Docket #: S22-199

System and method for targeted ocular drug delivery to the optic nerve head

Stanford researchers develop a surgical technique to access the optical nerve head from tunneling through the suprachoroidal space (SCS) for drug delivery applications. Many optic neuropathies that result in vision loss are caused by the loss of non-regenerative axons, often in the optical nerve head. Targeted delivery of therapies that promote axon regeneration may help vision prognosis in patients. However, previous techniques for optical drug delivery have not reliably accessed the optical nerve head. The proposed method specifies the microneedle gauge, angle, length, and angle of approach to access the optical nerve head from tunneling through the suprachoroidal space (SCS). The inventors demonstrate with histology and in vivo rabbit models that delivered agents localize to the optical nerve head.

Stage of Development
Demonstrated efficacy of the invention by comparing dye distribution in histological eye samples and in vivo rabbit models against various other delivery methods.

Applications

- Drug delivery method targeting the optic nerve head
- Ophthalmology surgical products

Advantages

- My result in minimal distruptions to the eye
- Can more efficiently dose the optical nerve head

Patents

- Published Application: 20230404799

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