

**Docket #:** S21-417

# **Use of Dopaminergic Prodrug to Prevent Myopia Progression**

Researchers at Stanford have established the safety and penetrance of the dopaminergic prodrug etilevodopa to prevent the progression of myopia ("nearsightedness"). In the past 50 years, myopia prevalence in the U.S. and Europe has doubled and in China has jumped from 20% to 90% of the population. Slowing myopia progression even minimally can help prevent blindness. Despite the high prevalence, no pharmacologic treatment has been approved or cleared for myopia control by the U.S. FDA. Increasing ocular dopamine has been explored as a treatment; however, use of isolated dopaminergic agents can cause side effects such as nausea and vomiting, as well as conjunctivitis. The Stanford team's novel approach uses a dopaminergic prodrug to avoid negative effects on the eye while still allowing for penetration of medication past the ocular surface. They found that topical administration of the prodrug etilevodopa showed no evidence of retinal toxicity and warrants additional investigation as a potential therapeutic treatment for myopia.

## **Stage of Development**

Pre-clinical. Next steps include additional animal safety/efficacy data vs. Phase I clinical trial.

## **Applications**

- Ophthalmic formulation to prevent the progression of myopia

## **Advantages**

- Establishes the safety and penetrance of the dopaminergic prodrug etilevodopa

- Unlike anticholinergic agents currently in use, dopaminergics have limited effects on accommodation and no effect on pupillary dilation
- In animal testing, dopaminergics are more effective at preventing myopia
- Whereas even low-dose atropine 0.01% has shown potential toxicity on electroretinography, dopaminergics have not exhibited any toxicity

## Publications

- Gao, Quanqing, et al. "[Ocular Penetrance and Safety of the Dopaminergic Prodrug Etilevodopa.](#)" *Translational vision science & technology* 10.12 (2021): 5-5.

## Patents

- Published Application: [WO2022099195](#)
- Published Application: [20240065999](#)

## Innovators

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