



# THREE-DIMENSIONAL RECONSTRUCTION OF HUMAN CORNEAS BY TISSUE ENGINEERING

## Fact Sheet

### Project Information

CORNEA ENGINEERING

Grant agreement ID: 504017

Start date

1 January 2004


End date

31 December 2007

Funded under  
FP6-NMP

Overall budget  
€ 4 214 680

EU contribution  
€ 2 558 797

Coordinated by  
CENTRE NATIONAL DE LA  
RECHERCHE SCIENTIFIQUE  
 France

## This project is featured in...

RESEARCH\*EU MAGAZINE  
**Natural disasters and  
climate change: how  
science expects the...**

NO. 16, OCTOBER 2012

## 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 cosmeto-pharmacotoxicity 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 (keratoprotheses). 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**



**CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE**

Address

**Rue Michel Ange 3**

**Paris**

 **France**

## Participants (13)

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**ASSISTANCE PUBLIQUE - HOPITAUX DE PARIS**

 **France**

Address

**3 Avenue Victoria**

**Paris**

---



**BANQUE FRANCAISE DES YEUX**

 **France**

Address

**6 Quai Des Celestins**

**Paris**

---



**LABORATOIRES IOLTECH SA**

 **France**

Address

**Avenue Paul Langevin**

**La Rochelle**

---



**ENGELHARD LYON SA**

 **France**

Address

**32 Rue Saint Jean De Dieu**

**Lyon**

---



**UNIVERSITAETSKLINIKUM HAMBURG-EPPENDORF**

 **Germany**

Address

**Martinistrasse 52**

**Hamburg**

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**FONDAZIONE CENTRO SAN RAFFAELE DEL MONTE TABOR**



 Italy

Address

**Via Olgettina 60**  
**Milano**

---



**FONDAZIONE BANCA DEGLI OCCHI DEL VENETO - O.N.L.U.S.**

 Italy

Address

**Via Felisati 109**  
**Venezia Mestre**

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**UNIVERSITY OF DUNDEE**

 United Kingdom

Address

**Nethergate**  
**Dundee**

---



**UNIVERSITE DE LIEGE**

 Belgium

Address

**Place Du 20 Aout, 7**  
**Liege**

---



**LUNDS UNIVERSITET**

 Sweden

Address

**Paradisgatan 5C**  
**Lund**

---



**UNIVERSITY OF OULU**

 Finland

Address

**Pentti Kaiteran Katu 1**  
**Oulu**

---




**TEL AVIV UNIVERSITY**

 Israel

Address



**ORTA DOGU TEKNIK UNIVERSITESI**

 Turkey

Address

**Inonu Bulvari**

**Ankara**

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