Composition of biopolymers for the cultivation of pluripotent cells and retinal pigment epithelium cells

CSIC and Fundación Progreso y Salud have developed a biopolymer-based composition that mimics the natural extracellular matrix of the retinal pigment epithelium. The present invention is useful for the culture of induced pluripotent cells and retinal pigment epithelium cells.

Industrial partners from health, pharmaceutical or ophthalmological companies are being sought to collaborate through a patent licence agreement.

An offer for Patent Licensing

A composition that mimics the extracellular matrix of the retinal pigment epithelium

The composition (Colamigel-L) comprises structured collagen fibrils (with D-stagger), gelatin and laminin and provides an optimal adhesion substrate for the in vitro culture of induced pluripotent stem (iPS) cells and retinal pigment epithelium (RPE) cells derived from them.

Colamigel-L composition, rich in structural proteins, mimics the natural extracellular matrix (Bruch's membrane) of the RPE. This material supports the growth and maturation of the RPE cells generated by diffentiation from iPS cells.

Structured collagen fibrils are nanofibrils (150 nm in diameter) obtained by atelocollagen molecules synthetic self-assembly forming a D-staggered alignement with a pattern of 67 nm.

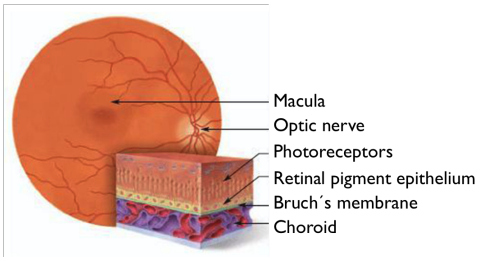

Image of human retina

Main innovations and advantages

- Colamigel-L composition is an economical and optimal substrate for *in vitro* attachment and growth of RPE cells. It also supports the pluripotent stem cells that are used for RPE differentiation.
- Colamigel-L composition can be used along the whole process of differentiation from iPS cells to RPE to provide autologous cell replacement material for cell therapy.
- Colamigel-L composition has a defined and standardized formulation. It can be processed as liquid or solid material (Colamigel-S) resulting in a microporous fibrillar structure with simple handling and storage requirements and a competitive manufacturing cost.
- Colamigel-L may be applied for cell culture in basic cell biology laboratories as well as in GMP facilities for the production of RPE for cell therapy pre-clinical or clinical trials related to RPE degenerative diseases.

Patent Status

Priority patent application filed suitable for international extension

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