

DenTimol

An improved delivery system for glaucoma therapy

Glaucoma affects millions of patients every year leading to severe pain and potential blindness. Current treatments consist of topical eye-drops that lead to reduced intra-ocular pressure, such as the beta-blocker timolol. Due to the poor bioavailability of traditional timolol eye-drops, a repeated and frequent dosing schedule leads to issues with patient compliance. In addition to low patient compliance, the rate of corneal penetration in direct dosing is relatively low and can be improved upon.

The technology

This invention consists of attaching the beta-blocker timolol to a nanoparticle vehicle as a novel glaucoma therapy. The nanoparticles allow for enhanced transportation across the mucus membrane, and a steady sustained release of medication to the inner eye. This invention could lead to a stronger release profile over time, allowing for a reduced dependency on patient compliance when treating glaucoma. In addition, increased corneal permeation could lead to high efficiencies and lower dosages. The figure below depicts the change in intraocular pressure in rats when administered using the delivery mechanism versus standard delivery.

This invention has been prototyped, and has been tested *in vivo*.

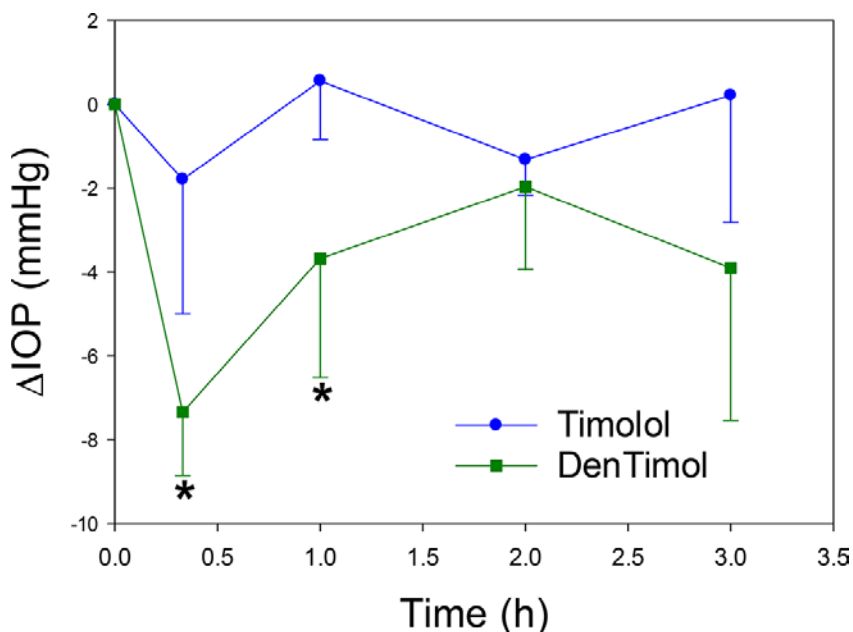


Figure 1. *In vivo* IOP-lowering assessment of DenTimol in normotensive rats after a one-time topical administration. *indicates $p < 0.05$ vs timolol PBS eye drops.

Benefits

- » Longer lasting drug release
- » Reduced dosing schedule
- » Improved patient adherence

Applications

- » Drug delivery system for glaucoma
- » Reduction of intraocular pressure

Patent status:

Patent pending; U.S. and foreign rights are available.

License status:

This technology is available for licensing to industry for further development and commercialization.

Category:

Biomedical

VCU Tech #:

17-006

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[Lancina, M. G., et al. \(2018\)](#)

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