



Aging and Regeneration: Commercial Implications of the New Science

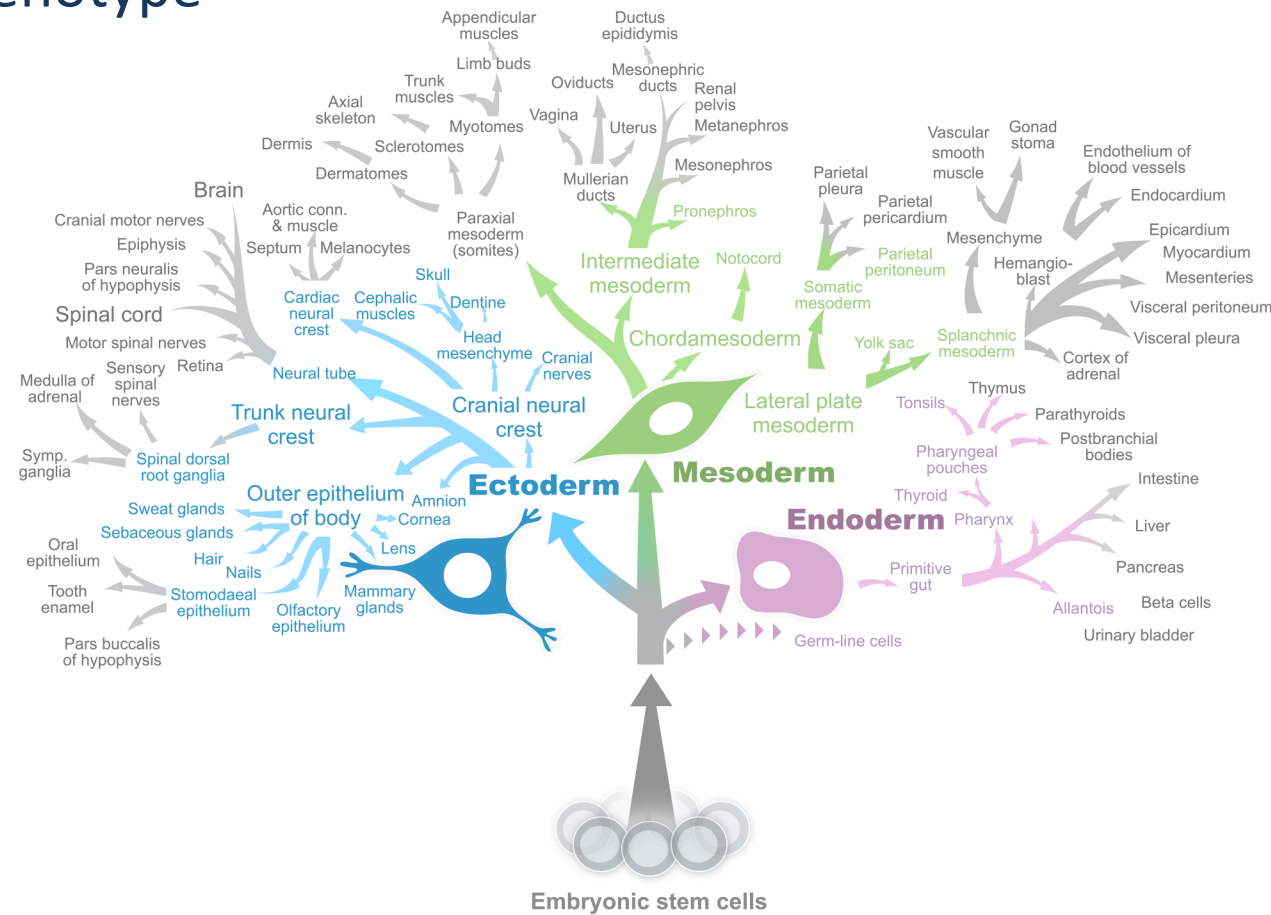
May 18, 2018

Forward Looking Statements

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 including its parent company BioTime, Inc. 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 disclaims any intent or obligation to update these forward-looking statements.

Pluripotency

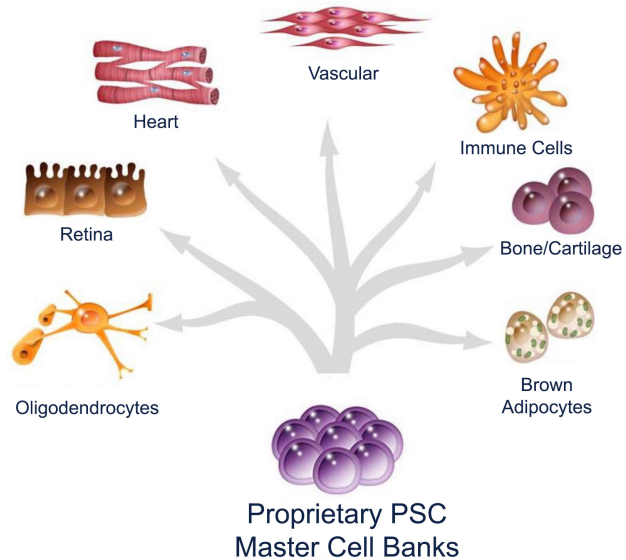
- Scalable source of all human cell types
- Immortal cells allow sophisticated genetic modifications
- Regenerative phenotype



