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UNDER THE SECURITIES EXCHANGE ACT OF 1934

SUBJECT COMPANY: ASTERIAS BIOTHERAPEUTICS, INC.
COMMISSION FILE NO.: 001-36646

Forward Looking Statements

Forward-Looking Statements

Certain statements in this presentation (this "Presentation"), including statements related to the success of BioTime and Asterias in developing new cell products and technologies, results of clinical trials of certain of BioTime's and Asterias' products, the ability of BioTime and Asterias and their licensees to obtain additional FDA and foreign regulatory approval to market their respective products, competition from products manufactured and sold or being developed by other companies, the price of and demand for BioTime's and Asterias' products, maintenance of intellectual property rights, BioTime's and Asterias' ability to access adequate capital to fund their current and planned business and operations, the proposed acquisition of Asterias by BioTime pursuant to an Agreement and Plan of Merger, dated November 7, 2018 (the "Merger Agreement"), by and among BioTime, Asterias and Patrick Merger Sub, Inc., pursuant to which Patrick Merger Sub, Inc. will merge with and into Asterias with Asterias surviving as a wholly owned subsidiary of BioTime (the "Merger"), the ability of BioTime and Asterias to consummate the Merger and the ability of BioTime and Asterias to successfully combine their businesses in a manner that permits the combined company to achieve the synergies anticipated to result from the Merger, are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are subject to numerous assumptions, risks and uncertainties which change over time. Forward-looking statements speak only as of the date they are made and we assume no duty to update forward-looking statements.

In addition to factors previously disclosed in BioTime's and Asterias' reports filed with the U.S. Securities and Exchange Commission (the "SEC") and those identified elsewhere in this Presentation, the following factors, among others, could cause actual results to differ materially from forward-looking statements and historical performance: the ability to obtain regulatory approvals and meet other closing conditions to the Merger, including requisite approval by BioTime's and Asterias' shareholders and stockholders, respectively, on a timely basis or at all; delay in closing the Merger; the ultimate outcome and results of integrating the operations of BioTime and Asterias and the ultimate ability to realize synergies and other benefits; business disruption following the Merger; the availability and access, in general, of funds to fund operations and necessary capital expenditures. More information on potential factors that could affect our results is included from time to time in the SEC filings and reports of BioTime and Asterias, including the risks identified under the sections captioned "Risk Factors" in BioTime's quarterly report on Form 10-Q filed with the SEC on November 8, 2018 and Asterias' quarterly report on Form 10-Q filed with the SEC on November 9, 2018.

Additional Disclaimers

No Offer or Solicitation

This Presentation does not constitute an offer to sell or the solicitation of an offer to buy any securities or a solicitation of any vote or approval nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. No offering of securities shall be made except by means of a prospectus meeting the requirements of Section 10 of the Securities Act of 1933, as amended.

Additional Information and Where to Find It

In connection with the proposed Merger, BioTime and Asterias plan to file documents with the SEC, including the filing by BioTime of a Registration Statement on Form S-4 containing a Joint Proxy Statement/Prospectus and each of BioTime and Asterias plan to file with the SEC other documents regarding the proposed transaction. INVESTORS AND SECURITY HOLDERS OF BIOTIME AND ASTERIAS ARE URGED TO CAREFULLY READ THE JOINT PROXY STATEMENT/PROSPECTUS (WHEN AVAILABLE) AND OTHER DOCUMENTS FILED WITH THE SEC BY BIOTIME AND ASTERIAS BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED TRANSACTION. Investors and security holders may obtain free copies of these documents (when they are available) and other documents filed with the SEC at the SEC's web site at www.sec.gov and by contacting BioTime Investor Relations at (510) 871-4188 or Asterias Investor Relations at (510) 456-3892. Investors and security holders may obtain free copies of the documents filed with the SEC on BioTime's website at www.biotimeinc.com or Asterias' website at www.asteriasbiotherapeutics.com or the SEC's website at www.sec.gov.

BioTime, Asterias and their respective directors and executive officers may be deemed participants in the solicitation of proxies with respect to the proposed transaction. Information regarding the interests of these directors and executive officers in the proposed transaction will be included in the Joint Proxy Statement/Prospectus described above. Additional information regarding the directors and executive officers of BioTime is also included in BioTime's proxy statement for its 2018 Annual Meeting of Shareholders, which was filed with the SEC on March 29, 2018, and additional information regarding the directors and executive officers of Asterias is also included in Asterias' proxy statement for its 2018 Annual Meeting of Stockholders, which was filed with the SEC on April 30, 2018, respectively.

