

Supplemental Table 2. Gene-based analysis suggestive signals (P<1.0E-04).

phenotype	gene	N	pval	no. site	beta	se	direction.burden .by.study	direction.meta .single.var	test
ADP high 1	ABCG1	3275	3.49E-6	2	-2.417	0.498	--=	--	VT
Epi high 1	ZNF197	2730	7.06E-6	4	1.196	0.258	++=	++++	VT
Collagen 1	SPATA4	3753	1.02E-5	1	1.598	0.131	=+=	+	VT
Collagen 2	SPATA4	3753	1.02E-5	1	1.598	0.131	=+=	+	VT
Collagen 10	SPATA4	3742	1.02E-5	1	1.598	0.131	=+=	+	VT
Collagen 3	SPATA4	3753	1.02E-5	1	1.598	0.131	=+=	+	VT
Collagen 1	SPATA4	3753	1.02E-5	1	1.598	0.131	=+=	+	SKA T
Collagen 2	SPATA4	3753	1.02E-5	1	1.598	0.131	=+=	+	SKA T
Collagen 10	SPATA4	3742	1.02E-5	1	1.598	0.131	=+=	+	SKA T
Collagen 3	SPATA4	3753	1.02E-5	1	1.598	0.131	=+=	+	SKA T
ADP high 1	TPR	3275	1.22E-5	10	-0.019	0.119	+-=	-+---++	SKA T
ADP high 2	ZNF610	3794	1.58E-5	5	-0.292	0.086	-+-	---+-	SKA T
ADP low 2	ZNF25	3697	1.87E-5	1	2.963	0.479	+=	+	VT
ADP low 2	ZNF25	3697	1.87E-5	1	2.963	0.479	+=	+	SKA T
Epi high 1	LAPTM4 B	2730	1.87E-5	5	1.356	0.306	++=	+++++	VT
ADP low 1	ANKRD2 6	4047	2.07E-5	12	0.343	0.103	-+=	+++---++	SKA T
Collagen 10	COL4A2	3742	2.28E-5	11	-0.708	0.159	--=	-----	VT
ADP low 1	ABCC9	4047	2.39E-5	4	1.629	0.363	++=	++++	VT
Collagen 1	HAUS3	3753	3.68E-5	3	-1.623	0.364	--=	---	VT
ADP low 1	MICU1	4047	4.06E-5	2	-1.538	0.382	--=	--	SKA T
Epi high 1	SLCO2B1	2730	4.09E-5	7	-0.369	0.285	-+=	++---+	SKA T
Epi high 1	ZNF197	2730	4.63E-5	4	1.196	0.258	++=	++++	SKA T
ADP high 1	ZNF610	3275	5.61E-5	6	-0.320	0.089	-+-	---+-	SKA T
ADP high 2	LEFTY1	3794	6.13E-5	1	1.422	0.126	++=	+	VT
ADP high 2	LEFTY1	3794	6.13E-5	1	1.422	0.126	++=	+	SKA T
Epi high 1	RLBP1	2730	6.85E-5	3	0.969	0.272	+++	-++	SKA T
Collagen 1	SLC6A16	3753	7.04E-5	13	0.329	0.108	+++	+++---++	SKA T
Epi low 2	ASIC5	3797	7.21E-5	9	-0.898	0.211	+-=	-----+	VT

ADP high 1	DDX60	3275	7.52E-5	8	0.584	0.175	++=	++++---++	SKA T
Epi high 2	RLBP1	3798	8.20E-5	3	0.981	0.238	+++	+++	VT
ADP high 1	RAB25	3275	8.25E-5	3	-1.118	0.299	=--	+--	SKA T
Epi high 1	TXNIP	2730	8.39E-5	1	-2.891	0.706	=--	-	VT
Epi low 2	DYNC2H 1	3797	8.52E-5	20	0.821	0.187	++=	-+++++++++- +-----++	VT
ADP high 2	GJA9	3794	8.90E-5	3	1.734	0.414	++=	+++	VT
Epi high 1	DIRC1	2730	8.91E-5	3	-0.558	0.137	---	---	SKA T
Epi high 1	RLBP1	2730	9.32E-5	2	1.198	0.295	+++	++	VT
ADP low 1	SLC6A17	4047	9.54E-5	3	2.343	0.577	=+=	+++	VT
Epi low 2	LIM2	3797	9.60E-5	3	1.199	0.289	++=	+++	VT