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Stem cell therapy and age-related macular degeneration

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Age-related macular degeneration (AMD) is the leading cause of blindness in people over age 55 in the U.S. and the developed world. AMD is a multifactorial disease and there is no adequate animal model that recapitulates key characteristics of dry AMD. The lack of a robust model for AMD is a major impediment for mechanistic studies and drug development. Consequently, effective treatments for AMD are not available, although vitamin supplementation is recommended and is modestly beneficial for a small population of patients. Therefore, the need for novel therapeutic and preventive strategies is pressing. Recent generation of RPE cells from embryonic stem cells (ESCs) and induced pluripotent stem cells (iPSCs), offers new promise for cell replacement therapy and disease modeling in AMD. Previously, we showed that the induced pluripotent stem cell-derived retinal pigment epithelium (RPE), (iPSC-RPE) are phenotypically and functionally identical to the native RPE, offering promise for cell replacement therapy in AMD. We generated iPSC-RPE from skin of dry AMD under an IRB protocol using the Yamanaka vectors and RPE differentiation media. These cells could be a prominent source for autologous cell replacement therapy; however they also present limitations that need to be overcome before any attempt to clinical application. Our research elucidates whether iPSC-RPE from skin of AMD patients are a reliable and safe source for autologous cell-based therapy in AMD and proposes new methods of RPE cell transplantation.

Biography

Nady Golestaneh has earned her PhD in 2000, from University of Paris VI, Pierre et Marie Curie, Paris France, her Master's degree from University of Paris VI, Pierre et Marie Curie, Paris France and her Bachelor's degree from University of Paris VII, Jussieu, Paris France. She performed her Postdoctoral training at NEI/NIH, Johns Hopkins University and Georgetown University. She is the Director of Research at the Department of Ophthalmology at Georgetown University Medical Center and Assistant Professor at Departments of Ophthalmology, Neurology, Biochemistry and Molecular & Cellular Biology at Georgetown University School of Medicine. She has over 30 peer-reviewed publications and has received several national and international awards. She serves as Editorial Board Member of *Human Genetics & Embryology, International Journal of Stem Cell Research and Therapy and International Journal of Stem Cell Research and Transplantation.*

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