employees who have a role in the preparation of financial statements or the internal accounting controls utilized by Asterias or (iii) any substantive or credible and material Claim regarding any of the foregoing.

(g) Asterias has in place "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) that are designed to ensure that material information that is required to be disclosed by Asterias in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and is accumulated and made known to its principal executive officer and principal financial officer as appropriate to allow timely decisions regarding required disclosure.

(h) As of the date hereof, there are no outstanding unresolved comments with respect to Asterias or the Asterias SEC Reports noted in comment letters or, to the knowledge of Asterias, other correspondence received by Asterias or its attorneys from the SEC, and there are no pending (1) formal or informal investigations of Asterias by the SEC or (2) inspection of an audit of Asterias' financial statements by the Public Company Accounting Oversight Board.

(i) Asterias has adopted a code of ethics, as defined by Item 406(b) of Regulation S-K of the SEC, for senior financial officers, applicable to its principal financial officer, comptroller or principal accounting officer, or Persons performing similar functions. Asterias has promptly disclosed any change in or waiver of Asterias' code of ethics with respect to any such Persons, as required by Section 406(b) of SOX.

Section 3.8 Absence of Certain Changes or Events. Since the date of the 2018 Asterias Balance Sheet and through the date hereof, Asterias has conducted its business, in all material respects, in the ordinary course and in a manner consistent with past practice. Since the date of the 2018 Asterias Balance Sheet and through the date hereof, (a) there has not been any event, condition, circumstance, development, change or effect having, individually or in the aggregate, an Asterias Material Adverse Effect and (b) Asterias has not taken any action, or authorized, committed or agreed to take any action, that if taken between the date hereof and the Effective Time would have been prohibited by Section 5.1 if such covenant had been in effect as of the date of the 2018 Asterias Balance Sheet.

Section 3.9 Absence of Litigation. Except as set forth on Section 3.9 of the Asterias Disclosure Letter, there is (a) no Action pending and (b) (1) to the knowledge of Asterias, no inquiry, audit or investigation by any Governmental Authority pending, (2) no Action threatened in writing against Asterias, or any property or asset of Asterias and (3) neither Asterias nor any property or asset of Asterias is subject to any continuing Order, settlement agreement or similar written agreement with any Governmental Authority, or any Order, determination or award of any Governmental Authority, except in each case for Actions initiated by a Third Party that is not a Governmental Authority that is not individually or in the aggregate material to Asterias.

Section 3.10 Employee Benefit Plans.

(a) Section 3.10(a) of the Asterias Disclosure Letter lists (1) all employee benefit plans (as defined in Section 3(3) of ERISA), (2) all bonus, stock option, stock purchase, restricted stock, restricted stock unit, equity-based incentive, cash-based incentive, retention incentive, change in control payment, profit sharing, vacation, paid time off, cafeteria, fringe benefit, deferred compensation, supplemental termination pay, retiree medical or life insurance, supplemental retirement, severance, Tax gross-up or other compensation or benefit plans, programs or arrangements and (3) all compensation Contracts containing rights to any compensatory payment, acceleration of vesting or other benefits upon a change of control of Asterias or the termination of any Worker in connection with a change in control of Asterias beyond the payments, vesting or other benefits that are strictly required by applicable Law, in each of (1), (2) or (3) with respect to which Asterias has or could have any liability or that are maintained, contributed to or sponsored by Asterias, or any Asterias ERISA Affiliate for the benefit of any current or former Worker (or dependent or beneficiary thereof) (collectively, the "Asterias Plans" and all Asterias Plans, excluding Asterias Plans not subject to U.S. Law, the "Asterias US Plans"). Asterias has made available to BioTime a true and complete copy of each Asterias Plan and has made available to BioTime, where applicable, a true and complete copy of (i) each trust or other funding arrangement, (ii) each most recent summary plan description and summary of material modifications, (iii) all annual reports on IRS Form 5500 (or other material Governmental Authority filing made in respect of any Asterias Plan that is not an Asterias US Plan) filed within the past three (3) years, (iv) the most recently received IRS or other Governmental Authority determination or opinion letter for each such Asterias Plan and (v) the most recently prepared actuarial report and financial statement in connection with each such Asterias Plan.

(b) Except as set forth on Section 3.10(b) of the Asterias Disclosure Letter, none of the Asterias Plans is a multiemployer plan (within the meaning of Section 3(37) or 4001(a)(3) of ERISA) (a "Multiemployer Plan"), a "multiple employer plan" (within the meaning of Section 413(c) of the Code) (a "Multiple Employer Plan"), a "multiple employer welfare arrangement" (within the meaning of Section 3(40) of ERISA), a plan that is subject to Title IV of ERISA or Section 412 of the Code, or a "funded welfare plan" within the meaning of Section 419 of the Code. In addition, none of Asterias or any Asterias ERISA Affiliate sponsors, maintains, or contributes to, or has, within the past six (6) years, sponsored, maintained or contributed to, a Multiemployer Plan or other pension plan subject to Title IV of ERISA or Section 412 of the Code.

(c) Each Asterias Plan is and has been established and operated in accordance with its terms and the requirements of all applicable Laws including ERISA and the Code, except as would not, individually or in the aggregate, result in material liability to Asterias. No Action is pending or, to the knowledge of Asterias, threatened with respect to any Asterias Plan (other than routine Claims for benefits in the ordinary course of business) that, individually or in the aggregate, would result in any material liability to Asterias. No administrative investigation, audit or other administrative proceeding by the U.S. Department of Labor, the IRS or other Governmental Authority is in progress or pending or, to the knowledge of Asterias, threatened, with respect to any Asterias US Plan.

(d) Each Asterias US Plan that is intended to be qualified under Section 401(a) of the Code or Section 401(k) of the Code has timely received a favorable determination letter from the IRS covering all of the provisions applicable to such Asterias US Plan for which determination letters are currently available that such Asterias US Plan is so qualified, has a remaining period of time under applicable Treasury Regulations or IRS pronouncements in which to apply for such letter and to make any amendments necessary to obtain a favorable determination, or may rely upon an advisory or opinion letter for a prototype or volume submitter plan. Each trust established in connection with any Asterias US Plan that is intended to be exempt from federal income taxation under Section 501(a) of the Code has received a determination letter from the IRS that it is so exempt, has a remaining period of time under applicable Treasury Regulations or IRS pronouncements in which to apply for such letter and to make any amendments necessary to obtain a favorable determination, or may rely upon an advisory or opinion letter for a prototype or volume submitter plan. To the knowledge of Asterias, no fact or event has occurred since the date of such determination letter or letters from the IRS, if applicable, that could be expected to adversely affect the qualified status of any such Asterias US Plan or the exempt status of any such trust.

(e) There has not been any prohibited transaction (within the meaning of Section 406 of ERISA or Section 4975 of the Code and not otherwise exempt under Section 408 of ERISA) with respect to any Asterias US Plan. Except as would not, individually or in the aggregate, result in material liability to Asterias, neither Asterias nor any Asterias ERISA Affiliate has any liability under, arising out of or by operation of Title IV of ERISA (other than liability for premiums to the Pension Benefit Guaranty Corporation arising in the ordinary course of business), including any liability in connection with (1) the termination or reorganization of any employee benefit plan subject to Title IV of ERISA or (2) the withdrawal from any Multiemployer Plan or Multiple Employer Plan, and, to the knowledge of Asterias, no fact or event exists that could give rise to any such liability.

(f) Neither the execution and delivery of this Agreement nor the consummation of the Transactions (either alone or in conjunction with any other event, such as termination of employment) will (1) result in any compensatory payment or benefit (including severance, golden parachute, tax gross-up or otherwise) becoming due to any Worker, (2) increase any benefits otherwise payable under any Asterias Plan, (3) result in any acceleration of the time of any payment or vesting of any compensatory payment or benefits to any Worker or (4) result in any payment or benefit being non-deductible pursuant to Section 280G and 4999 of the Code. No Asterias Plan provides for the payment of a Tax gross-up, whether with respect to Section 280G of the Code, Section 409A of the Code or otherwise.

(g) Each Asterias US Plan that constitutes a nonqualified deferred compensation plan (within the meaning of Section 409A of the Code) has been maintained and operated in material documentary and operational compliance with Section 409A of the Code or an available exemption therefrom.

(h) With respect to any Asterias US Plan that is an employee welfare benefit plan, (i) each such Asterias US Plan that is a "group health plan" (as such term is defined in Section 5000(b)(1) of the Code) materially complies with the applicable requirements of Section 4980B(f) of the Code and any applicable similar state or local Law except as would not, individually or in the aggregate, result in material liability to Asterias, (ii) to the knowledge of Asterias, each such Asterias US Plan may be amended or terminated without material liability to Asterias on or at any time after the Effective Time, and (iii) no such Asterias US Plan provides benefits to, or on behalf of, any former employee after the termination of employment except (A) where the full cost of such benefit is borne entirely by the former employee (or such former employee's eligible dependents or beneficiaries) or coverage through the end of the calendar month in which a termination of employment occurs, (B) where the benefit is required by Section 4980B of the Code ("COBRA") or any similar state Law or (C) pursuant to an applicable employment agreement or severance agreement, plan or policy requiring Asterias to pay or subsidize COBRA premiums for a terminated employee following the employee's termination.

(i) Asterias has never maintained, established, sponsored, participated in or contributed to any Asterias International Plan.

Section 3.11 Labor and Employment Matters.

(a) There are no Claims pending or, to the knowledge of Asterias, threatened between Asterias and any of its Workers, in any case, with respect to Employment Practices (as defined below), except for Claims that are not individually or in the aggregate material to Asterias.

(b) Asterias is not a party to any collective bargaining agreement or similar labor union agreement with any labor union, labor organization or works council, and, as of the date hereof, no such agreement is being negotiated. None of the employees of Asterias is represented by any labor union with respect to their employment with Asterias and there are no activities or proceedings of any labor union to organize any such employees. There has not been at any time since January 1, 2015 any union organizing activities concerning any employees of Asterias. There are no current and there have not been any labor strikes, slowdowns, work stoppages, lockouts, or any similar activity or dispute, by Workers since January 1, 2015.

(c) Asterias is in compliance in all material respects with all U.S. federal, state, and local, and all foreign, Laws and Contracts respecting or with its Workers, including, but not limited to wages, hours, compensation, fringe benefits,

paid sick leave, employment or termination of employment, leave of absence rights, employment policies, immigration, terms and conditions of employment, child labor, labor or employee relations, affirmative action, government contracting obligations, equal employment opportunity and fair employment practices, disability rights or benefits, workers' compensation, unemployment compensation and insurance, health insurance continuation, whistle-blowing, privacy rights, harassment, discrimination, retaliation, and working conditions or employee safety or health ("Employment Practices"). Without derogating from the generality of the above: (x) there are no material audits or investigations pending or, to the knowledge of Asterias, scheduled by any Governmental Authority pertaining to the Employment Practices of Asterias and (y) no material complaints relating to Employment Practices of Asterias has been, since January 1, 2015, filed with any Governmental Authority. Asterias are not engaged, and since January 1, 2015 have not been engaged, in any unfair labor practice (as defined under the National Labor Relations Act).

(d) Asterias is not delinquent in payments to any of its Workers for any wages, salaries, commissions, bonuses or other direct compensation for any services performed for it or amounts required to be reimbursed to such Workers, except for such delinquent payments, individually or in the aggregate, which would not reasonably be expected to result in material liability to Asterias.

(e) To the knowledge of Asterias, and except as would not be, individually or in the aggregate, material to Asterias, no Worker is in violation of any material term of any employment or service Contract, non-disclosure or confidentiality agreement, noncompetition agreement, or any restrictive covenant to a former employer relating to the right of any such Worker to be employed or retained by Asterias by which the individual is employed or engaged because of the nature of the business conducted or presently proposed to be conducted by it or to the use of Trade Secrets or proprietary information of others.

(f) To the knowledge of Asterias, and except as would not be, individually or in the aggregate, material to Asterias, Asterias is in compliance with the Worker Readjustment and Notification Act (the "WARN Act") (29 U.S.C. §2101) and any applicable state Laws or other Laws regarding redundancies, reductions in force, mass layoffs, and plant closings, including all obligations to promptly and correctly furnish all notices required to be given thereunder in connection with any redundancy, reduction in force, mass layoff, or plant closing to affected employees, representatives, any state dislocated worker unit and local government officials, or any other Governmental Authority. Asterias has not conducted any mass layoffs or plant closings in the 90-day period prior to the date of this Agreement.

Section 3.12 Information Supplied. The information supplied by Asterias for inclusion in the Joint Proxy Statement and the Registration Statement will not, (a) in the case of the Registration Statement, at the time the Registration Statement is filed with the SEC, at any time it is amended or supplemented or at the time it is declared effective under the Securities Act, contain any untrue statement of a material fact, or omit to state any material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not false or misleading and (b) in the case of the Joint Proxy Statement, as of the date the Joint Proxy Statement is first mailed to the stockholders of Asterias and the shareholders of BioTime, and at the time of the Asterias Special Meeting and the BioTime Special Meeting, contain any untrue statement of a material fact, or omit to state any material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not false or misleading. Notwithstanding the foregoing sentence, Asterias makes no representation or warranty with respect to any information supplied by BioTime, Merger Sub or any of their Representatives for inclusion in any of the foregoing documents. The information supplied by Asterias for inclusion in the Joint Proxy Statement and the Registration Statement will comply as to form in all material respects with the applicable requirements of the Securities Act, the Exchange Act and the rules and regulations thereunder.

Section 3.13 Property and Leases.

(a) Except as would not reasonably be expected to be, individually or in the aggregate, material to Asterias, Asterias owns, and has good title to, each of the tangible assets reflected as owned by Asterias on the 2018 Asterias Balance Sheet (except for tangible assets sold or disposed of since that date in the ordinary course of business and consistent with past practices), free of any Encumbrances other than Permitted Encumbrances. Except as would not reasonably be expected to be, individually or in the aggregate, material to Asterias, all of the machinery, equipment and other tangible personal property and assets owned or used by Asterias are usable in the ordinary course of business.

(b) Asterias does not own any real property.

(c) Section 3.13(c)(1) of the Asterias Disclosure Letter sets forth a complete and accurate list of all material leases of real property to which Asterias is a party, as lessee ("Asterias Real Property Leases"). Section 3.13(c)(2) of the Asterias Disclosure Letter sets forth a complete and accurate list of all subleases with respect to the Asterias Real Property Leases. All of the fixtures and other improvements located on the premises subject to the Asterias Real Property Leases are reasonably adequate and suitable for the purpose of conducting Asterias' business as presently conducted.

Section 3.14 Intellectual Property.

(a) Section 3.14(a) of the Asterias Disclosure Letter identifies (i) the name (or names for co-applicants/registrants/owners) of applicant/registrant/current owner, (ii) the jurisdiction of application/registration and (iii) the application or registration number for each item of Registered Intellectual Property, owned or purported to be owned by or exclusively licensed or purported to be exclusively licensed to Asterias. Each of the Patents included in the Asterias Owned Intellectual Property properly identifies by name each and every inventor of the claims thereof as determined in accordance with the Laws of the jurisdiction in which such patent is issued or such patent application is pending. Asterias owns and possesses all right, title and interest in and to or have the right to use, pursuant to a valid and enforceable agreement, all Asterias Intellectual Property, free and clear of all Encumbrances or royalties other than Permitted Encumbrances. No interference, opposition, reissue, reexamination, cancellation or other proceeding of any nature (other than initial examination proceedings) is pending or was pending during the past three (3) years or threatened, in which the scope, validity, enforceability or ownership of any Asterias Intellectual Property is being or has been contested or challenged. All Trademarks and designs included in Asterias Intellectual Property have been in continuous use by Asterias since they were first used by Asterias or are planned to be in use by Asterias. To the knowledge of Asterias, there has been no prior use of such Trademarks or designs by any Person which would confer upon such Person superior rights in such Trademarks or designs, respectively. Since January 1, 2015, no Patent included in the Asterias Registered Intellectual Property, has been or is now involved in any infringement, interference, reissue, re-examination, opposition, invalidity or nullity proceeding. To the knowledge of Asterias, there are no (i) Trademarks of any Third Party potentially conflicting with the Trademarks included in the Asterias Intellectual Property, (ii) designs of any Third Party potentially conflicting with the designs included in

Asterias Intellectual Property or (iii) Patents of any Third Parties potentially interfering with the Patents included in Asterias Registered Intellectual Property. Section 3.14(a) of the Asterias Disclosure Letter describes each filing, payment, and action that, as of the date of this Agreement, must be made or taken on or before the date that is ninety (90) days after the date of this Agreement with respect to such Asterias Registered Intellectual Property and intellectual property that is exclusively licensed to Asterias and for which Asterias is responsible. All Asterias Intellectual Property owned or purported to be owned by Asterias is (x) subsisting and is valid and enforceable and in full force and effect and valid and (y) has not lapsed (except for any Patents that lapsed or expired at the end of their statutory term), been abandoned, been disclaimed, been cancelled or been forfeited.

(b) No Asterias Associate owns or has any Claim, right (whether or not currently exercisable) or interest to or in any Intellectual Property rights that are owned or purported to be owned by Asterias and each Asterias Associate who is or was involved in the invention, creation or development of any Intellectual Property rights that are owned or purported to be owned by Asterias has signed a valid and enforceable written agreement containing an assignment of all Intellectual Property rights to Asterias and confidentiality provisions protecting the Intellectual Property rights that are owned or purported to be owned by Asterias. Such assignments of Intellectual Property rights to Asterias by an Asterias Associate have complied with the local Laws in which Asterias operates, including Laws regarding remuneration or compensation, to effectuate a valid assignment.

(c) No funding, facilities or personnel of any Governmental Authority or any university, college, research institute or other educational institution is being used, directly or indirectly, to create, in whole or in part, Asterias Owned Intellectual Property.

(d) Asterias has taken commercially reasonable steps to maintain the confidentiality of and otherwise protect and enforce its rights in all material proprietary information held by Asterias, or purported to be held by Asterias, as a material Trade Secret. To the knowledge of Asterias, no current or former employee, consultant, contractor, partner or investor of Asterias is in unauthorized possession of any of the Trade Secrets included in Asterias Intellectual Property.

(e) Section 3.14(e) of the Asterias Disclosure Letter sets forth each: (i) license agreement pursuant to which Asterias licenses in any Intellectual Property right (each an “Asterias In-bound License”) or licenses out any Intellectual Property right owned by Asterias; provided, that, Asterias licenses shall not include clinical trial related agreements that license in or license out any Intellectual Property solely for the purposes of conducting a clinical trial and/or analyzing the results of such clinical trial; and provided further that Asterias In-bound Licenses shall not include commercially available off-the-shelf software that are generally available on the basis of nondiscriminatory pricing terms for $5,000 or less, and (ii) agreement containing a covenant not to sue with respect to any Intellectual Property.

(f) To the knowledge of Asterias, the operation of the business of the Asterias as currently conducted does not infringe, misappropriate, dilute or otherwise violate any Intellectual Property rights owned by any other Person and no other Person is infringing, misappropriating, diluting or otherwise violating any Asterias Intellectual Property. No Action is pending and served (or is being threatened or is pending and has not been served) against Asterias or by Asterias relating to any actual, alleged or suspected infringement, misappropriation, dilution or other violation of any Intellectual Property rights of another Person or to Asterias Intellectual Property. Since January 1, 2015, Asterias has not received any written notice or other written communication relating to any actual, foreseen, alleged or suspected infringement, misappropriation, dilution or other violation of any Intellectual Property right of another Person by Asterias.

(g) Asterias is not now and has never been a member or promoter of, or a contributor to, any industry standards body or any similar organization that would reasonably be expected to require or obligate Asterias to grant or offer to any other Person any license or right to any Asterias Intellectual Property. No Asterias Product is distributed with any software that is licensed pursuant to an "open source" or other Third Party license agreement that requires the disclosure or licensing of any source code for any Asterias Product or requires any Asterias Product to be made available at no charge or grant, or purport to grant, to any Third Party, any rights or immunities under any Asterias Intellectual Property (including, but not limited to, using any Open Source Materials that require, as a condition of use, modification or distribution of the Open Source Materials that other software incorporated into, derived from or distributed with the Open Source Materials (i) be disclosed or distributed in source code form, (ii) be licensed for the purpose of making derivative works or (iii) be redistributable at no charge). Asterias has not disclosed, delivered, licensed or otherwise made available, and Asterias do not have a duty or obligation (whether present, contingent, or otherwise) to disclose, deliver, license, or otherwise make available, any source code for any Asterias Product to any Third Party who is not, as of the date of this Agreement, an employee of Asterias.

(h) There are no defects in any of software included in the Asterias Products that would prevent the same from performing materially in accordance with its user specifications and there are no viruses, worms, Trojan horses or similar disabling codes or programs in any of software included in the Asterias Products.

(i) None of the Asterias Intellectual Property owned or purported to be owned by Asterias is subject to any pending or outstanding injunction, directive, Order, judgment, or other disposition of dispute that adversely restricts the use, transfer, registration or licensing of any such Intellectual Property rights by Asterias or otherwise adversely affects the validity, scope, use, registrability or enforceability of any Asterias Owned Intellectual Property.

(j) Asterias is in compliance in all material respects with contractual requirements, internal policies and procedures (which are consistent with industry standards) and Laws that are designed to protect the security, confidentiality and integrity of transactions executed through the Asterias IT Systems, including encryption or other security protocols and techniques when appropriate and other confidential or proprietary data or information of Asterias. Since January 1, 2015, none of Asterias has suffered and, to the knowledge of Asterias, no service provider to Asterias has suffered any material security breach with respect to any Personal Data, data or information owned or held for use by Asterias, nor has Asterias been notified or been required by Laws to notify any Persons or any Governmental Authority of any

security breach involving Personal Data.

(k) The Asterias IT Systems are in good repair and operating condition, subject only to ordinary wear and tear, and are adequate and suitable for the purposes for which they are being used or held for use, except as have not resulted in, and would not reasonably be expected to result in, an Asterias Material Adverse Effect. Asterias (i) has implemented business continuity, back-up and disaster recovery technologies that are commercially reasonable, (ii) has periodically, but no less frequently than annually, tested such technologies, and (iii) such technologies have not materially failed such tests.

Section 3.15 Taxes.

(a) Asterias has duly and timely filed with the appropriate Governmental Authority all income Tax Returns and other material Tax Returns that it was required to file under applicable Laws and all such Tax Returns are true, correct and complete in all respects. Asterias has timely paid all Taxes, and any related interest, fees or penalties, required to be paid by them (whether or not shown on any Tax Return) and are not currently the beneficiary of any extension of time within which to file any Tax Return. There are no Encumbrances for Taxes (other than Permitted Encumbrances) upon any material assets of Asterias. The unpaid Taxes did not, as of the date of the 2018 Asterias Balance Sheet, exceed the reserve for Tax liability (excluding any reserve for deferred Taxes established to reflect timing differences between book and Tax income) set forth on the face of the 2018 Asterias Balance Sheet (rather than in any notes thereto). Since the date of the 2018 Asterias Balance Sheet, Asterias has not incurred any liability for Taxes outside the ordinary course of business or otherwise inconsistent with past custom and practice.

(b) No Tax Returns of Asterias are currently the subject of audit, assessment or other action for or relating to any liability in respect of Taxes. Asterias has made available to BioTime correct and complete copies of all examination reports and statements of deficiencies assessed against, or agreed to by Asterias since January 1, 2015. Asterias has not waived any statutes of limitations in respect of Taxes, or agreed to any extension of time with respect to a Tax assessment or deficiency. No Claim has been made in writing by an authority to Asterias in a jurisdiction where Asterias does not file Tax Returns that it is subject to taxation by that jurisdiction. No deficiencies for Taxes with respect to Asterias has been claimed, proposed or assessed by any Governmental Authority in writing. There are no pending or, threatened audits, assessments or other actions for or relating to any liability in respect of Taxes of Asterias.

(c) Asterias has not constituted either a “distributing corporation” or a “controlled corporation” within the meaning of Section 355(a)(1)(A) of the Code in a distribution of stock intended to qualify for tax-free treatment under Section 355 of the Code.

(d) Asterias is not a party to or bound by any Tax allocation, Tax indemnification, Tax sharing agreement or similar agreement (other than commercial agreements the primary purposes of which does not relate to Taxes) or has any liability for Taxes of another Person (other than Asterias) under Treasury Regulations Section 1.1502-6 (or any similar provision of state, local or Non-U.S. Law), as a transferee or successor, by contract or otherwise.

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(e) Asterias has not been a party to a transaction that is or is substantially similar to a "listed transaction" as defined in Treasury Regulations Section 1.6011-4(b)(2), or any other transaction requiring disclosure under analogous provisions of state, local or non-U.S. Tax Law.

(f) Asterias has duly and timely withheld and remitted to the appropriate Governmental Authority all Taxes required to have been withheld and remitted in connection with any amounts paid or owing to any employee, independent contractor, creditor, stockholder or other Third Party.

(g) Asterias has not taken or agreed to take any action (other than actions contemplated by this Agreement) or knows of any fact that is reasonably likely to prevent or impede the Merger from qualifying as a "reorganization" within the meaning of Section 368(a) of the Code.

(h) Neither BioTime or Asterias will be required to include any item of income in, or exclude any item of deduction from, taxable income for any period (or any portion thereof) ending after the Closing Date as a result of (i) pursuant to Section 481 of the Code (or any analogous provision of state, local or non-U.S. Tax Law) any accounting method change or agreement with any Governmental Authority filed or made on or prior to the Closing Date by Asterias, (ii) any prepaid amount received on or prior to the Closing by Asterias, (iii) any intercompany transaction or excess loss account described in Section 1502 of the Code (or any corresponding provision of state, local or non-U.S. Tax Law), (iv) any election under Section 108(i) of the Code by Asterias, (v) any "closing agreement" as described in Section 7121 of the Code (or any corresponding or similar provision of state, local or non-U.S. Tax Law) executed on or prior to the Closing Date by Asterias, (vi) any amounts includable under Sections 951, 951A or 965 of the Code with respect to Asterias or (vii) any installment sale or other transaction on or prior to the Closing Date with respect to Asterias.

(i) Asterias has been a resident in its jurisdiction of incorporation for Tax purposes and has not, at any time, been treated as a resident of or as having a permanent establishment or fixed place of business in any other jurisdiction.