Pluripotency

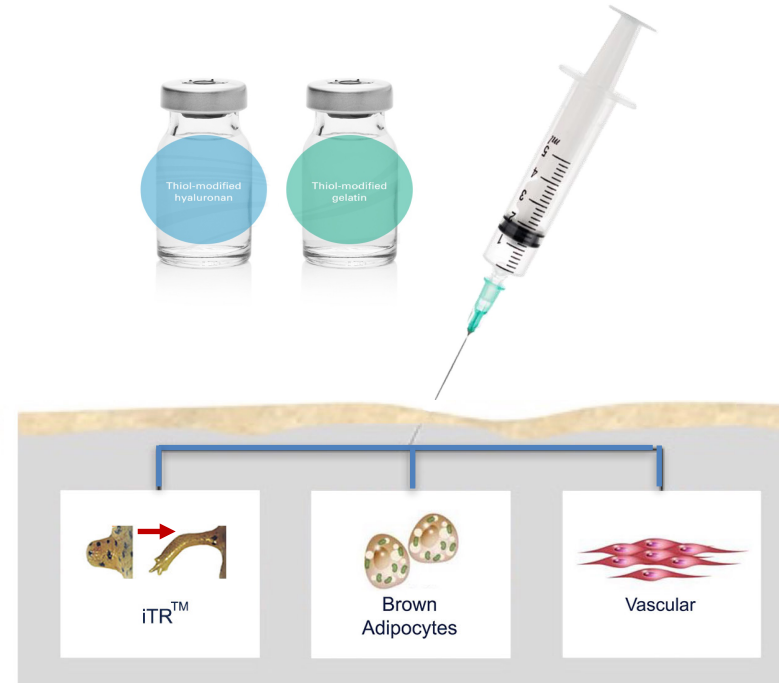
Twin technologies: Cells & Matrix

Pluripotent Cell- Based Therapeutics



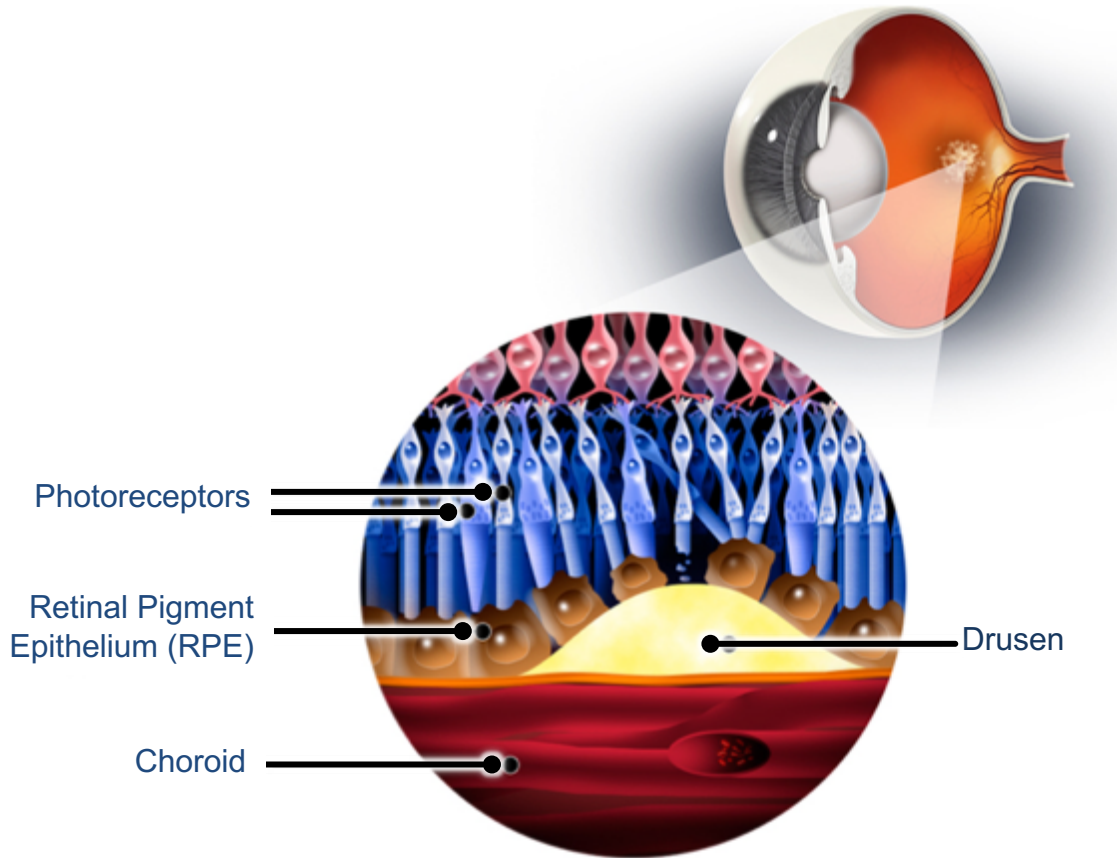
- Pluripotent Stem Cells (PSCs) allow the manufacture of all human cell types on an industrial scale
- Our cGMP-compatible PSCs scale indefinitely as a source of product
- Our cells are government (NIH) approved

HyStem® Matrix Delivery



BioTime's *OpRegen*

DRY AGE-RELATED MACULAR DEGENERATION (DRY-AMD)



Loss of RPE cells in the eye may cause both dry or wet AMD

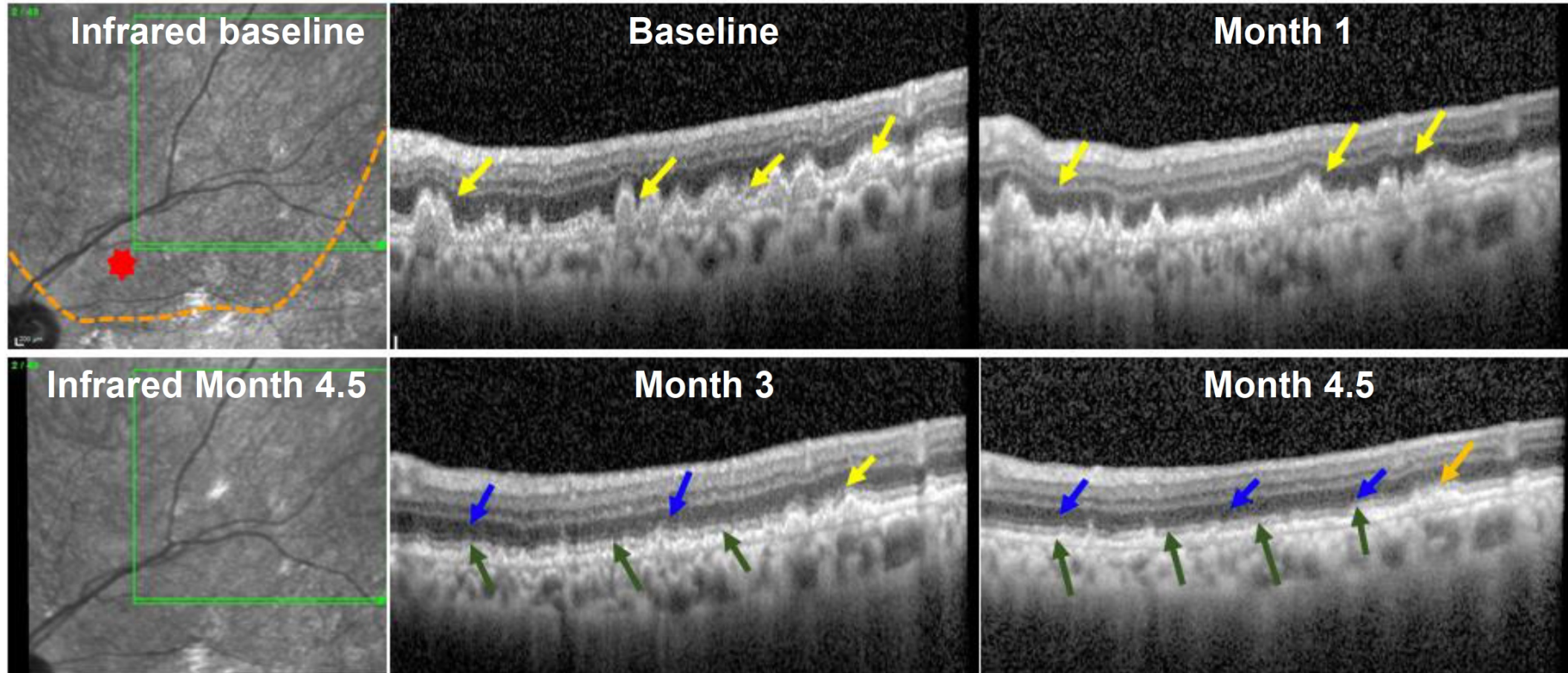
The leading cause of blindness in people over age 60

