

Compositions and Methods for Treating Diabetic Retinopathy

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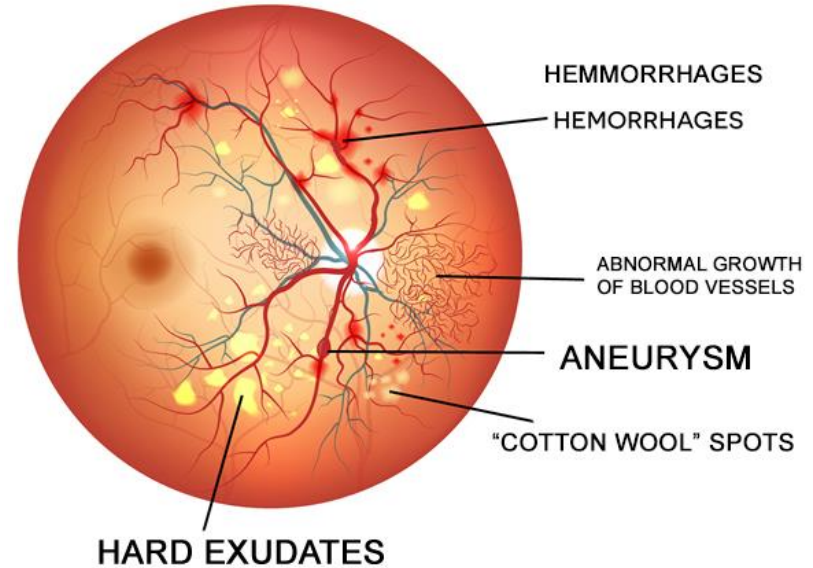


LICENSING & VENTURES GROUP

Diabetic retinopathy

- Debilitating disease caused by diabetes that can lead to progressive retinal vascular pathologies and ultimately vision loss
- Diabetes-related blindness cost the U.S. ~ \$500 million annually
- Clinical Problem:
 - From 2010 to 2050, the number of Americans with diabetic retinopathy is expected to nearly double, from 7.7 million to 14.6 million
 - Current treatments cannot reverse the vision loss

DIABETIC RETINOPATHY

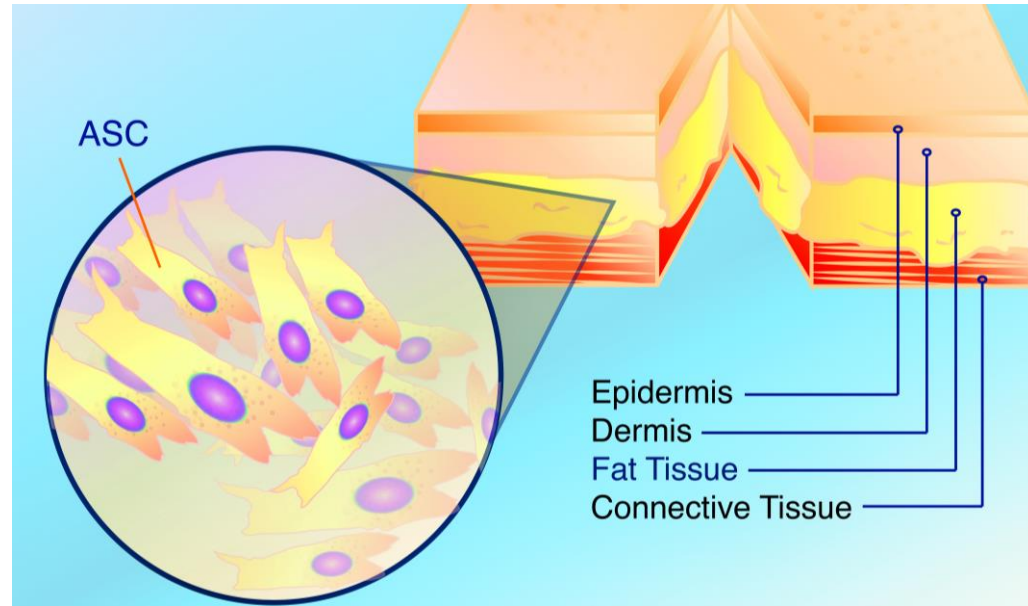


Eagle Eye Centre

Adipose-derived stem cells (ASCs)

Solution: Researchers at the University of Virginia have determined that adipose-derived stem cells (ASCs) stabilize retinal microvasculature and encourage regeneration of damaged capillary beds