(j) Asterias has never been a member of an affiliated group filing a consolidated federal income Tax Return (other than a group the common parent of which is Asterias) or any similar group for federal, state, local or non-U.S. Tax purposes.

(k) Asterias has not elected at any time to be treated as an S corporation within the meaning of Sections 1361 or 1362 of the Code.

(l) Asterias has complied with all transfer pricing rules. All documentation required by all relevant transfer pricing laws have been timely prepared.

Section 3.16 Environmental Matters.

(a) Asterias is, and has at all times, since January 1, 2015, been, in compliance with all applicable Environmental Laws, except as would not reasonably be expected to be, individually or in the aggregate, material to Asterias.

(b) To the knowledge of Asterias and except as would not reasonably be expected to be, individually or in the aggregate, material to Asterias, none of the properties currently owned, leased or operated by Asterias (including soils and surface and ground waters) are contaminated with any Hazardous Substance above cleanup levels established by Governmental Authorities pursuant to Environmental Laws and require remediation.

(c) Asterias has not received any written notice, letter or request for information stating that it may be liable under any Contract, or pursuant to Environmental Law, for any contamination by Hazardous Substances at any site.

(d) Except as would not reasonably be expected to have, individually or in the aggregate, a Asterias Material Adverse Effect, Asterias possesses and is in compliance with all permits, licenses and other authorizations required under any Environmental Law ("Environmental Permits") and (1) Asterias' operations are in compliance with applicable Environmental Permits, (2) all such Environmental Permits are in full force and effect, (3) no suspension or cancellation of any of the Environmental Permits is pending or threatened in writing and (4) no such suspension or cancellation of such Environmental Permits will result from the Transactions.

(e) Except for contracts entered into in the ordinary course of business, and to the knowledge of Asterias, Asterias has not entered into any agreement (other than Asterias Real Property Leases) that may require it to guarantee, reimburse, pledge, defend, hold harmless or indemnify any other party with respect to liabilities arising out of Environmental Laws or Hazardous Substances. Except as would not reasonably be expected to be, individually or in the aggregate, material to Asterias, no Action arising under or pursuant to Environmental Laws is pending, or to the knowledge of Asterias, threatened against Asterias. To the knowledge of Asterias and except as would not reasonably be expected to be, individually or in the aggregate, material to Asterias, no condition exists on any property, currently owned or operated by Asterias that has given rise to, or would reasonably be expected to give rise to, any liability or obligation under Environmental Laws.

Section 3.17 Material Contracts.

(a) Section 3.17(a) of the Asterias Disclosure Letter lists the following respective Contracts (other than Asterias Plans) in effect as of the date hereof (together with all amendments and supplements) to which Asterias is a party, or by

which any property or asset of Asterias is bound or affected (collectively being, the "Asterias Material Contracts") (provided, however, that the Asterias Material Contracts will be deemed to include, without requirement of listing, any "material contract" (as such term is used in Item 601(b)(10) of Regulation S-K of the SEC) that was filed as an exhibit to the Asterias SEC Reports prior to the date of this Agreement, other than any Asterias Plan):

(1) other than leases of real property, each Contract that (A) provides for payment obligations by Asterias of more than $100,000, in the aggregate, during the current or any future fiscal years or (B) provides for payment obligations of more than $50,000 by Asterias, in the aggregate, over the remaining term of such Contract, and that, in either case, cannot be canceled by Asterias upon ninety (90) days or less notice without material liability to Asterias excluding non-exclusive outbound licenses, clinical trial agreements and material transfer agreements entered into in the ordinary course of business;

(2) all revenue-generating Contracts that provide for payments to Asterias of more than $50,000 in revenues in the fiscal year ended December 31, 2018;

(3) all distributor, supplier, wholesaler, sales, reseller, joint marketing, or joint development Contracts that (A) provide for payment obligations by Asterias of more than $50,000, in the aggregate, during the fiscal year ended December 31, 2018 or (B) provide for payment obligations by Asterias of more than $100,000, in the aggregate, over the remaining term of such Contract;

(4) all Contracts involving the payment of royalties or other amounts calculated based upon the revenues or income of Asterias, or income or revenues related to any product of Asterias where such payments are expected to exceed $50,000 in the 12-month period following the date hereof;

(5) other than leases of real property, all Contracts that grant a right of first refusal, first offer or similar right, in each case, that is material to Asterias;

(6) all Contracts that (A) limit or purport to limit the ability of Asterias, or, upon the consummation of the Merger, BioTime or any BioTime Subsidiary, to compete with any Person, in any geographic area or during any period of time, (B) subject Asterias or, upon the consummation of the Merger, BioTime or any BioTime Subsidiary to any "most-favored nation" or other similar limitations on future product pricing or (C) otherwise restrict in a material respect Asterias or, upon completion of the Merger, BioTime or any BioTime Subsidiary, from engaging or competing in any material line of business, in any location;

(7) other than in the ordinary course, any Contract relating to the disposition or acquisition by Asterias of assets or equity ownership interests for consideration in excess of $50,000 that contain ongoing obligations that are material to Asterias;

(8) any mortgages, indentures, guarantees, loans, credit agreements, security agreements or other Contracts relating to Indebtedness, other than accounts receivables and payables in the ordinary course of business consistent with past practice;

(9) each “material contract” (as such term is used in Item 601(b)(10) of Regulation S-K of the SEC) executed on or prior to the date hereof that is anticipated to be filed (or required to be filed) pursuant to Item 601(b)(10) of Regulation S-K with Asterias’ next periodic report under the Exchange Act;

(10) other than leases of real property, all Contracts providing for (A) material indemnification obligations (including with respect to Intellectual Property rights) or (B) any material guaranty of Third Party obligations, in each of the foregoing cases except for those entered into in the ordinary course of business and consistent with past practices (including those in connection with Asterias Outbound License Agreements);

(11) all Contracts relating to revenue or profit-sharing joint ventures (whether in partnership, limited liability company or other organizational form);

(12) all Contracts with any Governmental Authority or Contracts that, to the knowledge of Asterias, are subcontracts under any Contract with any Governmental Authority;

(13) all Contracts to which Asterias is a party (other than confidentiality agreements entered in the ordinary course of business and consistent with past practices that do not separately license any Intellectual Property but allow disclosure and use of confidential information) pursuant to which (A) any Person is authorized to use or is granted any right in or to any material Asterias Owned Intellectual Property or (B) to the knowledge of Asterias, Asterias has agreed to any restriction, still in effect as of the date of this Agreement, on the right of Asterias to enforce any material Intellectual Property rights;

(14) all Contracts (excluding commercial off the shelf computer software that are generally available on nondiscriminatory pricing terms) under which Asterias is granted any license, option or other right or immunity (including a covenant not to be sued or right to enforce or prosecute any Patents) with respect to any Intellectual Property of a Third Party, which Contract is material to Asterias;

(15) all Asterias Real Property Leases;

(16) all Contracts that are a settlement, conciliation or similar agreement with or before any Governmental Authority;

(17) all Contracts entered into in the last five (5) years in connection with the settlement or other resolution of any Action that has any material continuing obligation, liability or restriction on the part of Asterias; and

(18) (A) any Contract with any labor union or any collective bargaining agreement or similar Contract with any Worker; (B) any separation agreement or settlement agreement with any Worker, under which Asterias has any

current, actual, or potential liability; (C) any settlement agreement, consent decree, or other similar agreement with any Governmental Authority; and (D) any employment Contract or offer letter with any Worker that is not immediately terminable at-will by Asterias without notice, severance, or other cost or liability.

(b) Each Asterias Material Contract is a legal, valid and binding agreement and is in full force and effect and enforceable in accordance with its terms (subject to applicable bankruptcy, insolvency, reorganization, moratorium or other Laws relating to, or affecting the rights and remedies of creditors generally). Asterias is not in default under any Asterias Material Contract, has not committed or failed to perform any material act that, with or without notice, lapse of time, or both, would constitute a default under the Asterias Material Contract. To the knowledge of Asterias, no other party is in breach or violation of, or default under, any Asterias Material Contract. To the knowledge of Asterias, Asterias has not received written notice of the intention of any party to cancel, terminate, materially change the scope of rights under or fail to renew any Asterias Material Contract. Asterias has made available to BioTime true and complete copies of all Asterias Material Contracts, including any material amendments and supplements thereto.

Section 3.18 NYSE American. Asterias is in material compliance with the applicable criteria for continued listing of the shares of Asterias Common Stock on NYSE American, including all applicable corporate governance rules and regulations.

Section 3.19 Insurance.

(a) Asterias is, and since January 1, 2015 has been, insured against such losses and risks and in such amounts as are customary in and reasonable for the businesses in which they are engaged, except where the failure to be so insured would not have, individually or in the aggregate, an Asterias Material Adverse Effect.

(b) Section 3.19(b) of the Asterias Disclosure Letter sets forth each insurance policy (including policies providing casualty, liability, medical and works compensation coverage) to which Asterias is currently a party. Except as would not have a Asterias Material Adverse Effect, (a) each insurance policy under which Asterias is an insured or otherwise the principal beneficiary of coverage is in full force and effect, all premiums due thereon have been paid in full, and Asterias is in material compliance with the terms and conditions of such insurance policy, (b) Asterias is in breach or default under any such insurance policy, (c) no notice of cancellation or termination has been received with respect to any insurance policy (including any such breach or default with respect to the payment of premiums or the giving of notice or both) and (d) to the knowledge of Asterias, no event has occurred which, with notice or lapse of time, would constitute such breach or default, or permit termination, or modification, under any such insurance policy.

(c) Other than with respect to any Asterias Plans set forth in Section 3.10(a) of the Asterias Disclosure Letter pursuant to which benefits are provided through insurance contracts, since January 1, 2015, Asterias has not been denied any insurance or indemnity bond coverage.

Section 3.20 Brokers and Expenses. No agent, broker, finder or investment banker other than Raymond James LLC (the "Asterias Financial Advisor") is entitled to any brokerage, finder's or other fee or commission in connection with the

Transactions based upon arrangements made by, or on behalf of, Asterias.

Section 3.21 Takeover Statutes. The board of directors of Asterias has taken all necessary actions so that no “fair price,” “moratorium,” “control share acquisition” or other anti-takeover Law or any anti-takeover provision in Asterias’ certificate of incorporation or bylaws is applicable to this Agreement, the Merger, and the Transactions.

Section 3.22 Certain Business Practices.

(a) Since January 1, 2015, neither Asterias nor, to the knowledge of Asterias, any director, officer, employee or agent of Asterias acting on behalf of Asterias has (1) used any Asterias funds for unlawful contributions, gifts, entertainment or other unlawful payments relating to political activity or (2) made any unlawful payment to any foreign or domestic government official or employee or to any foreign or domestic political party or campaign in violation of any provision of the FCPA or any comparable Law.

(b) Since January 1, 2015, Asterias has conducted its import and export transactions in accordance in all material respects with applicable provisions of U.S. trade Laws, and other trade Laws of the countries where it conducts business. Without limiting the foregoing:

(1) Asterias has obtained all material export licenses and other approvals required for their exports of products, software and technologies from the U.S., except as would not result in a liability that is material to Asterias; and

(2) Asterias is in compliance in all material respects with the terms of such applicable export licenses or other approvals.

Section 3.23 Affiliate Transactions. Other than compensation payable to officers and directors and employee expense reimbursement obligations and except to the extent not required to be disclosed pursuant to Item 404 of Regulation S-K promulgated under the Securities Act, there are no existing Contracts, transactions, Indebtedness or other arrangements between Asterias, on the one hand, and any of the directors, officers or other affiliates of the Asterias, on the other hand.

Section 3.24 Vote Required. The Asterias Stockholder Approval is the only vote of the holders of any class or series of Asterias' capital stock necessary to adopt or approve this Agreement, the Merger or any of the other Transactions.

Section 3.25 Opinion of Financial Advisor. The Asterias Financial Advisor has delivered to the Asterias Special Committee its written opinion (or oral opinion to be confirmed in writing), dated as of the date of this Agreement, to the effect that, as of such date and based upon and subject to the various assumptions made, procedures followed, matters considered and qualifications and limitations set forth therein, the Exchange Ratio is fair from a financial point of view to the stockholders of Asterias holding shares of Asterias Common Stock (other than shares of Asterias Common Stock held by Asterias, BioTime, or any of BioTime's wholly-owned Subsidiaries). Asterias has agreed to make available to BioTime a copy of such opinion as soon as practicable following the execution of this Agreement

solely for informational purposes.

Section 3.26 Regulatory Matters.

(a) Except as would not have a material impact on Asterias, as to each product subject to the FDCA, the U.S. Public Health Service Act ("PHS Act"), or similar Laws in any non-United States jurisdiction that is investigated, manufactured, distributed or marketed by Asterias to be used in humans (a "Medical Product"), each such Medical Product is being manufactured, tested, distributed, marketed, sold and stored in material compliance with all applicable requirements under the FDCA, the PHS Act, and similar applicable Laws, including those relating to good laboratory practices, good clinical practices, investigational use, Human Cell, Tissue and Cellular and Tissue-based Products (HCT/Ps), pre-market clearance or marketing approval to market a Medical Product, current good manufacturing practices and quality system requirements, labeling, advertising, record keeping, filing of reports and security, and in material compliance with federal and state fraud and abuse and false claims Laws, privacy Laws, Laws governing gifts and other transfers of value to physicians, and any equivalent applicable Laws and regulations in any non-United States jurisdiction. Further, with regard to each such Medical Product, Asterias, and to the knowledge of Asterias, Asterias' agents are in material compliance with all United States Laws, and similar applicable Laws in any non-United States jurisdiction, governing the storage, handling, shipment, transfer, import, export, or sale of human cells or tissues. Asterias has not received any written notice or other written communication from the FDA or any other applicable Governmental Authority (i) contesting the pre-market clearance or approval of, the uses of or the labeling and promotion of any Medical Products or (ii) otherwise stating any violation applicable to any Medical Product of any applicable Law, including but not limited to any applicable Law governing the storage, handling, shipment, manufacturing, import, export, or sale of human cells or tissues.

(b) No Medical Product is under consideration by senior management of Asterias for recall, withdrawal, removal, suspension, seizure or discontinuation, or has been recalled, withdrawn, removed, suspended, seized or discontinued (other than for commercial or other business reasons) by Asterias, in the United States or outside the United States (whether voluntarily or otherwise) and no legal proceedings in the United States or outside of the United States (whether completed or pending) seeking the recall, withdrawal, suspension, seizure or discontinuation of any Medical Product are pending against Asterias its agents or any licensee of any Medical Product.

(c) To the knowledge of Asterias, no Medical Product manufactured or distributed by Asterias is or has been (i) adulterated within the meaning of 21 U.S.C. § 351 (or similar Laws), including, but not limited to, applicable requirements of 21 C.F.R. Parts 600, or 1271, (ii) misbranded within the meaning of 21 U.S.C. § 352 (or similar Laws) or (iii) a product that is in violation of 21 U.S.C. § 355, § 360, § 360e (or similar Laws).

(d) Except as would not have a material impact on Asterias, neither Asterias nor, to the knowledge of Asterias, any of its officers, employees or agents has made an untrue statement of a material fact or fraudulent statement to the FDA or any other Governmental Authority, failed to disclose a material fact required to be disclosed to the FDA or any other Governmental Authority, or committed an act, made a statement, or failed to make a statement that, at the time such disclosure was made, could reasonably be expected to provide a basis for the FDA or any other Governmental Authority to invoke its policy respecting "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities," set forth in 56 Fed. Reg. 46191 (10 September 1991) or any similar policy, Law, regulation or procedure of any other

Governmental Authority.

(e) Neither Asterias nor, to the knowledge of Asterias, any of its officers, employees or agents has been convicted of any crime or engaged in any conduct for which debarment is mandated by 21 U.S.C. § 335a(a) or any similar Law or authorized by 21 U.S.C.§ 335a(b) or any similar Law. Neither Asterias nor, to the knowledge of Asterias, any of its officers, employees or agents has been convicted of any crime or engaged in any conduct for which such Person could be excluded from participating in the federal health care programs under Section 1128 of the U.S. Social Security Act of 1935, as amended, or any similar Laws.

(f) Asterias has not received any written notice that the FDA or any other Governmental Authority has (i) commenced, or threatened to initiate, any action to limit or enjoin production of any Medical Product or (ii) commenced, or threatened to initiate, any action to limit or enjoin the use of any facility where any Medical Product is manufactured, stored, handled, shipped, transferred, tested or packaged by Asterias or its agents.

(g) For each study of a Medical Product controlled by and, to the knowledge of Asterias, for each study of a Medical Product not controlled by but sponsored or commissioned by, or conducted at the request of, Asterias in which human subjects participated, Asterias or the party conducting the study obtained the informed consent of such human subjects in accordance with FDA regulations on Protection of Human Subjects, 21 C.F.R. Part 50, the ICH E6 Good Clinical Practice: Consolidated Guidance (1996), and in accordance with all applicable Laws, statutes, rules, regulations and ordinances, and all amendments to any of the foregoing. All clinical studies conducted by or on behalf of Asterias were conducted in accordance with applicable requirements of 21 C.F.R. Parts 54 and 56, and such other Laws governing the conduct of clinical studies.

Section 3.27 No Other Representations or Warranties. Except for the representations and warranties expressly set forth in this Agreement, neither Asterias nor any other Person on behalf of Asterias makes any express or implied representation or warranty with respect to Asterias or with respect to any other information provided to BioTime or Merger Sub in connection with the Transactions.

Section 3.28 Disclaimer of Other Representations and Warranties. Asterias acknowledges and agrees that, except for the representations and warranties expressly set forth in this Agreement (a) each of BioTime and Merger Sub is not making and has not made any representations or warranties relating to itself or its business or otherwise in connection with the Transactions, including the Merger, and none of Asterias or its Representatives is relying on any representation or warranty of BioTime or Merger Sub except for those expressly set forth in this Agreement and (b) no Person has been authorized by BioTime or Merger Sub to make any representation or warranty relating to BioTime or Merger Sub or their respective businesses, and if made, such representation or warranty must not be relied upon by Asterias as having been authorized by BioTime or Merger Sub.

Article IV

Representations and Warranties of BioTime and Merger Sub

Except as disclosed in (a) the BioTime SEC Reports filed on or after January 1, 2018 and prior to the date of this Agreement (excluding any amendment thereto made after the date of this Agreement, any forward looking disclosures set forth in any "risk factors" section, any disclosures in any "forward looking statements" section and any other disclosures included therein to the extent they are predictive or forward-looking in nature); provided that the exception set forth in this clause (a) will not apply to the representations set forth in Section 4.3 (Capitalization) or Section 4.4 (Authority) or (b) with respect to each section and subsection within this Article IV, the corresponding section or subsection of the disclosure letter delivered by BioTime to Asterias immediately prior to the execution of this Agreement (the "BioTime Disclosure Letter") (disclosure of any item in any section or subsection of the BioTime Disclosure Letter being deemed disclosure with respect to any other Section or subsection of this Agreement to which the relevance of such item is reasonably apparent), BioTime and Merger Sub jointly and severally represent and warrant to Asterias as set forth below.

Section 4.1 Organization and Power. BioTime is a corporation duly organized, validly existing and in good standing under the Laws of the State of California, and has the requisite corporate power and authority to own, lease and operate its properties and assets and to carry on its business as it is now being conducted. Merger Sub is a corporation organized, validly existing and in good standing under the Laws of the State of Delaware, and has the requisite corporate power and authority to own, lease and operate its properties and assets and to carry on its business as it is now being conducted. Each of BioTime and the Merger Sub is duly qualified or licensed as a foreign corporation to do business, and is in good standing, in each jurisdiction where the character of the properties owned, leased or operated by it or the nature of its business makes such qualification or licensing necessary, except where the failure to be so duly qualified or licensed and in good standing would not have, individually or in the aggregate, a BioTime Material Adverse Effect.

Section 4.2 Certificate of Incorporation and Bylaws. BioTime has made available to Asterias a complete and correct copy of the certificate of incorporation and the bylaws or equivalent organizational documents of BioTime and Merger Sub, each as amended to date (such certificates of incorporation, bylaws and equivalent organizational documents, collectively, referred to as the "BioTime Charter Documents"). The BioTime Charter Documents are in full force and effect. Neither BioTime nor Merger Sub is in material violation of any of the provisions of its respective BioTime Charter Documents.

Section 4.3 Capitalization.

(a) The authorized capital stock of BioTime consists of 250,000,000 BioTime Common Shares and 2,000,000 preferred shares, no par value ("BioTime Preferred Shares"). All outstanding BioTime Common Shares are validly

issued, fully paid and nonassessable and are issued free of any preemptive rights. All BioTime Common Shares subject to issuance upon the exercise, vesting or conversion of any convertible security will, upon issuance on the terms and conditions specified in the instruments pursuant to which they are issuable, will be duly authorized, validly issued, fully paid and nonassessable and free of any preemptive rights.

(b) As of the close of business on November 7, 2018:

(1) 126,884,482 BioTime Common Shares were issued and outstanding;

(2) no BioTime Common Shares were held by any BioTime Subsidiary;

(3) no BioTime Common Shares were held in the treasury of BioTime;

(4) 11,438,443 BioTime Common Shares were subject to outstanding BioTime Stock Options, of which BioTime Stock Options to purchase 5,959,134 BioTime Common Shares were vested;

(5) 16,000,000 BioTime Common Shares were reserved for issuance pursuant to BioTime's 2012 Equity Incentive Plan;

(6) 704,125 BioTime Common Shares were subject to outstanding BioTime RSU Awards;

(7) no BioTime Common Shares were subject to outstanding BioTime Warrants; and

(8) no BioTime Preferred Shares were issued or outstanding.

(c) As of November 7, 2018, except for changes since the date specified in Section 4.3(b) there are no outstanding (1) options, warrants or other Contracts of BioTime or any BioTime Subsidiary relating to the issued or unissued capital stock of BioTime or any BioTime Subsidiary or obligating BioTime or any BioTime Subsidiary to issue or sell any shares of capital stock of, or other equity interests in, BioTime or any BioTime Subsidiary, (2) shares of capital stock of, or other voting securities or ownership interests in, BioTime or (3) restricted shares, restricted share units, stock appreciation rights, performance shares, contingent value rights, "phantom" stock or similar securities or rights that are derivative of or provide economic benefits based, directly or indirectly, on the value or price of any capital stock or other voting securities (including any bonds, debentures, notes or other Indebtedness having voting rights or convertible into securities having voting rights) or ownership interests in BioTime or any BioTime Subsidiary (the items in clauses (1) through (3) being referred to collectively as the "BioTime Securities"), other than as described in

Section 4.3(b). There are no voting trusts or other Contracts to which BioTime or any BioTime Subsidiary is a party with respect to the voting of any capital stock of, or other equity interest in, BioTime or any BioTime Subsidiary.

(d) There are no outstanding contractual obligations of BioTime or any BioTime Subsidiary to repurchase, redeem or otherwise acquire any BioTime Common Shares or any other BioTime Securities or any capital stock of any BioTime Subsidiary or to provide funds to, or make any investment (in the form of a loan, capital contribution or otherwise) in, any BioTime Subsidiary or any other Person that would be material to BioTime and the BioTime Subsidiaries, taken as a whole. Each outstanding share of capital stock of each BioTime Subsidiary is duly authorized, validly issued, fully paid and nonassessable and was issued free of any preemptive rights, and each such share is owned by BioTime or another BioTime Subsidiary free and clear of all Encumbrances or Contracts or other limitations on BioTime's or any BioTime Subsidiary's voting rights.

Section 4.4 Authority.

(a) Each of BioTime and Merger Sub has all necessary corporate power and authority to execute and deliver this Agreement, to perform its obligations hereunder and, subject to obtaining the BioTime Shareholder Approval, to consummate the Transactions. The execution, delivery and performance of this Agreement by BioTime and Merger Sub and the consummation by BioTime and Merger Sub of the Transactions have been duly and validly authorized by all necessary corporate action, and no other corporate proceedings on the part of BioTime or Merger Sub are necessary to authorize this Agreement or to consummate the Transactions (other than, with respect to the Merger, (1) receipt of the BioTime Shareholder Approval and (2) the filing of the Certificate of Merger with the DSOS). This Agreement has been duly and validly executed and delivered by BioTime and Merger Sub and, assuming due authorization, execution and delivery by Asterias, constitutes a legal, valid and binding obligation of each of BioTime and Merger Sub, enforceable against each of BioTime and Merger Sub in accordance with its terms, except that (x) such enforcement may be subject to applicable bankruptcy, insolvency, reorganization, moratorium or other similar Laws, now or hereafter in effect, affecting creditors' rights generally and (y) the remedy of specific performance and injunctive and other forms of equitable relief may be subject to equitable defenses and to the discretion of the court before which any proceeding therefor may be brought.

(b) The BioTime Board of Directors (acting upon the unanimous recommendation of the BioTime Special Committee) has adopted resolutions (by unanimous vote of the disinterested members of the BioTime Board of Directors) (1) determining that this Agreement and the Transactions, including the Merger, are fair to, and in the best interests of, BioTime and its shareholders, (2) approving and declaring advisable this Agreement and the Transactions, and (3) directing that the issuance of BioTime Common Shares contemplated by this Agreement be submitted to the shareholders of BioTime for approval.

(c) The board of directors of Merger Sub adopted resolutions (1) determining that the Merger is fair to, and in the best interests of, Merger Sub and its stockholder and (2) approving and declaring advisable this Agreement and the Transactions (such approval and adoption having been made in accordance with the DGCL).

Section 4.5 No Conflicts; Required Filings and Consents.

(a) The execution and delivery of this Agreement by BioTime and Merger Sub do not, and the performance of this Agreement by BioTime and Merger Sub will not, (1) conflict with or violate the BioTime Charter Documents or (2) assuming that all consents, approvals, authorizations and other actions described in Section 4.5(b) have been obtained and all filings and obligations described in Section 4.5(b) have been made and the BioTime Shareholder Approval, conflict with or violate any Law or Order applicable to BioTime or Merger Sub or by which any property or asset of either of them is bound or (3) subject to obtaining the consents listed in Section 4.5(a) of the BioTime Disclosure Letter, result in any breach of, constitute a default (or an event that, with notice or lapse of time or both, would become a default or breach) under, constitute or be deemed an impermissible or void assignment (by operation of Law

or otherwise) by BioTime or a BioTime Subsidiary of, result in the acceleration of any obligation of BioTime or a BioTime Subsidiary or right of a Third Party, or result in the creation of an Encumbrance on any property or asset of BioTime or any BioTime Subsidiary pursuant to, any BioTime material contract (as defined in Item 601(b)(10) of Regulation S-K).