Off-the-shelf injection as a one-time therapy

OpRegen® cells integrate into subretinal space to replace missing RPE cells

FDA Fast-Track designation

BioTime's *OpRegen*



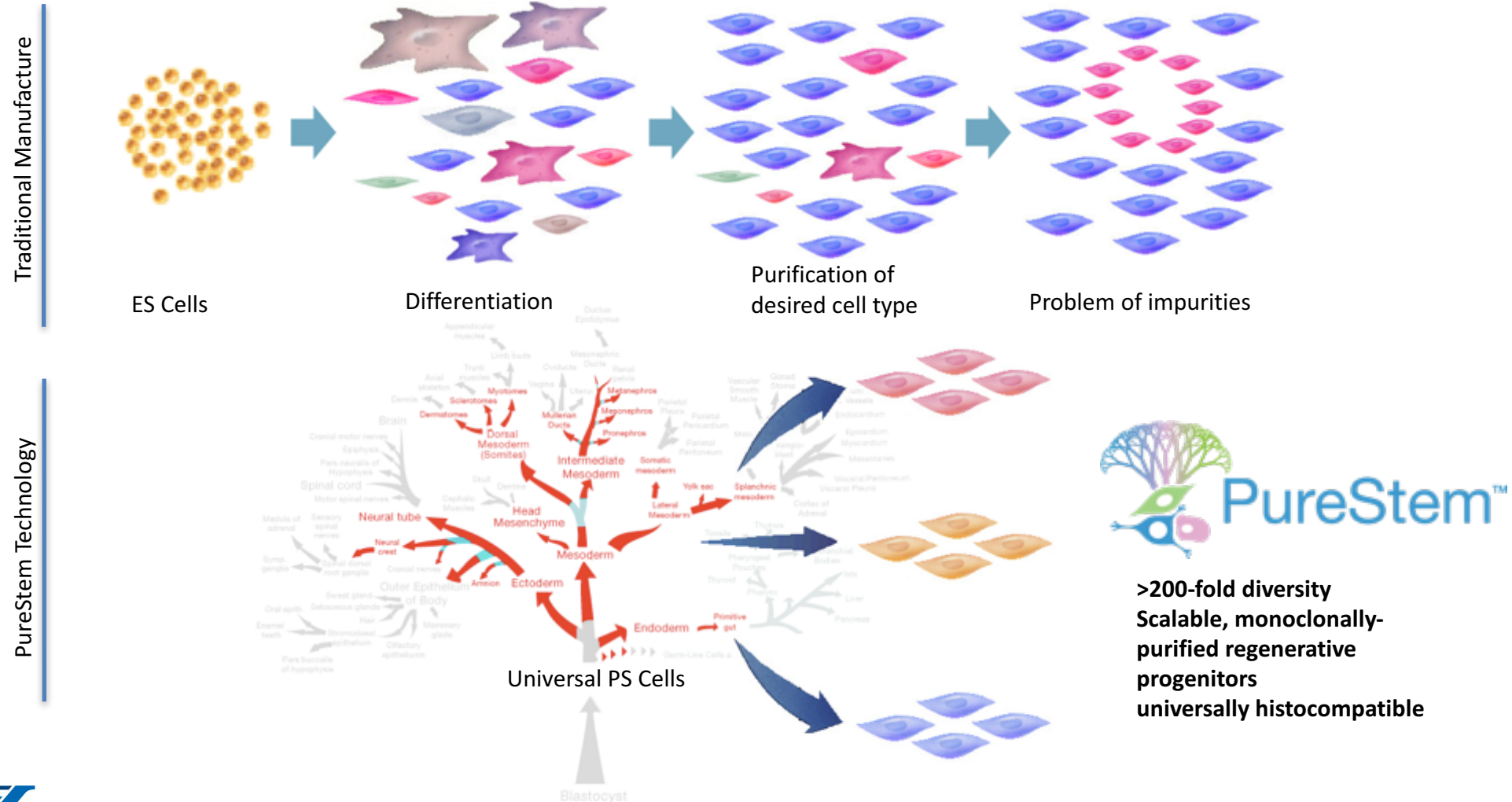
Asterias's OPC-1

- AST-OPC1 is a cellular therapy utilizing oligodendrocyte progenitor cells (OPCs)
- OPCs are found in the human body and are precursors to oligodendrocyte cells which, among other things, provide electrical insulation for nerve axons in the form of a myelin sheath
- AST-OPC1 administers OPCs into the body to supplement the body's own internal supply of OPCs with a non-patient specific supply of cells
- AST-OPC1 is made from a well-established, pluripotent embryonic stem cell line originally isolated in the 1990s



