



The Role of Mitochondria in Glaucoma

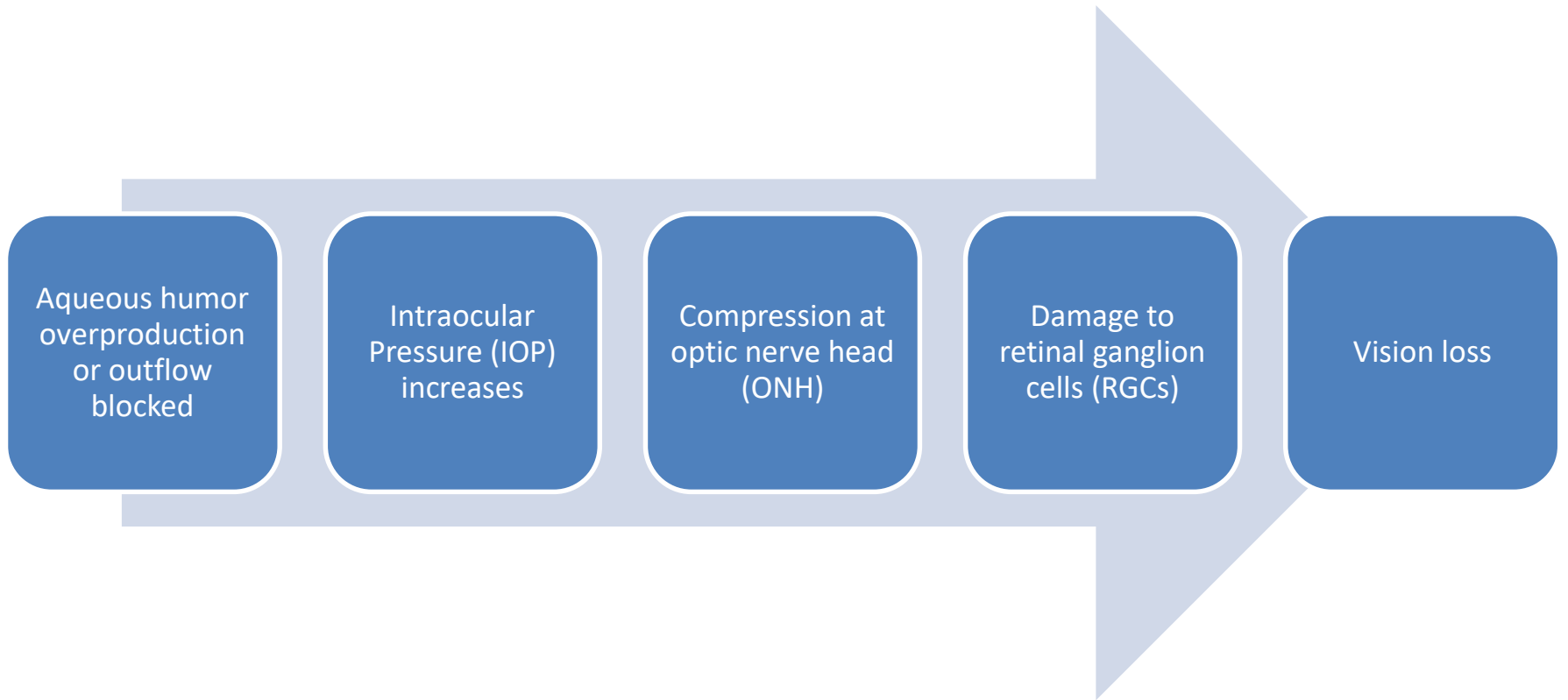
By Liliana Bogin

Phil Horner, PhD

Denise Inman, PhD

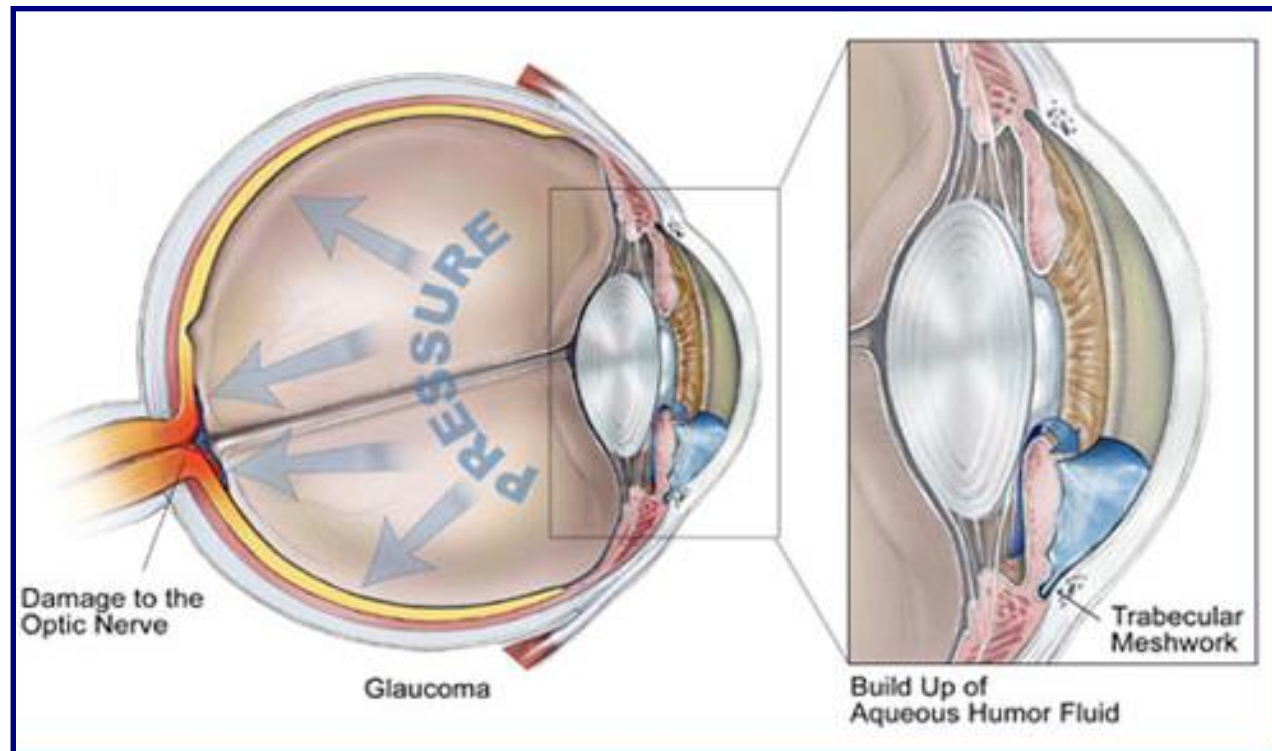
Theory

Blocked flow of aqueous humor leads to vision loss

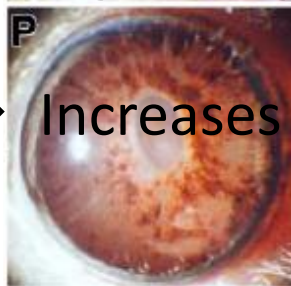
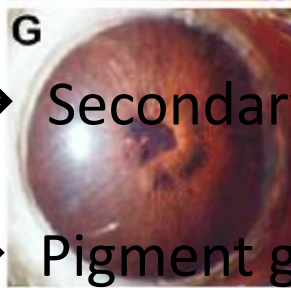


Theory

Blocked flow of aqueous humor leads to vision loss



Model Glaucoma in Mice:



Mice with pigment dispersion disease

→ Secondary form of Glaucoma

→ Pigment gets caught in trabecular meshwork