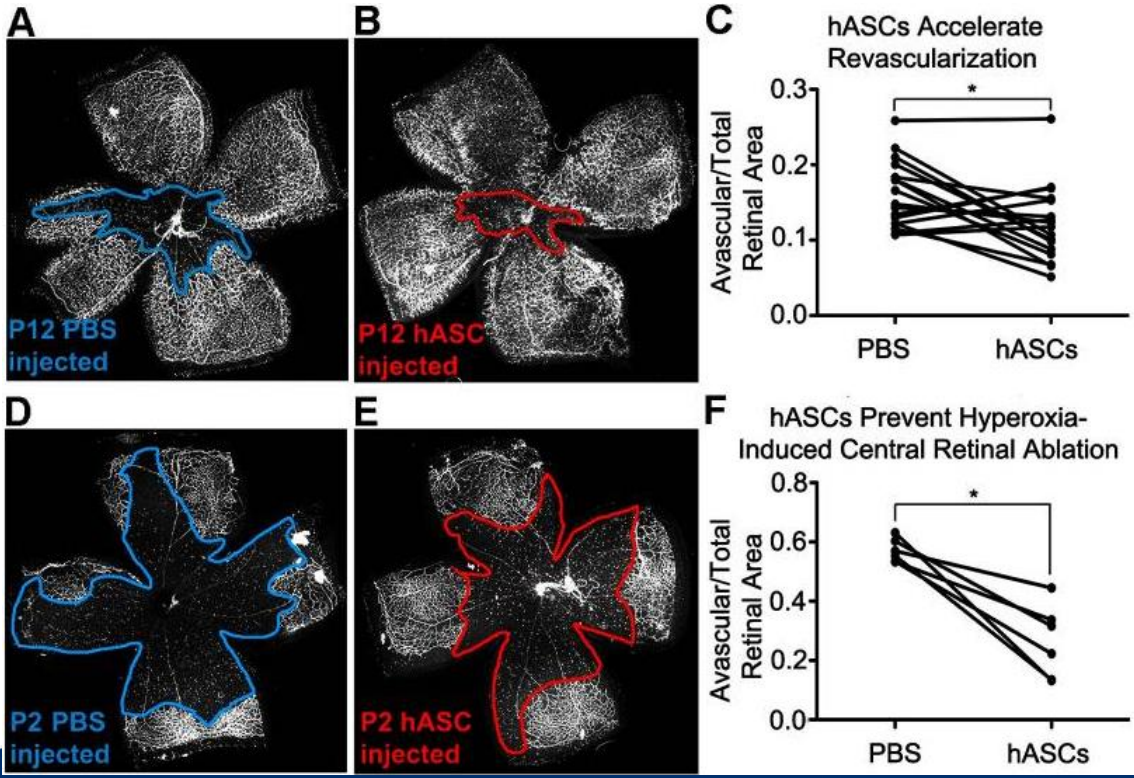
- ASCs are easy to harvest, as they are derived from accessible fat depots
- Potential use for autologous or allogeneic treatment



Van Kempen, et al. J Investigative Dermatology 2004.

Human ASCs stabilize oxygen-induced retinopathy

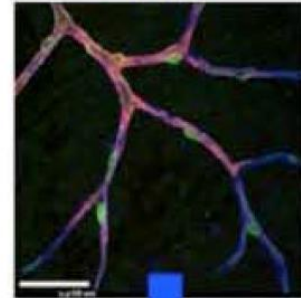
Eyes of NOD SCID mice, injected intravitreally with hASCs following OIR demonstrate improved revascularization of central retina and prevent hyperoxia-induced central retinal ablation



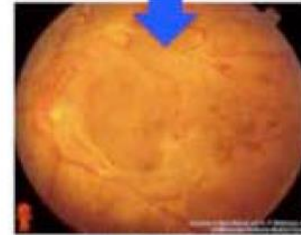
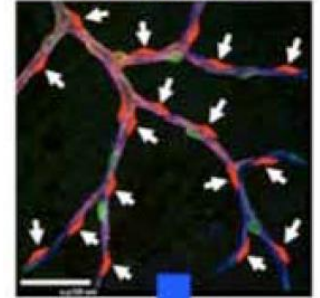
hASCs for cellular treatment

Cellular treatment for diabetic retinopathy using hASCs to potentially prevent progression of retinal disease and enhance regeneration of the microvasculature damaged by uncontrolled diabetes.

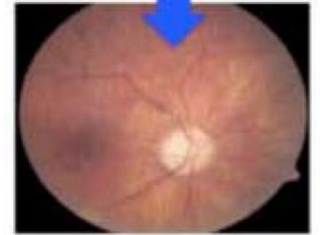
Inadequate pericyte coverage



Supplement with hASC-pericytes



DR Retina



Stabilized Retina

- Hyperpermeability
- Uncontrolled vascular regression
- Pathological neovascularization

- . Restore permeability control
- . Protect against vessel regression
- . Prevent pathological neovascularization

Relevant Publications

- Stem Cells Transl Med. 2015 May;4(5):459-67. **Yates PA**, et. al.
- PLoS One. 2013 May 31;8(5):e65691. **Yates PA**, et. al.

Intellectual Property

- UVA Tech ID: YATES-EYE2
 - Title: Compositions and methods for treating retinopathy
 - U.S. Patent Application: 15/126,460 filed March 17, 2015