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## Stem cell-based therapy for dry AMD

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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

Modeling dry AMD in vitro could be an invaluable tool to study cellular and molecular mechanisms underlying AMD and to screen for compounds that reverse pathologic features, as a step towards drug development. Nonetheless, a reprogramming-based model of AMD would need to take genetic, environmental and epigenetic factors into consideration to reproduce a physiologically relevant in vitro model.

In addition, successful cell-based therapy in dry AMD requires: 1) generation of patient-specific bona fide RPE cells that are morphologically and physiologically similar to native RPE, 2) RPE monolayer on a biodegradable matrix that allows transplantation of an intact epithelium. An intact structure of the RPE monolayer cultured on a biodegradable matrix not only facilitates transplantation into the sub-retinal space but also is crucial for RPE survival, cellular function and integration in the host retina.

## Biography

Golestaneh has earned her PhD in 2000, from University of Paris VI, Pierre et Marie Curie, Paris France, her Master Degree from University of Paris VI, Pierre et Marie Curie, Paris France and her Bachelor Degree from University of Paris VII, Jussieu, Paris France. She did her postdoctoral training at NEI/NIH, Johns Hopkins University and Georgetown University. She is Director of Research at the Department of Ophthalmology at Georgetown University Medical center and Assistant Professor at Department of Ophthalmology, Neurology, Biochemistry and Molecular & Cellular Biology at Georgetown University Medical Center. She has published more than 26 peer-reviewed papers and serves as an editorial board member of journal of Human Genetics & Embryology and International Journal of BioEngineering and Technology.

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