Docket #: S23-174

A suprachoroidal spacer implant to treat glaucoma

To manage the development and progression of glaucoma, researchers at Stanford University have developed a biocompatible suprachoroidal spacer implant. This implant leverages a specialized delivery system into the suprachoroidal space, and effectively lowers the intraocular pressure (IOP).

Elevated IOP is a major risk factor for glaucoma, which is a leading cause of blindness worldwide. While there are several methods to reduce IOP, each approach has inherent limitations. Daily eyedrop administration can be compromised by patient medication adherence and limited tolerability; laser procedures are not adequately effective for many patients; current surgical procedures damage the conjunctiva and are ultimately compromised by scarring; and sustained-release drug-loaded implants may damage the anterior chamber and in any case only last months.

As a promising alternative, Stanford researchers have developed a suprachoroidal implant effective at lowering IOP. The implant can be delivered by a custom microneedle injector that is designed to avoid requiring any suturing after delivery, and therefore can be performed in the outpatient clinic setting. Being able to lower intraocular pressure with a one-time treatment that can be performed in the clinic and without needing to go to the operating room could revolutionize glaucoma care. Upon implantation within the suprachoroidal space, uveoscleral aqueous outflow increases, leading to a sustained reduction in IOP. Delivery and data validation in relevant laboratory models has been achieved.

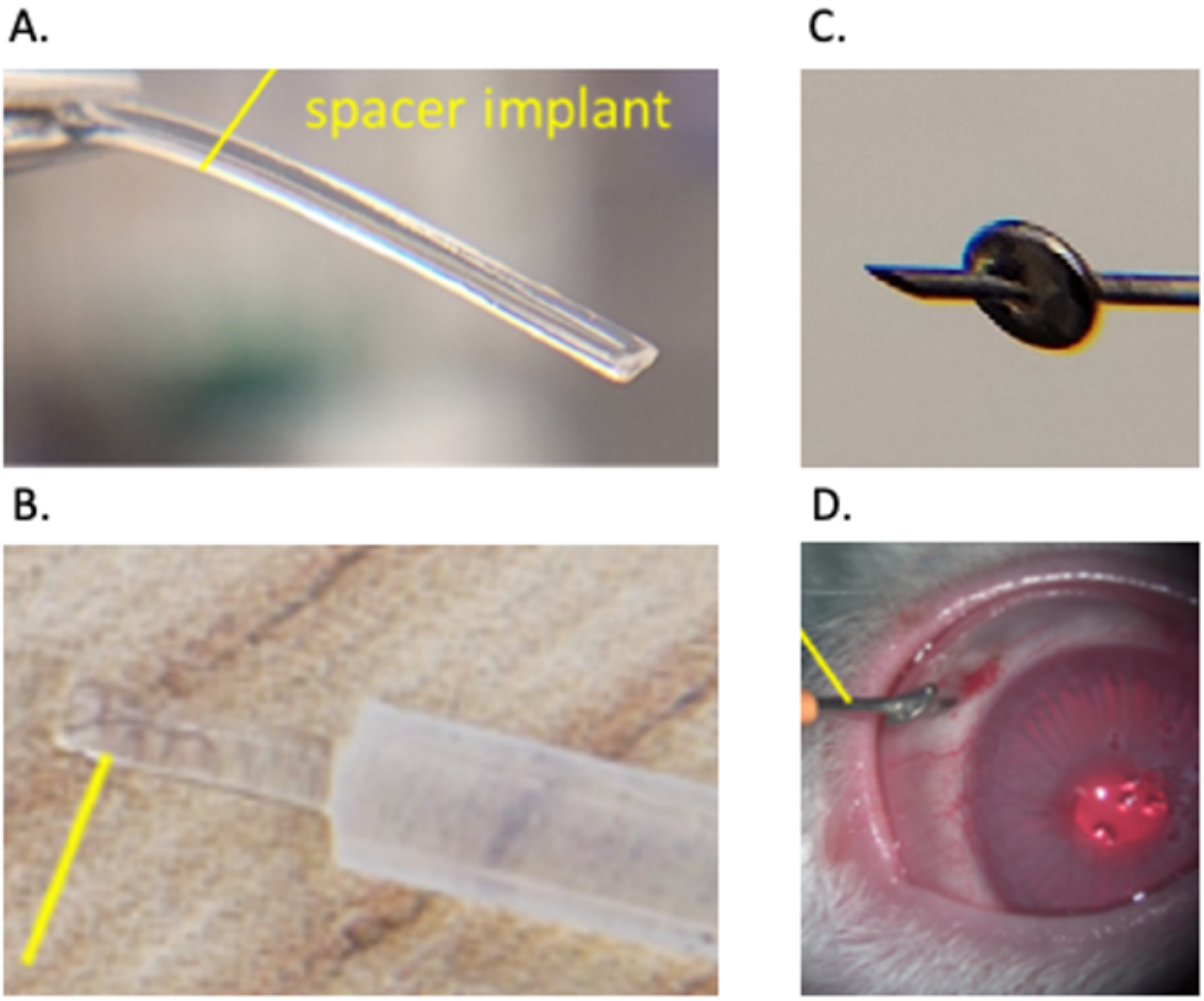


Figure 1. A) A prototype of the suprachoroidal spacer implant. B) The implant inserted in a injector. C) A prototype of the injector. D) A demo of the injection process.

Stage of Development

The researchers have prototypes of the implant and the injector that are being actively improved and optimized. They have completed *ex vivo* experiments and are preparing for *in vivo* studies.

Applications

- Lowering IOP to mediate conditions such as
  - Glaucoma
  - Ocular hypertension

    - Exfoliation syndrome
    - Pigment dispersion syndrom

Advantages

- Long-term IOP control without daily management
- Monolithic implant with structural integrity
- Biocompatible
- Minimally invasive, office-based procedure
- Easy to deploy in underdeveloped setting
- Does not hinder the ability to perform additional glaucoma surgery
- No cyclodialysis cleft, merging the anterior chamber with the suprachoroidal space
- No anterior chamber manipulation and no expected endothelial cell loss
- Precise injection with customized injector

Publications

- None

Patents

- Published Application: WO2024253969
- Published Application: 20260240682

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