

# A Technique for the Visualization and Quantification of Aqueous Humor Outflow in the Eye

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## Technology description

Background Glaucoma is the second leading cause of irreversible blindness worldwide. The primary risk factor for the diagnosis and progression of glaucoma is elevated intraocular pressure (IOP), which is regulated by a balance between the production and uptake of aqueous humor.

### Technology

This invention is a technique for the non-invasive visualization and quantification of the primary pathway of aqueous humor outflow in the human eye (Virtual Castings). Volumetric circumferential scans of the limbus were obtained via SD-OCT (any scan containing structure and Doppler data will suffice). Scan data is then adjusted so that the gray scale presentation features outflow vessels as white structure on a dark background. A rolling ball background subtraction algorithm is then applied, and then contrast adjusted to isolate the outflow vessels. Individual processed volumes are stitched together to provide a perilimbal view of outflow structures. Terminal branches in the outflow vascular network are identified, and Doppler within those structures is measured. Doppler and cross-sectional assessments are combined to calculate flow in each terminal branch of the outflow network. Total aqueous humor outflow is determined by integrating flow across all identified terminal outflow structures.\* Diagnosis of glaucoma\* First known technique to provide non-invasive direct measurement of aqueous outflow in the primary outflow pathway in the human eye. Software code written and successfully tested in vitro PCT Patent Application filed

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