TREATMENT OF GLAUCOMA BY NEUROPROTECTION

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PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20240091326	03/01/2024	2021-124

BRIEF DESCRIPTION

Glaucoma remains a leading cause of irreversible blindness worldwide, primarily due to the progressive degeneration of retinal ganglion cells. While traditional treatments focus on reducing intraocular pressure, they often fail to stop the underlying neurodegenerative process. UC Berkeley researchers have developed a novel neuroprotective strategy that involves modulating the activity of ocular serpinA3. By administering a serpinA3 polypeptide or a nucleic acid encoding the polypeptide directly to the eye, this technology aims to shield ocular tissues from damage and preserve visual function. This approach represents a significant shift toward directly protecting the nervous system of the eye, offering hope for patients who continue to lose vision despite controlled eye pressure.

SUGGESTED USES

» Neuroprotective Glaucoma Therapy: Serving as a primary or adjunctive treatment to prevent the death of retinal ganglion cells in patients with various forms of glaucoma.

» Optic Neuropathy Treatment: Applying the serpinA3 modulation strategy to other forms of optic nerve damage or neurodegenerative ocular conditions.

» Gene Therapy Applications: Utilizing viral or non-viral vectors to deliver serpinA3-encoding nucleic acids for long-term protection of ocular tissues.

» Combination Therapies: Integrating neuroprotection with existing intraocular pressure-lowering medications to provide a comprehensive management plan for high-risk patients.

» Emergency Ocular Care: Administering the polypeptide as a rapid intervention following acute ocular injuries that threaten nerve health.

ADVANTAGES

» Direct Neuroprotection: Targets the root cause of vision loss—the degeneration of neurons—rather than just managing secondary symptoms like fluid pressure.

» Versatile Delivery Options: Can be implemented as a protein-based drug or a long-lasting gene therapy, allowing for flexible treatment regimens tailored to patient needs.

» Addresses Unmet Needs: Provides a therapeutic pathway for "normal-tension" glaucoma patients who suffer vision loss even without elevated intraocular pressure.

» Nature-Based Mechanism: Leverages the intrinsic biological role of serpinA3 in regulating protease activity and inflammation within the eye.

» Enhanced Preservation of Sight: Offers the potential to significantly slow or halt the progression of blindness, improving the long-term quality of life for aging populations.

RELATED MATERIALS

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OTHER INFORMATION

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ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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- Modulation Of Wnt5a To Treat Glaucoma
- Live Imaging of Corneal Lymphatic Vessels

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