Company Overview

- BioTime is a leading cell therapy company
- 700+ cell therapy-related patents and patent applications
- Expertise differentiating pluripotent cells into specific cell types
- Delivering differentiated cells to the body to restore diminished functions, such as impaired vision, movement, or immune response to a tumor

RECENT NEWS

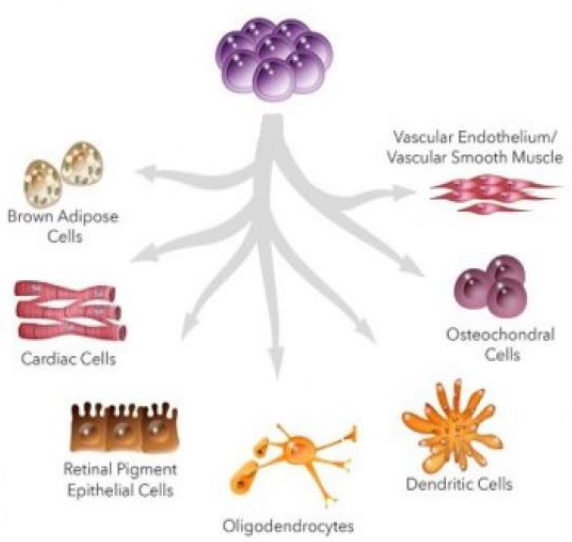
Announced definitive agreement to acquire Asterias Biotherapeutics, Inc. (NYSE: AST) (the "Merger")

If the conditions to the Merger are satisfied and the transaction closes, BioTime will focus on three clinical-stage product candidates addressing significant unmet medical needs


Cell Therapy Platform
Technology

Cell Therapy Platform Technology

- BioTime's cell therapy platform starts with normal, pluripotent human cells, which avoids risks from genetic modification.
- The cells have the capacity to become any human cell type, offering a broad range of potential indications.
- The cells have high proliferative capacity, meaning their replications could produce enough material to treat even the largest indications.



Cell Therapy Platform Technology

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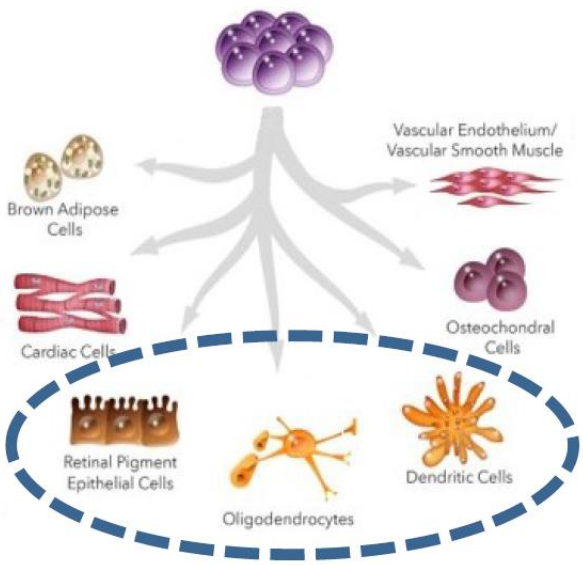
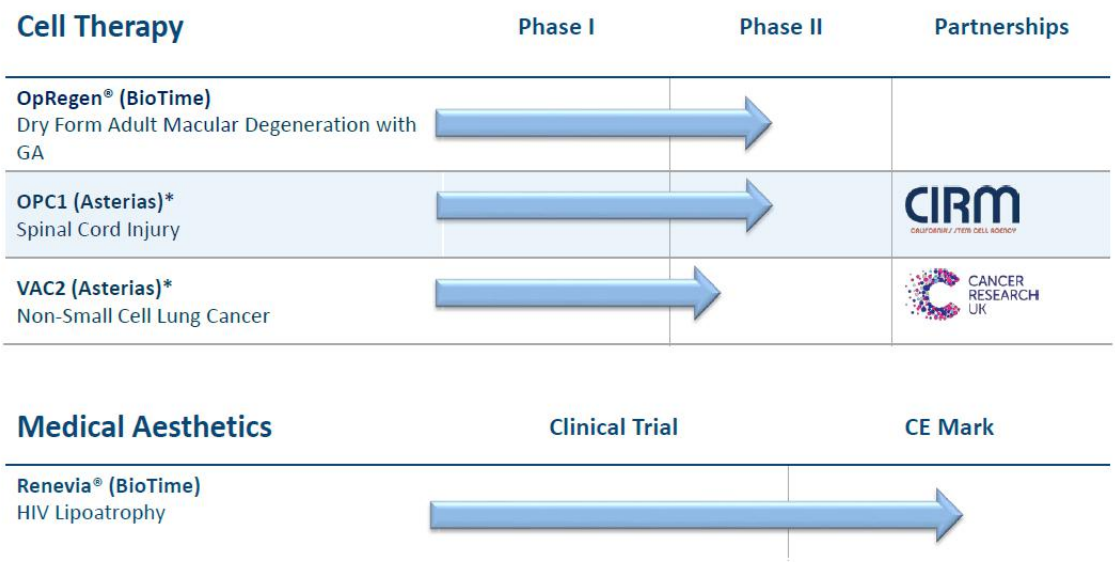


