



UNIVERSITY of NORTH TEXAS HEALTH SCIENCE CENTER

Technology Transfer & Commercialization

Retinal Progenitor Cells (*Human and Rat*)

Learn more!

Robert McClain, PhD
Associate Vice President
rmcclain@hsc.unt.edu
817-735-2618

Research Tool

2007-100

Our Inventors

Dr. Harold Sheedlo
hsheedlo@hsc.unt.edu

Dr. Neeraj Agarwal

Publications

["Effects of retinal pigment epithelial cell-secreted factors on neonatal rat retinal explant progenitor cells"](#) J of Neurosci Res 44:519 (1996)

["Influence of a retinal pigment epithelial cell factor\(s\) on rat retinal progenitor cells"](#) Develop Brain Res 93:88 (1996)

["Photoreceptor survival and development in culture"](#) Prog Retin Eye Res 15:127 (1995)

["Microscopic characterization of rat retinal progenitor cells"](#) Brain Res 1185:59-67 (2007)

3500 Camp Bowie Blvd
Fort Worth, TX 76107
Phone: 817-735-5147
FAX: 817-735-5485
techtransfer@hsc.unt.edu

Application

- Easy to handle retinal progenitor cells eliminates the necessity of isolating progenitor cells from retinal explants. These robust, yet easily manipulated cells are useful for a wide range of cell culture studies

Details

- Human cells were isolated from a stillborn fetus and rat cells were isolated from a postnatal day-2 retina. Both cell lines were isolated under the stimulation of secreted proteins of neonatal RPE cell cultures and transformed using the ψ AE1A virus.
- Lengthened cell lifetime observed - human cell line is currently effective at passage 20, the rat cell line, at passage 30. Both cell lines have maintained their progenitor cell character.
- Both cell lines express Pax6, a transcription factor that regulates the differentiation of progenitor cells for the central nervous system and the retina.
- Both cell lines express nestin, an early neuroepithelial marker that recognizes immature, undifferentiated cells of the central nervous system and retina.
- Some of the rat cells express low levels of opsin or glial fibrillary acidic protein (GFAP) under serum conditions. This observation confirms the immature character of the cells and demonstrates the potential of these cells to differentiate into mature retinal cells following appropriate growth factor stimulation.