(b) The execution and delivery of this Agreement by BioTime and Merger Sub do not, and the performance of this Agreement by BioTime and Merger Sub will not, require any consent, approval, authorization or permit of, or filing with, or notification to, any Governmental Authority, except for (1) any filings as may be required under the rules and regulations of NYSE American, (2) the filing of the Joint Proxy Statement and the Registration Statement with the SEC and the declaration of effectiveness of the Registration Statement, (3) applicable requirements of the Exchange Act and Blue Sky Laws, and (4) the filing of the Certificate of Merger with the DSOS.

Section 4.6 Permits; Compliance. Each of BioTime and the BioTime Subsidiaries is in possession of all material franchises, licenses, permits, consents, approvals and Orders of any Governmental Authority necessary for each of BioTime or the BioTime Subsidiaries to own, lease and operate its properties or to carry on its business as it is now being conducted (the "BioTime Permits") except where the failure to hold or to comply with, or the suspension or cancellation of, or failure to be valid or to be in full force and effect of, any of the BioTime Permits, would not have, individually or in the aggregate, a BioTime Material Adverse Effect. No suspension or cancellation of any of the BioTime Permits is pending or, to the knowledge of BioTime, threatened in writing. Neither BioTime nor any BioTime Subsidiary is, or has been since January 1, 2015, in conflict with, or in default, breach or violation of, in any material respect, (1) any Law or Order applicable to BioTime or any BioTime Subsidiary or by which any property or asset of BioTime or any BioTime Subsidiary is bound, or (2) any material BioTime Permit, in each case where such conflict, default, breach or violation would be material to BioTime and BioTime Subsidiaries, taken as a whole, except for any past noncompliance as has been remedied and imposes no continuing obligations or costs on BioTime.

Section 4.7 SEC Filings; Financial Statements.

(a) BioTime has filed or furnished all forms, reports and other documents required to be filed or furnished by it with the SEC since January 1, 2015 (such documents filed, including any amendments thereof, the "BioTime SEC Reports"). Each BioTime SEC Report (1) complied as to form in all material respects with the applicable requirements of the Securities Act, or the Exchange Act, as the case may be, and SOX and the applicable rules and regulations promulgated thereunder and (2) did not, at the time it was filed (or, if amended prior to the date hereof, as of the date of such amendment), contain any untrue statement of a material fact, or omit to state a material fact, required to be stated therein or necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading.

(b) Each of the consolidated financial statements contained in the BioTime SEC Reports and all related compilations, reviews and other reports issued by BioTime's accountants with respect thereto included in the BioTime SEC Reports (1) complied as of their respective dates of filing with the SEC, in all material respects with applicable accounting requirements and the published rules and regulations of the SEC with respect thereto, (2) was prepared in accordance with GAAP applied on a consistent basis with BioTime's past practices throughout the periods indicated (except as may be indicated in the notes thereto or, in the case of unaudited statements, as permitted by the rules and regulations of the SEC) and (3) fairly present, in all material respects, the consolidated financial position, results of operations and cash flows of BioTime and its consolidated BioTime Subsidiaries as at the respective dates thereof and for the respective periods indicated therein (subject, in the case of unaudited interim statements, to normal and recurring year-end adjustments).

(c) Except as and to the extent set forth in the consolidated balance sheet of BioTime and its consolidated BioTime Subsidiaries as of June 30, 2018, including the notes thereto (the "2018 BioTime Balance Sheet"), neither BioTime nor any BioTime Subsidiary has any liability or obligation of any nature (whether accrued, absolute, contingent or otherwise) required to be disclosed by GAAP except for liabilities and obligations (1) incurred in the ordinary course of business and consistent with past practices since the date of the 2018 BioTime Balance Sheet, (2) executory obligations explicitly included under any written Contract to which BioTime or any BioTime Subsidiary is a party or is bound (that are not in the nature of breaches and that are not required by GAAP to be disclosed on a balance sheet), (3) incurred in connection with the preparation and negotiation of this Agreement and (4) that otherwise would not reasonably be expected to have, individually or in the aggregate, a BioTime Material Adverse Effect. Except as required by GAAP, BioTime has not, since January 1, 2017, made or adopted any material change in its accounting methods, practices or policies in effect on January 1, 2017.

(d) Each of the principal executive officer of BioTime and the principal financial officer of BioTime (and each former principal executive officer of the BioTime and each former principal financial officer of BioTime, as applicable) has made all certifications required by Rule 13a-14 or 15d-14 under the Exchange Act or Sections 302 and 906 of SOX and the rules and regulations of the SEC promulgated thereunder with respect to the BioTime SEC Reports, and neither BioTime nor any of its executive officers has received written notice from any Governmental Authority challenging or questioning the accuracy, completeness, form or manner of filing such certifications. For purposes of this Section 4.7(d), "principal executive officer" and "principal financial officer" have the meanings given to such terms in SOX. Neither BioTime nor any of the BioTime Subsidiaries has outstanding, or has arranged any outstanding, "extensions of credit" to directors or executive officers within the meaning of Section 402 of SOX.

(e) BioTime maintains a system of internal controls over financial reporting designed to provide reasonable assurances regarding the reliability of financial reporting and the preparation of financial statements for external purposes, including to provide reasonable assurance that: (1) transactions are executed in accordance with management's general or specific authorizations, (2) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP, (3) access to assets that could have a material effect on BioTime's financial statements is permitted only in accordance with management's general or specific authorization and (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Neither BioTime nor, to the knowledge of BioTime, any of its officers or employees identified or is aware of (i) any significant deficiencies or material weaknesses in the design or operation of BioTime's internal control

over financial reporting that could adversely affect BioTime's ability to record, process, summarize and report financial information or (ii) any fraud, whether or not material, that involves management or other employees who have a role in BioTime's internal control over financial reporting or the preparation of financial statements. Since December 31, 2015, any material change in internal control over financial reporting required to be disclosed in any BioTime SEC Report has been so disclosed.

(f) BioTime has in place "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) that are designed to ensure that material information that is required to be disclosed by BioTime in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and is accumulated and made known to its principal executive officer and principal financial officer as appropriate to allow timely decisions regarding required disclosure.

(g) Since January 1, 2015, neither BioTime nor BioTime's independent auditors has identified or been made aware of (i) any material weakness in the system of internal accounting controls utilized by BioTime, (ii) any fraud, whether or not material, that involves BioTime's management or other employees who have a role in the preparation of financial statements or the internal accounting controls utilized by BioTime or (iii) any substantive or credible and material Claim regarding any of the foregoing.

(h) As of the date hereof, there are no outstanding unresolved comments with respect to BioTime or the BioTime SEC Reports noted in comment letters or, to the knowledge of BioTime, other correspondence received by BioTime or its attorneys from the SEC, and there are no pending (1) formal or informal investigations of BioTime by the SEC or (2) inspection of an audit of BioTime's financial statements by the Public Company Accounting Oversight Board.

(i) BioTime has adopted a code of ethics, as defined by Item 406(b) of Regulation S-K of the SEC, for senior financial officers, applicable to its principal financial officer, comptroller or principal accounting officer, or Persons performing similar functions. BioTime has promptly disclosed any change in or waiver of BioTime's code of ethics with respect to any such Persons, as required by Section 406(b) of SOX.

Section 4.8 Absence of Certain Changes or Events. Between June 30, 2018 and the date hereof, (a) there has not been any event, condition, circumstance, development, change or effect having, individually or in the aggregate, a BioTime Material Adverse Effect and (b) none of BioTime or any of the BioTime Subsidiaries has taken any action, or authorized, committed or agreed to take any action, that if taken between the date hereof and the Effective Time would been prohibited by Section 5.2 if such covenant had been in effect as of June 30, 2018.

Section 4.9 Absence of Litigation. There is no Claim or Action before any Governmental Authority pending or, to the knowledge of BioTime, threatened against BioTime or Merger Sub or any asset or property of BioTime or Merger Sub that would reasonably be expected, individually or in the aggregate, to: (x) have a BioTime Material Adverse Effect; or (y) prevent or materially delay or impede the consummation of the Transactions. There is no Order outstanding against BioTime or Merger Sub that would reasonably be expected, individually or in the aggregate, to prevent or materially delay or impede the consummation of the Transactions. Neither BioTime nor any BioTime Subsidiary nor any property or asset of BioTime or any BioTime Subsidiary is subject to any continuing Order, settlement agreement or similar written agreement with any Governmental Authority, or any Order, determination or award of any Governmental Authority, in each case that contains ongoing obligations that would have a BioTime Material Adverse Effect.

Section 4.10 Taxes. Each of BioTime and the BioTime Subsidiaries has duly and timely filed with the appropriate Governmental Authority all material income Tax Returns and other material Tax Returns that it was required to file under applicable Laws and all such Tax Returns are true, correct and complete in all material respects. BioTime and the BioTime Subsidiaries have timely paid all Taxes, and any related interest, fees or penalties, required to be paid by them (whether or not shown on any Tax Return) and are not currently the beneficiary of any extension of time within which to file any Tax Return.

Section 4.11 Information Supplied. The information supplied by BioTime and Merger Sub for inclusion in the Joint Proxy Statement and the Registration Statement will not, (a) in the case of the Registration Statement, at the time the Registration Statement is filed with the SEC, at any time it is amended or supplemented or at the time it is declared effective under the Securities Act, contain any untrue statement of a material fact, or omit to state any material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not false or misleading and (b) in the case of the Joint Proxy Statement, as of the date the Joint Proxy Statement is first mailed to the shareholders of BioTime and the stockholders of Asterias, and at the time of the BioTime Special Meeting and the Asterias Special Meeting, contain any untrue statement of a material fact, or omit to state any material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not false or misleading. Notwithstanding the foregoing sentence, BioTime and Merger Sub make no representation or warranty with respect to any information supplied by Asterias or any of its Representatives for inclusion in any of the foregoing documents. The information supplied by BioTime for inclusion in the Joint Proxy Statement and the Registration Statement will comply as to form in all material respects with the applicable requirements of the Securities Act, the Exchange Act and the rules and regulations thereunder.

Section 4.12 NYSE American. BioTime is in material compliance with the applicable criteria for continued listing of the BioTime Common Shares on NYSE American, including all applicable corporate governance rules and regulations.

Section 4.13 Brokers and Expenses. No agent, broker, finder or investment banker, other than _____ (the "BioTime Financial Advisor"), is entitled to any brokerage, finder's or other fee or commission payable by BioTime in connection with the Transactions based upon arrangements made by or on behalf of BioTime, any BioTime

Subsidiary or Merger Sub.

Section 4.14 Vote Required. The BioTime Shareholder Approval is the only vote of the holders of any class or series of BioTime's capital stock necessary to adopt or approve this Agreement, the Merger or any of the other Transactions.

Section 4.15 Opinion of Financial Advisor. Prior to the execution of this Agreement, the BioTime Special Committee and the BioTime Board of Directors received an opinion from the BioTime Financial Advisor to the effect that, as of the date hereof and based upon and subject to the various qualifications and assumptions set forth therein, the Exchange Ratio is fair from a financial point of view to BioTime. BioTime will make available to Asterias a copy of the written opinion as soon as practicable following the execution of this Agreement for informational purposes only.

Section 4.16 Merger Sub. Merger Sub was formed for the purpose of engaging in the Merger. All of its outstanding stock is owned directly by BioTime and it has outstanding no rights or obligations pursuant to which any Person may acquire any of its stock. Except for obligations or liabilities incurred in connection with its incorporation or organization, its entry into this Agreement or the consummation of the Merger, Merger Sub has not incurred any obligations or liabilities, engaged in any business or activities of any type or kind whatsoever or entered into any Contracts or arrangements.

Section 4.17 No Other Representations or Warranties. Except for the representations and warranties contained in this Agreement, neither BioTime nor any other Person on behalf of BioTime makes any express or implied representation or warranty with respect to BioTime or any of its Subsidiaries or with respect to any other information provided to Asterias in connection with the Transactions.

Section 4.18 Disclaimer of Other Representations and Warranties. Each of BioTime and Merger Sub acknowledges and agrees that, except for the representations and warranties expressly set forth in this Agreement (a) Asterias is not making and has not made any representations or warranties relating to itself or its business or otherwise in connection with the Transactions, including the Merger, and none of BioTime, Merger Sub or their respective Representatives is relying on any representation or warranty of Asterias except for those expressly set forth in this Agreement, (b) no Person has been authorized by Asterias to make any representation or warranty relating to Asterias or its business, and if made, such representation or warranty must not be relied upon by BioTime or Merger Sub as having been authorized by Asterias and (c) any estimates, projections, predictions, data, financial information, memoranda, presentations or any other materials or information provided or addressed to BioTime, Merger Sub or any of their Representatives are not and shall not be deemed to be or include representations or warranties unless any such materials or information are the subject of any express representation or warranty set forth in this Agreement.

Article V

Covenants Relating to Conduct of Business Pending the Merger

Section 5.1 Conduct of Business by Asterias Pending the Closing.

(a) From the date of this Agreement until the Effective Time, Asterias will conduct its business in all material respects in the ordinary course of business consistent with past practice, including by using commercially reasonable efforts to (1) preserve intact its present business organizations and to preserve its present relationships with customers, suppliers and other Persons with whom it has material business relations, (2) maintain the existence of, validity, enforceability and rights of Asterias in, to or under the Asterias Permits (including any pending applications for new or renewed Asterias Permits) and (3) keep available the services of the key employees of Asterias, except (A) as set forth in Section 5.1 of the Asterias Disclosure Letter, (B) as specifically required by this Agreement, (C) as required by Law or Order or (D) as consented to in writing by BioTime (which consent will not be unreasonably withheld, delayed or conditioned and must be requested by e-mail addressed to the Persons (at the addresses) set forth in Section 5.1 of the Asterias Disclosure Letter, and which consent will be given by means of an email response from any of such Persons consenting to such request).

(b) Except (i) as set forth in Section 5.1 of the Asterias Disclosure Letter, (ii) as specifically required by this Agreement, (iii) as required by Law or Order or (iv) as consented to in writing by BioTime, from the date of this Agreement until the Effective Time, Asterias will not:

(1) authorize or pay any dividends on or make any distribution with respect to its outstanding shares of capital stock (whether in cash, assets, shares or other securities of Asterias);

(2) split, combine, reduce or reclassify any of its capital stock, or issue or authorize the issuance of any other securities in respect of, in lieu of or in substitution for, shares of its capital stock, except for the exercise of any Asterias Warrants outstanding on the date hereof or the exercise, vesting or settlement (as applicable) of Asterias Equity Awards outstanding on the date hereof or granted in accordance with this Section 5.1(b) and in accordance with their respective terms;

(3) (A) increase the compensation payable or to become payable to any of its Workers (including Workers holding the positions of Chief Executive Officer, Chief Financial Officer, Chief Medical Officer and Senior Vice President of Research & Product Development (or equivalent positions with similar roles and responsibilities)), other than increases in annual base salaries and other cash compensation payable to any of its current employees at the rank or title below the rank or title of Vice President, at times and in dollar amounts in the ordinary course of business in

connection with Asterias' annual salary review process consistent with past practice, (B) grant to any of its Workers any increase in severance, termination pay, retention pay, or change in control benefits, (C) enter into any employment, severance, change in control, or retention agreement (excluding offer letters for "at will" employment that provide for no severance, retention, or change in control benefits) with any of its Workers, (D) establish, adopt, enter into, materially amend or terminate any collective bargaining agreement or Asterias Plan, (E) except as required by any Asterias Plan in existence as of the date hereof or adopted in accordance with this Agreement, take any action to accelerate any payment or benefit, or the funding of any payment or benefit, payable or to become payable to any of its Workers except in the ordinary course of business consistent with past practice, (F) terminate the employment of any current Worker other than for cause or non-performance of material duties or due to death or disability or (G) hire any Person for employment with Asterias (except that Asterias may hire any Person for employment to fill any position that is vacant as of the date hereof, or any currently existing position that becomes vacant after the date hereof and, notwithstanding anything to the contrary in this clause (G), provide such Person with compensation and benefits commensurate for such position consistent with past practice, including the aggregate award to new hires of Asterias Stock Options pursuant to the Asterias Equity Plans not to exceed 100,000 shares of Asterias Common Stock in the aggregate upon the exercise of such Asterias Stock Options (and for the avoidance of doubt, with an exercise price equal to or in excess of the fair market value of the underlying shares of Asterias Common Stock at the time of grant));

(4) (A) commence, implement or effect any material organizational restructuring of Asterias or (B) reassign the responsibilities of any Worker at the rank or title of Vice President or higher in any material respect, except that Asterias may terminate any Worker for cause or non-performance of material duties or due to death or disability;

(5) make any material change in financial accounting policies or procedures or any of its methods of reporting income, deductions or other material items for financial accounting purposes, except as required by GAAP or SEC policy;

(6) authorize or announce an intention to authorize, or enter into agreements providing for, the acquisition, directly or indirectly (including by merger, consolidation, or acquisition of stock or assets or any other business combination), any corporation, partnership, other business organization or any division thereof or any other business, or any equity interest in any Person or any material amount (individually or collectively) of assets that, in any case, would reasonably be expected to prevent or materially delay or impede the consummation of the Transactions;

(7) amend the Asterias Governing Documents;

(8) issue, deliver, grant, sell, pledge, dispose of or encumber, or authorize the issuance, delivery, grant, sale, disposition or Encumbrance of, any shares in its capital stock, voting securities or other equity interest in Asterias or any securities convertible into or exchangeable for any such shares, voting securities or equity interest, or any rights, warrants or options to acquire any such shares in its capital stock, voting securities or equity interest or any “phantom” stock, “phantom” stock rights, stock appreciation rights or stock based performance units or take any action to cause to be vested or exercisable any otherwise unvested or unexercisable Asterias Equity Awards under any existing Asterias Equity Plan (except as otherwise provided by an Asterias Plan in accordance with its terms on the date hereof), other than (A) the exercise of any Asterias Warrants outstanding on the date hereof or the exercise, vesting or settlement of Asterias Equity Awards outstanding on the date hereof or granted in accordance with this Section 5.1(b), and in accordance with their respective terms, or (B) the award to new hires or in connection with promotion of Asterias Stock Options (and for the avoidance of doubt, with exercise price equal to or in excess of the fair market value of the underlying shares of Asterias Common Stock at the time of grant) pursuant to the Asterias Equity Plans (not to exceed 100,000 shares of Asterias Common Stock in the aggregate upon the exercise of such Asterias Stock Options);

(9) directly or indirectly, purchase, redeem or otherwise acquire any shares in its capital or any rights, warrants or options to acquire any such shares in its capital, except for (A) acquisitions of shares of Asterias Common Stock tendered by holders of Asterias Equity Awards in order to satisfy obligations to pay the exercise price and/or Tax withholding obligations with respect thereto, and (B) the acquisition by Asterias of Asterias Equity Awards in connection with the forfeiture of such awards;

(10) redeem, repurchase, prepay (other than prepayments of revolving loans), defease, incur, assume, endorse, guarantee or otherwise become liable for or modify in any material respects the terms of any Indebtedness for borrowed money or issue or sell any debt securities or calls, options, warrants or other rights to acquire any debt securities (directly, contingently or otherwise);

(11) make any loans, advances or capital contributions, except for (A) loans or advances to employees or independent contractors for travel expenses in the ordinary course of business, and (B) extended payment terms for customers in the ordinary course of business;

(12) sell, lease, license, transfer, exchange, swap or otherwise dispose of, or subject to any Encumbrance (other than Permitted Encumbrances), any of its material properties or assets, except (A) sales of inventory, or dispositions of obsolete or worthless equipment, in the ordinary course of business and (B) non-exclusive licenses of non-material Intellectual Property in the ordinary course of business, and (C) non-exclusive licenses of Asterias Owned Intellectual Property entered into in conjunction with the sale of Asterias Products in the ordinary course of business;

(13) settle, pay, discharge or satisfy any Actions or Claims that (A) impose any injunctive relief on Asterias, (B) concern alleged criminal activity or (C) involve the payment of money in excess of $50,000 in the aggregate in excess of existing insurance coverage;

(14) commence any Actions against any Person, except for (A) the routine collection of accounts receivable, or (B) a breach of this Agreement;

(15) change any material Tax election, or make any material Tax election other than elections made in the ordinary course of business, change any Tax accounting period, file any amended Tax Return without the prior written consent of BioTime, settle or compromise any audit or proceeding relating to Taxes, agree to an extension or waiver of the statute of limitations with respect to Taxes, enter into any “closing agreement” within the meaning of Section 7121 of the Code (or any similar provision of state, local, or non-U.S. Law) with respect to any Tax, surrender any right to Claim a Tax refund, or take any action that would require the filing of a “gain recognition agreement” (within the meaning of the Treasury Regulations promulgated under Section 367 of the Code) to avoid current recognition of income or gain for U.S. federal income tax purposes;

(16) make any new capital expenditure or expenditures in excess of $100,000 in the aggregate, or commit to do so;

(17) except in the ordinary course of business (except as otherwise prohibited in any other subclause of this Section 5.1(b)), (A) enter into any Contract or amendment that, if entered into prior to the date hereof, would be an Asterias Material Contract, (B) materially amend, materially modify, terminate or consent to the termination of any Asterias Material Contract or (C) waive, release, relinquish or assign any Asterias Material Contract (or any of Asterias' rights thereunder), right or Claim;

(18) fail to file, deliver or provide any response, document, information or other material, or pay any fee due and payable, necessary to prevent the abandonment, expiration or termination of any material Asterias Registered Intellectual Property; or

(19) agree, in writing or otherwise, to take any of the foregoing actions.

Section 5.2 Conduct of Business by BioTime Pending the Closing.

(a) From the date of this Agreement until the Effective Time, BioTime will conduct its business in all material respects in the ordinary course of business consistent with past practice, except (i) as set forth in Section 5.2(a)(i) of the BioTime Disclosure Letter, (ii) as specifically required by this Agreement, (iii) as required by Law or Order or (iv) as consented to in writing by Asterias (which consent will not be unreasonably withheld, delayed or conditioned and must be requested by e-mail addressed to the Persons (at the addresses) set forth in Section 5.2(a)(ii) of the BioTime Disclosure Letter, and which consent will be given by means of an email response from any of such Persons consenting to such request).

(b) Except (i) as set forth in Section 5.2(b) of the BioTime Disclosure Letter, (ii) as specifically required by this Agreement, (iii) as required by Law or Order or (iv) as consented to in writing by Asterias, from the date of this Agreement until the Effective Time, BioTime will not, and will not permit any BioTime Subsidiary to:

(1) authorize or pay any dividends on or make any distribution with respect to its outstanding shares of capital stock (whether in cash, assets, shares or other securities of BioTime or any BioTime Subsidiary), except dividends and distributions by a wholly owned BioTime Subsidiary to BioTime or another wholly owned BioTime Subsidiary;

(2) split, combine, reduce or reclassify any of its capital stock, or issue or authorize the issuance of any other securities in respect of, in lieu of or in substitution for, shares of its capital stock, except for any such transaction by a wholly owned BioTime Subsidiary that remains a wholly owned BioTime Subsidiary after consummation of such transaction and except for the exercise of any BioTime Warrants outstanding on the date hereof or the exercise, vesting or settlement (as applicable) of BioTime Equity Awards outstanding on the date hereof or granted in accordance with this Section 5.2(b) and in accordance with their respective terms;

(3) authorize or announce an intention to authorize, or enter into agreements providing for, the acquisition, directly or indirectly (including by merger, consolidation, or acquisition of stock or assets or any other business combination), any corporation, partnership, other business organization or any division thereof or any other business, or any equity interest in any Person or any material amount (individually or collectively) of assets that, in any case, would reasonably be expected to prevent or materially delay or impede the consummation of the Transactions, except for transactions between BioTime and a wholly owned BioTime Subsidiary or between wholly owned BioTime Subsidiaries;

(4) amend the BioTime Charter Documents, or permit any BioTime Subsidiary to adopt any amendments to its governing documents;

(5) issue, deliver, grant, sell, pledge, dispose of or encumber, or authorize the issuance, delivery, grant, sale, disposition or Encumbrance of, any shares in its capital stock, voting securities or other equity interest in BioTime or any BioTime Subsidiary or any securities convertible into or exchangeable for any such shares, voting securities or equity interest, or any rights, warrants or options to acquire any such shares in its capital stock, voting securities or equity interest or any “phantom” stock, “phantom” stock rights, stock appreciation rights or stock based performance units or take any action to cause to be vested or exercisable any otherwise unvested or unexercisable BioTime Equity Awards under any existing BioTime Equity Plan (except as otherwise provided by a BioTime Plan in accordance with its terms on the date hereof), other than (A) the exercise of any BioTime Warrants outstanding on the date hereof or the exercise, vesting or settlement of BioTime Equity Awards outstanding on the date hereof or granted in accordance with this Section 5.2(b), and in accordance with their respective terms, (B) the award of BioTime Stock Options pursuant to the BioTime Equity Plans (not to exceed 500,000 BioTime Common Shares in the aggregate upon the exercise of such BioTime Stock Options) or (C) transactions between BioTime and a wholly owned BioTime Subsidiary or between wholly owned BioTime Subsidiaries; or

(6) directly or indirectly, purchase, redeem or otherwise acquire any shares in its capital or any rights, warrants or options to acquire any such shares in its capital, except for (A) acquisitions of BioTime Common Shares tendered by holders of BioTime Equity Awards in order to satisfy obligations to pay the exercise price and/or Tax withholding obligations with respect thereto, (B) the acquisition by BioTime of BioTime Equity Awards in connection with the forfeiture of such awards and (C) transactions between BioTime and a wholly owned BioTime Subsidiary or between wholly owned BioTime Subsidiaries.

Section 5.3 Go-Shop.