→ Increases IOP



Axons

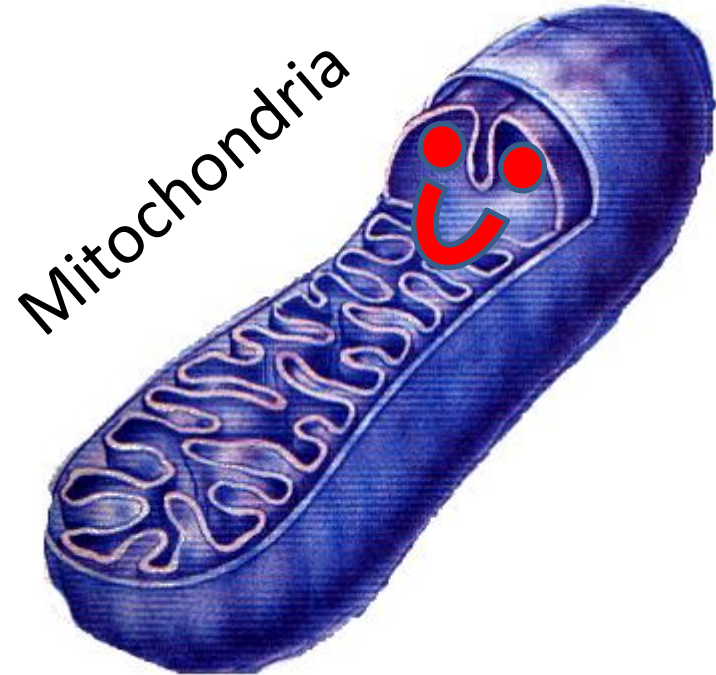
- RGC axons form optic nerve
- Axon conduction is lost early with Glaucoma. This is seen in tests when high energy input leads to low potential vision.
- This leads to the question: *Is the axon the source of the problem?*
- Axons are simply made up of neurofilaments, mitochondria, and other organelle traffic.
- *Are mitochondria the problem in the axons?*



Role of Mitochondria

Mitochondria produce ATP which creates the energy in axons.