AST-OPC1 Injection Procedure

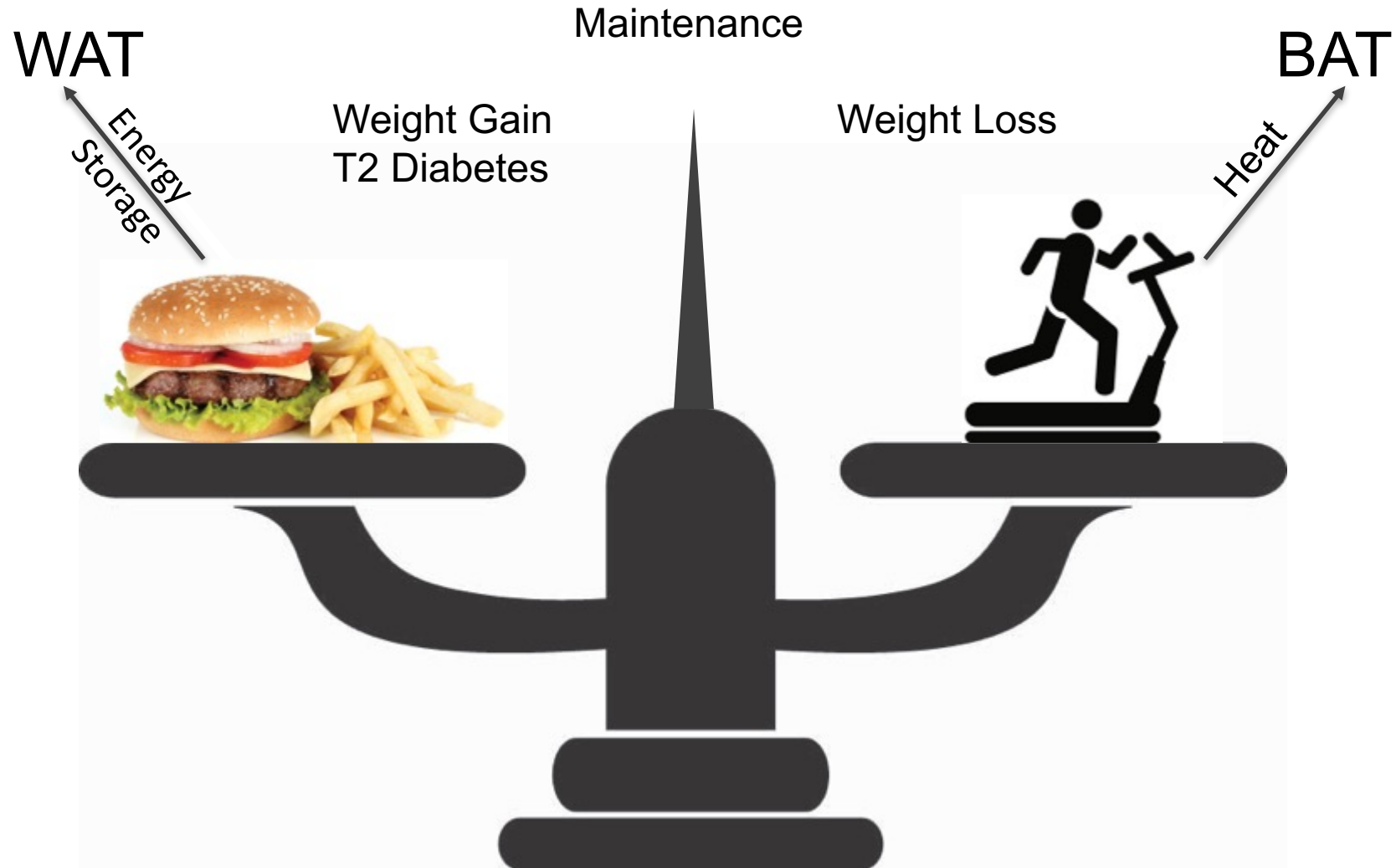
2nd Generation - Universal *PureStem*TM Technology



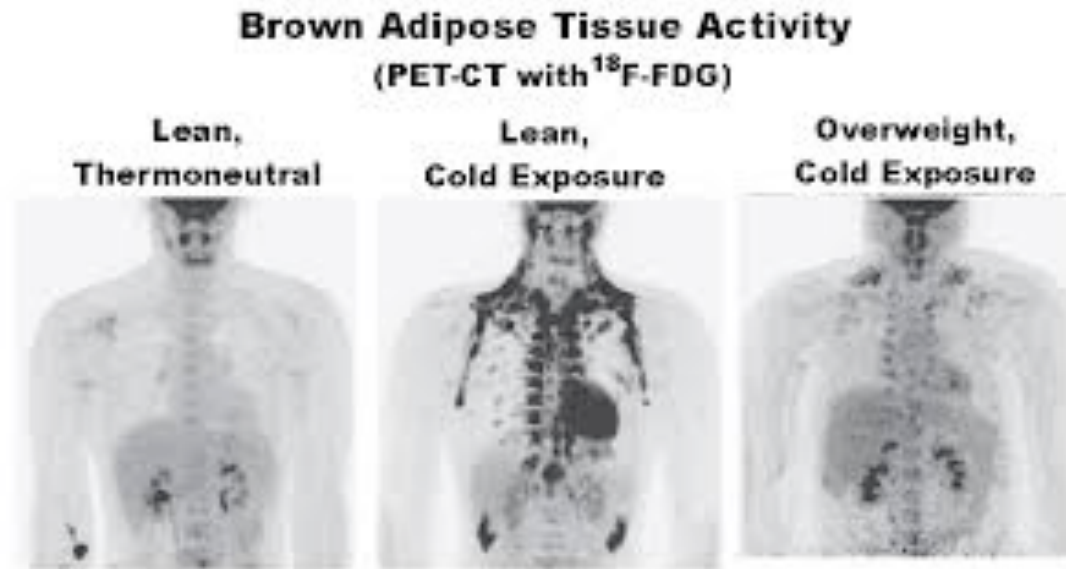
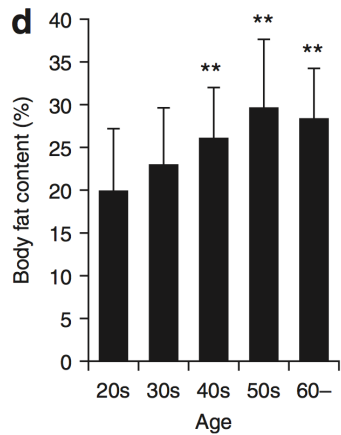
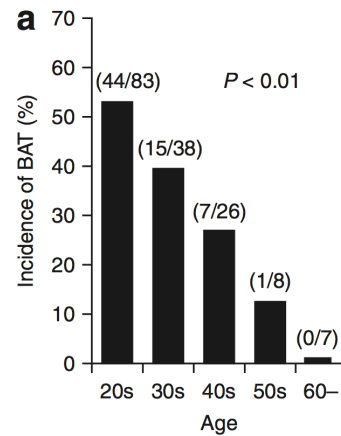
Product Pipeline

	Pre-Clinical	Phase I	Phase II	Phase III/Pivotal
THERAPEUTICS				
AGEX-BAT1 (Brown Adipocytes)	T2D			
AGEX-VASC1 (Vascular Progenitors)	MI			
AGEX-iTR1547 (NCE in HyStem)	CHF			
Renelon™ (Repurposed Drug)	510(k)	510(k) Clearance		
RESEARCH PRODUCTS		Marketed Research Products		
Universal cGMP ES Cells, Cytiva				
DATABASE PRODUCTS		Marketed NGS Interpretation		
GeneCards/LM Discovery				
CANCER DIAGNOSTICS & THERAPY		To be Partnered for Cancer Dx		
Cancer Stem Cell EFT Dx & Tx				

