May Griffith

LIQD-CORNEA

A LIQuiD CORNEAl glue-filler as an alternative to transplantation in high-risk patients

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Cornea transplantation used to treat corneal blindness suffers from severe shortage of donated tissues. Globally, 12.7 million patients await transplantation. While short term transplantation is highly successful, success rates drop significantly over the long-term and in cases of severe pathology. LIQD-CORNEA aims to alleviate both tissue shortage and graft failure issues. LIQD-CORNEA will lessen the demand for corneal transplantation by targeting patients with small ulcers or perforations that result from damage or severe infections, e.g., HSV viral infections. These defects can potentially be patched using our pro-regeneration injectable fillers based on artificial collagen and collagen-like peptide analogs (analogous to dental fillers for teeth). To address high-risk HSV patient needs, we will incorporate immune-compatible anti-viral/anti-inflammatory peptides into our LIQD-CORNEA filler, and test different in vitro and in vivo methods of delivery that include the use of nanoparticles or engineered stem cells. Results obtained will potentially revolutionize the treatment of corneal blindness.