

Innovation and Commercialization



Design of Novel Allograft Insertion Device for Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK) Surgery

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TECHNOLOGY NEED

DSEAK is a surgical procedure in which the diseased layer of patient's cornea is replaced by a donor cornea (allograft) to improve visual activity. DSEAK procedure requires an allograft inserter in order to perform the procedure. In the USA alone almost 52,000 cornea transplant procedures were performed in 2018, this number is going up every year due to improvements in life expectancy, thus there is a need of improvement in current allograft inserter.

INVENTION DESCRIPTION/SOLUTION

We have developed a corneal inserter for Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK), which is a surgical procedure used to improve the surgical outcomes for patients with shallowed/constrained Anterior Chambers (AC). The AC is the part of the eye between the iris and cornea filled with liquid called vitreous humor. The binocular inserter design does not allow the AC to collapse during surgery. Binocular inserter tip design ensures that the endothelial layer on the allograft does not come into contact with any external surface, thus protecting the allograft from surgical trauma. The injector body and tip are made of polyethylene so that there is minimum bending, but transparency to allow the surgeon to observe the orientation of graft during insertion and allow minimum friction to avoid loss of endothelial cell.

APPLICATIONS

- Patients with glaucoma
- Labs specializing in glaucoma, cataracts or corneal replacement

KEY BENEFITS

- Reduces postsurgical endothelial loss commonly caused from mechanical and surgical trauma to the eye
- Facilitates allograft unfolding inside the shallowed AC
- Reduces probability of AC collapse
- Protects the allograft from Incision Compression Pressure (ICP) which is postsurgical
- Utilizes the inserter tip space more efficiently so as to orient allograft

STAGE OF DEVELOPMENT

Prototype

INTELLECTUAL PROPERTY STATUS

- Design Patent issued
- US Utility Patent pending



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