

Product

Device for transplanting stem cell grafts

Indication

Retinal Stem Cell Transplantation

Value Propositions

- ▶ Novel device that allows for improved transplantation of retinal cells and tissue
- ▶ Increased viability of cell graft
- ▶ Decreased risk of surgical trauma

Market

- ▶ \$9 million—
Global Ophthalmic Surgical Instrument market size (2026 forecast)

Intellectual Property

- ▶ Patent pending*
- ▶ Available for licensing

Publications

- ▶ Li KV, Flores-Bellver M, Aparicio-Domingo S, et al. A Surgical Kit for Stem Cell-Derived Retinal Pigment Epithelium Transplants: Collection, Transportation, and Subretinal Delivery. *Front Cell Dev Biol.* 2022;10:813538. Published 2022 Feb 18. doi:10.3389/fcell.2022.813538

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Background on CU5701H

Retinal degenerative diseases, like age-related macular degeneration (AMD), remain incurable. AMD is the leading cause of irreversible vision loss in the United States occurring in 25% of Americans over the age of 74. Up until recently, the majority of treatments were drug-based therapies. Cell therapies in the form of subretinal cell and tissue transplantation are the frontier of regenerative medicine in retinal disease. Therefore, there exists a clinical need to develop new surgical tools to ensure cell therapy is a safe and viable treatment option for retinal disease. CU inventors have created a transplantation device for implanting retinal cells and tissue for the treatment of retinal diseases.

Technical Innovation

CU inventors lead by Dr. Marc Mathias have developed a novel device with a curved translucent tip and ergonomic handle to provide all-in-one foldable technology for minimal incision size, controlled delivery speed, no fluid reflux, and usability of loading and *in vivo* reloading of cells or tissue. The technology is designed to reduce surgical trauma and maximize transplant viability during surgical manipulation. The advantage of this new device is the ability to safely and accurately deliver cells and tissue for subretinal transplantation. Implantation of the cells and tissue with proper orientation is critical to maintain the health and integrity of the cells and/or tissue and ensure proper integration of the transplanted cells. The technology is designed to facilitate grabbing, loading, and transferring of a tissue graft with the help of an asymmetric tab to help orient the tissue. Additionally, the device allows for smaller incisions, minimal trauma to the retinal tissue, and controlled injection speed with no fluid reflux.

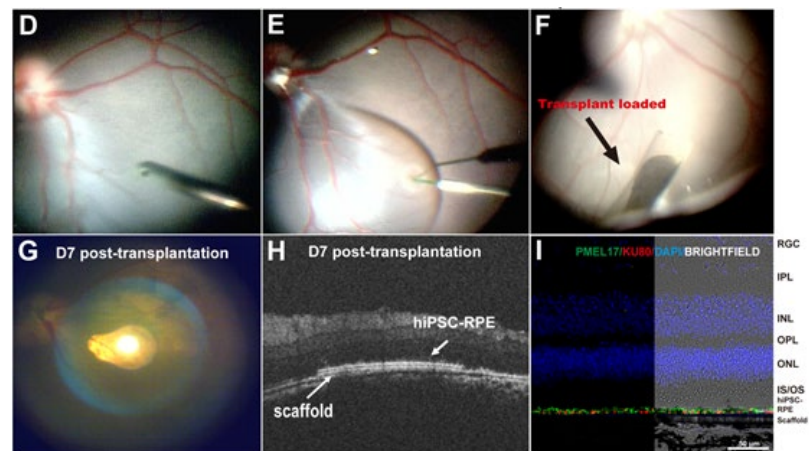


Figure. Procedure and surgical outcome of hiPSC-RPE in a porcine model using the device