Proposed Combined Company Pipeline*

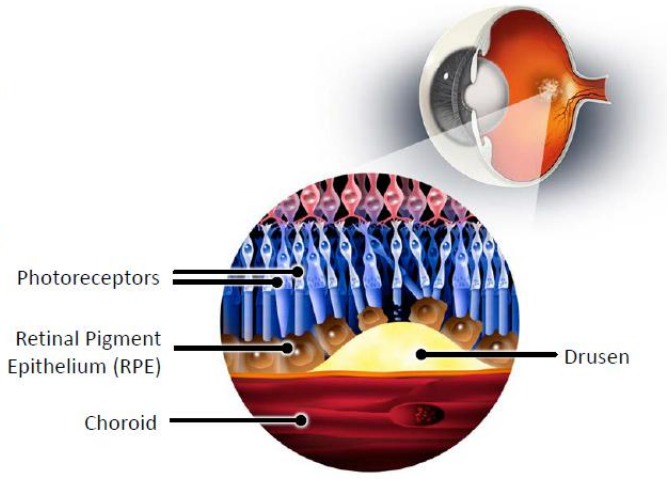


*BioTime does not currently own this product and this discussion assumes the closing of the Merger, which is subject to certain closing conditions, including obtaining the approval of BioTime shareholders and Asterias stockholders.


OpRegen®
Retinal Pigment Epithelium
Transplant Therapy for Dry-AMD

Age-related Macular Degeneration (AMD)

- AMD is a common eye disorder causing impaired central vision
- Leading cause of blindness in those over 60 years of age
- Retinal damage occurs from the build-up of acellular debris called drusen.
- Retinal pigment endothelium (RPE) cells help clear the waste material which forms drusen.
- Loss of RPE cells impairs drusen clearance and facilitates macular degeneration.



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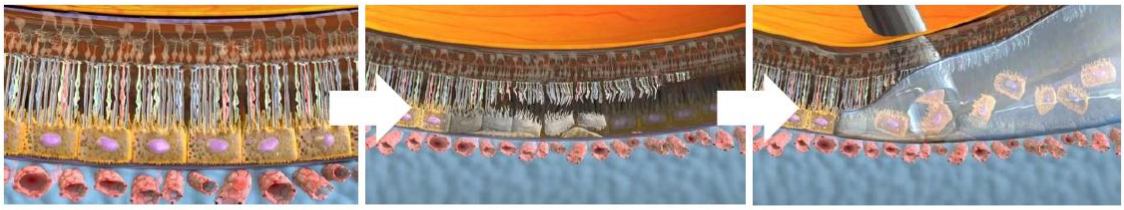
OpRegen - Treating the Pathology of AMD

- OpRegen is a suspension of retinal pigment epithelial (RPE) cells injected sub-retinally.
- Potential Benefits of replacing RPE cells:
  - RPE organization
  - Drusen reduction
  - Photoreceptor recovery
  - Preserved or improved sight



Normal Retina

RPE Death & Photoreceptor Damage

OpRegen® Replacement Cells

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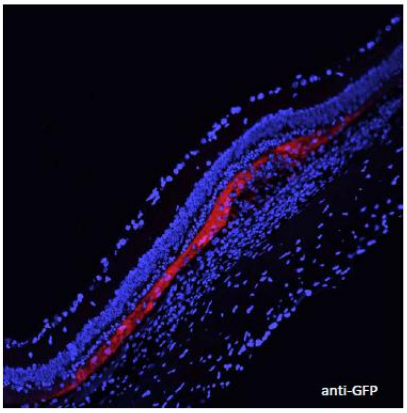
Proprietary and Confidential Information

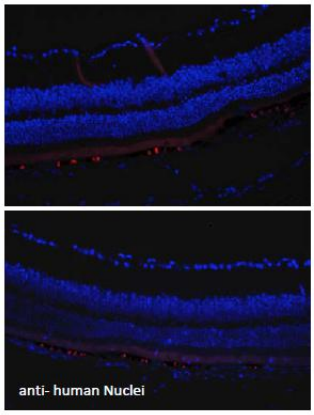
Engraftment and Survival of Human RPE Cells

- OpRegen cells counter-stained with DAPI (in red).
- OpRegen cells form a monolayer for a sustained period.
- Evidence in multiple species.

