



**Extracellular matrix for transplant survival and differentiation** (*Marco Zarbin, NJMS 06-59*) *Tissue Engineering*

**Background**

Age-related macular degeneration (AMD) is the most important cause of new cases of blindness in patients older than 55 years of age in the industrialized world. Retinal pigment epithelium (RPE) cells are thought to be targets of the pathological processes that cause AMD. In diseases such as AMD, RPE and photoreceptor cell death constitutes a component of “irreversible” visual loss in many patients. Among AMD patients with evolving atrophy, RPE transplantation could be curative. However, disease-related changes may mask extracellular matrix ligand availability to transplanted cells, impairing post-attachment events and leading, in turn, to cell death or inability of the cells to differentiate. The present invention relates to the production of an extracellular matrix and methods of use for clinical treatment for disease in the central nervous system, including the eye.

**Description of the Technology**

The present invention is a *biologically* synthesized complex extracellular matrix featuring a complex 3D structure that is difficult to reproduce artificially and, depending upon cell source of extracellular matrix, can incorporate cell stimulating and cell supporting molecules (e.g., growth factors and glycosaminoglycans). The matrix of the present invention will raise the transplanted cells above the damaged or age-modified surface thereby removing the cells from toxic interactions with the underlying surface and providing an environment for growth and differentiation of the transplanted cells.

**Applications**

- Transplantation of extracellular matrix as adjunctive treatment combined with cell transplants for geographic atrophy in AMD, choroidal neovascular membrane excision in AMD, glaucoma, Parkinson’s, Alzheimer’s, diabetes mellitus, and potentially other diseases.

**Patent Status**

United States Provisional Application –2006.

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