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Integrative nano-Composites And Regeneration of the Eye (I-CARE)

Herpes Simplex Keratitis (HSK), caused by Herpes Simplex Virus-1, is the leading infectious cause of blindness in developed nations. Treatment is by transplantation but success rates are very low due to disease recurrence. I-CARE aims to improve transplantation rates. The first generation biosynthetic implant already developed by several members of I-CARE is the world's first corneal implant to stimulate the patient's own stem cells to regenerate corneal cells and nerves. The next generation implant will be strengthened to withstand the adverse conditions of the diseased eye and prevent HSK recurrence by incorporation of drug delivery systems.




I-CARE: Developing next-generation implants for high risk HSV cornea transplantation



The Problem: HSV-1 infection

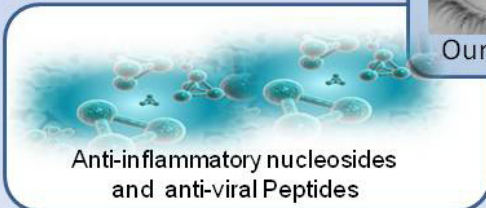
I-CARE Solutions in Development



Nano-architected and patterned scaffolds assembled into implants



Nanoparticle delivery systems shown by electron microscopy



Anti-inflammatory nucleosides and anti-viral Peptides



Imaging of human corneas *in situ* and ultrastructural viral imaging

