The matters discussed in this presentation include forward looking statements which are subject to various risks, uncertainties, and other factors that could cause actual results to differ materially from the results anticipated. Such risks and uncertainties include but are not limited to the success of AgeX Therapeutics and its affiliates in developing new stem cell products and technologies; results of clinical trials of such products; the ability of Agex and BioTime and its licensees to obtain additional FDA and foreign regulatory approval to market products; competition from products manufactured and sold or being developed by other companies; the price of and demand for such products; and the ability of Agex to raise the capital needed to finance its current and planned operations. Any statements that are not historical fact (including, but not limited to statements that contain words such as "will," "believes," "plans," "anticipates," "expects," "estimates") should also be considered to be forward-looking statements. Forward-looking statements involve risks and uncertainties, including, without limitation, risks inherent in the development and/or commercialization of potential products, uncertainty in the results of clinical trials or regulatory approvals, need and ability to obtain future capital, and maintenance of intellectual property rights. As actual results may differ materially from the results anticipated in these forward-looking statements they should be evaluated together with the many uncertainties that affect the business of Agex and BioTime and its other subsidiaries, particularly those mentioned in the cautionary statements found in BioTime's Securities and Exchange Commission filings. BioTime and AgeX disclaim any intent or obligation to update these forward-looking statements.
Aging: The demographic trend of our time

- 80% of $2.5T health care costs associated with chronic disease.
- Age-related chronic degenerative diseases typically have few effective drug targets.
Tissue Transplantation Risk Profile

National data

Transplants By Organ Type January 1, 1988 - November 30, 2017
Based on OPTN data as of January 4, 2018

- 1yr Survival
  - Kidney >95%
  - Liver >90%
  - Pancreas >95%
  - Kidney/Pancreas >95%
  - Heart >85%

United Network for Organ Sharing
Pluripotency

- Scalable source of all human cell types
- Regen phenotype

Immortal cells allow sophisticated genetic modification
Innate Regeneration in Humans Restricted to Embryonic Development
The Biology of Regeneration

Planaria regeneration
The Biology of Regeneration

The Nature of the Antagonistic Pleiotropy

Regeneration OFF in somatic cells after EFT reduces cancer in young

Leads to disrepair/fibrosis relative lack of apoptosis in senescent cells/lipofuscin
A Marker of EFT

COX7A1

West et al Oncotarget 2017
A Marker of EFT

Reversed in the Majority of Cancers

West et al Oncotarget 2017
2nd Generation - Universal PureStem™ Technology

Traditional Manufacture

ES Cells → Differentiation → Purification of desired cell type → Problem of impurities

PureStem Technology

>200-fold diversity
Scalable, monoclonally-purified regenerative progenitors

PS Cells

[Diagram showing stem cell differentiation and purification process]
2\textsuperscript{nd} Generation - Universal PureStem\textsuperscript{TM} Technology
Regenerative Phenotype of hESC-Derivatives
Example of Heart Regeneration:

- Some amphibians regenerate heart throughout life
- Embryonic mammalian heart can regenerate but that capacity is lost shortly after birth
COX7A1 Data in GEO

Profile: GDS40 / 102749_at
Title: Cardiac development, maturation and aging
Organism: Mus musculus

Note:
low levels even post-natal
The Heart Model:

Epigenomic Reprogramming of Adult Cardiomyocyte-Derived Cardiac Progenitor Cells

Received: 13 March 2015
Accepted: 14 October 2015
Published: 14 December 2015

Yiqiang Zhang¹,², Jiang F. Zhong³, Hongyu Qiu⁴, W. Robb MacLellan¹, Eduardo Marbán² & Charles Wang⁵

The Biology of Regeneration

The Heart Model:

COX7A1 Data in GEO

Profile   GDS5603 / ILMN_1662419
Title     Ventricular cardiomyocytes generated in vitro from embryonic stem cells
Organism  Homo sapiens
Brown Adipose Cells Regulate Metabolism

