

## Description of Additional Supplementary Files

**File Name:** Supplementary Data 1

**Description:** Effect estimates for genome-wide independent loci resulting from the first stage of the meta-analysis (including European data from the International Glaucoma Consortium (IGGC), UK Biobank (UKB), Canadian Longitudinal Study on Aging (CLSA), and Vertical cup-to-disc ratio (VCDR)) and effect estimates of the same loci for NTG in IGGC Asians and FinnGen.

**File Name:** Supplementary Data 2

**Description:** Effect estimates for genome-wide independent loci resulting from the second stage of the meta-analysis (including first-stage results, IGGC Asians, and FinnGen), and effect estimates of the same loci for intraocular pressure (IOP), primary open-angle glaucoma (POAG), vertical cup-to-disc ratio (VCDR), high-tension glaucoma (HTG), and FinnGen normotensive glaucoma.

**File Name:** Supplementary Data 3

**Description:** Annotation of the second-stage meta-analysis genome-wide independent loci based on mBAT-combo results.

**File Name:** Supplementary Data 4

**Description:** Drug-gene interactions based on the Drug-Gene Interaction Database (DGIdb).

**File Name:** Supplementary Data 5

**Description:** SMR analysis results from single-cell expression.

**File Name:** Supplementary Data 6

**Description:** SMR analysis results from bulk tissue.

**File Name:** Supplementary Data 7

**Description:** Figure 1 data

**File Name:** Supplementary Data 8

**Description:** Figure 2 data

**File Name:** Supplementary Data 9

**Description:** Figure 3 data