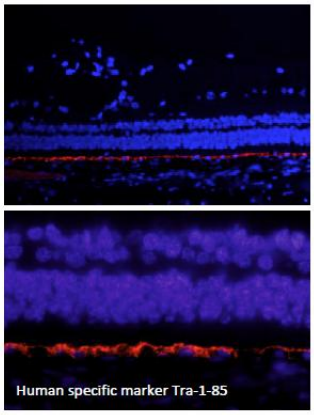
RCS Rat
19 weeks post transplantation



NOD-SCID Mouse



Pig
2 months post transplantation



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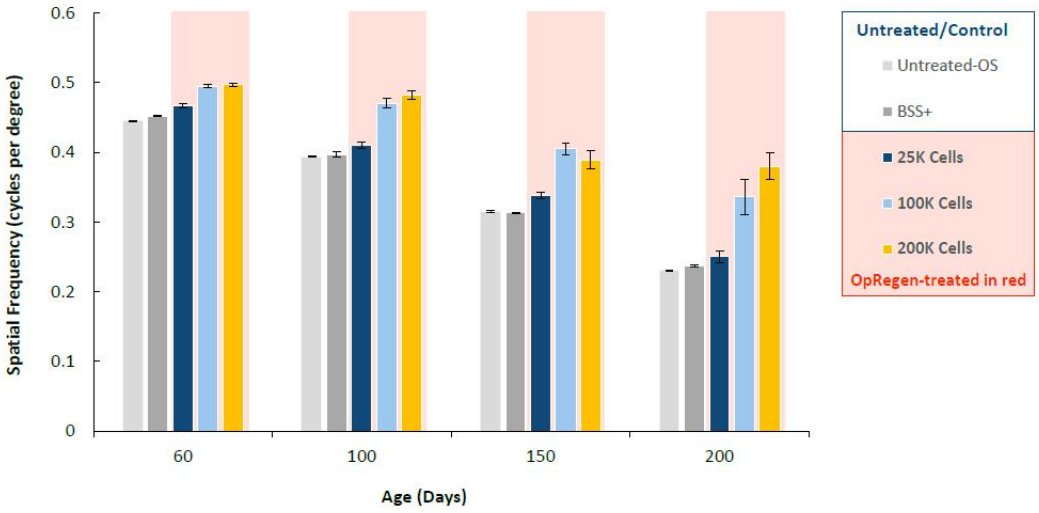
Improved Visual Acuity in RCS Rat Model

Dose-dependent rescue of vision observed with optokinetic tracking



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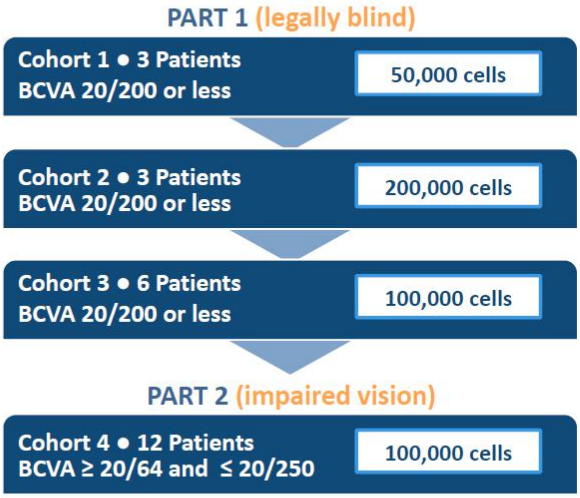
McGill TJ, et al. Transl Vis Sci Technol. 2017; 6:17.

OpRegen - Phase I/IIa Trial Design



Purpose: To evaluate the safety and efficacy of subretinally transplanted RPE cells in patients with intermediate to advanced dry-form AMD with GA

Design: Open label, non-randomized, sequential, and multi-center

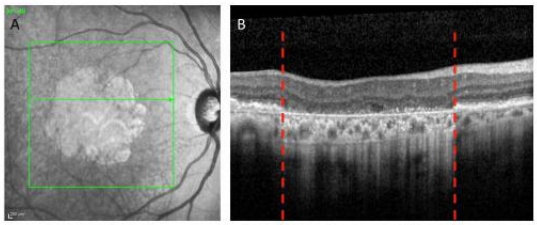
Dose and Administration: Single dose of 50ul cells injected into the subretinal space

Site Locations: U.S.A. and Israel

Phase I/IIa Patient Data: Cell Engraftment

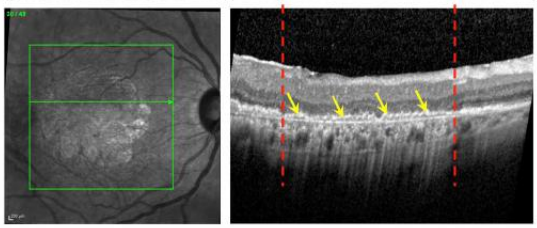
OpRegen cells stably engraft

Human Subject: Baseline



Flat area between red lines shows region of geographic atrophy (GA)