(a) During the period commencing on the date of this Agreement and ending at 11:59 p.m. (New York City time) on December 3, 2018 (the "Go-Shop Period"), Asterias and its Representatives shall be permitted to, directly or indirectly, (i) solicit, initiate, encourage and facilitate (including by the making of a public announcement) any inquiry, discussion, offer or request that constitutes, or could reasonably be expected to lead to, an Acquisition Proposal, (ii) grant a waiver under or terminate any "standstill" or similar obligation of any Third Party with respect to Asterias solely to allow such Third Party to submit an Acquisition Proposal in compliance with this Article V and (iii) participate in and engage in discussions and negotiations with, furnish non-public information relating to Asterias, and afford access to the books and records of Asterias to any Third Party, in each case in connection with an Acquisition Proposal or any inquiry, discussion, offer or request that could reasonably be expected to lead to an Acquisition Proposal; provided, that, prior to furnishing such non-public information or affording such access, Asterias shall have entered into an Acceptable Confidentiality Agreement with such Third Party and shall have previously provided or made available (or provides or makes available within one (1) business day) all such information, and has afforded such access, to BioTime.

(b) Upon the expiration of the Go-Shop Period, Asterias shall, and shall use its reasonable best efforts to cause its Representatives to, immediately cease and cause to be terminated, and shall not authorize or knowingly permit any of Asterias' Representatives to continue, any and all existing activities, discussions or negotiations with any Third Party conducted prior thereto with respect to any Acquisition Proposal or Acquisition Transaction (other than with respect to each Excluded Party only for so long as such Person is and remains an Excluded Party), and shall terminate all access granted to any such Third Party (other than with respect to each Excluded Party only for so long as such Person is and remains an Excluded Party) to any physical or electronic data room (subject to Asterias' right to subsequently provide access to any such physical or electronic data room pursuant to Section 5.4(b)).

(c) Definitions:

(1) "Acquisition Proposal" means any offer, proposal or indication of interest from any Third Party relating to any Acquisition Transaction.

(2) "Acquisition Transaction" means any transaction or series of related transactions (other than the Transactions) involving: (i) any acquisition or purchase by any Third Party, directly or indirectly, of more than twenty percent (20%) of any class of outstanding voting or equity securities of Asterias, or any tender offer (including a self-tender offer) or exchange offer that, if consummated, would result in any Third Party beneficially owning more than twenty percent (20%) of any class of outstanding voting or equity securities of Asterias; (ii) any merger, consolidation, share exchange, business combination, joint venture, recapitalization, reorganization or other similar transaction involving Asterias and a Third Party pursuant to which the stockholders of Asterias immediately preceding such transaction hold less than eighty percent (80%) of the equity interests in the surviving or resulting entity of such transaction; (iii) any

sale, lease (other than in the ordinary course of business), exchange, transfer or other disposition to a Third Party of more than twenty percent (20%) of the consolidated assets, revenue or net income of Asterias and its Subsidiaries (with assets being measured by the fair market value thereof); or (iv) any combination of the foregoing.

(3) "Excluded Party" shall mean any Third Party from which Asterias or its Representatives received during the Go-Shop Period a bona fide written Acquisition Proposal that: (i) remains pending as of, and shall not have been withdrawn prior to, the expiration of the Go-Shop Period; and (ii) during the Go-Shop Period each of the Asterias Board of Directors and the Asterias Special Committee reasonably determines in good faith, after consultation with Asterias' financial and legal advisors, constitutes or would be reasonably likely to lead to a Superior Proposal; provided, that any such Third Party shall cease to be an Excluded Party upon the earliest to occur of the following: (A) such Third Party's Acquisition Proposal is withdrawn, terminated or expires; (B) each of the Asterias Special Committee and the Asterias Board of Directors determines in good faith, after consultation with its financial advisor and outside legal counsel, that such Third Party's Acquisition Proposal no longer constitutes a Superior Proposal or is no longer reasonably likely to lead to a Superior Proposal; and (C) 11:59 p.m. (New York time) on the fiftieth (50^{th}) day following the date hereof.

(4) "Superior Proposal" means any written *bona fide* written Acquisition Proposal (except that, for purposes of this definition, the references in the definition of "Acquisition Proposal" to "20%" shall be replaced by "50%") made by a Third Party after the date of this Agreement that (i) was not solicited in violation of Section 5.3 through Section 5.6; and (ii) which each of the Asterias Special Committee and the Asterias Board of Directors has determined in its good faith judgment, after consultation with outside legal counsel and financial advisors, taking into account all legal, financial and regulatory aspects of the transaction described in such Acquisition Proposal, including the identity of the Person making such Acquisition Proposal, the certainty of closing, the availability of financing and the ability of such Person to consummate the transactions contemplated by the Acquisition Proposal, (A) would reasonably be expected to be consummated in accordance with its terms (if accepted) and (B) is on terms and conditions more favorable to the holders of Asterias Common Stock (solely in their capacities as such) from a financial point of view than the Transactions (after taking into account any revisions to the terms of the Transactions proposed by BioTime and any different time period likely to be required to consummate such Acquisition Proposal relative to the Transactions).

Section 5.4 No-Solicitation.

(a) Except as permitted by Section 5.4(b), from and after the expiration of the Go-Shop Period and continuing until the earlier to occur of the termination of this Agreement in accordance with Article VIII and the Effective Time, Asterias shall not (and shall use its reasonable best efforts to cause its Representatives not to), directly or indirectly (other than with respect to each Excluded Party only for so long as such Person is and remains an Excluded Party):

(1) solicit, initiate, knowingly encourage, facilitate or induce the making, submission or announcement of an Acquisition Proposal or the making of any inquiry, offer or proposal that would be reasonably likely to lead to any Acquisition Proposal or Acquisition Transaction; or

(2) furnish to any Third Party any non-public information relating to Asterias or any of its Subsidiaries, or afford access to the business, properties, assets, books or records of Asterias or any of its Subsidiaries to any Third Party, in each case in connection with an Acquisition Proposal or an Acquisition Transaction or under circumstances reasonably likely to lead to an Acquisition Proposal or an Acquisition Transaction; or

(3) take any other action intended to assist or facilitate the making of any Acquisition Proposal or any inquiry, offer or proposal that would be reasonably likely to lead to an Acquisition Proposal or Acquisition Transaction; or

(4) participate or engage in discussions or negotiations with any Third Party regarding an Acquisition Proposal or Acquisition Transaction (other than solely to inform the Third Party of the restrictions set forth in this Section 5.4); or

(5) approve, endorse or recommend an Acquisition Proposal or Acquisition Transaction; or

(6) execute or enter into any letter of intent, memorandum of understanding or Contract contemplating or otherwise relating to an Acquisition Proposal or Acquisition Transaction.

(b) Notwithstanding anything to the contrary in Section 5.4(a), prior to obtaining the Asterias Stockholder Approval, the Asterias Board of Directors or the Asterias Special Committee may, directly or indirectly through any Representative, (i) engage or participate in discussions or negotiations with (x) any Excluded Party (only for so long as such Person is and remains an Excluded Party) and (y) any Third Party that has made a written Acquisition Proposal after the date of this Agreement that was not solicited in violation of Article V and that the Asterias Board of Directors determines in good faith (after consultation with its financial advisor and its outside legal counsel) either constitutes or would reasonably be likely to lead to a Superior Proposal, and/or (ii) furnish any non-public information relating to Asterias or any of its Subsidiaries to any Third Party that has made a written Acquisition Proposal after the date of this Agreement that was not solicited in violation of Article V and that the Asterias Board of Directors determines in good faith (after consultation with its financial advisor and its outside legal counsel) either constitutes or would reasonably be likely to lead to a Superior Proposal; provided that, in the case of any action taken pursuant to the foregoing clauses “(i)” or “(ii)”:

(1) each of the Asterias Board of Directors and the Asterias Special Committee has determined in good faith (after consultation with its financial advisor and its outside legal counsel) that the failure to take such action would be inconsistent with its fiduciary duties under applicable Law;

(2) either Asterias is already a party to an Acceptable Confidentiality Agreement with such Third Party or Asterias enters into an Acceptable Confidentiality Agreement with such Third Party;

(3) Unless prohibited by a confidentiality agreement entered into prior to the date hereof, Asterias notifies BioTime of the identity of such Person and provides BioTime all of the terms and conditions of such Acquisition Proposal (and if such Acquisition Proposal is in written form, Asterias provides BioTime a copy thereof); and

(4) contemporaneously with, or promptly (and in any event within one (1) business day) after, furnishing any non-public information to such Third Party, Asterias furnishes such non-public information to BioTime (to the extent such information has not been previously furnished to BioTime).

(c) Asterias hereby acknowledges and agrees that any violation of the restrictions set forth in this Section 5.4 by any Representative of Asterias shall be deemed to be a breach of this Section 5.4 by Asterias.

(d) Except as set forth in Section 5.3(a)(ii) (provided that such exception shall only apply during the Go-Shop Period) and except to permit any Excluded Party (while such Third Party is an Excluded Party) to make a written Acquisition Proposal to Asterias or the Asterias Board of Directors, Asterias agrees not to release or permit the release of any Person from, or to waive or permit the waiver or termination of any provision of, any confidentiality, standstill or similar agreement (or any standstill or confidentiality provision of any other contract or agreement) to which Asterias or any "moratorium," "control share acquisition," "fair price," "interested stockholder," "affiliate transaction," "business combination," or other antitakeover applicable Law, and Asterias will use commercially reasonable efforts to enforce or cause to be enforced to the fullest extent permitted by applicable Law each such agreement.

Section 5.5 Notice and Information.

(a) As promptly as reasonably practicable, and in any event within one (1) business day following the expiration of the Go-Shop Period, Asterias shall deliver to BioTime a written notice setting forth: (i) the identity of each Excluded Party and (ii) the material terms and conditions of the pending Acquisition Proposal made by such Excluded Party. During the Go-Shop Period, Asterias shall promptly (and in any event within one (1) business day) notify BioTime in writing of (A) any Acquisition Proposal received by Asterias, including the terms and conditions of such Acquisition

Proposal and the identity of the Person or group making any such Acquisition Proposal (except to the extent prohibited by a confidentiality agreement entered into prior to the date hereof), and (B) the provision to a Third Party considering an Acquisition Proposal (or such Person or group's Representatives) of credentials to access the electronic data room established by Asterias for legal and business due diligence, including the identity of such Third Party; provided that Asterias need not deliver multiple notices pursuant to this clause (B) for successive requests for credentials by different Representatives of such Third Party. From and after the expiration of the Go-Shop Period, Asterias shall promptly (and in any event within one (1) business day) notify BioTime in writing of (x) any Acquisition Proposal received by Asterias, (y) any request for information that would be reasonably likely to lead to an Acquisition Proposal received by Asterias or its Representatives or (z) any inquiry made to Asterias or any of its Representatives with respect to, or that would be reasonably likely to lead to, any Acquisition Proposal, the terms and conditions of such Acquisition Proposal, request or inquiry, and the identity of the Third Party making any such Acquisition Proposal, request or inquiry; provided, in each of the foregoing clauses (x)-(z) that Asterias shall not be required to make such disclosure to the extent such disclosure is expressly prohibited by the terms of a confidentiality agreement with such Third Party that is in effect on the date hereof, in which case Asterias shall notify BioTime that it has received an Acquisition Proposal and provide BioTime with a description of the withheld information.

(b) Asterias shall keep BioTime (including the BioTime Chief Executive Officer and the BioTime Special Committee) reasonably informed on a prompt basis of the status and material details (including all amendments or proposed amendments, whether or not in writing) of any such Acquisition Proposal, request or inquiry (including from an Excluded Party), and promptly (and in any event within one (1) business day) provide BioTime with copies of all documents and written or electronic communications relating to any Acquisition Proposal (including the financing thereof), request or inquiry exchanged between Asterias, its Subsidiaries or any of their respective Representatives, on the one hand, and the Third Party making the Acquisition Proposal, request or inquiry (or such Third Party's affiliates or Representatives), on the other hand.

Section 5.6 Board Recommendation.

(a) Subject to the provisions of Section 5.6(c), (i) the Asterias Board of Directors shall (x) recommend that the Asterias' stockholders adopt this Agreement in accordance with the provisions of applicable Law (the "Asterias Board Recommendation") and (y) include the Asterias Board Recommendation in the Joint Proxy Statement, and (ii) neither the Asterias Board of Directors nor any committee thereof (including the Asterias Special Committee) shall (1) fail to make, withdraw, amend, modify or qualify the Asterias Board Recommendation in a manner that is adverse to BioTime, or publicly propose to withhold, withdraw, amend, modify or qualify the Asterias Board Recommendation in a manner that is adverse to BioTime, (2) approve, endorse, adopt or recommend, or publicly propose to approve, endorse, adopt or recommend, an Acquisition Proposal or Acquisition Transaction, (3) fail to include the Asterias Board Recommendation in the Joint Proxy Statement or (4) fail to publicly recommend against any Acquisition Proposal or Acquisition Transaction subject to Regulation 14D under the Exchange Act in a Solicitation/Recommendation Statement on Schedule 14D-9 within ten (10) business days after the commencement of such Acquisition Proposal or Acquisition Transaction (the actions or inactions referred to in the preceding clauses (1), (2), (3) and (4) being referred to herein as an "Asterias Board Recommendation Change").

(b) Notwithstanding anything to the contrary set forth in this Agreement, the Asterias Board of Directors may (x) effect an Asterias Board Recommendation Change or (y) terminate this Agreement pursuant to Section 8.1(i) to enter into a definitive agreement to consummate a Superior Proposal, in each case at any time prior to obtaining the Asterias Stockholder Approval in the event that

(1) the Asterias Board of Directors has received a *bona fide* written Acquisition Proposal after the date of this Agreement that was not solicited in violation of Article V;

(2) each of the Asterias Board of Directors and the Asterias Special Committee determines in good faith (after consultation with its financial advisor and its outside legal counsel) that such Acquisition Proposal is a Superior Proposal;

(3) prior to effecting such Asterias Board Recommendation Change or terminating this Agreement pursuant to Section 8.1(i), the Asterias Board of Directors shall have given BioTime at least four (4) business days' prior written notice of its intention to effect an Asterias Board Recommendation Change pursuant to this Section 5.6 or terminate this Agreement (the "Change of Recommendation Notice Period") (which notice shall include the most current version of the proposed definitive agreement (which shall be marked to show changes to this Agreement) and, to the extent not included therein, all material terms and conditions of such Superior Proposal and the identity of the Person making such Superior Proposal);

(4) if requested by BioTime, during the Change of Recommendation Notice Period, Asterias shall have met and negotiated in good faith with BioTime regarding modifications to the terms and conditions of this Agreement so that such Superior Proposal ceases to be a Superior Proposal;

(5) prior to the end of the Change of Recommendation Notice Period, BioTime shall not have made a counter-offer or proposal in writing and in a manner that, if accepted by Asterias, would form a binding contract, that the Asterias Board of Directors and the Asterias Special Committee determines (after consultation with its financial advisor and its outside legal counsel) is at least as favorable to stockholders of Asterias as such Superior Proposal (it being understood that (x) any material revision to the terms of a Superior Proposal, including, any revision in price, shall require a new notice pursuant to clause (C) above, (y) the Change of Recommendation Notice Period shall be extended, if applicable, to the extent necessary to ensure that at least two (2) business days remain in the Change of Recommendation Notice Period subsequent to the time Asterias notifies BioTime of any such material revision and (z) there may be multiple extensions of the Change of Recommendation Notice Period); and

(6) each of the Asterias Board of Directors and the Asterias Special Committee determines (after consultation with its outside legal counsel and after considering any counter-offer or proposal made by BioTime pursuant to clause (E) above), that, in light of such Superior Proposal, the failure to effect an Asterias Board Recommendation Change or terminate this Agreement pursuant to Section 8.1(i) in order to enter into a definitive agreement to consummate such Superior Proposal would be inconsistent with its fiduciary duties under applicable Law.

(c) Notwithstanding anything to the contrary set forth in this Agreement, the Asterias Board of Directors may effect an Asterias Board Recommendation Change in response to an Asterias Intervening Event at any time prior to obtaining the Asterias Stockholder Approval in the event that each of the Asterias Board of Directors and the Asterias Special Committee determines (after consultation with its outside legal counsel) that the failure to effect an Asterias Board Recommendation Change in response to such Asterias Intervening Event would be inconsistent with its fiduciary duties under applicable Law; provided that, prior to effecting an Asterias Board Recommendation Change pursuant to this Section 5.6(c), the Asterias Board of Directors shall have given BioTime at least four (4) business days' notice of its intention to effect an Asterias Board Recommendation Change pursuant to this Section 5.6(c) (which notice shall include the reason (in reasonable detail) for such Asterias Board Recommendation Change) and, if requested by BioTime, Asterias shall have met and negotiated in good faith with BioTime regarding modifications to the terms and conditions of this Agreement so that the Asterias Board of Directors and the Asterias Special Committee no longer determines that the failure to make an Asterias Board Recommendation Change in response to such Asterias Intervening Event would be inconsistent with its fiduciary duties under applicable Law.

(d) As promptly as practicable following the end of the Go-Shop Period, Asterias will request that all confidential or proprietary information previously furnished to any Person (except for an Excluded Party while such Person is an Excluded Party) in connection with discussions and negotiations conducted with respect to any Acquisition Proposal in the two-year period prior to the date of this Agreement, be promptly returned or destroyed. Once a Third Party is no longer an Excluded Party, Asterias will make the request set forth in the foregoing sentence.

(e) Nothing contained in this Section 5.6 or elsewhere in this Agreement shall prohibit Asterias from (i) making any public announcement or disclosure to Asterias' stockholders if the Asterias Board of Directors determines in good faith (after consultation with its outside legal counsel) that failure to make such disclosure would constitute a breach of their fiduciary duties under applicable Law, (ii) disclosing a position contemplated by Rule 14d-9, Rule 14e-2(a)(2) or (3) or Item 1012(a) of Regulation M-A under the Exchange Act, or (iii) making any "stop-look-and-listen" communication of the type contemplated by Rule 14d-9(f) under the Exchange Act, provided, however, that an Asterias Board Recommendation Change can be made only in compliance with Section 5.6(b).

(f) Subject to the provisions of Section 5.6(g), (i) the BioTime Board of Directors shall (x) recommend that the BioTime's shareholders approve the issuance of BioTime Common Shares as provided in this Agreement (the "BioTime Board Recommendation") and (y) include the BioTime Board Recommendation in the Joint Proxy Statement, and (ii) neither the BioTime Board of Directors nor any committee thereof shall (1) fail to make, withdraw, amend, modify or qualify the BioTime Board Recommendation in a manner that is adverse to Asterias, or publicly propose to withhold, withdraw, amend, modify or qualify the BioTime Board Recommendation in a manner that is adverse to Asterias, or

(2) fail to include the BioTime Board Recommendation in the Joint Proxy Statement (the actions or inactions referred to in the preceding clauses (1) and (2) being referred to herein as a "BioTime Board Recommendation Change").

(g) Notwithstanding anything to the contrary set forth in this Agreement, the BioTime Board of Directors and the BioTime Special Committee may (x) effect a BioTime Board Recommendation Change or (y) terminate this Agreement pursuant to Section 8.1(g) in response to a BioTime Intervening Event at any time prior to obtaining the BioTime Shareholder Approval in the event that the BioTime Board of Directors determines (after consultation with its outside legal counsel) that the failure to effect a BioTime Board Recommendation Change in response to such BioTime Intervening Event would be inconsistent with its fiduciary duties under applicable Law; provided that, prior to effecting a BioTime Board Recommendation Change pursuant to this Section 5.6(g), the BioTime Board of Directors shall have given Asterias at least four (4) business days' notice of its intention to effect a BioTime Board Recommendation Change pursuant to this Section 5.6(g) (which notice shall include the reason (in reasonable detail) for such BioTime Board Recommendation Change) and, if requested by Asterias, BioTime shall have met and negotiated in good faith with Asterias regarding modifications to the terms and conditions of this Agreement so that the BioTime Board of Directors no longer determines that the failure to make a BioTime Board Recommendation Change in response to such BioTime Intervening Event would be inconsistent with its fiduciary duties under applicable Law.

(h) Nothing contained in this Section 5.6 or elsewhere in this Agreement shall prohibit BioTime from (i) making any public announcement or disclosure to BioTime's shareholders if the BioTime Board of Directors determines in good faith (after consultation with its outside legal counsel) that failure to make such disclosure would constitute a breach of their fiduciary duties under applicable Law, (ii) disclosing a position contemplated by Rule 14d-9, Rule 14e-2(a)(2) or (3) or Item 1012(a) of Regulation M-A under the Exchange Act, or (iii) making any "stop-look-and-listen" communication of the type contemplated by Rule 14d-9(f) under the Exchange Act, provided, however, that a BioTime Board Recommendation Change can be made only in compliance with Section 5.6(g).

Section 5.7 Preparation of the Registration Statement and the Joint Proxy Statement; Stockholders' Meetings.

(a) As promptly as reasonably practicable following the date of this Agreement, (1) Asterias and BioTime will jointly prepare and cause to be filed with the SEC the Joint Proxy Statement in preliminary form and (2) BioTime will prepare and cause to be filed with the SEC the Registration Statement with respect to the BioTime Common Shares issuable in the Merger, which will include the Joint Proxy Statement with respect to the Asterias Special Meeting and the BioTime Special Meeting. Each of Asterias and BioTime will use its reasonable best efforts to (A) have the Registration Statement declared effective under the Securities Act as promptly as practicable after such filing, (B) ensure that the Registration Statement complies in all material respects with the applicable provisions of the Exchange Act and the Securities Act and (C) keep the Registration Statement effective for so long as necessary to complete the Transactions, including the Merger. Each of Asterias and BioTime will furnish all information concerning itself, its affiliates and the holders of its shares to the other and provide such other assistance as may be reasonably requested in connection with the preparation, filing and distribution of the Registration Statement and Joint Proxy Statement. The Registration Statement and Joint Proxy Statement will include all information reasonably requested by such other Party to be included therein. Each of Asterias and BioTime will promptly notify the other upon the receipt of any comments from the SEC or any request from the SEC for amendments or supplements to the Registration Statement or Joint Proxy Statement, and will, as promptly as practicable after receipt thereof, provide the other with copies of all correspondence between it and its Representatives, on one hand, and the SEC, on the other hand, and all written comments with respect to the Joint Proxy Statement or the Registration Statement received from the SEC and advise

the other Party or any oral comments with respect to the Joint Proxy Statement or the Registration Statement received from the SEC. Each of Asterias and BioTime will use its reasonable best efforts to respond as promptly as practicable to any comments from the SEC with respect to the Joint Proxy Statement, and BioTime will use its reasonable best efforts to respond as promptly as practicable to any comment from the SEC with respect to the Registration Statement. Notwithstanding the foregoing, prior to filing the Registration Statement (or any amendment or supplement thereto) or mailing the Joint Proxy Statement (or any amendment or supplement thereto) or responding to any comments of the SEC with respect thereto, each of Asterias and BioTime will cooperate and provide the other a reasonable opportunity to review and comment on such document or response in advance (including the proposed final version of such document or response). BioTime will advise Asterias, promptly after it receives notice thereof, of the time of effectiveness of the Registration Statement, the issuance of any stop order relating thereto or the suspension of the qualification of the BioTime Common Shares issuable in connection with the Merger for offering or sale in any jurisdiction, and BioTime will use its reasonable best efforts to have any such stop order or suspension lifted, reversed or otherwise terminated. BioTime will also take any other action required to be taken under the Securities Act, the Exchange Act, any applicable foreign or state securities or Blue Sky Laws and the rules and regulations thereunder in connection with the issuance of the BioTime Common Shares in the Merger, and Asterias will furnish all information concerning Asterias and the holders of Asterias Common Stock as may be reasonably requested in connection with any such actions.

(b) If, at any time prior to the receipt of the Asterias Stockholder Approval or the BioTime Shareholder Approval, any information relating to Asterias or BioTime, or any of their respective affiliates, should be discovered by Asterias or BioTime that, in the reasonable judgment of Asterias or BioTime, should be set forth in an amendment of, or a supplement to, any of the Registration Statement or the Joint Proxy Statement, so that any of such documents would not include any misstatement of a material fact or omit to state any material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, the Party that discovers such information will promptly notify the other Parties, and Asterias and BioTime will cooperate in the prompt filing with the SEC of any necessary amendment of, or supplement to, the Joint Proxy Statement or the Registration Statement and, to the extent required by Law, in disseminating the information contained in such amendment or supplement to stockholders of Asterias and the stockholders of BioTime. Nothing in this Section 5.7(b) will limit the obligations of any Party under Section 5.7. For purposes of this Section 5.7(b), any information concerning or related to Asterias, its affiliates or the Asterias Special Meeting will be deemed to have been provided by Asterias, and any information concerning or related to BioTime, its affiliates or the BioTime Special Meeting will be deemed to have been provided by BioTime.

(c) As promptly as practicable following the date of this Agreement, Asterias will, in accordance with applicable Law and the Asterias Governing Documents, establish a record date for, duly call, give notice of, convene and, not later than thirty five (35) days after the effectiveness of the Registration Statement, hold the Asterias Special Meeting. Asterias will use its reasonable best efforts to cause the Joint Proxy Statement to be mailed to the stockholders of Asterias entitled to vote at the Asterias Special Meeting and to hold the Asterias Special Meeting as soon as practicable after the Registration Statement is declared effective under the Securities Act. Asterias will solicit and use its reasonable best efforts to obtain the Asterias Stockholder Approval, except in each case to the extent that the Asterias Board of Directors has made an Asterias Board Recommendation Change as permitted by Section 5.6. Notwithstanding the foregoing provisions of this Section 5.7(c), if, on a date for which the Asterias Special Meeting is scheduled, Asterias has not received proxies representing a sufficient number of shares of Asterias Common Stock to obtain the Asterias Stockholder Approval, whether or not a quorum is present, Asterias will have the right to make one or more successive postponements or adjournments of the Asterias Special Meeting; provided that the Asterias Special Meeting is not postponed or adjourned to a date that is more than twenty (20) days after the date for which the Asterias Special Meeting was originally scheduled (other than any adjournments or postponements required by applicable Law, including adjournments or postponements to the extent reasonably necessary or advisable to ensure that any required supplement or amendment to the Joint Proxy Statement is provided or made available to Asterias stockholders or to permit dissemination of information that is material to stockholders voting at the Asterias Special Meeting and to give Asterias stockholders sufficient time to evaluate any such supplement or amendment or other information). Nothing contained in this Section 5.7(c) will relieve Asterias of its obligations to submit this Agreement to its stockholders for a vote on the adoption thereof.

