THREE-DIMENSIONAL RECONSTRUCTION OF HUMAN CORNEAS BY TISSUE ENGINEERING

Fact Sheet

Project Information

CORNEA ENGINEERING
Grant agreement ID: 504017

Funded under FP6-NMP

Start date 1 January 2004  End date 31 December 2007

Overall budget € 4 214 680

EU contribution € 2 558 797

Coordinated by CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

France

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Objective
The goal of the proposed research project is to reconstruct a human cornea in vitro, for use both in corneal grafting and as an alternative to animal models for cosmetopharmacotoxicity testing. The project responds to the urgent need to develop new forms of corneal replacements as alternatives to the use of donor corneas, in view of the worldwide shortage of donors, the increasing risk of transmissible diseases, the widespread use of corrective surgery, which renders corneas unsuitable for grafting, and the severe limitations of currently available synthetic polymer-based artificial corneas (keratoprostheses). The originality of the proposal lies in the use of recombinant human extra cellular matrix proteins to build a engineered-engineered scaffold to support growth of the different cell types found in the cornea, cells to be derived from human adult stem cell pools. The development of a reconstructed human cornea will represent a real breakthrough, allowing diseased or damaged corneas to be replaced by tissue-engineered human corneal equivalents that resemble in all respects their natural counterparts. The proposal also responds to impending ED legislation banning the marketing of cosmetic products that have been tested on animals, using procedures such as the Raise rabbit eye irritation test. The development of tissue-engineered corneas will provide a non-animal alternative, which will therefore alleviate animal suffering. The project will lead to a transformation of industry to meet societal needs using innovative, knowledge-based approaches integrating Nan technology and biotechnology. The project brings together 14 participants with complementary expertise from 9 different countries, including basic scientists, ophthalmologists and industrialists (three Sees). Ethical and standardisation aspects will also be included.

Programme(s)

Topic(s)

Call for proposal

FP6-2002-NMP-1

Funding Scheme

STREP - Specific Targeted Research Project

Coordinator

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