

Title: Mesenchymal stem cells: Generation of retinal cells and rescue impaired retina.

Name: Hamid Aboutaleb Kadkhodaeian

Shefa Neuroscience Research Center at Khatam Al-Anbia Hospital, Tehran, Iran
Tarbiat Modares University, Faculty of Medicine, Tehran, Iran.

Retinal pigment epithelium (RPE) and photoreceptors dysfunction is seen in many diseases such as age related macular degeneration (AMD), retinitis pigmentosa (RP), and Stargardt disease. Today, there is no current treatment for these diseases. However, the new window for treatment of patients that offers from it is cell-replacement therapy. Several researchers generate photoreceptors and RPE cells in vitro that derived from embryonic stem cells (ESCs), induced pluripotent stem cells (iPSCs), and adult stem cells (ASCs). In addition, in vivo studies show that transplantation of stem cells or generated retinal cells are hopeful. However, future studies are need for safety and efficiently use of ESCs and iPSCs. Adult stem cells because properties including plasticity, neuroprotection, and immune modulation properties, no ethical problem and autologous fashion are safe for differentiation and transplantation. ASCs origin from human, mouse and rat RPE, iris, ciliary body, hematopoietic stem cells, MSCs, UCBSCs, can produce rod photoreceptors, bipolar, Muller glia, RPE, retinal neurons, RGC cells by using FGF, heparin, N2, SDF-1, Activin A, taurine, EGF, CNTF, BDNF, NT3. Generation of both retinal cells and RPE performed in few studies. Iris pigmented epithelium-that is belong to ASCs- is a source for produce these cells in vitro. However, no study reports generation of both neurosensory retinal cells and RPE together in vitro. Therefore, differentiation of MSCs into retinal cells and RPE in short time is a new strategy.

Biography

Hamid Aboutaleb Kadkhodaeian has completed his PhD at the age of 32 years from Tarbiat Modares University. He is the director of stem cell lab in Khatam Al-Anbia Hospital.

Presenting author details
Full name: Hamid Aboutaleb Kadkhodaeian
Contact number: +98-9128598943

Linked In account: habootaleb92
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