(d) As promptly as practicable following the date of this Agreement, BioTime will, in accordance with applicable Law and the BioTime Governing Documents, establish a record date for, duly call, give notice of, convene and, not later than thirty five (35) days after the effectiveness of the Registration Statement, hold the BioTime Special Meeting. BioTime will use its reasonable best efforts to cause the Joint Proxy Statement to be mailed to the stockholders of BioTime entitled to vote at the BioTime Special Meeting and to hold the BioTime Special Meeting as soon as practicable after the Registration Statement is declared effective under the Securities Act. BioTime will, through the BioTime Board of Directors, recommend to its stockholders that they vote in favor of the BioTime Shareholder Approval, include such recommendations in the Joint Proxy Statement, and solicit and use its reasonable best efforts

to obtain the BioTime Shareholder Approval, except in each case to the extent that the BioTime Board of Directors has made a BioTime Board Recommendation Change as permitted by Section 5.6(g). Notwithstanding the foregoing provisions of this Section 5.7(d), if, on a date for which the BioTime Special Meeting is scheduled, BioTime has not received proxies representing a sufficient number of BioTime Common Shares to obtain the BioTime Shareholder Approval, whether or not a quorum is present, BioTime will have the right to make one or more successive postponements or adjournments of the BioTime Special Meeting; provided that the BioTime Special Meeting is not postponed or adjourned to a date that is more than twenty (20) days after the date for which the BioTime Special Meeting was originally scheduled (other than any adjournments or postponements required by applicable Law, including adjournments or postponements to the extent reasonably necessary or advisable to ensure that any required supplement or amendment to the Joint Proxy Statement is provided or made available to the BioTime stockholders or to permit dissemination of information that is material to stockholders voting at the BioTime Special Meeting and to give the BioTime stockholders sufficient time to evaluate any such supplement or amendment or other information). Nothing contained in this Section 5.7(d) will relieve BioTime of its obligation to submit the issuance of the BioTime Common Shares in the Merger to its stockholders for a vote on the approval thereof.

(e) Asterias and BioTime will use their respective reasonable best efforts to hold the Asterias Special Meeting and the BioTime Special Meeting on the same date and as soon as reasonably practicable after the date of this Agreement.

Section 5.8 BioTime Vote. Immediately following the execution and delivery of this Agreement, BioTime, in its capacity as the sole stockholder of Merger Sub, will execute and deliver to Merger Sub and Asterias a written consent approving the Merger in accordance with the DGCL. BioTime shall vote or shall cause to be voted all of the shares of Asterias Common Stock and Asterias Preferred Stock owned beneficially or of record by BioTime or any BioTime Subsidiaries at the Asterias Special Meeting. In the event that a special meeting of Asterias stockholders is called for the purposes of obtaining the Asterias Stockholder Approval in respect of a Superior Proposal with an Excluded Party that was obtained in accordance with Section 5.3, BioTime shall vote or shall cause to be voted all of the shares of Asterias Common Stock and Asterias Preferred Stock owned beneficially or of record by BioTime or any BioTime Subsidiaries in proportion to all other votes cast by other Asterias stockholders.

Article VI

Additional Agreements

Section 6.1 Access; Confidentiality; Notice of Certain Events.

(a) From the date of this Agreement until the Effective Time or the date, if any, on which this Agreement is terminated in accordance with Article VIII, to the extent permitted by applicable Law, Asterias afford BioTime and its Representatives access during normal business hours and upon reasonable advance notice to all of their properties, offices, books, contracts, commitments, personnel and records and, during such period, Asterias furnish reasonably promptly to BioTime all information (financial or otherwise, including Tax Returns) concerning its business, properties and personnel as BioTime may reasonably request. From the date of this Agreement until the Effective Time or the date, if any, on which this Agreement is terminated in accordance with Article VIII, to the extent permitted by applicable Law, BioTime shall afford to Asterias and its Representatives access during normal business hours and upon reasonable advance notice to contracts, commitments, personnel and records to the extent necessary for Asterias to confirm the accuracy of BioTime's representations and warranties contained in Article IV. Notwithstanding the foregoing, neither Asterias nor BioTime will be required by this Section 6.1 to provide the other Party with access to or to disclose information (1) the disclosure of which would violate any Law (as long as the Asterias uses its commercially reasonable best efforts to make appropriate substitute arrangements to permit reasonable disclosure not in violation of any Law) or (2) that is subject to any attorney-client, attorney work product or other legal privilege (as long as Asterias or BioTime (as applicable) uses its commercially reasonable best efforts to allow for such access or disclosure to the maximum extent that does not result in a loss of any such attorney-client, attorney work product or other legal privilege). No investigation by BioTime or Asterias or their respective Representatives or information provided, made available or delivered pursuant to this Agreement shall affect the representations, warranties, covenants or agreements of Asterias or BioTime set forth herein.

(b) BioTime and Asterias will hold any nonpublic information exchanged pursuant to this Section 6.1, in confidence to the extent required by and in accordance with, and will otherwise comply with, the terms of the Confidentiality Agreement.

(c) Asterias will give prompt notice to BioTime, and BioTime will give prompt notice to Asterias, (1) of any notice or other communication received by such Party from any Governmental Authority in connection with this Agreement, the Merger or other Transactions, or from any Person alleging that the consent of such Person is or may be required in connection with the Merger or the other Transactions, if the subject matter of such communication or the failure of such Party to obtain such consent could be material to Asterias, the Surviving Corporation or BioTime, (2) of any Action commenced or, to any Party's knowledge, threatened against, such Party or any of its Subsidiaries or otherwise relating to, involving or affecting such Party or any of its Subsidiaries, in each case in connection with, arising from or otherwise relating to the Merger or any other Transaction and (3) upon becoming aware of the occurrence of any event or circumstance relating to it or, in the case of BioTime, any of the BioTime Subsidiaries, that would have, individually or in the aggregate, an Asterias Material Adverse Effect or a BioTime Material Adverse Effect, as the case may be, or that would reasonably be expected to prevent or materially delay or impede the consummation of the Transactions. The delivery of any notice pursuant to this Section 6.1(c) will not cure any breach of any representation or warranty requiring disclosure of such matter prior to the date of this Agreement or otherwise limit or affect the remedies available hereunder to any Party.

Section 6.2 Reasonable Best Efforts.

(a) Subject to the terms and conditions of this Agreement, each Party will use its reasonable best efforts to take, or cause to be taken, all actions and to do, or cause to be done, all things necessary or advisable under applicable Laws to consummate the Merger and the other Transactions as soon as practicable after the date hereof, including (1) preparing and filing, in consultation with the other Party and as promptly as practicable and advisable after the date hereof, all documentation to effect all necessary applications, notices, petitions, filings, and other documents and to obtain as promptly as practicable all waiting period expirations or terminations, consents, clearances, waivers, licenses, Orders, registrations, approvals, permits, and authorizations necessary or advisable to be obtained from any Governmental Authority in order to consummate the Merger or any of the other Transactions and (2) taking all steps as may be necessary to obtain all such waiting period expirations or terminations, consents, clearances, waivers, licenses, registrations, permits, authorizations, Orders and approvals. In furtherance and not in limitation of the foregoing, each Party agrees to make all necessary applications, notices, petitions and filings required under Antitrust Laws with respect to this Agreement or the Transactions with any applicable Governmental Authority, in each case to the extent required by applicable Law. Subject to the limitations of Section 6.2(b), the Parties agree to use reasonable best efforts to supply as promptly as practicable and advisable any supplemental information and documentary material that may be requested pursuant to any applicable Governmental Authorities and to take all other actions necessary to cause the expiration or termination of any applicable waiting periods as soon as practicable.

(b) In furtherance and not in limitation of Section 6.2, each of BioTime and Asterias will use its reasonable best efforts to obtain the expiration or termination of all waiting periods and all consents, waivers, authorizations and approvals of all Third Parties, including Governmental Authorities, necessary, proper or advisable for the consummation of the Transactions and to provide any notices to Third Parties required to be provided by them prior to the Effective Time; provided that without consulting with BioTime, Asterias will not incur any expense or liability, enter into any new commitment or agreement or agree to any modification to any contractual arrangement to obtain such consents or certificates. Without limiting the foregoing, each of BioTime and Asterias shall (i) each use its reasonable best efforts to avoid the entry of, or to have vacated or terminated, any decree, Order, or judgment that would restrain, prevent or delay the Closing, on or before the Outside Date, including without limitation defending through litigation on the merits any Claim or Action asserted in any court by any Person and (ii) each use its reasonable best efforts to avoid or eliminate each and every impediment under any antitrust, competition or trade regulation Law that may be asserted by any Governmental Authority with respect to the Merger so as to enable the Closing to occur as soon as reasonably possible (and in any event no later than the Outside Date). Notwithstanding any provision of this Agreement to the contrary, in no event shall Merger Sub or BioTime be required to offer, accept or agree to, and Asterias shall not, without BioTime's prior written consent, offer, accept or agree to (1) divest, license, dispose of or hold separate any portion of the businesses, operations, assets or product lines of BioTime, Asterias or any of their respective affiliates (or a combination of the respective businesses, operations, assets or product lines of BioTime, Asterias or any of their respective affiliates), (ii) restrict, prohibit or limit the ability of BioTime, Asterias or any of their respective affiliates to conduct its business or own its assets, (iii) restrain, prohibit or limit the ownership or operation by BioTime, Asterias or any of their respective affiliates of all or any portion of the business or assets of BioTime, Asterias or any of their respective affiliates in any part of the world, (iv) cause BioTime or any of its affiliates to divest any shares of the capital stock of the Surviving Corporation or (v) impose limitations on the ability of BioTime or any of its affiliates effectively to acquire, hold or exercise full rights of ownership of, any shares of capital stock of the Surviving Corporation, including the right to vote any shares of capital stock of the Surviving Corporation acquired or owned by BioTime or any of its affiliates on all matters properly presented to the stockholders of Asterias. Notwithstanding the foregoing or any other provision of this Agreement to the contrary, in no event shall BioTime, Merger Sub or any of their affiliates be obligated to (x) enter into any settlement, undertaking, consent decree, stipulation or agreement with any Governmental Authority in connection with the Transactions or (y) litigate or participate in the litigation of any Action or Claim, whether judicial or administrative, brought by any Governmental Authority challenging or seeking to restrain, prohibit or place conditions on the consummation of the Transactions or the ownership or operation by BioTime, Asterias or any of their respective affiliates of all or any portion of their respective businesses as presently conducted and as currently proposed to be conducted.

Section 6.3 Publicity. The initial press release with respect to the execution of this Agreement will be a joint press release in form and substance acceptable to Asterias and BioTime, respectively. Thereafter, so long as this Agreement is in effect, neither Asterias nor any of its affiliates, will issue or cause the publication of any press release or other public statement with respect to this Agreement, the Merger or the other Transactions and shall not issue any such press release or make any such public statement without the prior consent (not to be unreasonably withheld, delayed or conditioned) of BioTime; provided that Asterias may, without obtaining the prior consent of the other Party (but after prior consultation, to the extent practicable in the circumstances), issue such press release or make such public statement as may upon the advice of outside counsel be required by applicable Law or the rules and regulations of NYSE American. Without limiting the foregoing, BioTime and Asterias shall use reasonable efforts to cooperate to develop all public announcement materials and make appropriate management available at presentations related to the Transactions as reasonably requested by the other Party. The restrictions of this Section 6.3 do not apply to communications in connection with and following an Asterias Board Recommendation Change or a BioTime Board

Recommendation Change in compliance with Section 5.6.

Section 6.4 Directors' and Officers' Insurance and Indemnification. For not less than six (6) years from and after the Effective Time, the Surviving Corporation will, and BioTime will cause the Surviving Corporation to, indemnify and hold harmless all past and present directors, officers and employees of Asterias (collectively, the "Indemnified Parties") against any costs or expenses (including advancing attorneys' fees and expenses in advance of the final disposition of any actual or threatened Claim, Action, investigation, suit or proceeding, whether civil, criminal, administrative or investigative, to each Indemnified Party to the fullest extent permitted by Law, as long as such Indemnified Party agrees in advance to return any such funds to which a court of competent jurisdiction has determined in a final, nonappealable judgment such Indemnified Party is not ultimately entitled), judgments, fines, losses, Claims, damages, liabilities and amounts paid in settlement in connection with any actual or threatened Claim, Action, investigation, suit or proceeding in respect of acts or omissions occurring or alleged to have occurred at or prior to the Effective Time (including acts or omissions occurring in connection with the approval of this Agreement and the consummation of the Merger or any of the other Transactions), whether asserted or claimed prior to, at or after the Effective Time, in connection with such Persons serving as an officer, director, employee or other fiduciary of Asterias or of any Person if such service was at the request or for the benefit of Asterias, to the fullest extent permitted by Law or provided pursuant to the Asterias Governing Documents or any indemnification agreements, if any, in existence on the date of this Agreement. All rights to elimination of liability, indemnification and advancement of expenses for acts or omissions occurring or alleged to have occurred at or prior to the Effective Time, whether asserted or claimed prior to, at or after the Effective Time, now existing in favor of the Indemnified Parties as provided in their respective certificate of incorporation or by-laws (or comparable organizational documents) or in any agreement will survive the Merger and will continue in full force and effect. For six (6) years after the Effective Time, the Surviving Corporation will cause to be maintained in effect the provisions in (1) the Asterias Governing Documents and (2) any other agreements of Asterias with any Indemnified Party, in each case, regarding elimination of liability, indemnification of officers, directors and employees and advancement of expenses that are in existence on the date of this Agreement, and no such provision will be amended, modified or repealed in any manner that would adversely affect the rights or protections thereunder of any such Indemnified Party in respect of acts or omissions occurring or alleged to have occurred at or prior to the Effective Time (including acts or omissions occurring in connection with the approval of this Agreement and the consummation of the Merger or any of the other Transactions). BioTime will cause the Surviving Corporation to provide, for an aggregate period of not less than six (6) years from the Effective Time, Asterias' current directors and officers an insurance and indemnification policy that provides coverage for events occurring prior to the Effective Time (the "D&O Insurance") that is no less favorable than Asterias' existing policy or, if insurance coverage that is no less favorable is unavailable, the best available coverage; provided however that the Surviving Corporation will not be required to pay an annual premium for the D&O Insurance in excess of 300% of the last annual premium paid prior to the date of this Agreement; provided further that Asterias may prior to the Effective Time substitute therefor a single premium tail coverage with respect to D&O Insurance with an annual cost not in excess of 300% of the last annual premium paid prior to the date of this Agreement. Notwithstanding anything herein to the contrary, if any Indemnified Party notifies BioTime on or prior to the sixth (6^{th}) anniversary of the Effective Time of a matter in respect of which such Person may seek indemnification pursuant to this Section 6.4, the provisions of this Section 6.4 will continue in effect with respect to such matter until the final disposition of all Claims and Actions relating thereto. In the event BioTime or the Surviving Corporation or any of their respective successors or assigns (1) consolidates with or merges into any other Person and will not be the continuing or surviving corporation or entity of such consolidation or merger or (2) transfers all or substantially all of its properties and assets to any Person, then, and in each such case, proper provision will be made so that the successors and assigns of BioTime or the Surviving Corporation, as the case may be, will assume the obligations set forth in this Section 6.4. The rights and obligations under this Section 6.4 will survive consummation of the Merger and will not be terminated or amended in a manner that is adverse to any Indemnified Party without the written consent of such Indemnified Party. The provisions of this Section 6.4 are intended to be for the benefit of, and shall be enforceable by, each Indemnified Party, his or her heirs and his or her Representatives. The indemnification and advancement provided for in this Section 6.4 is not exclusive of any other rights to which the Indemnified Party is entitled whether pursuant to Law,

contract, or otherwise.

Section 6.5 Takeover Statutes. The Parties will use their respective reasonable best efforts (a) to take all action necessary so that no Takeover Statute is or becomes applicable to the Merger or any of the other Transactions and (b) if any such Takeover Statute is or becomes applicable to any of the foregoing, to take all action necessary so that the Merger and the other Transactions may be consummated as promptly as practicable on the terms contemplated by this Agreement and otherwise to eliminate or minimize the effect of such Takeover Statute on the Merger and the other Transactions.

Section 6.6 Obligations of Merger Sub. BioTime will take all action necessary to cause each of Merger Sub and the Surviving Corporation to perform their respective obligations under this Agreement before and after the Effective Time and to consummate the Transactions, including the Merger, upon the terms and subject to the conditions set forth in this Agreement.

Section 6.7 Employee Benefits. If requested by BioTime at least five (5) business days prior to the Closing, then effective as of no later than the day immediately preceding the Closing, Asterias will terminate each Asterias Plan intended to be "qualified" within the meaning of Section 401(a) of the Code.

Section 6.8 Rule 16b-3. Prior to the Effective Time, BioTime and Asterias shall take all such steps as may be required to cause any acquisitions or dispositions of Asterias Common Stock (including derivative securities with respect to Asterias Common Stock) or acquisitions of BioTime Common Shares (including derivative securities with respect to BioTime Common Shares) resulting from the Transactions by each individual who is subject to the reporting requirements of Section 16(a) of the Exchange Act with respect to Asterias or will become subject to such reporting requirements with respect to BioTime, to be exempt under Rule 16b-3 promulgated under the Exchange Act, to the extent permitted by applicable Law.

Section 6.9 Security Holder Litigation. Each Party will provide the other Party prompt notice of any litigation brought by any stockholder of that Party against such Party, any of its Subsidiaries and/or any of their respective directors relating to the Merger, this Agreement or any of the Transactions, and will provide the other Party with updates and such information as such other Party will reasonably request with respect to the status of the litigation and discussions between the parties to such litigation (unless the provision of such updates and information could reasonably be expected to result in a loss of attorney-client privilege). Asterias will give BioTime the opportunity to participate in the defense of and settlement discussions with respect to any such litigation and will not settle or make any payment or settlement offer with respect to any such litigation unless BioTime has consented in writing to such payment or settlement, which consent will not be unreasonably withheld, conditioned or delayed. In the event of, and to the extent of, any conflict or overlap between the provisions of this Section 6.9 and Section 5.1 or Section 5.2, the provisions of this Section 6.9 will control.

Section 6.10 Delisting. Each of the Parties agrees to cooperate with the other Parties in taking, or causing to be taken, all actions necessary to delist Asterias Common Stock from NYSE American and terminate its registration under the

Exchange Act, provided that such delisting and termination will not be effective until after the Effective Time.

Section 6.11 Stock Exchange Listing. BioTime will use its reasonable best efforts to cause the BioTime Common Shares to be issued in the Merger to be approved for listing on NYSE American, subject to official notice of issuance, prior to the Effective Time.

Section 6.12 Accounting Matters. Prior to the Closing Date, each of Asterias and BioTime shall cooperate in good faith with, and to use commercially reasonable efforts to cause their respective Representatives to cooperate in good faith with, the other Party and its Representatives in planning for the integration of their respective accounting principles and practices to be used for the consolidated financial statements of BioTime after the Closing.

Section 6.13 Qualification as a Reorganization. The Merger is intended to qualify as a "reorganization" within the meaning of Section 368(a) of the Code, and this Agreement is intended to constitute a "plan of reorganization" within the meaning of Treasury Regulations Sections 1.368-2(g) and 1.368-3. From and after the date of this Agreement, each Party shall use its best efforts to cause the Merger to qualify as a reorganization under Section 368(a) of the Code. BioTime, Merger Sub and Asterias will not take or cause to be taken any action that, either alone or in combination, could reasonably be expected to cause the Merger to fail to qualify as a "reorganization" within the meaning of Section 368(a) of the Code. BioTime and its affiliates (including the Surviving Corporation) will use commercially reasonable efforts to continue the historic business of Asterias (or alternatively, if Asterias has more than one line of business, continue at least one significant line of Asterias' historic business) or use a significant portion (at least 33-1/3% by value) of Asterias' historic business assets in a business within the meaning of Treasury Regulations Section 1.368-1(d). The Parties will take the position for all Tax purposes that the Merger qualifies as a reorganization within the meaning of Section 368(a) of the Code, unless a contrary position is required by a taxing authority in connection with a good faith resolution of a Tax contest. Asterias will use reasonable best efforts to obtain a Tax opinion satisfying the requirements of Item 601 of Regulation S-K under the Securities Act. Officers of each of Asterias and BioTime will deliver to Dentons LLP, counsel to Asterias, a customary representation letter for purposes of such Tax opinion, at such time or times as may be reasonably requested by Dentons LLP, including the effective date of the Registration Statement and the Closing Date.

Section 6.14 Cooperation. Asterias shall furnish BioTime as promptly as practicable following BioTime's request, such information regarding Asterias as is customarily required in connection with the Merger including (a) financial statements that have been prepared in conformity with GAAP, (b) such other financial, business and other information regarding the Asterias as BioTime shall request from the Asterias, that BioTime may be required to file with the SEC in connection with the approval of this Agreement and the consummation of the Merger or any of the other Transactions.

Section 6.15 Notification of Certain Matters. Asterias and BioTime shall promptly notify each other of the discovery of any fact or circumstance that, or the occurrence or non-occurrence of any event the occurrence or non-occurrence of which would reasonably be expected to result in any of the conditions to the Merger set forth in Article VII not being satisfied or satisfaction of those conditions being materially delayed in violation of any provision of this Agreement; provided, however, that the delivery of any notice pursuant to this Section 6.15 shall not (x) cure any breach of, or non-compliance with, any other provision of this Agreement or (y) limit the remedies available to the party receiving such notice; provided further, that unintentional failure to give prompt notice pursuant to this clause shall not constitute a failure of a condition to the Merger set forth in Article VII except to the extent that the underlying fact or circumstance not so notified would standing alone constitute such a failure.

Section 6.16 Employee and Labor Matters.

(a) For a period commencing on the Effective Time, and ending on December 31, 2019, the Surviving Corporation will provide individuals who are employees of Asterias immediately prior to the Effective Time and continue to be employees of BioTime or one of the BioTime Subsidiaries (including the Surviving Corporation) immediately

following the Effective Time, but only for so long as such individuals are so employed (each, a "Continuing Employee"), employee benefits (other than equity-based awards) that are either (A) substantially comparable to the employee benefits (other than equity-based awards) provided by Asterias on the date of this Agreement or (B) substantially comparable to the employee benefits (other than equity-based awards) provided to similarly-situated employees of BioTime.

(b) As of the Effective Time, BioTime shall, and shall cause the Surviving Corporation to, use commercially reasonable efforts to give Continuing Employees credit for purposes of eligibility, benefit accrual, vesting and entitlement to benefits where length of service is relevant (but not for any purposes under any employee benefit plan that is a defined benefit pension plan or with respect to an equity plan) under any applicable BioTime Plans that such employees may be eligible to participate in after the Effective Time ("New Plans") for such Continuing Employees' service with Asterias to the same extent that such service was credited for purposes of any comparable employee benefit plan of Asterias immediately prior to the Effective Time and in no event shall service prior to the Effective Time be required to be taken into account if such service credit would result in the duplication of benefits with respect to the same period or if such service credit would violate the terms of any New Plan. In addition, and without limiting the generality of the foregoing, BioTime shall use commercially reasonable efforts to provide that (1) each Continuing Employee shall be immediately eligible to participate, without any waiting time, in any and all New Plans to the extent coverage under such New Plan replaces coverage under a comparable Asterias Plan in which such Continuing Employee participated immediately before the replacement, and (2) for purposes of each New Plan providing medical, dental, pharmaceutical and/or vision benefits to any Continuing Employee, all pre-existing condition limitations, exclusions, actively-at-work requirements or waiting periods of such New Plan be waived for such employee and his or her covered dependents to the extent waived or not applicable under a comparable Asterias Plan in which such Continuing Employee participated immediately before the replacement, and any eligible expenses incurred by such employee and his or her covered dependents under a Asterias Plan during the portion of the plan year prior to the Effective Time to taken into account under such New Plan for purposes of satisfying all deductible, co-insurance, co-payment and maximum out-of-pocket requirements applicable to such employee and his or her covered dependents for the remainder of the applicable plan year during which the Effective Time occurs as if such amounts had been paid in accordance with such New Plan, in each case subject to the terms and conditions of each New Plan.

(c) From and after the Effective Time, Asterias or the Surviving Corporation, as applicable, will, and BioTime will cause Asterias or the Surviving Corporation, as applicable, to, honor, in accordance with their terms, all employment, severance, income continuity and change of control programs, plans or agreements between Asterias and its employees including bonuses, incentives, severance payments or deferred compensation that are listed on Section 6.16(c) of the Asterias Disclosure Letter (which disclosure shall include the amount payable under any such programs, plans or arrangements), in each case, in accordance with their terms as of the date of this Agreement.

(d) No provision of this Section 6.16 shall be construed as a limitation on the right of BioTime, or to cause any BioTime Subsidiary to, amend or terminate any specific employee benefit plan that BioTime or a BioTime Subsidiary would otherwise have under the terms of such employee benefit plan, nor shall any provision of this Section 6.16 be construed to require the continuation of the employment of any particular Continuing Employee. The provisions of this Section 6.16 are solely for the benefit of the Parties, and no Person shall be a third-party beneficiary of this Section 6.16, and nothing herein shall be construed as an amendment to any employee benefit plan of BioTime or any BioTime Subsidiary or other compensation or benefit plan or arrangement for any purpose.

Article VII

Conditions to Consummation of the Merger

Section 7.1 Conditions to Each Party's Obligations to Effect the Merger. The respective obligations of each Party to effect the Merger will be subject to the satisfaction on or prior to the Closing Date of each of the following conditions, any and all of which may be waived in whole or in part by BioTime, Merger Sub and Asterias, as the case may be, to the extent permitted by applicable Law:

(a) Stockholder Approval. Each of the Asterias Stockholder Approval and the BioTime Shareholder Approval has been obtained;

(b) Registration Statement. The Registration Statement has become effective in accordance with the provisions of the Securities Act and no stop order suspending the effectiveness of the Registration Statement has been issued by the SEC and remain in effect and no proceeding to that effect has been commenced or threatened in writing by the SEC;

(c) Adverse Laws or Orders. No Adverse Law or Order has occurred;

(d) Required Antitrust Clearances. Any approval of a Governmental Authority required under any applicable Antitrust Law (if applicable) has been obtained and any mandatory waiting period related thereto has expired;

(e) Listing. The BioTime Common Shares to be issued in the Merger have been approved for listing on NYSE American, subject to official notice of issuance.

