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Licensing Opportunity

Protecting Vision via Neuroprotective Compounds

Summary

We have developed a novel family of neuroprotective compounds that show remarkable ability to rescue vision and protect photoreceptors in a validated mouse model of *retinitis pigmentosa*. Additionally, they showed efficacy in safeguarding retinal pigment epithelial cells - the first cells damaged in Age-related Macular Degeneration (AMD) - in a cell model of this disease.

These compounds act by stimulating selective removal of damaged mitochondria through autophagy, a natural cellular recycling process.

Background

Retinal degenerative diseases, such as *retinitis pigmentosa*, and AMD affect millions of people worldwide and are a leading cause of irreversible vision loss. Effective treatments remain scarce, largely due to the multifactorial nature of these disorders, where several pathological mechanisms contribute simultaneously to retinal degeneration.

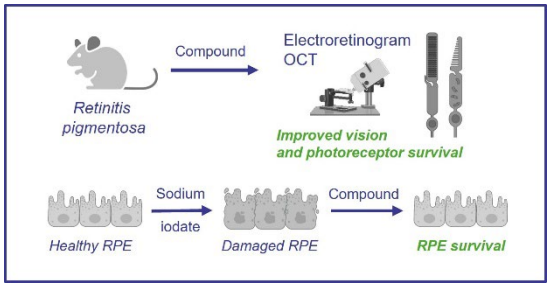
Existing neuroprotective strategies, such as standalone ROCK inhibitors or autophagy inducers, typically target individual pathways but fail to address the complexity of disease progression. Our innovation introduces a novel class of therapeutic compounds that synergistically combine both mechanisms, enabling a broader, multi-target neuroprotective effect. This dual-action strategy represents a significant advancement over existing solutions, positioning our compounds as a promising advancement in the treatment of retinal degeneration.

Invention

Using a well-established mouse model carrying a human-relevant mutation that causes photoreceptor cell death, we found that treatment with the newly developed compounds preserved both photoreceptor cells and visual function.

These novel hybrid compounds induce mitophagy in retinal cells, reducing cell death and enhancing cellular resilience. In in vitro models, they outperformed individual components, showing a synergistic effect that protects photoreceptors where other treatments fail.

In mouse retinal explants exposed to sodium iodate, the compound also preserved retinal pigmented epithelial (RPE) cell viability, underscoring its potential to halt disease progression. Overall, this is a first-in-class therapeutic candidate with strong translational relevance and high industrial potential.



Fields of Application

Age-Related Macular Degeneration (AMD)
Retinal Degenerative Diseases
Retinitis Pigmentosa

Patent Status

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Publication

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