

# Plasma metabolite profile for primary open-angle glaucoma in three US cohorts and the UK Biobank

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Glaucoma is a progressive optic neuropathy and a leading cause of irreversible blindness worldwide. Primary open-angle glaucoma is the most common form, and yet the etiology of this multifactorial disease is poorly understood. We aimed to identify plasma metabolites associated with the risk of developing POAG in a case-control study (599 cases and 599 matched controls) nested within the Nurses' Health Studies, and Health Professionals' Follow-Up Study. Plasma metabolites were measured with LC-MS/MS at the Broad Institute (Cambridge, MA, USA) ; 369 metabolites from 18 metabolite classes passed quality control analyses.

For comparison, in a cross-sectional study in the UK Biobank, 168 metabolites were measured in plasma samples from 2,238 prevalent glaucoma cases and 44,723 controls using NMR spectroscopy (Nightingale, Finland; version 2020) . Here we show higher levels of diglycerides and triglycerides are adversely associated with glaucoma in all four cohorts, suggesting that they play an important role in glaucoma pathogenesis.

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