Engineered Virus-Like Particles For Delivery of Precision Genome Editors in Glaucoma

Tech ID: 33941 / UC Case 2024-964-0

BRIEF DESCRIPTION

A revolutionary one-shot therapy for juvenile and adult-onset glaucoma affected by MYOC mutations, offering a permanent cure for this previously untreatable disease.

FULL DESCRIPTION

This technology utilizes engineered viral-like particles (eVLPs) to deliver Base Editors and guide RNA ribonucleoprotein (RNPs) complex directly to the trabecular meshwork (TM) in mice, editing the MYOC gene to treat primary open angle glaucoma (POAG) and juvenile-onset glaucoma (JOAG). Unlike traditional treatments that only reduce symptoms, this approach addresses the root genetic cause, offering a one-time, lasting solution.

SUGGESTED USES

- Gene therapy for primary open angle glaucoma (POAG) and juvenile-onset glaucoma (JOAG).
- Biotechnological advancements in precision medicine.
- Development of non-viral delivery systems for gene editing tools.
- Potential expansion to other genetic diseases with known gene targets.

ADVANTAGES

- Directly addresses the molecular cause of MYOC-associated glaucoma.
- Offers a permanent solution rather than temporary symptom management.
- Reduces the risk of off-target effects associated with traditional CRISPR-Cas9 systems.
- Utilizes a non-viral delivery method, minimizing potential for oncogenesis.
- Proven efficacy in mouse models, with potential for human application.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

gene editing, myocilin, glaucoma, CRISPR-Cas9

CATEGORIZED AS

- **Medical**
  - Disease: Ophthalmology and Optometry
  - Gene Therapy

RELATED CASES

2024-964-0

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