Section 7.2 Conditions to Obligations of BioTime and Merger Sub. The obligations of BioTime and Merger Sub to effect the Merger are also subject to the satisfaction or waiver (in writing) by BioTime on or prior to the Closing Date of each of the following additional conditions:

(a) Representations and Warranties. The representations and warranties of Asterias (1) set forth in Section 3.3 (Capitalization) and Section 3.24 (Vote Required) shall have been true and correct as of the date of this Agreement and will be true and correct on and as of the Closing Date with the same force and effect as if made on the Closing Date (except to the extent expressly made as of an earlier date, in which case as of such date), in each case with

respect to Section 3.3 except for de minimis inaccuracies where the failure to be so true and correct would not reasonably be expected to result in additional cost, expense or liability to the Parties and their affiliates, individually or in the aggregate that is more than $300,000, (2) set forth in Section 3.1(a) (Organization, Power and Subsidiaries), Section 3.4 (Authority), Section 3.20 (Brokers and Expenses), and Section 3.25 (Opinion of Financial Advisor) shall have been true and correct in all material respects as of the date of this Agreement and will be true and correct in all material respects on and as of the Closing Date with the same force and effect as if made on and as of the Closing Date (except to the extent expressly made as of an earlier date, in which case as of such date) and (3) set forth in this Agreement, other than the representations referred to in the preceding clauses "(1)" and "(2)" shall have been true and correct in all respect as of the date of this Agreement and will be true and correct on and as of the Closing Date with the same force and effect as if made on and as of the Closing Date, except for any failure to be so true and correct that has not had, and would not reasonably be expected to have, individually or in the aggregate, an Asterias Material Adverse Effect and except for those representations and warranties that address matters only as of a particular date (which representations will have been true and correct as of such particular date, except for any failure to be so true and correct as of such date that has not had, and would not reasonably be expected to have, individually or in the aggregate, an Asterias Material Adverse Effect); provided however that for purposes of determining the accuracy of the representations and warranties of Asterias set forth in this Agreement: (x) for purposes of clauses "(2)" and "(3)" of this Section 7.2(a), all qualifications based on an "Asterias Material Adverse Effect" and all materiality qualifications and other qualifications based on the word "material" or similar phrases contained in such representations and warranties will be disregarded; (y) in each case, any update made or purport to be made to the Asterias Disclosure Schedule after execution of this Agreement shall be disregarded completely and have no further force or effect.

(b) Covenants. Asterias has complied with or performed, in all material respects, all covenants, obligations and agreements of Asterias under this Agreement to be complied with or performed by it prior to the Effective Time;

(c) Asterias Material Adverse Effect. No Asterias Material Adverse Effect has occurred since the date of this Agreement; and

(d) Certificate. Asterias has furnished BioTime with a certificate signed on its behalf by the chief executive officer or chief financial officer of Asterias to the effect that the conditions set forth in Section 7.2(a), (b) and (c) are satisfied.

(e) Return or Destruction of Information. BioTime shall have received confirmation that all Persons who received non-public information relating to Asterias in accordance with Section 5.3 have either returned or destroyed all such non-public information.

Section 7.3 Conditions to Obligations of Asterias. The obligations of Asterias to effect the Merger are also subject to the satisfaction or waiver (in writing) by Asterias on or prior to the Closing Date of each of the following additional conditions:

(a) Representations and Warranties. The representations and warranties of BioTime (1) set forth in Section 4.3 (Capitalization) and Section 4.14 (Vote Required) shall have been true and correct as of the date of this Agreement and shall be true and correct as of the Closing Date with the same force and effect as if made on and as of the Closing Date (except to the extent expressly made as of an earlier date, in which case as of such date), in each case with respect to Section 4.3 except for de minimis inaccuracies where the failure to be so true and correct would not reasonably be expected to result in additional cost, expense or liability to the all the Parties and their affiliates, individually or in the aggregate that is more than $1,500,000, (2) set forth in Section 4.1 (Organization and Power), Section 4.4 (Authority), Section 4.13 (Brokers and Expenses), and Section 4.15 (Opinion of Financial Advisor) shall have been true and correct in all material respects as of the date of this Agreement and will be true and correct in all material respects on and as of the Closing Date with the same force and effect as if made on and as of the Closing Date (except to the extent expressly made as of an earlier date, in which case as of such date) and (3) set forth in this Agreement, other than the representations referred to in the preceding clauses "(1)" and "(2)" shall have been true and correct as of the date of this Agreement and will be true and correct on and as of the Closing Date with the same force and effect as if made on and as of the Closing Date, except for any failure to be so true and correct that has not had, and would not reasonably be expected to have, individually or in the aggregate, a BioTime Material Adverse Effect and except for those representations and warranties that address matters only as of a particular date (which representations will have been true and correct as of such particular date, except for any failure to be so true and correct as of such date that has not had, and would not reasonably be expected to have, individually or in the aggregate, a BioTime Material Adverse Effect); provided however that for purposes of determining the accuracy of the representations and warranties of BioTime set forth in this Agreement: (x) for purposes of clauses "(2)" and "(3)" of this Section 7.3(a), all qualifications based on an "BioTime Material Adverse Effect" and all materiality qualifications

and other qualifications based on the word “material” or similar phrases contained in such representations and warranties will be disregarded; and (y) in each case any update made or purport to be made to the BioTime Disclosure Schedule after execution of this Agreement shall be disregarded completely and have no further force or effect;

(b) Covenants. BioTime and Merger Sub have complied with or performed, in all material respects, all covenants, obligations and agreements of BioTime and Merger Sub under this Agreement to be complied with or performed by them on or prior to the Effective Time;

(c) BioTime Material Adverse Effect. No BioTime Material Adverse Effect has occurred since the date of this Agreement; and

(d) Certificate. BioTime has furnished Asterias with a certificate signed on its behalf by the chief executive officer or chief financial officer of BioTime to the effect that the conditions set forth in Section 7.3(a), (b) and (c) are satisfied.

Section 7.4 Frustration of Closing Conditions. None of BioTime, Merger Sub or Asterias may rely on the failure of any condition set forth in this Article VII (as applicable such Party) to be satisfied if such failure was caused by such Party's failure to comply with any provision of this Agreement.

Article VIII

Termination

Section 8.1 Termination. This Agreement may be terminated and the Merger and the other Transactions may be abandoned as follows:

(a) by mutual written consent of BioTime and Asterias;

(b) by either Asterias or BioTime if a Governmental Authority of competent jurisdiction has issued an Adverse Law or Order permanently restraining, permanently enjoining or otherwise permanently prohibiting the consummation of the Merger and, in the case of an Order, such Order has become final and non-appealable; provided that the right to terminate this Agreement pursuant to this Section 8.1(b) shall not be available to any Party if the issuance of such Order was attributable to the failure of such Party to perform its obligations under this Agreement;

(c) by either BioTime or Asterias, prior to the Effective Time, if there has been a breach by Asterias, on the one hand, or BioTime or Merger Sub, on the other hand, of any representation, warranty, covenant or agreement set forth in this Agreement, which breach would result in the conditions in Article VII not being satisfied (assuming that the date of such determination is the Closing Date and that such breach is not curable prior to the Outside Date, or if curable prior to the Outside Date, has not been cured within the earlier of thirty (30) calendar days after the receipt of notice thereof by the defaulting Party from the non-defaulting Party or (2) three (3) business days before the Outside Date); provided however that neither BioTime nor Asterias shall have a right to terminate this Agreement pursuant to this Section 8.1(c) if it is then in breach of any representations, warranties, covenants or other agreements contained in this Agreement that would result in a failure of a condition set forth in Article VII;

(d) by either BioTime or Asterias, if the Effective Time has not occurred by 5:00 p.m., Pacific Time, on May 31, 2019 (the "Outside Date"); provided however that the right to terminate this Agreement pursuant to this Section 8.1(d) will not be available to any Party whose breach of any representation, warranty, covenant or agreement set forth in this Agreement has been the cause of, or resulted in, (1) the failure to satisfy the conditions to the obligations of the terminating Party to consummate the Merger set forth in Article VII prior to the Outside Date or (2) the Effective Time not occurring prior to the Outside Date;

(e) by BioTime, if, prior to receipt of the Asterias Stockholder Approval, (1) the Asterias Board of Directors or any committee thereof (including the Asterias Special Committee) has effected an Asterias Board Recommendation Change (whether or not effected in compliance with the terms of this Agreement), (2) Asterias has failed to include the Asterias Board Recommendation in the Joint Proxy Statement distributed to Asterias stockholders (3) Asterias has failed to make a statement in opposition and recommend rejection to Asterias' stockholders of a tender or exchange offer for any Asterias Securities initiated by a Person or group (other than BioTime or its affiliates) pursuant to Rule 14e-2 promulgated under the Exchange Act within ten (10) business days after such tender or exchange offer has been published, sent or given by such Person or group; or (4) Asterias fails to publicly reaffirm the Asterias Board Recommendation within ten (10) business days after BioTime requests in writing following any public statement by a stockholder of Asterias or a member of the Asterias Board of Directors expressing opposition to the Merger or the terms included herein; provided that BioTime's right to terminate this Agreement pursuant to this Section 8.1(e) shall expire upon the earlier of (i) the Asterias Stockholder Approval having been obtained, and (ii) 5:00 p.m. (New York City time) on the thirtieth (30th) calendar day following the date on which such Asterias Board Recommendation Change occurs.

(f) by BioTime, if, prior to receipt of the Asterias Stockholder Approval, Asterias has materially and willfully breached its obligations under Section 5.3, Section 5.4 or Section 5.5;

(g) by BioTime, in the event that prior to receipt of the BioTime Shareholder Approval, the BioTime Board of Directors shall have effected a BioTime Board Recommendation Change in compliance with the provisions of Section 5.6(g), provided that prior to or concurrently with (and as a condition to) such termination BioTime pays Asterias the BioTime Termination Fee pursuant to Section 8.2(c);

(h) by Asterias, if, prior to receipt of the BioTime Shareholder Approval, (1) the BioTime Board of Directors or the BioTime Special Committee has effected a BioTime Board Recommendation Change (whether or not effected in compliance with the terms of this Agreement), (2) BioTime has failed to include the BioTime Board Recommendation in the Joint Proxy Statement distributed to BioTime stockholders or (3) BioTime fails to publicly reaffirm the BioTime Board Recommendation within ten (10) business days after Asterias requests in writing following any public statement by a stockholder of BioTime or a member of the BioTime Board of Directors expressing opposition to the Merger or the terms included herein;

(i) by Asterias, in the event that (i) Asterias shall have received a Superior Proposal, (ii) the Asterias Board of Directors (acting upon the unanimous recommendation of the Asterias Special Committee) shall have determined to terminate this Agreement in accordance with the terms set forth in Section 5.4(b); (iii) Asterias has complied in all material respects with Section 5.3, Section 5.4 and Section 5.5 and (iv) prior to or concurrently with (and as a condition to) such termination Asterias pays BioTime the Asterias Termination Fee pursuant to Section 8.2(b)(1);

(j) by either Asterias or BioTime, if the Asterias Stockholder Approval has not been obtained at the Asterias Special Meeting or at any adjournment or postponement thereof, in each case at which a vote on such approval was taken; provided that Asterias may not terminate this Agreement pursuant to this Section 8.1(j) if Asterias has breached in any material respect its obligations under Section 5.7 of this Agreement in a manner that primarily caused or primarily resulted in the failure of the Asterias Stockholder Approval to be obtained; or

(k) by either BioTime or Asterias, if the BioTime Shareholder Approval has not been obtained at the BioTime Special Meeting or at any adjournment or postponement thereof, in each case at which a vote on such approval was taken; provided that BioTime may not terminate this Agreement pursuant to this Section 8.1(k) if BioTime has breached in any material respect its obligations under Section 5.7 of this Agreement in a manner that primarily caused or primarily resulted in the failure of the BioTime Shareholder Approval to be obtained.

Section 8.2 Effect of Termination.

(a) Notice of Termination. To terminate this Agreement as provided in Section 8.1 (other than in the case of termination pursuant to Section 8.1(a)), the terminating Party will give written notice to the other Party specifying the subsection of Section 8.1 pursuant to which such termination is made, and this Agreement will become null and void

and there will be no liability on the part of BioTime, Merger Sub or Asterias, except that the Confidentiality Agreement, the last sentence of Section 5.8, Section 6.3, this Section 8.2 and Section 9.3 through Section 9.13 will survive such termination; provided however that subject to Section 8.2(c), nothing herein will relieve any Party from liability for fraud or a willful or intentional breach of its representations, warranties, covenants or agreements set forth in this Agreement prior to such termination and any aggrieved party will be entitled to all rights and remedies available under applicable Law or in equity.

(b) Asterias Termination Fee.

(1) If Asterias terminates this Agreement pursuant to Section 8.1(i), then Asterias will pay or cause to be paid to BioTime, substantially concurrently with and as a condition to the effectiveness of such termination the Asterias Termination Fee.

(2) If BioTime terminates this Agreement pursuant to Section 8.1(f) or Section 8.1(e), then Asterias will pay or cause to be paid to BioTime, within three (3) business days after such termination, the Asterias Termination Fee.

(3) If (A) this Agreement is terminated: (x) by BioTime or Asterias pursuant to Section 8.1(d) or Section 8.1(j), or (y) by BioTime pursuant to Section 8.1(c) (B) an Acquisition Proposal with respect to Asterias has been publicly disclosed at any time after the date of this Agreement and prior to the Asterias Special Meeting (and not publicly withdrawn prior to the date of the Asterias Special Meeting) and (C)(1) any Acquisition Transaction with respect to Asterias is consummated within 12 months after such termination or (2) Asterias enters into a definitive agreement providing for an Acquisition Transaction within 12 months after such termination and such Acquisition Transaction is consummated (whether or not within the 12-month period), then within one (1) business day after the date any such Acquisition Transaction is consummated, Asterias will pay or cause to be paid to BioTime the Asterias Termination Fee; provided, however, that for purposes of this Section 8.2(b)(3), the references to “twenty percent (20%)” in the definition of Acquisition Transaction shall be deemed to be references to “fifty percent (50%)”.

(4) In the event any amount is payable by Asterias pursuant to the preceding clauses (1), (2), or (3), such amount will be paid by wire transfer of immediately available funds to an account designated in writing by BioTime. In no event will Asterias be obligated to pay the Asterias Termination Fee on more than one occasion.

(c) BioTime Termination Fee. If BioTime or Asterias terminates this Agreement pursuant to Section 8.1(g) or Section 8.1(h), then BioTime will pay or cause to be paid to Asterias, within three (3) business days after such termination, the BioTime Termination Fee. The BioTime Termination Fee will be paid by wire transfer of immediately available funds to an account designated in writing by Asterias. In no event will BioTime be obligated to pay the BioTime Termination Fee on more than one occasion.

(d) If this Agreement is terminated by BioTime or Asterias pursuant to Section 8.1(j) and the BioTime Shareholder Approval is obtained, then Asterias shall pay to BioTime, by wire transfer of immediately available funds to an account designated in writing by BioTime, within two (2) business days after the termination of this Agreement the Reimbursable Expenses, which shall be credited against the Asterias Termination Fee, if any.

(e) If this Agreement is terminated by BioTime or Asterias pursuant to Section 8.1(k) and the Asterias Stockholder Approval is obtained, then BioTime shall pay to Asterias, by wire transfer of immediately available funds to an account designated in writing by Asterias, within two (2) business days after the termination of this Agreement the Reimbursable Expenses, which shall be credited against the BioTime Termination Fee, if any.

(f) If this Agreement is terminated by BioTime pursuant to Section 8.1(c), then Asterias shall pay to BioTime, by wire transfer of immediately available funds to an account designated in writing by BioTime, within two (2) business days after the termination of this Agreement the Reimbursable Expenses, which shall be credited against the Asterias Termination Fee, if any.

(g) If this Agreement is terminated by Asterias pursuant to Section 8.1(c), then BioTime shall pay to Asterias, by wire transfer of immediately available funds to an account designated in writing by Asterias, within two (2) business days after the termination of this Agreement the Reimbursable Expenses, which shall be credited against the BioTime Termination Fee, if any.

(h) As used in this Agreement, "Asterias Termination Fee" shall mean $2,000,000. As used in this Agreement, "BioTime Termination Fee" shall mean $2,000,000. As used in this Agreement, "Reimbursable Expenses" shall mean all out-of-pocket fees, costs and expenses of any kind incurred or paid by or on behalf of the party receiving payment thereof and its affiliates in connection with the Transactions, or related to the authorization, preparation, negotiation, execution and performance of this Agreement, in each case including all fees, costs and expenses of law firms, commercial banks, investment banking firms, financing sources, accountants, experts and consultants to such party and its affiliates provided, that the aggregate amount of Reimbursable Expenses payable shall not exceed $1,500,000.

(i) Each of the Parties acknowledges that the agreements contained in this Section 8.2 are an integral part of the Transactions and that (1) the Asterias Termination Fee or the Reimbursable Expenses, as applicable, is not a penalty, but rather is a reasonable amount that will compensate BioTime and Merger Sub in the circumstances in which the Asterias Termination Fee or the Reimbursable Expenses, as applicable, is payable for the efforts and resources expended and opportunities foregone while negotiating this Agreement and in reliance on this Agreement and on the expectation of the consummation of the Transactions and that (2) the BioTime Termination Fee is not a penalty, but rather is a reasonable amount that will compensate Asterias in the circumstances in which and BioTime Termination Fee or the Reimbursable Expenses, as applicable, is payable for the efforts and resources expended and opportunities foregone while negotiating this Agreement and in reliance on this Agreement and on the expectation of the consummation of the Transactions, each of which amounts would otherwise be impossible to calculate with precision. Accordingly, if a Party fails to pay any amounts due under this Section 8.2 and, in order to obtain such payment, BioTime or Asterias, as the case may be, commences a suit that results in a judgment against such Party for such amounts, such Party shall pay interest on such amounts from the date payment of such amounts were due to the date of actual payment at the rate equal to the prime rate published in the Wall Street Journal for the relevant period, together with the costs and expenses of the other Party (including reasonable legal fees and expenses) in connection with such suit. Notwithstanding anything to the contrary in this Agreement, except in the case of fraud or material and willful breach, (A) upon payment of the Asterias Termination Fee or the Reimbursable Expenses, as applicable, pursuant to this Section 8.2, the Asterias Termination Fee or the Reimbursable Expenses, as applicable, shall be considered the sole and exclusive remedy of BioTime and its affiliates for any loss or damage based upon, arising out of or relating to this Agreement or the Transactions and none of Asterias or any of its former, current or future officers, directors, partners, stockholders, managers, members, affiliates or agents will have any further liability or obligation relating to or arising out of this Agreement or the Transactions and (B) upon payment of the BioTime Termination Fee or the Reimbursable Expenses, as applicable, pursuant to this Section 8.2, the BioTime Termination Fee shall be considered the sole and exclusive remedy of Asterias and its affiliates for any loss or damage based upon, arising out of or relating to this Agreement or the Transactions and none of BioTime, any of its Subsidiaries or any of their respective former, current or future officers, directors, partners, shareholders, managers, members, affiliates or agents will have any further liability or obligation relating to or arising out of this Agreement or the Transactions.

Article IX

Miscellaneous

Section 9.1 Amendment and Modification; Waiver.

(a) Subject to applicable Law and except as otherwise provided in this Agreement, this Agreement may be amended, modified and supplemented, whether before or after receipt of the Asterias Stockholder Approval or the BioTime Shareholder Approval, as applicable, by written agreement of Asterias and BioTime; provided, however, that after receipt of the Asterias Stockholder Approval or the BioTime Shareholder Approval, as applicable, no amendment will be made that by Law requires further approval by such stockholders without obtaining such further approval. This Agreement may not be amended except by an instrument in writing signed on behalf of each of the Parties.

(b) At any time and from time to time prior to the Effective Time, either Asterias, on the one hand, or BioTime, on the other hand, may, to the extent legally allowed and except as otherwise set forth herein, (1) extend the time for the performance of any of the obligations or other acts of BioTime, Merger Sub or Asterias, as applicable, (2) waive any inaccuracies in the representations and warranties made to BioTime or Asterias contained herein or in any document delivered pursuant hereto and (3) waive compliance with any of the agreements or conditions for the benefit of BioTime, Merger Sub or Asterias contained herein. Any agreement on the part of BioTime or Asterias to any such extension or waiver will be valid only if set forth in an instrument in writing signed on behalf of BioTime or Asterias, as applicable. Any delay in exercising any right under this Agreement will not constitute a waiver of such right.

Section 9.2 Non-Survival of Representations and Warranties. None of the representations and warranties in this Agreement or in any schedule, instrument or other document delivered pursuant to this Agreement will survive the Effective Time. This Section 9.2 will not limit any covenant or agreement of the Parties that by its terms contemplates performance after the Effective Time.

Section 9.3 Expenses. Except as otherwise expressly provided in this Agreement, all Expenses incurred in connection with this Agreement and the Transactions will be paid by the Party incurring such Expenses.

Section 9.4 Notices. All notices, requests, demands and other communications under this Agreement will, except to the extent expressly provided to be oral, be in writing and will be deemed to have been duly given or made as follows: (a) if sent by certified mail in the United States, upon receipt; (b) if sent designated for overnight delivery by globally recognized overnight delivery service (such as DHL or FedEx), the time of delivery as confirmed in the courier's systems; (c) if sent by e-mail (including email of an attachment in Adobe Portable Document Format or other file format based on common standards), when the sender has received confirmation of receipt from the recipient or, if the time of confirmation of receipt is after 5:00 p.m. in the time zone of the receiving party or is not on a business day, on the business day immediately after the time of confirmation of receipt and (d) if otherwise actually personally delivered, when delivered, provided that such notices, requests, demands and other communications are delivered to the address set forth below, or to such other address as any Party will provide by like notice to the other Parties:

if to BioTime or Merger Sub, to:

BioTime, Inc.

Attention: Stephana E. Patton

Attention: Angus C. Russell

Email: legal@biotimeinc.com

with a copy to:

Cooley LLP

3175 Hanover Street

Palo Alto, California 94304

Attention: Glen Sato and Tali Sealman

Email: gsato@cooley.com; tsealman@cooley.com

if to Asterias, to:

Asterias Biotherapeutics, Inc.

Attention: Don M. Bailey

Attention: Ryan Chavez

6300 Dumbarton Cir

Fremont, CA 94555

Email: donmatthewbailey@sbcglobal.net; RChavez@asteriasbio.com

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with copies to:

Dentons US LLP

1221 Avenue of the Americas

New York, NY 10020

Attention: Ilan Katz and Brian Lee

Email: ilan.katz@dentons.com; brian.lee@dentons.com

Section 9.5 Certain Definitions. For the purposes of this Agreement, the term:

"Acceptable Confidentiality Agreement" means a confidentiality agreement that contains terms that are no less favorable in the aggregate to Asterias than those contained in the Confidentiality Agreement; provided however that an Acceptable Confidentiality Agreement (1) will not provide for an exclusive right to negotiate with Asterias and (2) will not restrict Asterias from complying with Article V.

"Acquisition Proposal" has the meaning set forth in Section 5.3(c)(1).

"Acquisition Transaction" has the meaning set forth in Section 5.3(c)(2).

"Action" means any and all litigation, suits, actions, proceedings, arbitrations, mediations, audits, hearings, or inquiries commenced, brought, conducted or heard by or before any Governmental Authority.

"Adverse Law or Order" means (1) any Law has been enacted or promulgated by any Governmental Authority of competent jurisdiction that prohibits or makes illegal the consummation of the Merger or (2) there will be in effect any Order preventing the consummation of the Merger.

"affiliates" has the meaning set forth in Rule 12b-2 of the Exchange Act.

"Antitrust Laws" means any federal, state, local and non-U.S. statutes, rules, regulations, Orders, decrees, administrative and judicial doctrines and other Laws that are designed or intended to prohibit, restrict or regulate actions having the purpose or effect of monopolization or restraint of trade or lessening competition through merger or acquisition.

"Asterias" has the meaning set forth in the Preamble.

"Asterias Associate" means each officer or other employee, or individual who is an independent contractor, consultant or director, of or to Asterias.

"Asterias Board of Directors" has the meaning set forth in the Recitals.

"Asterias Board Recommendation" has the meaning set forth in Section 5.6(a).

"Asterias Board Recommendation Change" has the meaning set forth in Section 5.6(a).

"Asterias Common Stock" has the meaning set forth in Section 3.3(a).

"Asterias Disclosure Letter" has the meaning set forth in Article III.

"Asterias Equity Awards" means each outstanding award granted under the Asterias Equity Plans (including each outstanding Asterias Stock Option and Asterias RSU Award).

"Asterias Equity Plans" means the 2013 Equity Incentive Plan.

"Asterias ERISA Affiliate" means any trade or business (whether or not incorporated) under common control with Asterias and that, together with Asterias, is treated as a single employer within the meaning of Section 414 of the Code or Section 4001 of ERISA.

"Asterias Financial Advisor" has the meaning set forth in Section 3.20.

"Asterias Governing Documents" means (a) the Asterias certificate of incorporation as amended and in effect on the date hereof and (b) the bylaws of Asterias, as amended and restated as of the date of this Agreement.

"Asterias In-bound License" has the meaning set forth in Section 3.14(e).

"Asterias Intellectual Property" means (a) all Intellectual Property rights that are owned or purported to be owned by Asterias, (b) all Intellectual Property rights licensed by Asterias and (c) all other Intellectual Property rights that are used or previously used by Asterias.

"Asterias International Plan" means an Asterias Plan that is subject to the Laws of any jurisdiction outside the United States or provides compensation or benefits to an employee of Asterias who performs services primarily outside the United States.