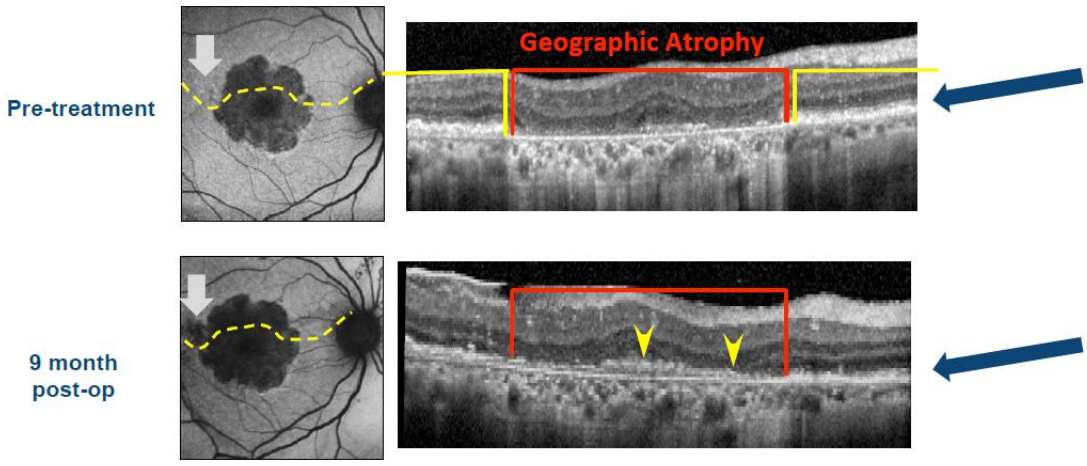
Human Subject: Month 4



Yellow arrows at month 4 indicate areas of potential RPE engraftment

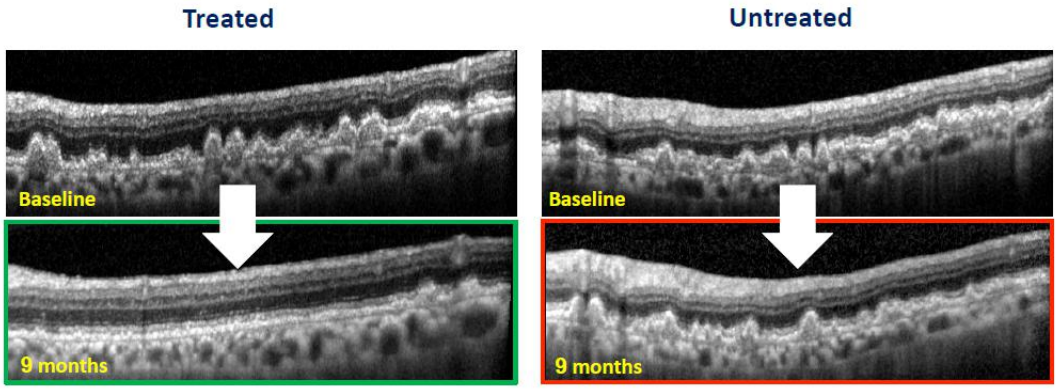
Phase I/IIa Patient Data: Structural Changes

- Area of geographic atrophy (GA) is devoid of cells.
- Signs of structural improvement seen by week 1 and maintained by for at least 9 months



Phase I/IIa Patient Data: Evidence of Drusen Reduction

- Drusen build-up is observed at baseline (peaks).
- Reduction or change of drusen observed through month 9 in some patients.

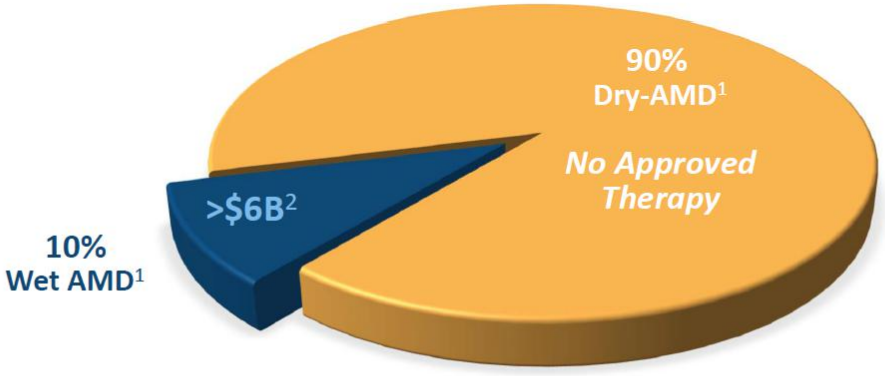


Phase I/IIa Highlights

- OpRegen® continues to be well tolerated, shows signs of structural improvement in the retina, and decreases in drusen density in some patients
- Improvements or possible restorations of the ellipsoid zone and RPE layers have persisted.
  - The photoreceptor layer and ellipsoid zone assumed a more regular structural appearance in areas of the transition zone where OpRegen was administered
- Early data from Cohort 4 patients with earlier-stage dry-AMD with GA is encouraging
  - Structural improvement within the retina
  - Evidence of the continued presence of the transplanted cells
  - Some improvements in visual acuity recorded
- No unexpected adverse events or treatment-related systemic serious adverse events reported (first 15 enrolled patients)

Significant Market Opportunity

- AMD afflicts 30+ million people worldwide[1]
- ~$6B in approved Wet-AMD therapies[2]: Lucentis and Eylea
- Currently, no approved therapies available for Dry-AMD



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Sources: (1) Company compilation of published information (articles, news releases, SEC filings), analyst reports; and (2) 2016 product sales summary based on publicly reported revenue figures for Lucentis and Eylea.

Proprietary and Confidential Information


OPC1*
Oligodendrocyte Precursor Therapy
for Spinal Cord Injury
*BioTime does not currently own this product and this discussion assumes the closing of the Merger, which is subject to certain closing conditions, including obtaining the approval of BioTime shareholders and Asterias stockholders.

