

**Table S7. Association analysis results for 127-variant POAG GRS and IGS type in the MVP.** We performed logistic regression-based association analyses of GRS and different IGS case groups including (i) individuals who only had trabeculectomies documented in their EHR, (ii) individuals who only had GDI documented in their EHR, and (iii) individuals who had either trabeculectomies or GDI documented in their EHR. Adjusted models include covariates for age, sex, and 10 principal components. GRS were unweighted or weighted by published cross-ancestry meta-analysis or ancestry-specific effect estimates.

Outcome	Model	GRS Type	African Ancestry				European Ancestry			
			Estimate	Std. Error	z value	P	Estimate	Std. Error	z value	P
Trabeculectomy	Unadjusted	Unweighted	0.18	0.093	1.931	0.0534	0.153	0.098	1.557	0.1195
		Cross-ancestry meta-analysis	0.183	0.093	1.97	0.0488	0.157	0.096	1.626	0.104
		Ancestry-specific	0.254	0.094	2.699	0.0069	0.183	0.095	1.922	0.0546
	Adjusted	Unweighted	0.147	0.097	1.52	0.1286	0.156	0.099	1.578	0.1145
		Cross-ancestry meta-analysis	0.151	0.096	1.569	0.1167	0.161	0.096	1.681	0.0927
		Ancestry-specific	0.276	0.096	2.869	0.0041	0.185	0.094	1.96	0.05
GDI	Unadjusted	Unweighted	0.101	0.085	1.187	0.2353	0.319	0.082	3.863	0.000112
		Cross-ancestry meta-analysis	0.108	0.085	1.27	0.204	0.337	0.079	4.274	1.92 x 10 <sup>-5</sup>
		Ancestry-specific	0.239	0.086	2.781	0.0054	0.345	0.077	4.469	7.87 x 10 <sup>-6</sup>
	Adjusted	Unweighted	0.09	0.087	1.036	0.3	0.313	0.083	3.751	0.000176
		Cross-ancestry meta-analysis	0.092	0.087	1.055	0.2913	0.338	0.079	4.25	2.14 x 10 <sup>-5</sup>
		Ancestry-specific	0.243	0.087	2.793	0.0052	0.345	0.078	4.43	9.44 x 10 <sup>-6</sup>
Any IGS	Unadjusted	Unweighted	0.123	0.071	1.743	0.0814	0.248	0.07	3.563	0.000367
		Cross-ancestry meta-analysis	0.129	0.07	1.838	0.066	0.265	0.068	3.927	8.61 x 10 <sup>-5</sup>
		Ancestry-specific	0.216	0.071	3.036	0.0024	0.276	0.067	4.14	3.48 x 10 <sup>-5</sup>
	Adjusted	Unweighted	0.109	0.073	1.495	0.1349	0.244	0.07	3.473	0.000515
		Cross-ancestry meta-analysis	0.114	0.073	1.561	0.1185	0.265	0.068	3.909	9.27 x 10 <sup>-5</sup>
		Ancestry-specific	0.226	0.072	3.121	0.0018	0.274	0.067	4.102	4.09 x 10 <sup>-5</sup>

**Abbreviations:** POAG = primary open-angle glaucoma, IGS = invasive glaucoma surgeries, MVP = Million Veteran Program, GDI = glaucoma drainage implants, Any IGS = trabeculectomy or GDI.