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(54) **Title:** A METHOD OF DIFFERENTIATING AN INDUCED PLURIPOTENT STEM CELL INTO A RETINAL PIGMENT EPITHELIAL CELL, A RETINAL PIGMENT EPITHELIAL CELL AND METHODS OF USING THE RETINAL PIGMENT EPITHELIAL CELL

(57) **Abstract:** The present invention relates to a method of differentiating an induced pluripotent stem cell into a retinal pigment epithelial cell. Additionally, the present invention relates to a retinal pigment epithelial cell culture obtainable by the differentiation method and a retinal pigment epithelial cell culture obtained by the differentiation method. In addition, the present invention concerns a retinal pigment epithelium consisting of or comprising a retinal pigment epithelial cell culture obtainable or obtained by the differentiation method. The present invention also relates to a pharmaceutical composition comprising a retinal pigment epithelial cell culture obtained by the differentiation method. The present invention concerns a method of treating a retinal degenerative disease in a subject, comprising administering to a subject a retinal pigment epithelial cell differentiated from the induced pluripotent stem cell by the method. Finally, the present invention also refers to an in vivo method of detecting the survival rate of a retinal pigment epithelial cell differentiated from an induced pluripotent stem cell by the defined method in a subject and an in vitro method of determining the immunogenicity of said retinal pigment epithelial cell differentiated from an induced pluripotent stem cell by the defined method in said subject, to whom said differentiated RPE cell has been pre-delivered.

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