OPC1 Overview*

OPC1 is a cellular transplant therapy being developed by Asterias; if the proposed Merger is completed, BioTime will continue the development of OPC1

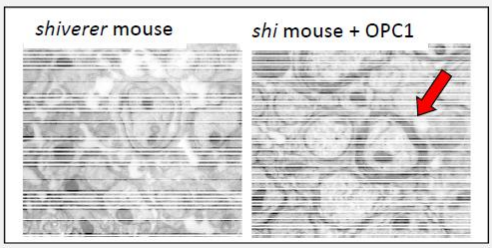
- OPC1 utilizes non-patient specific oligodendrocyte progenitor cells (OPCs)
- OPCs are naturally-occurring precursors to the cells which provide electrical insulation for nerve axons in the form of a myelin sheath
- OPC1 has RMAT designation from the FDA and has received significant funding from CIRM (>$14M to date)

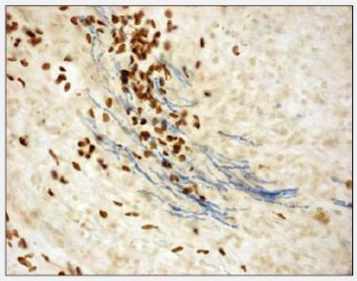
OPC1 Injection Procedure

*BioTime does not currently own this product and this discussion assumes the closing of the Merger, which is subject to certain closing conditions, including obtaining the approval of BioTime shareholders and Asterias stockholders.

OPC1 Potential Mechanisms of Action*

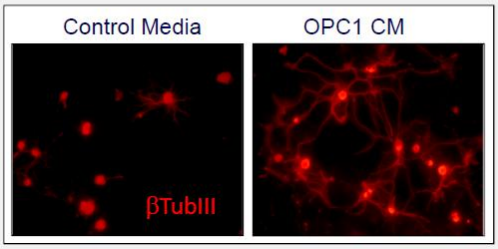
Myelination of axons



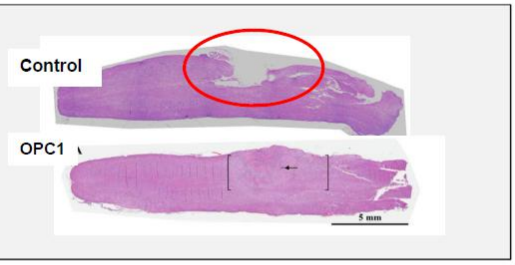


Rag2$^{-/-}$ *γc*$^{-/-}$ */shi* mouse + OPC1

Secretion of neurotrophic factors



Prevention of Cavitation



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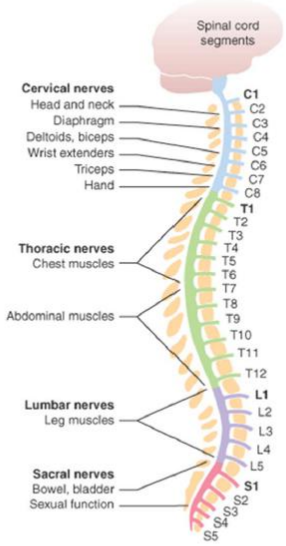
Proprietary and Confidential Information

OPC1 in Spinal Cord Injury (SCI)*

- The therapeutic goal is to restore arm, hand, and finger function, increasing independence and quality of life
- 63% of cervical injury patients are unemployed 8 years post-injury
- Lifetime direct healthcare costs can reach $5 million for one patient
- Motor level improvements can translate into clinically significant improvements in self-care and reductions in cost of care



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OPC1 Development in Spinal Cord Injury*

Pre-Clinical

28 Animal Studies

- Survives in the Spinal Cord
- Greatest Activity in Subacute Injury
- Improves Locomotor Activity
- Reduces Parenchymal Cavitation
- Migrates Up 5cm in Spinal Cord
- No Distribution Outside CNS
- Does Not Increase Mortality
- Does Not Induce Systemic Toxicity
- Does Not Produce Teratomas
- Produces Low Frequency (1-2%) Small Ectopic Tissue at Injury Site
- Not Highly Susceptible to Direct Immune Responses

Clinical

Phase 1 Thoracic Study

- 5 subjects administered 2M cells
- Long-term follow up has shown no evidence of adverse changes in any subjects treated

Phase 1/2a Cervical Study

- 25 subjects administered up to 20M cells
- Good safety profile
- Evidence of durable cell engraftment
- Promising motor recovery
- Results inform next study design

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Clinical Data from OPC1 Phase 1/2a study*

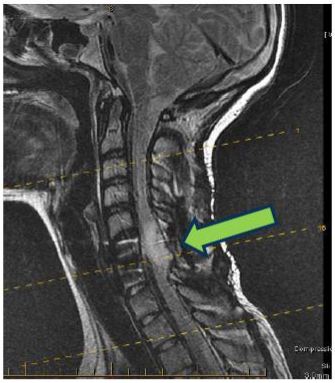
Safety

- To date, there have been no serious adverse events (SAEs) related to the OPC1 cells (includes long-term follow up of Phase 1 safety study subjects through up to seven years post-injection)