Brown Adipose Cells Regulate Metabolism



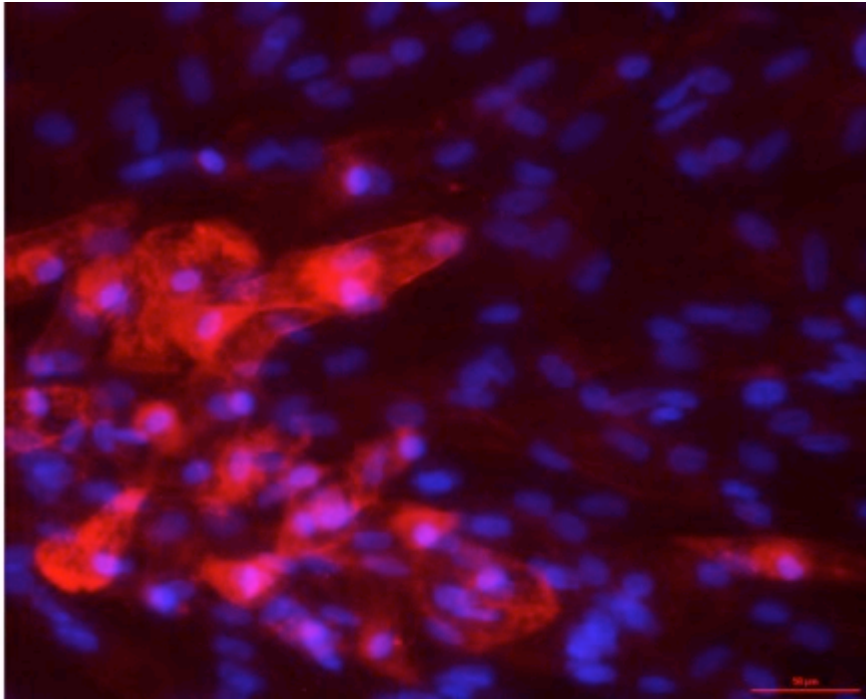
Brown Adipose Cells Regulate Metabolism



Obesity (2011) **19**, 1755–1760. doi:10.1038/oby.2011.125

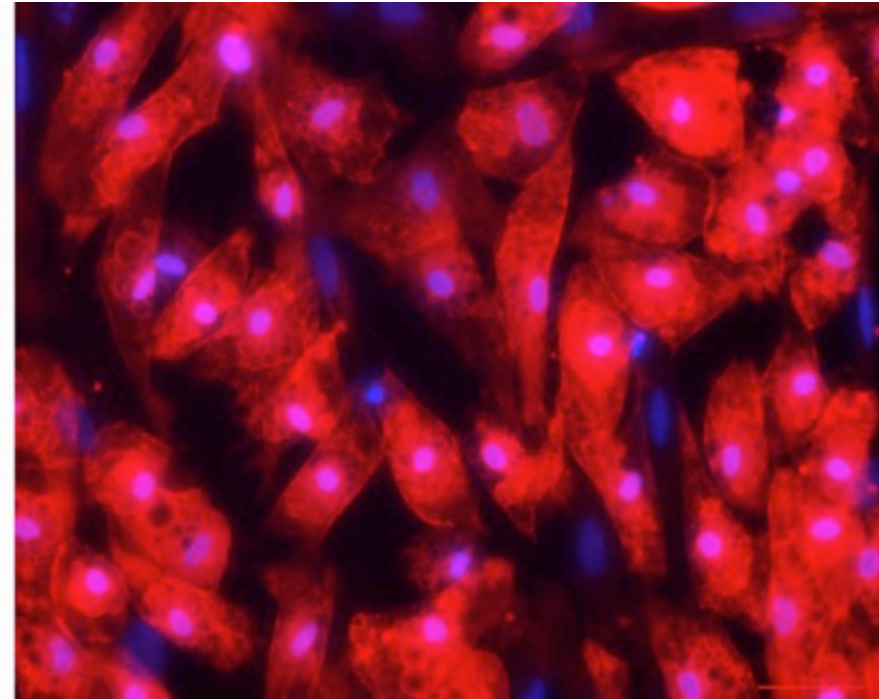
Industrially-Scalable AgeX-BAT1

*Stained for Brown Adipocyte Marker **UCP1***



Tissue-Sourced Brown Adipocytes

Data from AgeX publication in preparation

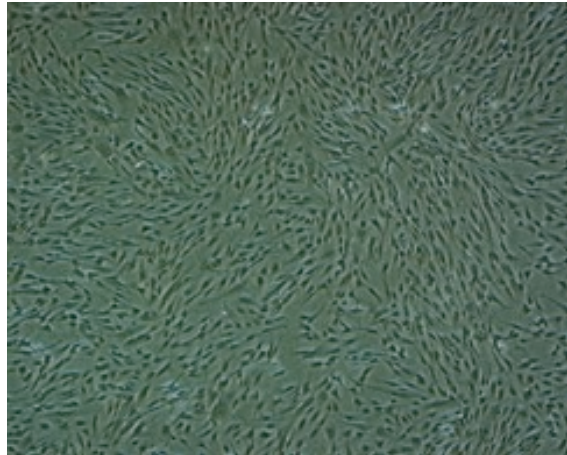


PureStem Brown Adipocytes

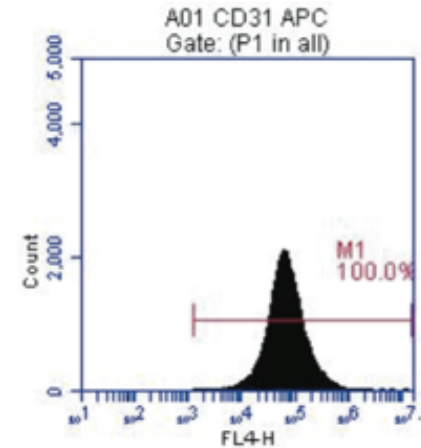
Cardiac Program: *AGEX-VASC1*

Regenerative Vascular Progenitors

Monoclonal Endothelial Cells



100% Purity



- Highly scalable with high purity & potency
- Extensive IP estate
- Formulated in a proprietary matrix with good safety profile for human lipotransfer

Induced Tissue Regeneration (iTR)

