

Supplementary Table 6. Index variant phenome-wide association scans (PheWAS).

For each FECD index variant, significantly associated phenotypes in the Million Veteran Program.

EA, effect allele; NEA, non-effect allele; EAF, effect allele frequency; SE, standard error; LP, -log₁₀(P).

SNP	Gene	EA	NEA	EAF	Phenotype	Type	Category	Beta	SE	LP	N	N_case	N_control
rs11590557	SSBP3	A	G	0.035	Fuchs' dystrophy		Phecode Sense Organs	0.4257	0.0685	8.558	455,791	3,512	452,279
rs11590557	SSBP3	A	G	0.035	Corneal dystrophy		Phecode Sense Organs	0.2786	0.0557	5.903	454,102	6,015	448,087
rs11590557	SSBP3	A	G	0.035	Open-angle glaucoma		Phecode Sense Organs	-0.0981	0.0222	5.892	440,831	57,004	383,827
rs79742895	KANK4	C	T	0.042	Fuchs' dystrophy		Phecode Sense Organs	0.5364	0.0552	19.155	455,791	3,512	452,279
rs79742895	KANK4	C	T	0.042	Corneal dystrophy		Phecode Sense Organs	0.3548	0.0456	13.589	454,102	6,015	448,087
rs79742895	KANK4	C	T	0.042	Corneal opacity and other disorders of cornea		Phecode Sense Organs	0.1958	0.0352	7.649	446,907	11,701	435,206
rs1200114	ATP1B1	A	G	0.649	Fuchs' dystrophy		Phecode Sense Organs	-0.2856	0.0258	27.968	455,791	3,512	452,279
rs1200114	ATP1B1	A	G	0.649	Corneal dystrophy		Phecode Sense Organs	-0.2151	0.0199	26.879	454,102	6,015	448,087
rs1200114	ATP1B1	A	G	0.649	Corneal opacity and other disorders of cornea		Phecode Sense Organs	-0.1252	0.0146	17.690	446,907	11,701	435,206
rs4652778	LAMC1	T	C	0.552	Height (mean, inv-normal transformed)		Vitals Vitals	-0.0511	0.0028	72.797	431,043	NA	NA
rs4652778	LAMC1	T	C	0.552	What is your height? (cm, inv-normal transformed)		Survey Baseline Survey: Vitals	-0.0401	0.0031	36.633	286,863	NA	NA
rs4652778	LAMC1	T	C	0.552	What is your height? (cm)		Survey Baseline Survey: Vitals	-0.3201	0.0253	36.009	286,863	NA	NA
rs4652778	LAMC1	T	C	0.552	Benign neoplasm of colon		Phecode Neoplasms	-0.0349	0.0050	14.640	401,670	126,540	275,130
rs4652778	LAMC1	T	C	0.553	Fuchs' dystrophy		Phecode Sense Organs	-0.1925	0.0243	14.528	455,791	3,512	452,279
rs4652778	LAMC1	T	C	0.553	Acne		Phecode Dermatological System	-0.1225	0.0188	10.179	449,890	6,048	443,842
rs4652778	LAMC1	T	C	0.553	Cerebrovascular disease		Phecode Circulatory System	0.0342	0.0061	7.947	426,074	70,734	355,340
rs4652778	LAMC1	T	C	0.553	Total cholesterol (mean, inv-norm transformed)		Labs Labs	0.0143	0.0025	7.693	403,897	NA	NA
rs4652778	LAMC1	T	C	0.552	Colon Polyps		Survey Baseline Survey: Disease Diag	-0.0317	0.0061	7.504	319,635	74,480	245,155
rs4652778	LAMC1	T	C	0.552	GERD		Phecode Digestive System	-0.0211	0.0045	7.211	419,246	178,556	240,690
rs4652778	LAMC1	T	C	0.552	Eosinophil (fraction, mean, inv-norm transformed)		Labs Labs	0.0160	0.0030	7.173	340,956	NA	NA
rs4652778	LAMC1	T	C	0.552	Esophagitis, GERD and related diseases		Phecode Digestive System	-0.0211	0.0045	7.124	419,941	188,098	231,843
rs4652778	LAMC1	T	C	0.553	Corneal dystrophy		Phecode Sense Organs	-0.0983	0.0187	6.802	454,102	6,015	448,087
rs4652778	LAMC1	T	C	0.553	Low density lipoprotein cholesterol (LDLC, mean, inv-norm transformed)		Labs Labs	0.0130	0.0025	6.626	411,070	NA	NA
rs4652778	LAMC1	T	C	0.552	Diabetic retinopathy		Phecode Endocrine or Metabolic	0.0437	0.0087	6.600	439,076	30,095	408,981
rs4652778	LAMC1	T	C	0.552	Diseases of esophagus		Phecode Digestive System	-0.0192	0.0045	6.163	419,810	192,209	227,601
rs4652778	LAMC1	T	C	0.552	Coronary atherosclerosis		Phecode Circulatory System	0.0228	0.0051	5.750	431,153	125,857	305,296
rs74882680	THSD7A	G	A	0.016	Fuchs' dystrophy		Phecode Sense Organs	0.6382	0.0985	9.064	455,791	3,512	452,279
rs74882680	THSD7A	G	A	0.016	Corneal dystrophy		Phecode Sense Organs	0.4840	0.0803	8.395	454,102	6,015	448,087