"Asterias Intervening Event" means an Effect that relates to Asterias (a) that was not known to the Asterias Board of Directors, or the material consequences of which (based on facts known to members of the Asterias Board of Directors as of the date of this Agreement) were not reasonably foreseeable by the Asterias Board of Directors, as of the date of this Agreement and (b) that does not relate to (1) any Acquisition Proposal, (2) any change in the price, or

change in trading volume, of BioTime Common Shares or Asterias Common Stock (provided, however, that the exception in this clause (2) shall not apply to the underlying causes giving rise to or contributing to such change or prevent any of such underlying causes from being taken into account in determining whether an Asterias Intervening Event has occurred) and (3) meeting or exceeding internal or analysts' expectations, projections or results of operations (provided, however, that the exception in this clause (3) shall not apply to the underlying causes giving rise to or contributing to such circumstances or prevent any of such underlying causes from being taken into account in determining whether an Asterias Intervening Event has occurred).

"Asterias IT Systems" shall mean hardware, software, data, databases, data communication lines, network and telecommunications equipment, Internet-related information technology infrastructure, wide area network and other information technology equipment, owned, leased or licensed by Asterias.

"Asterias Material Adverse Effect" means any Effect that, individually or taken together in the aggregate, is, or would reasonably be expected to (a) be, materially adverse to the business, assets, properties, condition (financial or otherwise) or results of operations of Asterias; provided that none of the following will be deemed, either alone or in combination, to be or constitute an "Asterias Material Adverse Effect" or be taken into account when determining whether an "Asterias Material Adverse Effect" has occurred or may, would or could occur: (1) conditions in the industry in which Asterias operates, (2) general economic conditions within the U.S. or any other country, (3) conditions in the securities markets, credit markets, currency markets or other financial markets in the United States or any other country, (4) political conditions in the United States or any other country or acts of war, sabotage or terrorism in the United States or any other country, (5) earthquakes, hurricanes, tsunamis, tornadoes, floods, mudslides, wild fires or other natural disasters, weather conditions and other force majeure events in the United States or any other country, (6) changes in Law or other legal or regulatory conditions or changes in GAAP or other accounting standards, (7) changes in Asterias' stock price or the trading volume of Asterias' stock, or any failure by Asterias to meet any public estimates or expectations of Asterias' revenue, earnings or other financial performance or results of operations for any period, but not, in each case, the underlying cause of such changes or failures, (8) Effects directly resulting from the announcement of this Agreement or the pendency of the Transactions, including any loss of employees and (9) the taking of any action explicitly contemplated hereby except any actions taken in the ordinary course of business in accordance with Section 5.1(a), except, in the case of each of clauses (1) through (6), to the extent such Effects disproportionately negatively affect Asterias, in any material negative respect relative to other companies of comparable size in the same industries and geographies in which Asterias operate or (b) prevent, materially delay or materially impede the performance by Asterias of its obligations under this Agreement or the consummation of the Merger or any of the other Transactions.

"Asterias Material Contracts" has the meaning set forth in Section 3.17(a).

"Asterias Owned Intellectual Property" means any Intellectual Property that is owned by or purported to be owned, in whole or in part, by Asterias.

"Asterias Permits" has the meaning set forth in Section 3.6.

"Asterias Plans" has the meaning set forth in Section 3.10(a).

"Asterias Preferred Stock" has the meaning set forth in Section 3.3(a).

"Asterias Products" means any programs in active development, previously in development or contemplated to be in development for the treatment, amelioration, diagnosis and screening of any human or animal disease, or for use as an sort of research reagent or tool.

"Asterias Real Property Leases" has the meaning set forth in Section 3.13(c).

"Asterias Registered Intellectual Property" means all Asterias Owned Intellectual Property that is Registered Intellectual Property.

"Asterias RSU Awards" means any issued and outstanding restricted stock units (including commitments to grant restricted stock units approved by Asterias Board of Directors or authorized committee of the Asterias Board of Directors), whether payable in cash, shares or otherwise, granted under or pursuant to an Asterias Equity Plan or otherwise.

"Asterias SEC Reports" has the meaning set forth in Section 3.7(a).

"Asterias Series B Common Stock" has the meaning set forth in Section 3.3(a).

"Asterias Special Committee" has the meaning set forth in the Recitals.

"Asterias Special Meeting" means the meeting of the holders of shares of Asterias Common Stock for the purpose of seeking the Asterias Stockholder Approval in respect of the Merger and the Transactions, including any postponement or adjournment thereof.

"Asterias Stock Option" means each option to purchase shares of Asterias Common Stock granted by Asterias.

"Asterias Stockholder Approval" means the affirmative vote of the holders of a majority of the outstanding shares of Asterias Common Stock entitled to vote upon the adoption of this Agreement at the Asterias Special Meeting.

"Asterias Termination Fee" has the meaning set forth in Section 8.2(h).

"Asterias US Plans" has the meaning set forth in Section 3.10(a).

"Asterias Warrants" means warrants to acquire Asterias Common Stock.

"BioTime" has the meaning set forth in the Preamble.

"BioTime Board of Directors" has the meaning set forth in the Recitals.

"BioTime Board Recommendation" has the meaning set forth in Section 5.6(f).

"BioTime Board Recommendation Change" has the meaning set forth in Section 5.6(f).

"BioTime Charter Documents" has the meaning set forth in Section 4.2.

"BioTime Common Shares" has the meaning set forth in the Recitals.

"BioTime Disclosure Letter" has the meaning set forth in Article IV.

"BioTime Equity Awards" each outstanding award granted under the BioTime Equity Plans (including each outstanding BioTime Stock Option and BioTime RSU Awards).

"BioTime Equity Plans" means the 2012 BioTime Equity Incentive Plan and the 2002 BioTime Equity Incentive Plan, in each case, as amended.

"BioTime Financial Advisor" has the meaning set forth in Section 4.13.

"BioTime Governing Documents" means (a) the BioTime certificate of incorporation as amended and in effect on the date hereof and (b) the bylaws of BioTime, as amended and restated as of the date of this Agreement.

"BioTime Intervening Event" means an Effect that relates to BioTime (a) that was not known to the BioTime Board of Directors, or the material consequences of which (based on facts known to members of the BioTime Board of Directors as of the date of this Agreement) were not reasonably foreseeable by the BioTime Board of Directors, as of the date of this Agreement and (b) that does not relate to (1) any change in the price, or change in trading volume, of BioTime Common Shares or Asterias Common Stock (provided, however, that the exception in this clause shall not apply to the underlying causes giving rise to or contributing to such change or prevent any of such underlying causes from being taken into account in determining whether a BioTime Intervening Event has occurred) and (2) meeting or exceeding internal or analysts' expectations, projections or results of operations (provided, however, that the exception in this clause shall not apply to the underlying causes giving rise to or contributing to such circumstances or prevent any of such underlying causes from being taken into account in determining whether a BioTime Intervening Event has occurred).

"BioTime Material Adverse Effect" means any Effect that, individually or taken together in the aggregate, is, or would reasonably be expected to (a) be, materially adverse to the business, assets, properties, condition (financial or otherwise) or results of operations of BioTime and the BioTime Subsidiaries, taken as a whole; provided that none of the following will be deemed, either alone or in combination, to be or constitute an "BioTime Material Adverse Effect" or be taken into account when determining whether an "BioTime Material Adverse Effect" has occurred or may, would or could occur: (1) conditions in the industry in which BioTime and the BioTime Subsidiaries operate, (2) general economic conditions within the U.S. or any other country, (3) conditions in the securities markets, credit markets, currency markets or other financial markets in the United States or any other country, (4) political conditions in the United States or any other country or acts of war, sabotage or terrorism in the United States or any other country, (5) earthquakes, hurricanes, tsunamis, tornadoes, floods, mudslides, wild fires or other natural disasters, weather conditions and other force majeure events in the United States or any other country, (6) changes in Law or other legal or regulatory conditions or changes in GAAP or other accounting standards, (7) changes in BioTime's stock price or the trading volume of BioTime's stock, or any failure by BioTime to meet any public estimates or expectations of BioTime's revenue, earnings or other financial performance or results of operations for any period, but not, in each case, the underlying cause of such changes or failures, (8) Effects directly resulting from the announcement of this Agreement or the pendency of the Transactions, including any loss of employees and (9) the taking of any action explicitly contemplated hereby (except any actions taken in the ordinary course of business in accordance with Section 5.2(a)), except, in the case of each of clauses (1) through (6), to the extent such Effects disproportionately negatively affect BioTime, in any material negative respect relative to other companies of comparable size in the same industries and geographies in which BioTime operate or (b) prevent, materially delay or materially impede the performance by BioTime of its obligations under this Agreement or the consummation of the Merger or any of the Transactions.

"BioTime Plans" means all employee benefit plans (as defined in Section 3(3) of ERISA) that are maintained, contributed to or sponsored by BioTime.

"BioTime Preferred Shares" has the meaning set forth in Section 4.3(a).

"BioTime RSU Awards" means any issued and outstanding restricted stock units (including commitments to grant restricted stock units approved by BioTime Board of Directors or authorized committee of the BioTime Board of Directors), whether payable in cash, shares or otherwise, granted under or pursuant to a BioTime Equity Plan or otherwise.

"BioTime SEC Reports" as the meaning set forth in Section 4.7(a).

"BioTime Shareholder Approval" means the affirmative vote of the holders of a majority of the votes cast by holders of outstanding BioTime Common Shares on the proposal to approve the issuance of BioTime Common Shares as provided in this Agreement at the BioTime Special Meeting.

"BioTime Special Committee" has the meaning set forth in the Recitals.

"BioTime Special Meeting" means the meeting of the holders of BioTime Common Shares for the purpose of seeking the BioTime Shareholder Approval, including any postponement or adjournment thereof.

"BioTime Stock Option" means each option to purchase BioTime Common Shares granted by Asterias.

"BioTime Subsidiary" means each Subsidiary of BioTime.

"BioTime Termination Fee" has the meaning set forth in Section 8.2(h).

"BioTime Warrants" means warrants to acquire BioTime Common Shares.

"Blue Sky Laws" has the meaning set forth in Section 3.5(b).

"Book-Entry Shares" has the meaning set forth in Section 2.2(b).

"business days" has the meaning set forth in Rule 14d-1(g)(3) of the Exchange Act.

"Certificate of Merger" has the meaning set forth in Section 1.3.

"Certificates" has the meaning set forth in Section 2.2(c).

"Change of Recommendation Notice Period" has the meaning set forth in Section 5.6(b)(3).

"Claim" means any and all allegations, claims, demands and causes of action.

"Closing" has the meaning set forth in Section 1.2.

"Closing Date" has the meaning set forth in Section 1.2.

"COBRA" has the meaning set forth in Section 3.10(h).

"Code" means the Internal Revenue Code of 1986, as amended.

"Confidentiality Agreement" means the Mutual Confidentiality and Nondisclosure Agreement, dated as of June 25, 2018, between BioTime and Asterias.

"Continuing Employee" has the meaning set forth in Section 6.16.

"Contract" means any written or oral agreement, contract, subcontract, settlement agreement, lease, sublease, legally-binding understanding, note, option, bond, mortgage, indenture, trust document, loan or credit agreement, license, sublicense, insurance policy or other legally binding commitment or undertaking of any nature.

"Copyrights" means any and all U.S. and non-U.S. copyrights, mask works and all other rights with respect to Works of Authorship and all registrations thereof and applications therefor (including moral and economic rights, however denominated).

"D&O Insurance" has the meaning set forth in Section 6.4.

"DGCL" has the meaning set forth in the Recitals.

"Domain Names" means all Internet domain name registrations.

"DSOS" means the Secretary of State of the State of Delaware.

"Effect" means any change, effect, development, circumstance, condition, state of facts, event or occurrence.

"Effective Time" has the meaning set forth in Section 1.3.

"Employment Practices" has the meaning set forth in Section 3.11(c).

"Encumbrance" shall mean any lien, pledge, hypothecation, charge, mortgage, security interest, encumbrance, Claim, infringement, interference, option, right of first refusal, preemptive right, community property interest or restriction of any nature (including any restriction on the voting of any security, any restriction on the transfer of any security or other asset, any restriction on the receipt of any income derived from any asset, any restriction on the use of any asset and any restriction on the possession, exercise or transfer of any other attribute of ownership of any asset).

"Environmental Laws" means any Law, including common law, relating to (1) releases or threatened releases of Hazardous Substances, (2) the manufacture, handling, transport, use, treatment, storage or disposal of Hazardous Substances, (3) pollution or protection of the indoor or outdoor environment, occupational health as it relates to exposures to Hazardous Substances or natural resources or (4) the European Union's Directives on the Restriction of Hazardous Substances (RoHS) and the Waste Electrical and Electronic Equipment (WEEE).

"Environmental Permits" has the meaning set forth in Section 3.16(d).

"ERISA" means the Employee Retirement Income Security Act of 1974, as amended, and the regulations promulgated and rulings issued thereunder.

"Exchange Act" means the United States Securities Exchange Act of 1934, as amended.

"Exchange Agent" has the meaning set forth in Section 2.2(a).

"Exchange Fund" has the meaning set forth in Section 2.2(a).

"Exchange Ratio" has the meaning set forth in the Recitals.

"Excluded Party" has the meaning set forth in Section 5.3(c)(3).

"Expenses" means all reasonable out-of-pocket expenses (including all fees and expenses of counsel, financing sources, accountants, investment bankers, experts and consultants to a Party and its affiliates) incurred by a Party or on its behalf in connection with or related to the authorization, preparation, negotiation, execution and performance of this Agreement, the preparation, printing, filing and mailing of the Joint Proxy Statement, the solicitation of equityholders and equityholder approvals, any filings with the SEC and all other matters related to the Closing of the Merger and the other Transactions.

"FCPA" means the Foreign Corrupt Practices Act of 1977, as amended.

"FDA" shall mean the United States Food and Drug Administration.

"FDCA" shall mean the Federal Food, Drug, and Cosmetic Act, as amended, and all implementing rules and regulations (including, without limitation, the regulations promulgated in title 21 of the Code of Federal Regulations).

"Fractional Share Consideration" has the meaning set forth in Section 2.1(a).

"GAAP" has the meaning set forth in Section 3.7(b).

"Go-Shop Period" has the meaning set forth in Section 5.3(a).

"Governmental Authority" means any (1) nation, principality, state, commonwealth, province, territory, county, municipality, district or other jurisdiction of any nature, (2) federal, state, local, municipal, non-U.S. or other government, (3) governmental (or quasi-governmental authority authorized to authorize, administer or enforce the Law) of any nature (including any governmental division, subdivision, department, agency, bureau, branch, office, commission, council, board, instrumentality, officer, official, representative, organization, unit, body or entity and any court or other tribunal) or (4) organization, entity or body exercising, or entitled to exercise, any executive, legislative, judicial, administrative, arbitral, regulatory, police, military or taxing authority or power of any nature (including Persons acting as arbitrators, alternative dispute resolution organizations and stock exchanges).

"Hazardous Substances" means (1) those substances, materials, contaminants or wastes defined in or regulated as "hazardous", "toxic", or "radioactive", under the following U.S. federal statutes and their state counterparts, as amended to date, and all regulations thereunder: the Hazardous Materials Transportation Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Clean Water Act, the Safe Drinking Water Act, the Atomic Energy Act, the Federal Insecticide, Fungicide and Rodenticide Act, and the Clean Air Act, (2) petroleum and petroleum products, including crude oil and any fractions thereof, (3) natural gas, synthetic gas and any mixtures thereof, (4) polychlorinated biphenyls, friable asbestos and radon and (5) any biological or chemical substance, material or waste regulated or classified as "hazardous", "toxic", or "radioactive" by any Governmental Authority pursuant to any Environmental Law.

"Indebtedness" means with respect to any Person, any indebtedness of such Person (excluding accrued expenses and trade payables), whether or not contingent (a) in respect of notes payable, accrued interest payable or other obligations for borrowed money, whether secured or unsecured, (b) evidenced by bonds, notes, debentures or similar instruments or letters of credit (or reimbursement agreements in respect thereof); (c) in respect of banker's acceptances; (d) representing capital lease obligations; (e) representing the balance deferred and unpaid of the purchase price of any property or services due more than one (1) year after such property is acquired or such services are completed; or (f) representing any hedging obligations, if and to the extent any of the preceding items (other than letters of credit and hedging obligations) would appear as a liability upon a balance sheet of the specified Person prepared in accordance with GAAP. In addition, the term "Indebtedness" includes all Indebtedness of others secured by an Encumbrance on any asset of the specified Person (whether or not such Indebtedness is assumed by the specified Person) and, to the extent not otherwise included, the guarantee by the specified Person of any Indebtedness of any other Person. Indebtedness will be calculated without giving effect to the effects of Statement of Financial Accounting Standards No. 133 and related interpretations to the extent such effects would otherwise increase or decrease an amount of Indebtedness for any purpose under the indenture as a result of accounting for any embedded derivatives created by the terms of such Indebtedness.

"Indemnified Parties" has the meaning set forth in Section 6.4.

"Intellectual Property" means the rights associated with or arising out of any of the following: (a) Patents; (b) Trade Secrets; (c) Copyrights, (d) Trademarks, (e) Domain Names and (f) any similar, corresponding or equivalent Intellectual Property rights to any of the foregoing anywhere in the world.

"IRS" means the Internal Revenue Service.

"Joint Proxy Statement" means a joint proxy statement to be sent to the stockholders of Asterias and the stockholders of BioTime (together with any amendments or supplements thereto) in connection with the Transactions.

"knowledge of Asterias" means the actual knowledge of each executive officer of Asterias set forth on Section 1.1 of the Asterias Disclosure Letter.

"knowledge of BioTime" means the actual knowledge of each executive officer of BioTime set forth on Section 1.1 of the BioTime Disclosure Letter.

"Law" means any federal, state, local, municipal, non-U.S. or other law, statute, constitution, principle of common law, resolution, ordinance, code, edict, decree, rule, regulation, ruling or requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Authority.

"Medical Product" has the meaning set forth in Section 3.26(a).

"Merger Consideration" means the Per Share Merger Consideration together with the Fractional Share Consideration.

"Merger Sub" has the meaning set forth in the Preamble.

"Multiemployer Plan" has the meaning set forth in Section 3.10(b).

"Multiple Employer Plan" has the meaning set forth in Section 3.10(b).

"NYSE American" means the New York Stock Exchange American Stock Exchange.

"Open Source Materials" refers to any software or other material that is distributed as "free software," "open source software" or pursuant to any license identified as an open source license by the Open Source Initiative (www.opensource.org) (including but not limited to the GNU General Public License (GPL), LGPL, Mozilla Public License (MPL), BSD licenses, the Artistic License, the Netscape Public License, the Sun Community Source License (SCSL), the Sun Industry Standards License (SISL), and the Apache License).

"Order" means any injunction, judgment, decree or other order issued by a Governmental Authority of competent jurisdiction.

"Outside Date" has the meaning set forth in Section 8.1(d).

"Party" and "Parties" have the meaning set forth in the Preamble.

"Patents" means domestic and foreign patents and patent applications, utility models and inventors' certificates, together with all reissuances, divisionals, continuations, continuations-in-part, revisions, renewals, substitutions, provisionals, non-provisionals, extensions, and reexaminations thereof.

"Per Share Merger Consideration" has the meaning set forth in Section 2.1(a).

"Permitted Encumbrance" shall mean (a) any Encumbrance that arises out of Taxes not in default and payable without penalty or interest the validity of which is being contested in good faith by appropriate proceedings for which a reserve has been established in accordance with GAAP, (b) any mechanics', materialmen's, carriers', workmen's, warehouseman's or repairmen's liens which arise in the ordinary course of business, (c) in the case of any Contract, Encumbrances that are restrictions against the transfer or assignment thereof that are included in the terms of such Contract, (d) with respect to licensed personal property or Intellectual Property or jointly owned Intellectual Property, covered by a valid contract or license, the terms and conditions of the license or Contract applicable thereto and (e) in the case of real property, Encumbrances that are easements, rights-of-way, encroachments, restrictions, conditions and other similar Encumbrances incurred or suffered in the ordinary course of business and which, individually or in the aggregate, do not and would not materially impair the use (or contemplated use), utility or value of the applicable real property or otherwise materially impair the present or contemplated business operations at such location, or zoning, entitlement, building and other land use regulations imposed by Governmental Authorities having jurisdiction over such real property that are set forth on a title report.

"Person" means a natural person, partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture, Governmental Authority or other entity or organization.

"Personal Data" means any individually identifiable information (or information that, in combination with other information, could allow the identification of an individual) that is in the possession or control of Asterias or any of its Subsidiaries, including Protected Health Information (as defined under HIPAA), in each case, which is protected under any privacy, data security, or data breach notification applicable Law, or which Asterias or any of its Subsidiaries is required to safeguard under its privacy policies or pursuant to any contract with the applicable individual.

"PHS Act" has the meaning set forth in Section 3.26(a).

"Registered Intellectual Property" means any Intellectual Property that is the subject of an application, certificate, filing or registration issued, filed with, or recorded by any Governmental Authority, including any of the following: (a) Patents, (b) Trademarks, (c) Copyrights and (d) Domain Names.

"Registration Statement" means the registration statement on Form S-4, or other applicable form, including any pre-effective or post-effective amendments or supplements thereto, filed with the SEC by BioTime under the Securities Act with respect to BioTime Common Shares to be issued in connection with the Transactions.

"Reimbursable Expenses" has the meaning set forth in Section 8.2(h).

"Representatives" means, when used with respect to BioTime, Merger Sub or Asterias, the directors, officers, employees, consultants, financial advisors, accountants, legal counsel, investment bankers, and other agents, advisors and representatives of BioTime or Asterias, as applicable, and its Subsidiaries.

"SEC" means the United States Securities and Exchange Commission.

"Securities Act" means the United States Securities Act of 1933, as amended.

"SOX" has the meaning set forth in Section 3.7(a).

"Subsidiary" or "Subsidiaries" means with respect to any Person, any corporation, limited liability company, partnership or other organization, whether incorporated or unincorporated, of which (a) at least a majority of the outstanding shares of capital stock of, or other equity interests, having by their terms ordinary voting power to elect a majority of the board of directors or others performing similar functions with respect to such corporation or other organization is directly or indirectly owned or controlled by such Person or by any one or more of its Subsidiaries, or by such Person and one or more of its Subsidiaries or (b) with respect to a partnership, such Person or any other Subsidiary of such Person is a general partner of such partnership.

"Superior Proposal" has the meaning set forth in Section 5.3(c)(4).

"Surviving Corporation" has the meaning set forth in Section 1.1.

"Takeover Statutes" mean any "business combination," "control share acquisition," "fair price," "moratorium" or other takeove
or anti-takeover statute or similar Law.

"Tax" or "Taxes" means any and all taxes, levies, duties, tariffs or imposts in the nature of a tax imposed by any Governmental Authority, including, income, franchise, windfall or other profits, gross receipts, premiums, property, sales, use, net worth, capital stock, payroll, employment, social security (or similar), workers' compensation, unemployment compensation, excise, withholding, ad valorem, stamp, transfer, value-added, gains tax and license, registration and documentation fees, severance, occupation, environmental, customs duties, disability, real property, personal property, registration, alternative or add-on minimum, or estimated tax, escheat or unclaimed property (whether or not considered a tax under applicable Law and whether or not disputed), including any interest, penalty, additions to tax or additional amounts imposed with respect thereto, and including any obligations to indemnify or otherwise assume or succeed to the tax liability of any other Person.

"Tax Return" means any report, return, statement, certificate, Claim for refund, election, estimated tax filing, or declaration, or other document required to be filed with any Governmental Authority with respect to Taxes, including any schedule, information statement or attachment thereto, and including any amendments thereof.

"Third Party" means any Person other than Asterias, BioTime and each of their respective affiliates (including Merger Sub) and the respective Representatives of Asterias, BioTime and each of their respective affiliates.

"Trade Secrets" means know-how and trade secret rights and corresponding rights in confidential information and other non-public information (whether or not patentable).

"Trademarks" means all trademarks, service marks, logos, trade dress and trade names indicating the source of goods or services, and other indicia of commercial source or origin (whether registered, common law, statutory or otherwise), all registrations, renewals and applications to register the foregoing anywhere in the world and all goodwill associated therewith.

"Transactions" has the meaning set forth in the Recitals.

"Treasury Regulations" means the regulations in force as final or temporary that have been issued by the U.S. Department of Treasury pursuant to its authority under the Code and any successor regulations.

"2018 Asterias Balance Sheet" has the meaning set forth in Section 3.7(c).

"2018 BioTime Balance Sheet" has the meaning set forth in Section 4.7(c).

"WARN Act" has the meaning set forth in Section 3.11(f).

"Worker" means any current or former employee, officer, director or individual independent contractor of Asterias.

Section 9.6 Interpretation. When a reference is made in this Agreement to Sections, such reference will be to a Section of this Agreement unless otherwise indicated. Whenever the words "include", "includes" or "including" are used in this Agreement they will be deemed to be followed by the words "without limitation." All references in this Agreement to "Sections," "Annexes" and "Schedules" are intended to refer to Sections of this Agreement and Annexes and Schedules to this Agreement. The words "hereof," "herein" and "hereunder" and words of similar import, when used in this Agreement, refer to this Agreement as a whole and not to any particular provision of this Agreement. References herein to a Person are also to such Person's successors and permitted assigns. All references in this Agreement to "$" or other monetary amounts refer to U.S. dollars. Unless otherwise specifically provided for herein, the term "or" will not be deemed to be exclusive. The table of contents and headings set forth in this Agreement are for convenience of reference purposes only and will not affect or be deemed to affect in any way the meaning or interpretation of this Agreement or any term or provision hereof. When reference is made herein to a Person, such reference will be deemed to include all direct and indirect Subsidiaries of such Person unless otherwise indicated or the context otherwise requires. All references herein to the Subsidiaries of a Person will be deemed to include all direct and indirect Subsidiaries of such Person unless otherwise indicated or the context otherwise requires. The Parties agree that they have been represented by counsel during the negotiation and execution of this Agreement and, therefore, waive the application of any Law, regulation, holding or rule of construction providing that ambiguities in an agreement or other document will be construed against the Party drafting such agreement or document. Except as otherwise specified, (i) references to any statute shall be deemed to refer to such statute as amended from time to time and to any rules or regulations promulgated thereunder or to any successor statute, rules and regulations thereto, (ii) references to any Person include the successors and permitted assigns of that Person and (iii) references from or through any date mean from and including or through and including, respectively.