Brown Adipose Cells Regulate Metabolism

New Powers of Brown Fat: Fighting the Metabolic Syndrome

Jan Nedergaard,†* Tore Bengtsson,† and Barbara Cannon†
†The Wenner-Gren Institute, Stockholm University, Stockholm 106 91, Sweden
*Correspondence: jan@metabol.su.se
DOI 10.1016/j.cmet.2011.02.009

Reversal of Type 1 Diabetes in Mice by Brown Adipose Tissue Transplant

Subhadra C. Gunawardana and David W. Piston

Brown adipose tissue regulates glucose homeostasis and insulin sensitivity


Section on Integrative Physiology and Metabolism, Joslin Diabetes Center, Harvard Medical School, Boston, Massachusetts, USA.
Industrially-Scalable AgeX-BAT1

Stained for Brown Adipocyte Marker **UCP1**

Tissue-Sourced Brown Adipocytes

*PureStem* Brown Adipocytes
**COX7A1 Gene Expression by Illumina Bead Array**

SAT – Adult Subcutaneous Wht Preadipo; fBAT – Adult (Fetal) Brown Preadipo
C4ELS5.1 Embryonic Beige Preadipo; E3 Embryonic Wht Preadipt
E85 Embryonic Progenitor Ctrl; NP88 – Embryonic Brown Preadipo
NP110 - Embryonic Brown Preadipo
Industrially-Scalable AgeX-BAT1

MOLECULAR METABOLISM 2 (2013) 133–141
Industrially-Scalable AgeX-BAT1
Obesity/T2D Market

- 30M Americans have diabetes\(^1\) 1:3 Americans will have diabetes by 2050

- The global market for diabetes mellitus and obesity is set to rise from $70.8 billion in 2015 to $163.2 billion by 2022, at a strong compound annual growth rate of 12.7%, according to business intelligence firm GBI Research.

---

AGEX-VASC1

Regenerative Vascular Progenitors

- Highly scalable with high purity & potency
- Extensive IP estate
- Formulated in HyStem
Cardiovascular Market

> $Trillion Market Worldwide

http://www.heart.org/idc/groups/heart-public/@wcm/@adv/documents/downloadable/ucm_491543.pdf
Induced Tissue Regeneration - iTR

Renelon™: Repurposed Drug Formulated in HyStem for Local Delivery

Embryonic  →  Fetal - Adult  →  Aging Adult

Highly Regenerative  →  Limited Regeneration  →  Non-Regenerative

Construction  →  Maintenance  →  Destruction

iTR: induced Tissue Regeneration

Renelon™
A Marker of EFT

Reversal seen
In reprogramming

COX7A1

RFUs

ES Cells
EP Cells
8 wk (P2)
9 wk (P1)
10 wk (P2)
11 wk (P1)
13 Yr (P14)
25 Yr (P15)
37 Yr (P16)
48 Yr (P12)
50 Yr (P11)
59 Yr (P7)
60 Yr (P8)
61 Yr (P9)
62 Yr (P10)
63 Yr (P11)
iPS Cells - 60 Yr (P3)
iPS Cells - 61 Yr (P3)
iPS Cells - 62 Yr (P9)
Induced Tissue Regeneration- iTR

Small Molecule-Based iTR

![Graph showing expression levels of COX7A1 for CTRL and test formulations]

CTRL CTRL 1 2 3 4 5 6

Expression normalized
to GAPDH

COX7A1

Drug-Based iTR
Summary

• Pluripotency offers a means of manufacturing diverse regenerative progenitors to address degenerative diseases of aging: The demographic trend of our time

• AgeX focused on three therapeutic programs with potential to address large causes of mortality in U.S.
  – T2D/Obesity
  – Ischemic Disease: The leading causes of mortality & disability in an aging population
  – iTTR1: Repurposed drug targeting the scarless tissue regeneration