Cell Engraftment

- MRI results for over 96% (24/25) of subjects from Phase 1/2a study provide supportive evidence that OPC1 cells have durably engrafted at the injury site

Subject 365 Day T2 MRI



Motor Recovery

- At twelve months, 94% (17/18) of subjects administered 10M or 20M OPC1 cells in Phase 1/2a study recovered at least one motor level on at least one side and 33% of these subjects recovered at least two or more motor levels on at least one side

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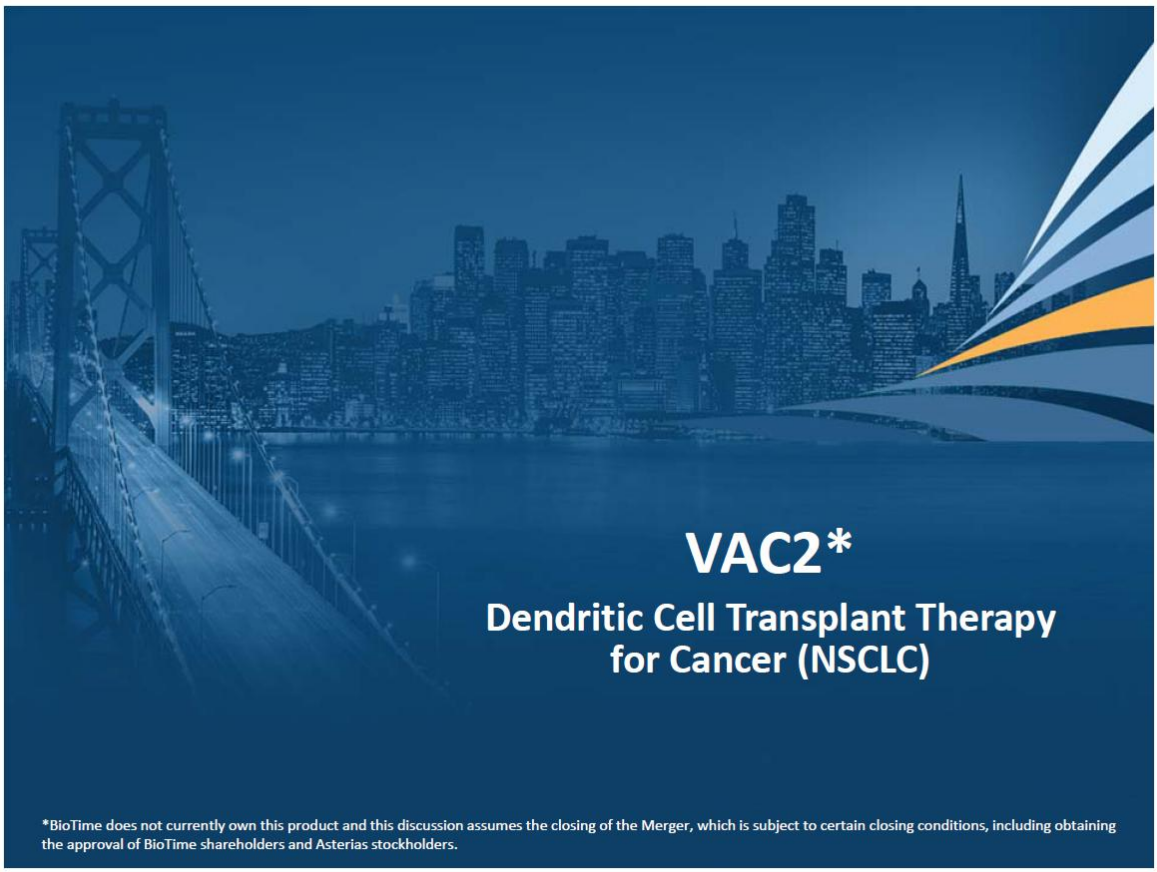
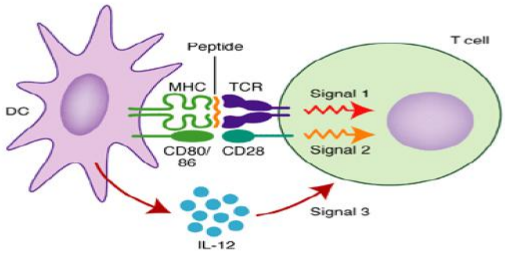

VAC2*
Dendritic Cell Transplant Therapy
for Cancer (NSCLC)
*BioTime does not currently own this product and this discussion assumes the closing of the Merger, which is subject to certain closing conditions, including obtaining the approval of BioTime shareholders and Asterias stockholders.