Repair > Breakdown

Repair = Breakdown

Breakdown > Repair

Embryonic



Fetal - Adult



Aging Adult



Highly Regenerative



Limited Regeneration



Non-Regenerative

Construction

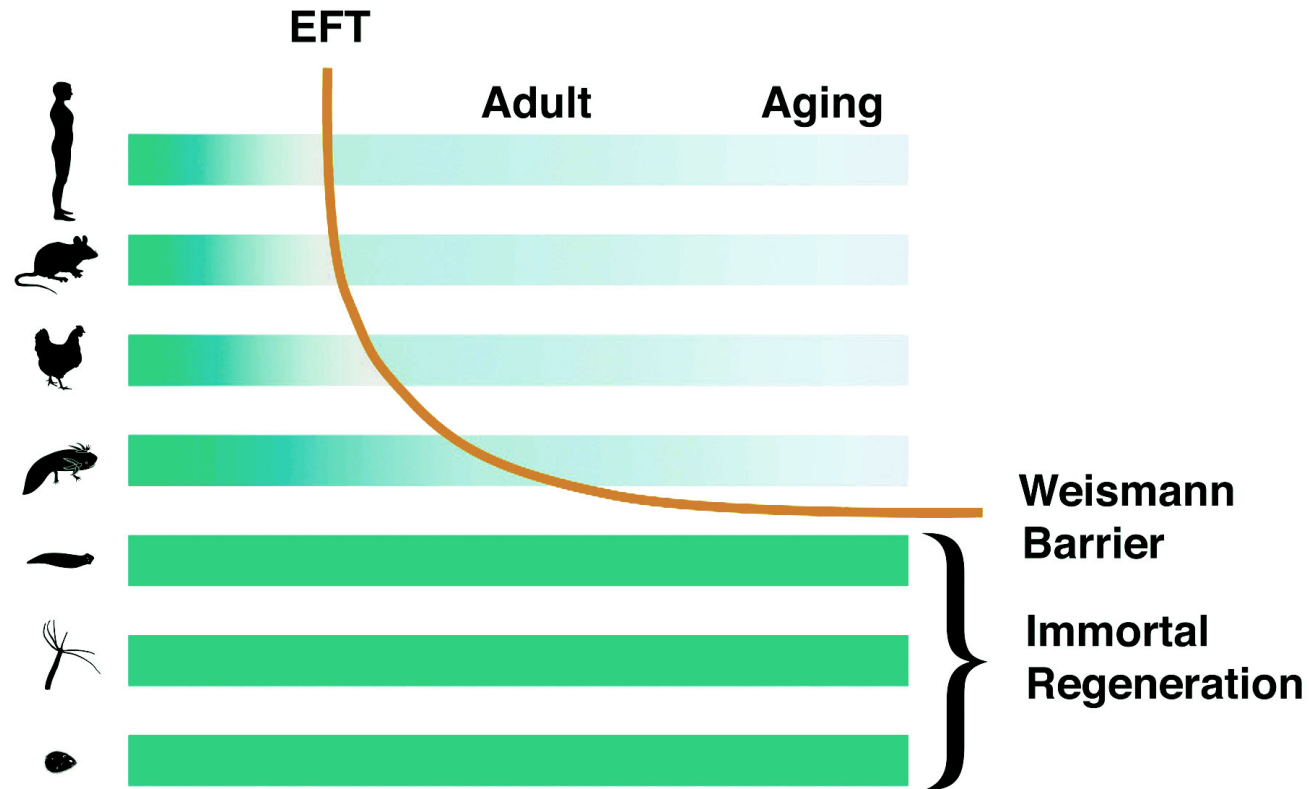
Maintenance

Destruction

↑
iTR: induced Tissue Regeneration

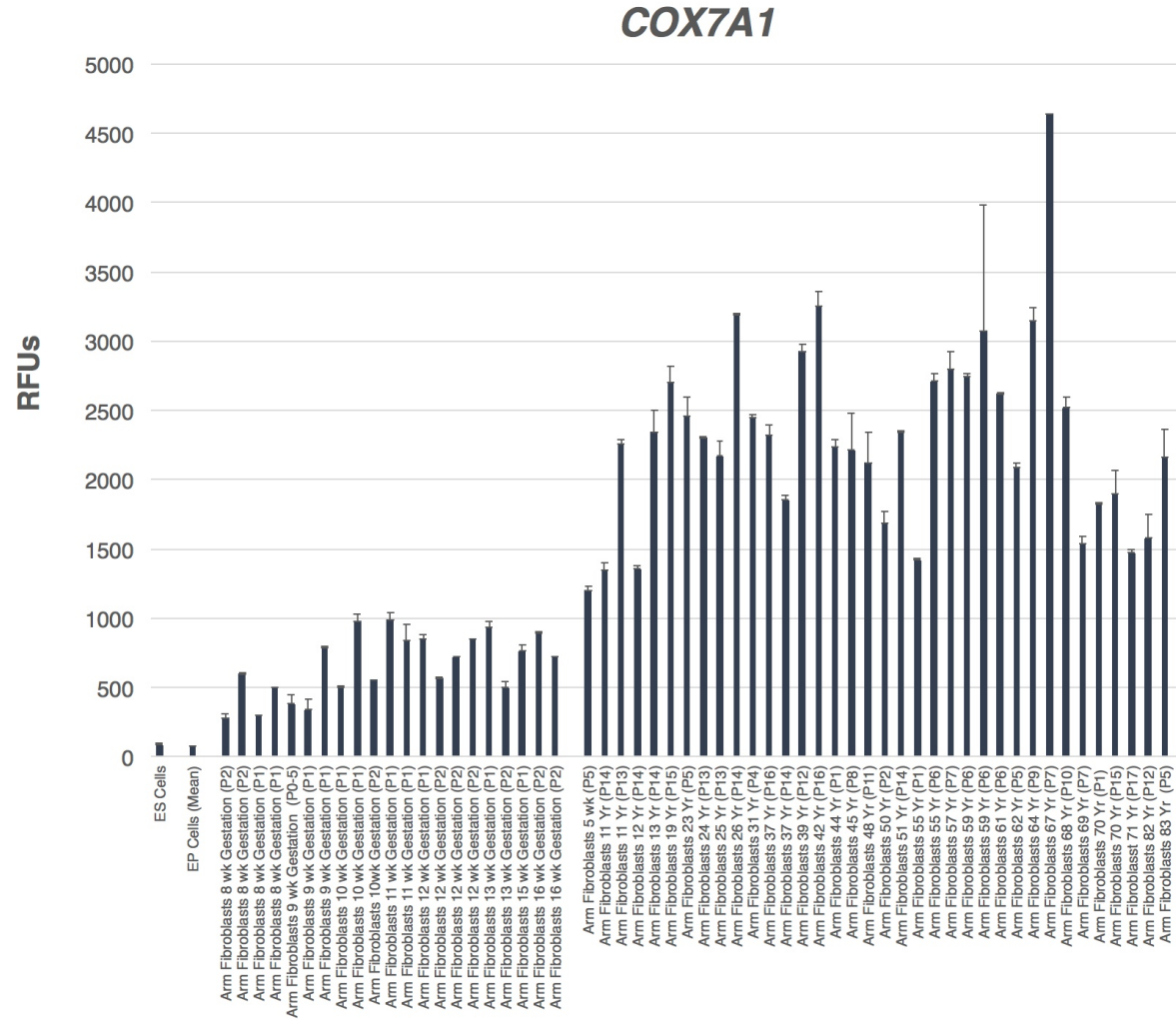
Induced Tissue Regeneration (iTR)

