



Novel Therapeutic Combination for Improved Outcome in Various Intraocular Diseases

Howard University researchers have identified combinations of compound types for improving intraocular drug penetration, with potential to more effectively treat endophthalmitis and glaucoma

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Inventors

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Benefits/Features

Topically applied, easily administered.
Potentially improves ocular drug delivery in general, including in treatment-resistant situations.
Elements of composition in some cases already FDA-approved.

Potential Commercial Applications

Methods potentially improve delivery of a range of topical ocular therapeutics.

Stage of Development

Proof-of-concept established in human patient.
IND has been prepared.

Status

Seeking funding for IND, clinical trial and expansion of indications. Collaboration or licensing opportunity.

Background

Treatment of intraocular diseases is difficult because drug access to the anterior space of the eye is limited. When applied topically, therapeutics must traverse the cornea, which efficiently excludes compounds with tight junctions between cells as well as drug efflux channels on the surface of the cells. Only a small percentage of drug applied topically to the eye is ultimately available to treat a given eye disease, severely limiting efficacy of therapeutics targeted at the anterior space of the eye. This efficient exclusion of therapeutic compounds can make diseases such as endophthalmitis notoriously difficult to treat.

Description of Technology

Dr. Karla and colleagues have found that addition of a drug efflux inhibitor to a normal therapeutic regimen increases the availability of the therapeutic to the site of injury. The method has undergone extensive *in vitro* study and animal model tests, and is expected to be applicable to numerous types of disease including endophthalmitis and glaucoma. Proof-of-concept has been demonstrated in an eighty-seven year old patient suffering from severe endophthalmitis. The patient was non-responsive to standard antibiotic and corticosteroid topical / intra vitreal therapy. Treatment comprising topical application of an antibiotic and a multidrug resistance protein (MRP) inhibitor resulted in the marked improvement of the patient with a complete restoration of vision. The patient's condition began to improve within days of therapy and the patient's visual acuity remained fully restored (20/50) over a six month observation period. Lastly, the method may eventually also be applicable to retinal therapeutic delivery by topical administration.

Opportunity

The method and compositions for improving intraocular therapeutic delivery by inhibiting corneal / blood ocular barrier drug efflux channels is the subject of a patent application. The covered method includes multiple therapeutic and drug efflux inhibitor combinations. Howard University is seeking a development partner to further characterize compound combinations, and to partner in initial human studies. Dr. Karla is available to talk about the invention under a NDA.