Section 9.7 Counterparts. This Agreement may be executed and delivered, including by e-mail of an attachment in Adobe Portable Document Format or other file format based on common standards ("Electronic Delivery"), in any number of counterparts, and by the different Parties hereto in separate counterparts, each of which when executed and

delivered will be deemed to be an original but all of which taken together will constitute one and the same agreement. Any such counterpart, to the extent delivered using Electronic Delivery will be treated in all manner and respects as an original executed counterpart and will be considered to have the same binding legal effect as if it were the original signed version thereof delivered in Person. No Party will raise the use of Electronic Delivery to deliver a signature or the fact that any signature or agreement or instrument was transmitted or communicated through the use of Electronic Delivery as a defense to the formation of a contract, and each such Party forever waives any such defense, except to the extent that such defense relates to lack of authenticity.

Section 9.8 Entire Agreement; Third-Party Beneficiaries.

(a) This Agreement (including the Asterias Disclosure Letter and the BioTime Disclosure Letter), the Confidentiality Agreement constitute the entire agreement among the Parties with respect to the subject matter hereof and thereof and supersede all other prior agreements (except that the Confidentiality Agreement will be deemed amended hereby so that until the termination of this Agreement in accordance with Section 8.1, Asterias, BioTime and Merger Sub will be permitted to take the actions contemplated by this Agreement) and understandings, both written and oral, among the Parties or any of them with respect to the subject matter hereof and thereof.

(b) Except as provided in Section 6.4, neither this Agreement (including the Asterias Disclosure Letter and the BioTime Disclosure Letter) nor the Confidentiality Agreement are intended to confer upon any Person other than the Parties any rights or remedies hereunder.

Section 9.9 Severability. If any term or other provision of this Agreement is invalid, illegal or incapable of being enforced by rule of Law or public policy, all other conditions and provisions of this Agreement will nevertheless remain in full force and effect so long as the economic or legal substance of the Merger is not affected in any manner adverse to any Party. Upon such determination that any term or other provision is invalid, illegal or incapable of being enforced, the Parties will negotiate in good faith to modify this Agreement so as to effect the original intent of the Parties as closely as possible in an acceptable manner to the end that the Merger are fulfilled to the extent possible.

Section 9.10 Governing Law; Jurisdiction.

(a) This Agreement will be governed by, and construed in accordance with, the Laws of the State of Delaware, without giving effect to conflicts of laws principles that would result in the application of the Law of any other state.

(b) Each of the Parties hereto hereby irrevocably and unconditionally submits, for itself and its property, to the exclusive jurisdiction of the Court of Chancery of the State of Delaware, or, if (and only if) such court finds it lacks subject matter jurisdiction, the Federal court of the United States of America sitting in Delaware, and any appellate court from any thereof, in any action or proceeding arising out of or relating to this Agreement or the agreements delivered in connection herewith or the Transactions or thereby or for recognition or enforcement of any judgment relating thereto, and each of the Parties hereby irrevocably and unconditionally (1) agrees not to commence any such action or proceeding except in the Court of Chancery of the State of Delaware, or, if (and only if) such court finds it lacks subject matter jurisdiction, the Federal court of the United States of America sitting in Delaware, and any appellate court from any thereof, (2) agrees that any Claim in respect of any such action or proceeding may be heard and determined in the Court of Chancery of the State of Delaware, or, if (and only if) such court finds it lacks subject matter jurisdiction, the Federal court of the United States of America sitting in Delaware, and any appellate court from

any thereof, (3) waives, to the fullest extent it may legally and effectively do so, any objection that it may now or hereafter have to the laying of venue of any such action or proceeding in such courts and (4) waives, to the fullest extent permitted by Law, the defense of an inconvenient forum to the maintenance of such action or proceeding in such courts. Each of the Parties hereto agrees that a final judgment in any such action or proceeding will be conclusive and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by Law. Each Party to this Agreement irrevocably consents to service of process inside or outside the territorial jurisdiction of the courts referred to in this Section 9.10(b) in the manner provided for notices in Section 9.4. Nothing in this Agreement will affect the right of any Party to this Agreement to serve process in any other manner permitted by Law.

Section 9.11 Waiver of Jury Trial. Each Party hereby irrevocably and unconditionally waives any right it may have to a trial by jury in respect of any litigation directly or indirectly arising out of or relating to this Agreement and any of the agreements delivered in connection herewith or the Merger and the other Transactions contemplated hereby or thereby. Each Party certifies and acknowledges that (a) no representative, agent or attorney of any other Party has represented, expressly or otherwise, that such other Party would not, in the event of litigation, seek to enforce either of such waivers, (b) it understands and has considered the implications of such waivers, (c) it makes such waivers voluntarily and (d) it has been induced to enter into this Agreement by, among other things, the mutual waivers and certifications in this Section 9.11.

Section 9.12 Assignment. This Agreement will not be assigned by any of the Parties (whether by operation of Law or otherwise) without the prior written consent of the other Parties, except that Merger Sub may assign, in its sole discretion and without the consent of any other Party, any or all of its rights, interests and obligations hereunder to (1) BioTime or (2) a wholly owned Subsidiary of BioTime; provided that no such assignment will relieve BioTime or Merger Sub of any obligation or liability under this Agreement. Subject to the preceding sentence, but without relieving any Party of any obligation hereunder, this Agreement will be binding upon, inure to the benefit of and be enforceable by the Parties and their respective successors and assigns.

Section 9.13 Enforcement; Remedies.

(a) Except as otherwise expressly provided herein, any and all remedies herein expressly conferred upon a Party will be deemed cumulative with and not exclusive of any other remedy conferred hereby, or by Law or equity upon such Party, and the exercise by a Party of any one remedy will not preclude the exercise of any other remedy.

(b) The Parties agree that irreparable injury will occur in the event that any of the provisions of this Agreement is not performed in accordance with its specific terms or is otherwise breached. It is agreed that prior to the valid termination of this Agreement pursuant to Article VIII, each Party will be entitled to an injunction or injunctions to prevent or remedy any breaches or threatened breaches of this Agreement by any other Party, to a decree or Order of specific performance to specifically enforce the terms and provisions of this Agreement and to any further equitable relief.

(c) The Parties' rights in this Section 9.13 are an integral part of the Transactions and each Party hereby waives any objections to any remedy referred to in this Section 9.13 (including any objection on the basis that there is an adequate remedy at Law or that an award of such remedy is not an appropriate remedy for any reason at Law or equity). For purposes of clarity, each Party agrees that there is not an adequate remedy at Law for a breach of this Agreement by any Party. In the event any Party seeks any remedy referred to in this Section 9.13, such Party will not be required to obtain, furnish, post or provide any bond or other security in connection with or as a condition to obtaining any such remedy.

(Remainder of Page Intentionally Left Blank)

BioTime, Merger Sub and Asterias have caused this Agreement to be signed by their respective duly authorized officers as of the date first written above.

BIOTIME, INC.

By: */s/ Brian M. Culley*
Name: Brian M. Culley
Title: Chief Executive Officer

PATRICK MERGER SUB, INC.

By: */s/ Brian M. Culley*
Name: Brian M. Culley
Title: Chief Executive Officer

ASTERIAS BIOTHERAPEUTICS, INC.

By: */s/ Michael H. Mulroy*
Name: Michael H. Mulroy
Title: Chief Executive Officer

[Signature Page to Merger Agreement]

SCHEDULE 1.6

Post-Merger Board of Directors

Deborah Andrews

Don Bailey

Neal C. Bradsher

Brian M. Culley

Stephen C. Farrell

Alfred D. Kingsley

Michael H. Mulroy

Cavan Redmond

Angus C. Russell

Annex B

Personal and Confidential

November 7, 2018

Special Committee for the "Zeus" Transaction

c/o the Board of Directors

BioTime, Inc.

1010 Atlantic Avenue, #102

Alameda, CA 94501

Ladies and Gentlemen:

You have requested our opinion (the "Opinion"), as investment bankers, as to the fairness from a financial point of view to the holders of the outstanding Common Shares of BioTime, Inc. ("BioTime" or the "Company") of the offer to be paid to Asterias Biotherapeutics, Inc. ("Asterias" or the "Target"), pursuant to the terms of the merger agreement ("Merger Agreement") by and among BioTime, Asterias, and Acquisition Sub (hereafter BioTime, Asterias, and Merger Sub are referred to herein as the "Parties"). The terms and conditions of the Transaction (as defined below) are set forth in the Merger Agreement, a form which has been provided to Maxim by BioTime. Pursuant to the Merger Agreement: (i) Each outstanding share of Asterias Series A common stock ("Asterias Common Stock") issued and outstanding immediately prior to the Effective Time will be automatically converted into the right to receive 0.71 (the "Exchange Ratio") voting common shares, no par value, of BioTime ("BioTime Common Shares"). (ii) Each fractional share of BioTime stock after the exchange, pursuant to the Exchange Ratio, will receive cash consideration in lieu of common stock. (iii) From and after the Effective Time, all such shares of Asterias Common Stock will no longer be outstanding and will automatically be cancelled and will cease to exist, and each applicable holder of such shares of Asterias Common Stock will cease to have any rights with respect thereto (the "Transaction"). The Opinion is based upon, among the other maters addressed herein, the parameters, assumptions and calculations set forth in the presentation concurrently delivered to the Board. The Opinion is also subject to the following assumptions, conditions, qualifications, notices and disclaimers.

Maxim Group LLC ("Maxim") provides a multitude of financial services including investment banking; private wealth management; and global institutional equity, fixed-income and derivatives sales and trading as well as equity research. Maxim and its affiliates, or other related entities or individuals, may at any time purchase, sell, hold or vote long or short positions and investments in securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments of the Company, and any of their respective affiliates and third parties, or any currency or commodity that may be involved in the Transaction. Maxim will receive a fee from the Company for delivering the Opinion as well as reimbursement of certain expenses. Maxim's fee will be due in its entirety upon the delivery of the Opinion, irrespective of whether the Transaction is completed. The Company has agreed to indemnify Maxim against certain liabilities, and to reimburse it for certain liabilities in connection with Maxim providing the Opinion. No controlling person of Maxim is directly personally receiving compensation or other remuneration from any of the Parties.

In connection with the Opinion, we have reviewed, including but not limited to, the following information/documents: the Merger Agreement, Annual Reports on Form 10-K of the Company and Asterias; certain interim reports to stockholders and Quarterly Reports on Form 10-Q of the Company and Asterias; business agreements; and certain internal financial analyses and forecasts for Asterias prepared by BioTime management team and Asterias management, as approved for our use by the Company as the case may be (the "Forecasts"). We reviewed the reported price and trading activity for the Securities; compared certain financial and stock market information for the Company with similar information for certain other companies the securities of which are publicly traded; reviewed the financial terms of certain recently closed strategic transactions, business combinations, and acquisitions within the Biotechnology industry. In rendering the Opinion, we have assumed that the definitive Merger Agreement will not differ materially from the draft that we reviewed, and that there will be no change to the contemplated structure of the Transaction by the Parties or reduction of the Exchange Ratio, number of shares of Common Stock subject to the Offer or any Offer Condition otherwise amended or modified in any way adverse to the holders of BioTime Common Shares.

In order to render this Opinion, we have relied upon and assumed, without assuming any responsibility for independent verification, the accuracy and completeness of all the financial, legal, regulatory, tax, accounting and other documentation and information provided to, discussed with, or reviewed by us and have, with your consent, relied on such information as being complete and accurate in all material respects, including any documentation and information originally produced by the Parties and provided by the Company to Maxim. In that regard, we have assumed with your consent that the Forecasts have been reasonably prepared on a basis reflecting the best currently available estimates and judgments of the management of the Company and those financial projections originally produced by Asterias and provided by BioTime to Maxim. We have assumed that there were no material changes in the assets, liabilities, financial condition, results of operations, reserves, business operations since the date of the financial statements referenced herein. Moreover, it is understood that the Forecasts are based on numerous variables and assumptions that are inherently uncertain, including without limitation, factors related to general economic, market and competitive conditions. Accordingly, actual results could vary significantly from those set forth in such Forecasts, and as noted previously, Maxim has relied on these Forecasts without independent verification or analyses and does not in any respect assume any responsibility for the accuracy or completeness thereof. We have not made an independent evaluation or appraisal of the assets and liabilities (including any joint ventures, contingent, derivative or other off-balance-sheet assets and liabilities) of the Company or any of its subsidiaries, the Target or any of its subsidiaries, joint ventures and we have not been furnished with any such evaluation or appraisal. We have assumed that all governmental, regulatory or other consents and approvals necessary for the consummation of the Transaction will be obtained without any adverse effect on the expected benefits of the Transaction in any way meaningful to our analysis. We are not actuaries and our services did not include any actuarial determination or evaluation by us or any attempt to evaluate actuarial assumptions, and we have relied on the Company with respect to the appropriateness and adequacy of reserves of the Company and actuarial assumptions used by the Company in connection with the Forecasts. In that regard, we have made no analysis of, and express no opinion as to, the appropriateness or adequacy of reserves or actuarial assumptions. Maxim has relied upon assurances by the Parties that they are unaware of any facts that would make their respective information incomplete or misleading. Maxim has no obligation to update or modify the Opinion.

Our Opinion does not address the underlying business decision of BioTime or the Target to engage in the Transaction, or the relative merits of the Transaction as compared to any strategic alternatives that may be available to BioTime; nor does it address any legal, regulatory, tax or accounting matters. This Opinion addresses only the fairness from a financial point of the Transaction to BioTime, as of the date hereof as described below. We do not express any view on, and our Opinion does not address, any other term or aspect of the Merger Agreement or Transaction or any term or aspect of any other agreement or instrument contemplated by the Merger Agreement or entered into or amended in connection with the Transaction, nor as to the fairness of the amount or nature of any compensation to be paid or payable to any of the officers, directors, or employees of the Target or class of such persons, in connection with the

Transaction. Our Opinion is necessarily based on the economic, monetary, market and other conditions as in effect on, and the information made available to us as of, the date hereof and we assume no responsibility for updating, revising or reaffirming this Opinion based on circumstances, developments or events occurring after the date hereof. Our Opinion does not compare the relative merits of the Transaction with any other alternative transaction or business strategy which may have been available to or considered by the Special Committee, BioTime or its Board, or address the underlying business decision of the Special Committee, BioTime or its Board to proceed with the Transaction. Maxim was not requested to, and did not, explore alternatives to the Transaction or solicit interest of any other parties in pursuing transactions with BioTime. The Company publicly announced (Oct. 25, 2018) distribution of the majority of BioTime's ownership in AgeX Therapeutics, Inc.("AgeX") will occur on November 28, 2018 (record date of November 16, 2018), prior to the closing of the Transaction, and therefore, Asterias shareholders will not be entitled to a distribution of AgeX shares. In this opinion, we did not discount the value of BioTime shares to account for the distribution of AgeX shares in reaching our opinion set forth below as to fairness.

The Opinion has been prepared exclusively for the use of the Special Committee of the Board of Directors of BioTime in its deliberation of the Transaction and may not be used for any other purpose including any filings or reports filed with the Securities and Exchange Commission without our prior written consent, except unless required to be produced pursuant to a valid legal or regulatory request. The Opinion has not been prepared for BioTime or its shareholders, nor will it grant them any rights or remedies. The Opinion does not constitute a recommendation as to how the Special Committee, Board or any holder of Securities should vote with respect to such Transaction or any other matter if a vote is required. This Opinion has been approved by a committee of Maxim investment banking and other professionals in accordance with our customary practice.

Based upon and subject to the forgoing, it is our opinion that, as of the date hereof, the Exchange Ratio and the consideration being paid to Asterias stockholders in accordance with the Merger Agreement is fair from a financial point of view to BioTime and its stockholders.

Yours truly,

MAXIM GROUP LLC

By: */s/ Chris Avery*
Name: Chris Avery
Title: Managing Director, Investment Banking

By: */s/ Brad Hoffman*
Name: Brad Hoffman
Title: Director, Investment Banking

By: */s/ Clifford A. Teller*
Name: Clifford A. Teller
Title: Executive Managing Director, Investment Banking

Annex C

November 7, 2018

Special Committee of the Board of Directors (in its capacity as such)

Asterias Biotherapeutics, Inc.

6300 Dumbarton Circle

Fremont, CA 94555

Members of the Special Committee of the Board of Directors:

We understand that BioTime, Inc., a California corporation ("Biotime"), Patrick Merger Sub, Inc., a Delaware corporation and a wholly-owned subsidiary of Biotime ("Merger Sub"), and Asterias Biotherapeutics, Inc., a Delaware corporation ("Asterias"), propose to enter into an Agreement and Plan of Merger (the "Merger Agreement") pursuant to which, among other things, (i) Merger Sub will be merged with and into Asterias (the "Merger") with Asterias being the surviving company in the Merger and becoming a wholly-owned subsidiary of Biotime, (ii) each outstanding share of Series A Common Stock of Asterias, par value $0.0001 per share ("Asterias Common Stock), issued and outstanding immediately prior to the Merger (other than shares of Asterias Common Stock held by Biotime, Asterias or any of their respective wholly-owned subsidiaries (such shares, the "Excluded Shares")) will be automatically converted into the right to receive 0.71 common shares of Biotime, no par value per share ("Biotime Common Stock"). The ratio of shares of Biotime Common Stock to be issued in exchange for each share of Asterias Common Stock is referred to herein as the "Exchange Ratio." The terms and conditions of the Merger are more completely described in the Merger Agreement.

The Special Committee of the Board of Directors of Asterias, in its capacity as such (the "Committee"), has requested that Raymond James & Associates, Inc. ("Raymond James") provide an opinion (the "Opinion") to the Committee as to whether, as of the date hereof, the Exchange Ratio is fair from a financial point of view to the holders of Asterias Common Stock other than holders of Excluded Shares. For clarity, Raymond James is not providing any opinion with regard to, and this Opinion does not take into account the impact of, the distribution of shares of AgeX Therapeutics, Inc. held by Biotime to eligible stockholders of Biotime contemplated to occur on or about November 28, 2018.

In connection with our review of the proposed Merger and the preparation of this Opinion, we have, among other things:

1. reviewed the financial terms and conditions of the Merger as stated in the draft of the Merger Agreement, dated as of November 6, 2018, such draft being the last draft of the Merger Agreement provided to us;

2. reviewed certain information related to the historical, current and future operations, financial condition and prospects of Asterias made available to us by Asterias, including, but not limited to, financial projections prepared by the management of Asterias, as approved for our use by Asterias (the "Asterias Projections");

3. reviewed certain information related to the historical, current and future operations of Biotime made available to us by Asterias, including, but not limited to, financial projections prepared by the management of Asterias, as approved for our use by Asterias (the "Biotime Projections", and collectively with Asterias Projections, the "Projections");

4. reviewed Asterias's recent public filings and certain other publicly available information regarding Asterias;

5. reviewed Biotime's recent public filings and certain other publicly available information regarding Biotime;

6. reviewed certain other non-public financial, operating and other information regarding Asterias and Biotime provided to us by Asterias;

7. reviewed the financial and operating performance of selected public companies that we deemed to be relevant;

8. considered the publicly available financial terms of certain transactions we deemed to be relevant;

9. reviewed the current and historical market prices for Asterias Common Stock and the Biotime Common Stock, and the current market prices of the publicly traded securities of certain other companies that we deemed to be relevant;

10. considered certain discussions and negotiations between representatives of Asterias and Biotime in which we participated;

11. conducted such other financial studies, analyses and inquiries and considered such other information and factors as we deemed appropriate; and

12. discussed with members of the senior management of Asterias certain information relating to the aforementioned and any other matters which we have deemed relevant to our inquiry.

With your consent, we have assumed and relied upon the accuracy and completeness of all information supplied by or on behalf of Asterias or Biotime or otherwise reviewed by or discussed with us, and we have undertaken no duty or responsibility to, nor did we, independently verify any of such information. We have not made or obtained an independent appraisal of the assets or liabilities (contingent or otherwise) of Asterias or Biotime. With respect to the Projections and any other information and data (including forward looking information and data) provided to or otherwise reviewed by or discussed with us, we have, with your consent, assumed that the Projections and such other information and data have been reasonably prepared in good faith on bases reflecting the best currently available estimates and judgments of management of Asterias or Biotime, as applicable, and we have relied upon Asterias to advise us promptly if any information previously provided became inaccurate or was required to be updated during the period of our review. We express no opinion with respect to the Projections or the assumptions on which they are based. We have assumed that the final form of the Merger Agreement will be substantially similar to the draft

reviewed by us, and that the Merger will be consummated in accordance with the terms of the Merger Agreement without waiver or amendment of any conditions thereto. Furthermore, we have assumed, in all respects material to our analysis, that the representations and warranties of each party contained in the Agreement are true and correct and that each such party will perform all of the covenants and agreements required to be performed by it under the Agreement without being waived. We have relied upon and assumed, without independent verification, that (i) the Merger will be consummated in a manner that complies in all respects with all applicable international, federal and state statutes, rules and regulations, (ii) all governmental, regulatory and other consents and approvals necessary for the consummation of the Merger will be obtained and that no delay, limitations, restrictions or conditions will be imposed or amendments, modifications or waivers made that would have an effect on the Merger, Asterias or Biotime that would be material to our analyses or this Opinion, and (iii) the Merger will be treated for United States federal income tax purposes as a reorganization within the meaning of Section 368(a) of the Internal Revenue Code.

Our opinion is based upon market, economic, financial and other circumstances and conditions existing and disclosed to us as of November 2, 2018 and any material change in such circumstances and conditions would require a reevaluation of this Opinion, which we are under no obligation to undertake. We have relied upon and assumed, without independent verification, that there has been no change in the business, assets, liabilities, financial condition, results of operations, cash flows or prospects of Asterias or Biotime since the respective dates of the most recent financial statements and other information, financial or otherwise, provided to us that would be material to our analyses or this Opinion, and that there is no information or any facts that would make any of the information reviewed by us incomplete or misleading in any material respect.

We express no opinion as to the underlying business decision to effect the Merger, the structure or tax consequences of the Merger or the availability or advisability of any alternatives to the Merger. While we provided advice to Asterias with respect to the proposed Merger, we did not recommend any specific amount of consideration or that any specific consideration constituted the only appropriate consideration for the Merger. In addition, we do not express any opinion as to the likely trading range of Biotime Common Stock following the Merger, which may vary depending on numerous factors that generally impact the price of securities or on the financial condition of Biotime at that time. We did not solicit indications of interest with respect to a transaction involving Asterias nor did we advise Asterias with respect to its strategic alternatives.

Our opinion is limited to the fairness of the Exchange Ratio, from a financial point of view, to the holders of Asterias Common Stock (other than holders of Excluded Shares). We express no opinion with respect to any other reasons, legal, business or otherwise, that may support the decision of the Board of Directors of Asterias to approve or consummate the Merger. Furthermore, no opinion, counsel or interpretation is intended by Raymond James on matters that require legal, accounting or tax advice. It is assumed that such opinions, counsel or interpretations have been or will be obtained from the appropriate professional sources. Furthermore, we have relied, with the consent of the Committee, on the fact that Asterias has been assisted by legal, accounting and tax advisors and we have, with the consent of the Committee, relied upon and assumed the accuracy and completeness of the assessments by Asterias and its advisors as to all legal, accounting and tax matters with respect to Biotime and the Merger.

In formulating our opinion, we have considered only what we understand to be the Exchange Ratio as is described above and we did not consider, and we express no opinion on, the fairness of the amount or nature of any compensation to be paid or payable to any of Asterias's officers, directors or employees, or class of such persons, whether relative to the compensation to be received by the stockholders of Asterias or otherwise. We have not been requested to opine as to, and this Opinion does not express an opinion as to or otherwise address, among other things: (i) the fairness of the Merger to the holders of any class of securities, creditors or other constituencies of Asterias, or to any other party except and only to the extent expressly set forth in the last sentence of this Opinion, (ii) the fairness of the Merger to any one class or group of Asterias's or any other party's security holders or other constituencies vis-à-vis any other class or group of Asterias's or such other party's security holders or other constituencies (including, without limitation, the allocation of any consideration to be received in the Merger amongst or within such classes or groups of security holders or other constituencies or parties), or (iii) the treatment of, or effect of the Merger on, Asterias Restricted Shares, Asterias Options, Asterias Equity Awards, and Asterias Warrants (each as defined in the Merger Agreement). We are not expressing any opinion as to the impact of the Merger on the solvency or viability of Asterias or Biotime or the ability of Asterias or Biotime to pay their respective obligations when they come due.

The delivery of this opinion was approved by an opinion committee of Raymond James.

Raymond James has been engaged to render financial advisory services to Asterias in connection with the proposed Merger and will receive a fee (the "Transaction Fee") for such services, a substantial portion of which is contingent upon consummation of the Merger. Raymond James will also receive a fee upon the delivery of this Opinion, which is not contingent upon the successful completion of the Transaction or on the conclusion reached herein, but is creditable against the Transaction Fee. In addition, Asterias has agreed to reimburse certain of our expenses and to indemnify us against certain liabilities arising out of our engagement.

In the ordinary course of our business, Raymond James may trade in the securities of Asterias and Biotime for our own account or for the accounts of our customers and, accordingly, may at any time hold a long or short position in such securities. There are no material relationships that existed during the two years prior to the date of this Opinion or are mutually understood to be contemplated in which any compensation was received or is intended to be received as a result of the relationship between Raymond James and Asterias. Raymond James has provided certain services to Biotime in the past two years unrelated to the Merger, including serving as the sole book-running manager for two public offerings of Biotime Common Stock, for which services Raymond James received compensation. Raymond James may provide investment banking, financial advisory and other financial services to Biotime and its affiliates in the future, for which Raymond James may receive compensation.

It is understood that this letter is for the information of the Committee (solely its capacity as such) in evaluating the proposed Merger and does not constitute a recommendation to the Committee, the Board of Directors of Asterias or any stockholder of Asterias regarding how the Board of Directors of Asterias or any such stockholder should vote on the proposed Merger. This Opinion may not be reproduced or used for any other purpose without our prior written consent, except that this Opinion may be disclosed in full in any proxy statement or prospectus filed with any registration statement that is required to be filed in connection with the Merger with the Securities and Exchange Commission.

Based upon and subject to the foregoing, it is our opinion that, as of the date hereof, the Exchange Ratio is fair, from a financial point of view, to the holders of Asterias Common Stock other than holders of Excluded Shares.

Very truly yours,

RAYMOND JAMES & ASSOCIATES, INC.

/s/ Stu Barich

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