

# Novel Intra-Ocular Pressure Regulating Device

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## Technology description

The current invention proposes a novel intra-ocular pressure regulating device to aid in current glaucoma research and to treat human eye conditions such as hypotony (low eye pressure) which when chronic, can lead to debilitating loss of vision. This is based on a novel eye pressure regulated animal model of reversible elevated eye pressure to mimic human glaucoma. Advantages: Current animal models of glaucoma such as those induced in monkeys utilizing laser application to the outflow pathway to destroy it in an effort to raise intra-ocular pressure are not reproducible. They often require more than one session to raise the eye pressure and are not predictable with respect to either the duration or height of that elevation. Additionally, such destruction of the outflow pathway does not mimic human glaucoma. The proposed device enables researchers to raise the eye pressure deliberately by a controlled means to identify early pathways of dysfunction thereby enabling targeted drug delivery to avert further damage. All of this can be assessed in vivo from a healthy eye to early, moderate, and advanced damage. All existing treatments in glaucoma focus primarily on lowering eye pressure by medical, surgical, or laser means. An understanding of the sequence of events unfolding in vivo by elevating eye pressure in a controlled manner will aid in developing better therapeutic strategies in treating glaucoma.

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