Docket #: S20-427

Proliferative vitreoretinopathy (PVR) therapy with growth and differentiation factor 15 (GDF15)

Proliferative vitreoretinopathy (PVR) is a rare ocular condition that can lead to vision loss or blindness and is a complication of rhegmatogenous retinal detachment, severe diabetic retinopathy, and other conditions. Usually treated with complex retinal reattachment surgery, the prognosis for long-term anatomic or functional success is poor. To address the lack of PVR treatment, the inventors focused on targeting Epithelial Mesenchymal Transition (EMT), which is involved in PVR progression and growth. Differentiation factor 15 (GDF15) was shown to suppress EMT, working as a potential therapeutic agent for PVR, and protecting retinal neurons from death. Researchers in the Goldberg lab at Stanford developed a nonsurgical treatment for PVR by leveraging GDF15 as a EMT inhibitor. After intravitreal injection, GDF15 prevented fibrosis and scarring from EMT in mice, effectively reducing the onset and progression of PVR. Compared to existing strategies, the invented method directly suppresses the EMT pathway and provides a novel ocular therapeutic for PVR.

Applications

- -Ocular therapies
- -Wound regenerative therapies
- -Therapies for somatic tissues and diseases

Advantages

- -Nonsurgical treatment

- -Reduces fibrosis and scarring from EMT, effectively blocking the onset and progression of PVR
- -Directly suppresses EMT and protects retinal neurons

Patents

- Published Application: WO2022125548
- Published Application: 20240000891
- Issued: 12,728,152 (USA)

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