

Statins may be used to treat primary open-angle glaucoma (POAG) associated with lower ABCA1 expression

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Acute angle closure glaucoma of the right eye (intraocular pressure was 42 in the right eye). Credit: James Heilman, MD/Wikipedia

Glaucoma is an irreversible blinding eye disease characterized by progressive ganglion cell death. To date, IOP control has been almost the only clinical option for the treatment of POAG. However, visual field damage continues to progress after lowering IOP in most patients, suggesting the existence of more complex pathogenic mechanisms in glaucoma.

Recently, a collaboration between Academician Yang Zhenglin and Professor Zhang Houbin of Sichuan Provincial People's Hospital affiliated with the University of Electronic Science and Technology

revealed the important role of cholesterol metabolic homeostasis in the pathogenesis of glaucoma and rescued the ganglion cells of ABCA1 knockout mice after lowering intracellular cholesterol with statin, which provides a new idea for the treatment of glaucoma.

In the previous study, academician Yang Zhenglin's team found through genome-wide association analysis that there may be a link between primary open-angle glaucoma and the function of ABCA1 gene. Next, he and Prof. Houbin Zhang further demonstrated that ABCA1 [gene expression](#) was reduced and HDL formation was decreased in patients with open-angle glaucoma; meanwhile, using ABCA1-deficient [knockout mice](#) and ABCA1 overexpressing [transgenic mice](#), they revealed the mechanism of cholesterol metabolism disorder caused by ABCA1 deficiency in [glaucoma](#) and explored the corresponding therapeutic strategies.

The research was published in *Science China Life Sciences*.

More information: Jialiang Yang et al, Cholesterol homeostasis regulated by ABCA1 is critical for retinal ganglion cell survival, *Science China Life Sciences* (2022). [DOI: 10.1007/s11427-021-2126-2](https://doi.org/10.1007/s11427-021-2126-2)

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