Method for Treating or Preventing Steroid-Induced Glaucoma

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Technology description

Glaucoma, the second leading cause of blindness worldwide, is characterized by elevated pressure in the eye, damage to the optic nerve head and progressive loss of vision. Following steroid treatment, 40 percent of patients exhibit increased intraocular pressure, a risk factor for glaucoma. Steroid responses in the eye are associated with changes in the actin cytoskeleton known as cross-linked actin networks (CLANs). The cross-linking and subsequent change in cell shape are likely to reduce the normal outflow of fluid from the trabecular meshwork in the eye, leading to increased intraocular pressure. UW-Madison researchers have developed a method of using integrin antagonists to reduce the incidence of CLAN structures in trabecular meshwork cells, thereby increasing the outflow of fluid. CLAN formation is regulated by signaling mechanisms mediated by integrin receptors. Integrin inhibitors may be administered to a patient undergoing steroid treatment to disrupt those signaling mechanisms. The inhibitors interfere with the binding of a steroid-induced activator to an integrin or with signal transduction to the trabecular meshwork cells, reducing CLAN formation and decreasing the risk of glaucoma.

Application area

Preventing or treating steroid-induced glaucoma

Advantages

May be administered as a prophylactic to patients receiving steroid therapy
Enables the continued use of steroids as a therapeutic
May be administered as eye drops

Institution

Wisconsin Alumni Research Foundation

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