

Characterization of Retinal Pigmented Cell Epithelium Cell Sheet Cultivated on Synthetic Scaffold

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Abstract : Age-related macular degeneration (AMD) is one of the leading cause of blindness. It can cause severe visual loss due to damaged retinal pigment epithelium (RPE). RPE is an important component of the retinal tissue. It functions as a transducing boundary for visual perception making it an essential factor for sight. The RPE also functions as a metabolically complex and functional cell layer that is responsible for the local homeostasis and maintenance of the extra photoreceptor environment. Thus one of the suggested method of treating such diseases would be regenerating these RPE cells. As such, we intend to grow these cells using a synthetic scaffold to provide a stable environment that reduces the batch effects found in natural scaffolds. Stiffness of the scaffold will also be investigated to determine the optimal Young's modulus for cultivating these cells. The cells will be generated into a monolayer cell sheet and their functions such as formation of tight junctions and gene expression patterns will be assessed to evaluate the cell sheet quality compared to a native RPE tissue.

Keywords : RPE, scaffold, characterization, biomaterials, colloids and nanomedicine

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