Animals that have telomerase expression and full regenerative potential do not age



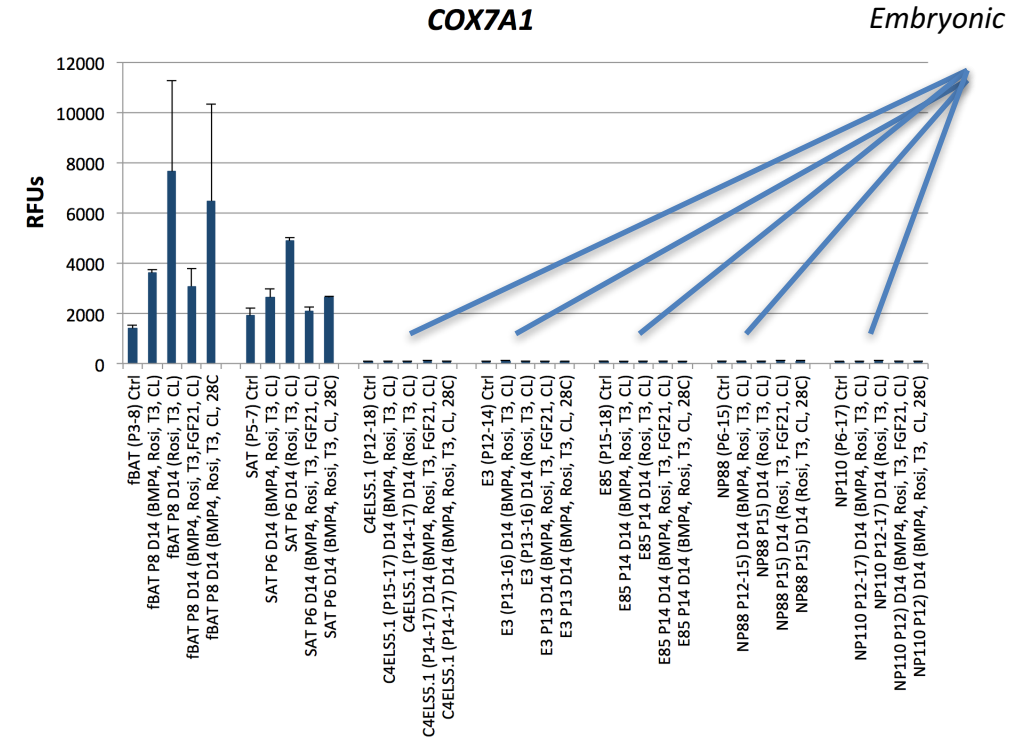
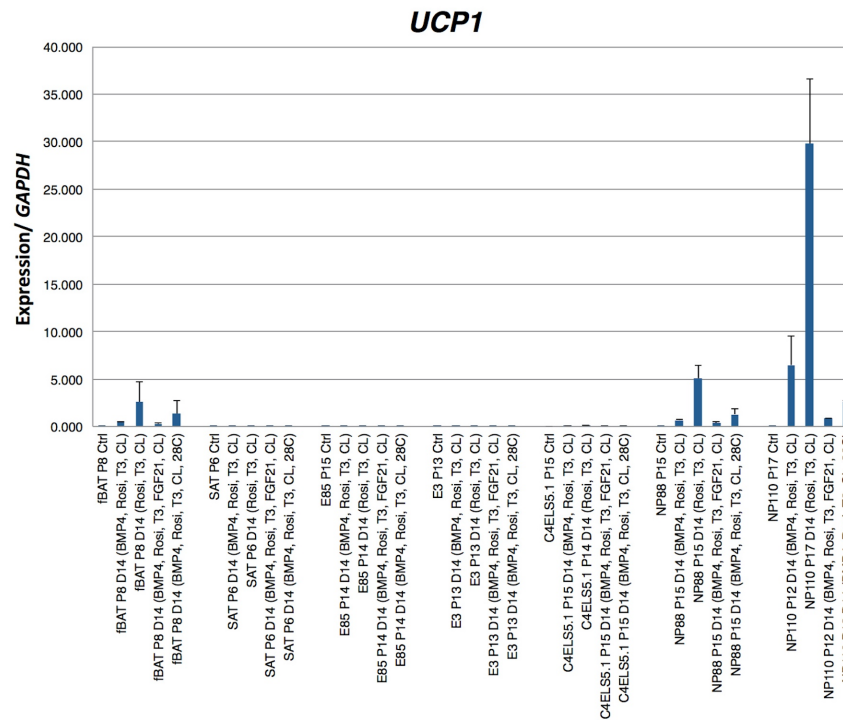
Mod from Int. J. Mol. Sci. 2015, 16, 25392-25432

Induced Tissue Regeneration (iTR)