VAC2 Immunotherapy Program*

VAC2 is a cellular transplant therapy being developed by Asterias; if the proposed Merger is completed, BioTime will continue the development of VAC2*

- VAC2 uses allogeneic ("off the shelf") **dendritic cells** to stimulate an immune response to telomerase, an antigen present in >85% of all cancers
- The LAMP signal sequence heightens the immune response through stimulation of both CD8+ cytotoxic and CD4+ helper T cell responses
- Optimal settings for dendritic cell immunotherapy include:
  - **Minimal residual disease** setting /preventing relapse (monotherapy)
  - **Combination therapy** with immune checkpoint inhibition



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Proprietary and Confidential Information

Cancer Research UK Partnership

- **CRUK Responsibilities: Funding and Management**
  - GMP Manufacture of VAC2 for Clinical Trial
  - Prepare and File Regulatory Dossier
  - Conduct 24-patient Phase 1/2a trial in Patients with Advanced and Resected Non-small Cell Lung Cancer (NSCLC)

- 4 patients dosed to date.
- Data anticipated during 2019 and 2020

*BioTime does not currently own this product and this discussion assumes the closing of the Merger, which is subject to certain closing conditions, including obtaining the approval of BioTime shareholders and Asterias stockholders.

VAC2* Platform has Potential Broad Application

Approach:	Rationale:
Monotherapy in MRD Setting With High Risk of Relapse	• Stimulate T cell response to eliminate residual cancer cells after debulking chemotherapy, surgery, radiotherapy
Combination Therapy	• Stimulate endogenous T cell response to enable ICIs to work in 'immune cold' tumors
New or Additional Antigens	• Autologous and allogeneic DC platforms can be used to deliver any antigen(s), including neoantigen approaches

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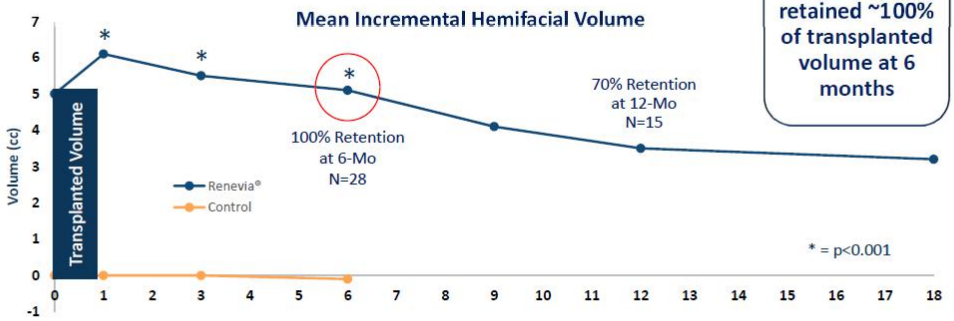
Proprietary and Confidential Information


Renevia®
Cell delivery platform

Renevia®

- A proprietary matrix designed to facilitate the survival and growth of transplanted cells
  - Mimics the extracellular matrix
  - Localizes transplanted cells at the injection site
  - Application as a volumizer to enhance fat transfer
    - » Submitted for CE mark in Europe; response expected Q1 2019
- 50-patient, HIV-Associated Lipoatrophy Study; Increase in hemifacial volume as measured by 3D image scan at 6 months (randomized)



BioTime – A Different Company in 2019

Affiliated Asset	As of: Q3 2018
ASTERIAS BIOTHERAPEUTICS	38%-owned
AGE X THERAPEUTICS	40%-owned
OncoCyte™	36%-owned

BioTime – A Different Company in 2019

Affiliated Asset	As of: Q3 2018	By the end of: Q1 2019
ASTERIAS BIOTHERAPEUTICS	38%-owned	100%-owned*
AGE X THERAPEUTICS	40%-owned	~5%-owned**
OncoCyte™	36%-owned	No change

* Anticipated close of the Merger is Q1 2019, subject to certain conditions, including the approval of BioTime shareholders and Asterias stockholders.

** Now NYSE:AGE; on November 28, 2018, BioTime distributed AgeX shares to its shareholders and BioTime continues to own a minor stake in AgeX.

Financial Overview

Total current capital (as of 9/30/2018)

- **~$32M**

Common stock issued and outstanding (as of 9/30/2018)

- **~127M**

Market Capitalization (as of 12/3/2018)

- **~$182 M**

Investment Highlights

- **BioTime seeks to become the premier cell therapy company**

- **Developing three* clinical-stage programs, each transplanting whole differentiated cells for unmet medical needs:**
  - **Dry AMD**
  - **Spinal Cord Injury**
  - **Non Small Cell Lung Cancer**

- **Recent Significant Events:**
  - **Hired new Chief Executive Officer (Sep 2018)**
  - **Announced plans to acquire Asterias Biotherapeutics, Inc. (NYSE: AST)**
  - **Completed distribution of AgeX (NYSE:AGE)**
  - **Received $10.8M second installment payment from Juvenescence Ltd.**

*Assumes BioTime completes its acquisition of Asterias, the closing of which is subject to certain closing conditions, including obtaining the approval of BioTime shareholders and Asterias stockholders.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