rs150990106	LAMB1	A	G	0.015	Corneal dystrophy		Phecode Sense Organs	0.5350	0.0614	15.702	454,102	6,015	448,087
rs150990106	LAMB1	A	G	0.015	Fuchs' dystrophy		Phecode Sense Organs	0.5827	0.0781	11.167	455,791	3,512	452,279
rs150990106	LAMB1	A	G	0.015	Corneal opacity and other disorders of cornea		Phecode Sense Organs	0.3259	0.0488	10.292	446,907	11,701	435,206
rs150990106	LAMB1	A	G	0.015	Heart rate (HR, mean, inv-normal transformed)		Vitals Vitals	0.0710	0.0112	9.696	432,517	NA	NA
rs6597981	PIDD1	G	A	0.506	Platelet count (mean, inv-norm transformed)		Labs Labs	0.0226	0.0030	13.682	413,519	NA	NA
rs6597981	PIDD1	G	A	0.506	Fuchs' dystrophy		Phecode Sense Organs	0.1725	0.0256	10.865	455,791	3,512	452,279
rs6597981	PIDD1	G	A	0.506	Corneal dystrophy		Phecode Sense Organs	0.1189	0.0196	8.970	454,102	6,015	448,087
rs6597981	PIDD1	G	A	0.506	Aspartate aminotransferase (AST, mean, inv-norm transformed)		Labs Labs	-0.0145	0.0027	6.981	395,443	NA	NA
rs6597981	PIDD1	G	A	0.506	Height (mean, inv-normal transformed)		Vitals Vitals	-0.0147	0.0029	6.303	431,043	NA	NA
rs6597981	PIDD1	G	A	0.506	Body mass index (BMI, mean, inv-normal transformed)		Vitals Vitals	0.0142	0.0030	5.661	430,960	NA	NA
rs12439253	RORA	T	G	0.087	Fuchs' dystrophy		Phecode Sense Organs	0.1909	0.0406	5.708	455,791	3,512	452,279
rs9303111	HS3ST3B1	C	A	0.281	Fuchs' dystrophy		Phecode Sense Organs	-0.1826	0.0284	10.150	455,791	3,512	452,279
rs9303111	HS3ST3B1	C	A	0.281	Obesity		Phecode Endocrine or Metabolic	0.0227	0.0051	6.320	420,341	172,191	248,150
rs11659764	TCF4	A	T	0.045	Fuchs' dystrophy		Phecode Sense Organs	1.7990	0.0327	#####	455,791	3,512	452,279
rs11659764	TCF4	A	T	0.045	Corneal dystrophy		Phecode Sense Organs	1.2990	0.0289	#####	454,102	6,015	448,087
rs11659764	TCF4	A	T	0.046	Corneal opacity and other disorders of cornea		Phecode Sense Organs	0.8770	0.0242	#####	446,907	11,701	435,206
rs11659764	TCF4	A	T	0.046	Cornea replaced by transplant		Phecode Sense Organs	1.3100	0.0615	72.952	458,296	1,212	457,084
rs11659764	TCF4	A	T	0.046	Bicarbonate (mean, inv-norm transformed)		Labs Labs	0.1065	0.0064	61.156	418,978	NA	NA
rs11659764	TCF4	A	T	0.046	Corneal edema		Phecode Sense Organs	0.9397	0.0570	47.846	456,556	1,841	454,715
rs11659764	TCF4	A	T	0.046	Chloride (mean, inv-norm transformed)		Labs Labs	-0.0550	0.0055	23.041	419,034	NA	NA
rs11659764	TCF4	A	T	0.046	Potassium (mean, inv-norm transformed)		Labs Labs	0.0363	0.0061	8.540	428,206	NA	NA
rs11659764	TCF4	A	T	0.046	Cataracts		Survey Baseline Survey: Disease Diag	0.0883	0.0149	8.280	319,635	91,784	227,851
rs11659764	TCF4	A	T	0.046	Platelet count (mean, inv-norm transformed)		Labs Labs	-0.0372	0.0070	6.896	413,519	NA	NA
rs11659764	TCF4	A	T	0.046	Monocyte (absolute count, mean, inv-norm transformed)		Labs Labs	-0.0426	0.0082	6.713	263,452	NA	NA
rs11659764	TCF4	A	T	0.046	Actinic keratosis		Phecode Dermatological System	0.0705	0.0134	6.542	418,798	98,330	320,468
rs11659764	TCF4	A	T	0.046	Neutrophil (absolute count, mean, inv-norm transformed)		Labs Labs	-0.0346	0.0073	5.682	279,193	NA	NA
rs141208202	LAMA5	T	C	0.038	Corneal dystrophy		Phecode Sense Organs	0.3422	0.0525	9.904	454,102	6,015	448,087
rs141208202	LAMA5	T	C	0.038	Benign neoplasm of colon		Phecode Neoplasms	0.0699	0.0156	5.875	401,670	126,540	275,130
rs141208202	LAMA5	T	C	0.038	Fuchs' dystrophy		Phecode Sense Organs	0.3350	0.0685	5.803	455,791	3,512	452,279
rs114065856	COL18A1	T	C	0.033	Fuchs' dystrophy		Phecode Sense Organs	-0.4934	0.0862	7.872	455,791	3,512	452,279
rs114065856	COL18A1	T	C	0.033	Corneal dystrophy		Phecode Sense Organs	-0.3141	0.0609	6.623	454,102	6,015	448,087