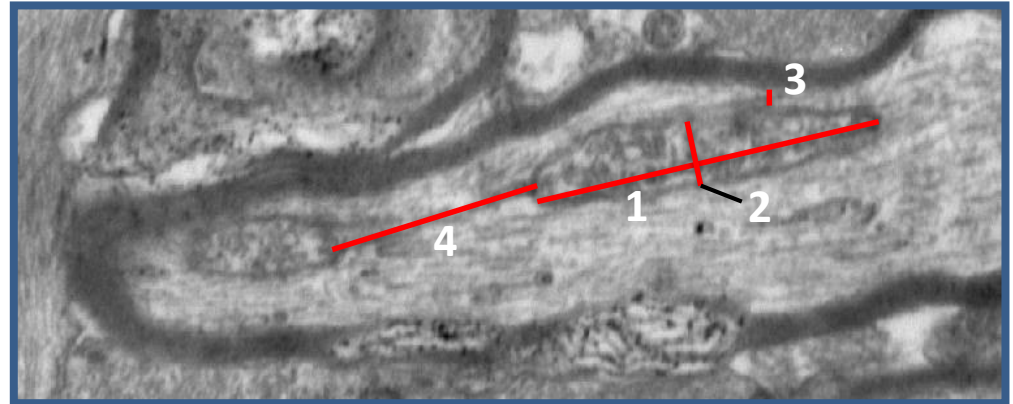
This energy is used to open and close the ion channels which allow transmissions through the nerve, which is the signaling for vision.



Optic Nerve Analysis of Mitochondria

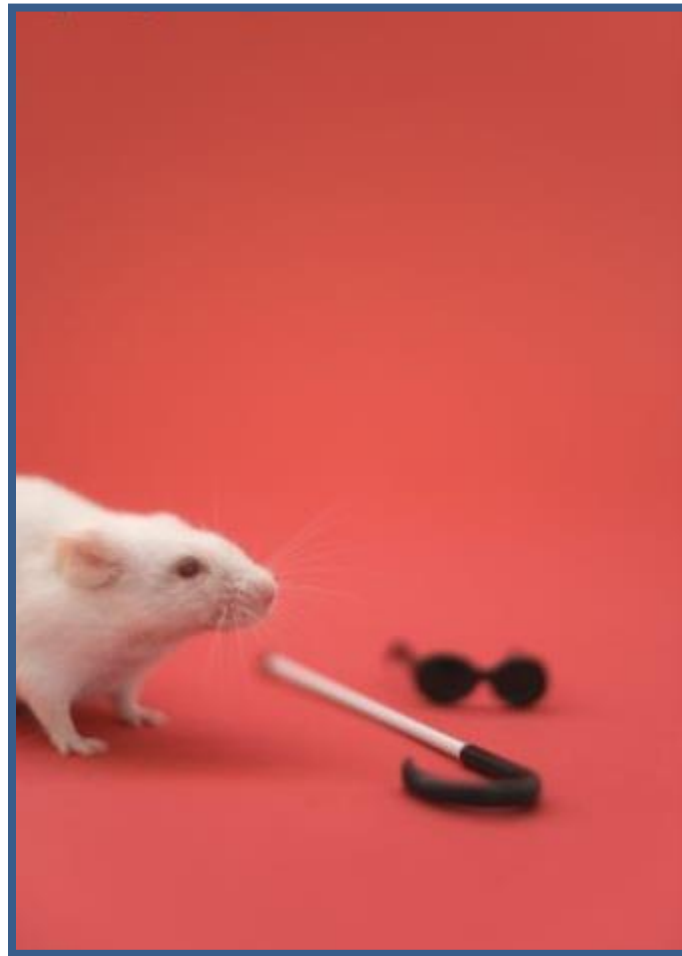
Measure

1. Length
2. Width
3. Distance from myelin
4. Distance to neighbor



Goal: Determine health of mitochondria through examination of cristae and membrane

Findings



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mitochondria in
ucoma, which
with the low

nents are
o understand
ria are the
problem or a
of glaucoma.

Any Questions?