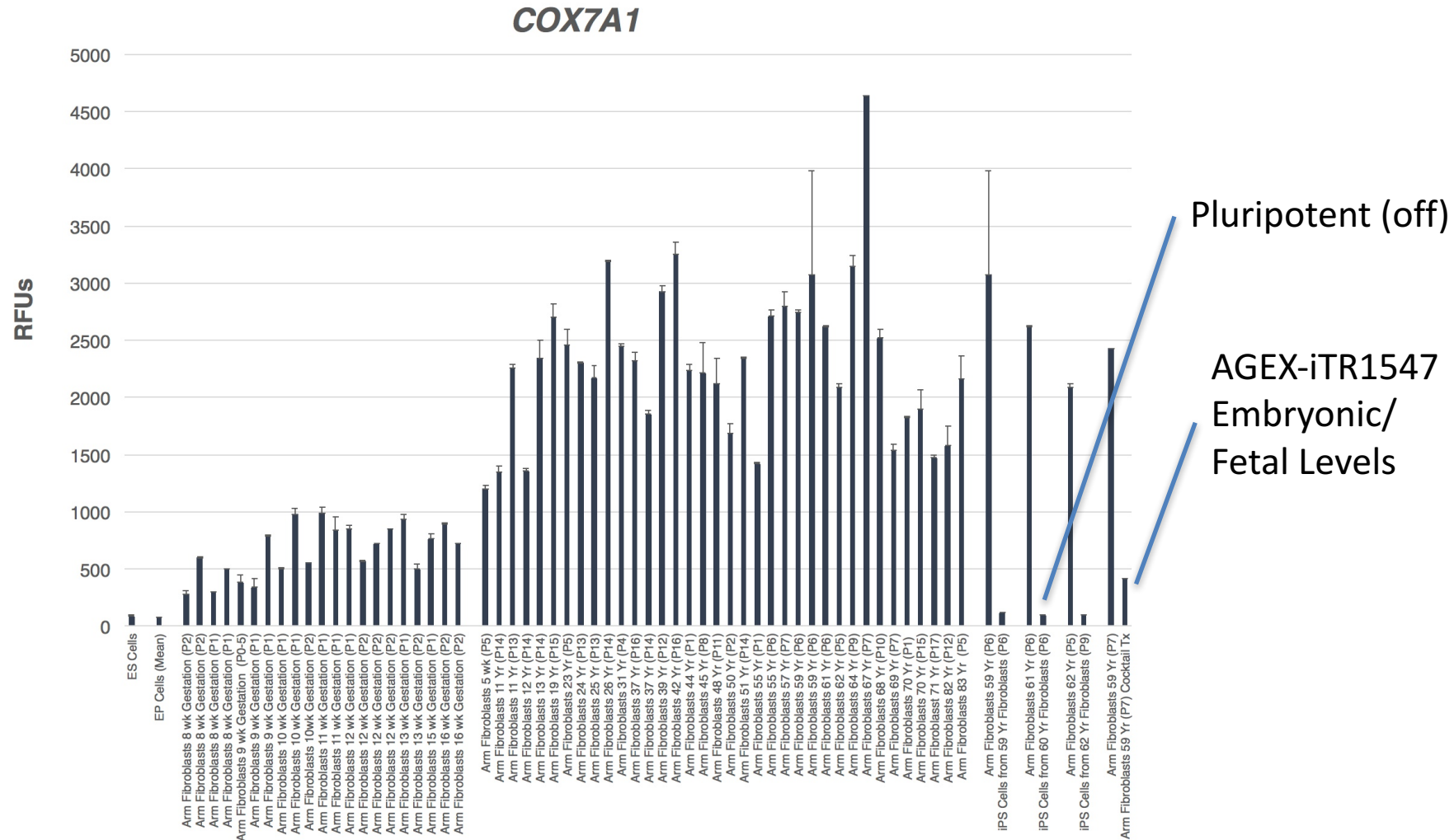


PureStem Lines are Regenerative

SAT – Adult Subcutaneous Wht Preadipo
 fBAT – Adult (Fetal) Brown Preadipo
 C4ELS5.1 Embryonic Beige Preadipo
 E3 Embryonic Wht Preadipo
 E85 Embryonic Ctrl
 NP88 – Embryonic Brown Preadipo
 NP110 - Embryonic Brown Preadipo

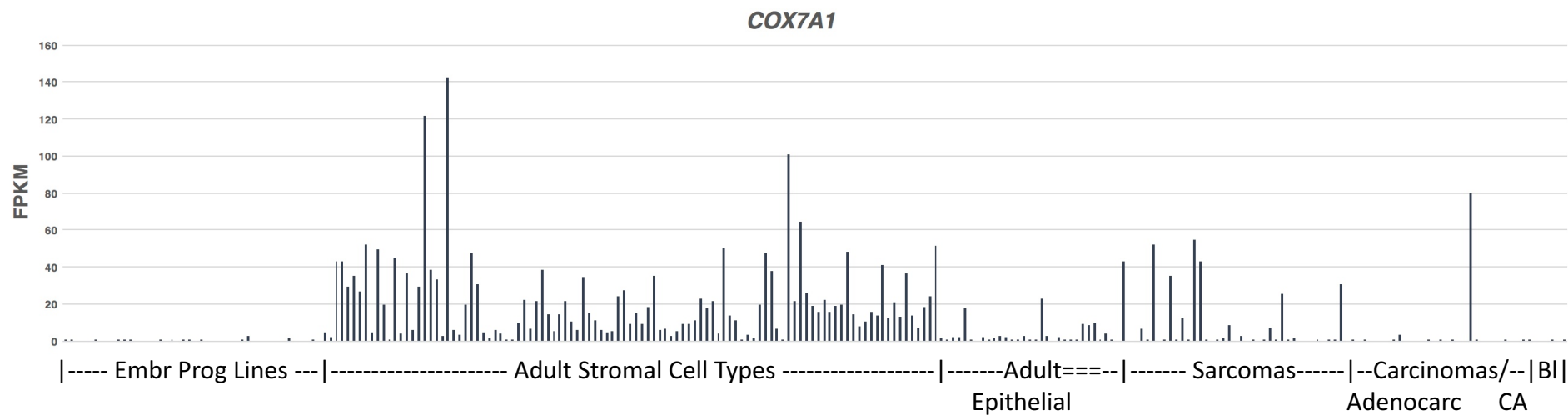


Induced Tissue Regeneration (iTR)



COX7A1 Off in Majority of Cancers

Embryonic Pattern of off in majority (73%) of Cancer lines by RNA-Seq:



Using cutoff of 0.5 FPKM:

- 104/110 (95%) Normal Adult Stromal Cells *COX7A1*+ (5% -) (Neg mostly CNS)
- 16/40 (40%) Sarcoma Lines *COX7A1*+ (60% -)
- 17/23 (74%) Normal Adult Epithelial Cells *COX7A1*+ (26% -)
- 3/30 (10%) Carcinoma/Adenocarcinoma *COX7A1*+ (90% -)
- 19/70 (27%) Total Cancer Lines *COX7A1*+ (73% -)

Summary

- Pluripotency offers a means of manufacturing diverse regenerative progenitors to address degenerative diseases of aging
- PSC-derived clonal embryonic progenitors simplify manufacture
- AgeX focused on three therapeutic programs:
 - BAT cells for T2D/Obesity
 - Vascular endothelial cells for ischemic disease
 - iTR: Therapy designed to induce scarless tissue regeneration implications for cancer Dx and Tx as well