

Supplementary Table 2: Disease –susceptibility genes with evidence of regulatory SNPs in CD4+ lymphocytes

Gene	eSNP	eSNP association p-value	% Expression Variance Explained	Trait-associated SNP	Linkage Disequilibrium		Trait	Trait-association p-value	PubMedID
					D'	r2			
ABCC4	rs2487566	3.65E-05	-0.093	rs1926657	0.482	0.045	Breast cancer	2.00E-06	17903305
ABO	rs657152	5.56E-04	-0.064	rs657152	1	1	Serum alkaline phosphatase	2.00E-30	18940312
	rs505922	4.26E-05	-0.088	rs505922	1	1	TNF-alpha levels	7.00E-40	18464913
	rs11244079	4.96E-06	-0.107	rs507666	NA	NA	Venous thromboembolism	4.00E-15	19278955
ACP5	rs3760780	2.92E-07	-0.134	rs7253363	1	0.033	Soluble ICAM-1	5.00E-29	18604267
ADCY3	rs10182181	5.38E-08	-0.151	rs6733301	0.803	0.094	Multiple sclerosis (severity)	9.00E-06	19010793
AFF3	rs6706188	2.26E-08	-0.151	rs9653442	0.946	0.235	Height	8.00E-07	18391951
ALPL	rs10917023	3.16E-05	0.091	rs4654748	NA	NA	Type 1 diabetes	5.00E-06	17554260
				rs1780324	NA	NA	Folate pathway vitamins Liver enzymes	8.00E-18	19303062
				rs7333181	NA	NA	7.00E-15	18940312	
ARHGEF7	rs2477471	7.16E-05	-0.083	rs4773330	NA	NA	Menopause (age at onset)	3.00E-08	19448619
ATG16L1	rs11894529	3.30E-04	-0.067	rs2241880	0.912	0.321	Serum bilirubin levels	8.00E-06	19414484
				rs10210302	NA	NA	Crohn's disease	1.00E-13	17435756
				rs3828309	NA	NA	5.00E-14	17554300	
				rs10919071	1	1	2.00E-32	18587394	
ATP1B1	rs10919071	3.51E-24	0.458	rs10919071	1	1	QT interval	1.00E-15	19305409
ATXN3	rs17127945	4.29E-04	0.065	rs7153027	1	0.313	Height	1.00E-10	18391951
				rs8007661	NA	NA	6.00E-10	18391950	
B3GALT4	rs9277965	3.76E-06	-0.128	rs2254287	NA	NA	LDL cholesterol	5.00E-08	18193043
BCR	rs2156921	1.11E-05	0.1	rs5751614	0.536	0.167	Height	6.00E-06	18391951
BDNF	rs10835211	1.06E-05	0.097	rs925946	0.97	0.711	Body mass index, Weight	9.00E-10	19079260
				rs7481311	NA	NA	8.00E-06		
				rs6265	1	0.091	5.00E-10		
BLK	rs13277113	2.83E-07	0.136	rs13277113	1	1	SLE	1.00E-10	18204098
BRDG1	rs3775867	1.54E-05	-0.097	rs2242330	1	0.03	Parkinson's disease	2.00E-06	17052657
C1QTNF4	rs10838738	7.36E-08	-0.151	rs10838738	1	1	Body mass index	5.00E-09	19079261
C12orf43	rs2254779	6.22E-10	-0.2	rs2259816	0.793	0.03	Coronary artery disease	5.00E-07	19198612
C16orf75	rs7191700	2.15E-16	0.311	rs1169313	0.793	0.03	Plasma levels of liver enzymes	2.00E-10	18940312
				rs416603	0.822	0.513	Type 1 diabetes	3.00E-06	18978792
C1QTNF6	rs12170612	1.98E-04	-0.073	rs229541	0.089	0.002	Type 1 diabetes	2.00E-08	18978792
CAMK4	rs7709420	1.76E-05	-0.098	rs10491334	0.247	0.005	Blood pressure	2.00E-07	19430480
CCL20	rs11694155	1.71E-08	-0.161	rs7591163	0.446	0.013	Blood pressure	4.00E-06	17903302
CDKAL1	rs10946439	6.51E-05	-0.09	rs6908425	NA	NA	Crohn's disease	9.00E-10	18587394
				rs7756992	NA	NA	Type 2 diabetes	8.00E-09	17460697
				rs7754840	NA	NA	4.00E-11	17463246	
				NA	NA	NA	4.00E-11	17463248	
				rs10946398	NA	NA	4.00E-11	17463249	
				rs9465871	NA	NA	3.00E-07	17554300	
				rs6931514	NA	NA	1.00E-11	18372903	
				rs4712524	NA	NA	3.00E-10	18711366	
				rs4712523	NA	NA	7.00E-20	19401414	
				rs8034191	0.966	0.429	COPD	1.00E-10	19300482
CHRNA5	rs2292117	7.02E-08	-0.154	rs8034191	0.966	0.429	Lung cancer	3.00E-18	18385676
							5.00E-20	18385738	
							1.00E-08	18780872	
							6.00E-20	18385739	
CLECL1	rs3764021	1.04E-09	-0.182	rs3764021	1	1	Nicotine dependence	5.00E-08	17554300
							2.00E-11	19430480	
CLYBL	rs4763879	2.43E-05	-0.094	rs4763879	1	1	Type 1 diabetes	5.00E-08	17554300
							2.00E-11	19430480	
COBL	rs7982561	3.45E-04	0.071	rs7992643	NA	NA	ADHD	5.00E-06	18821565
COG6	rs2329674	6.42E-04	0.062	rs4948088	NA	NA	Type 1 diabetes	4.00E-08	19430480
COG6	rs3812882	2.64E-05	0.097	rs7993214	0.864	0.258	Psoriasis	2.00E-06	18369459
CUBN	rs7916688	6.43E-04	0.061	rs11254363	0.25	0.01	Folate pathway vitamins	1.00E-06	19303062
DCTN5	rs420259	6.41E-07	0.127	rs420259	1	1	Bipolar disorder	6.00E-08	17554300

Gene	eSNP	eSNP association p-value	% Expression Variance Explained	Trait-associated SNP	Linkage Disequilibrium		Trait	Trait-association p-value	PubMedID
					D'	r2			
DGKE	rs970718	9.92E-05	-0.079	rs4794665	1	0.151	Height	1.00E-07	18391951
DGKQ	rs11724804	1.79E-19	-0.356	rs1564282	1	0.089	Parkinson disease (familial)	7.00E-07	18985386
DOCK7	rs10889353	1.57E-05	-0.099	rs10889353	1	1	Triglycerides	3.00E-07	19060906
	rs1167998	1.97E-05	-0.098	rs1167998	1	1	LDL and total cholesterol	4.00E-12	19060911
DOT1L	rs10407022	2.62E-04	-0.07	rs12986413	0.13	0.003	Triglycerides	2.00E-12	19060911
EDG7	rs12567433	3.84E-05	-0.095	rs1983853	NA	NA	Height	3.00E-08	18391950
EDN3	rs259956	6.73E-05	-0.086	rs16982520	0.089	0.001	Type 1 diabetes	2.00E-06	18840781
EPS8	rs3748299	3.22E-05	-0.094	rs17415853	NA	NA	Hypertension	2.00E-07	19430479
FADS1	rs174546	1.32E-05	0.093	rs174546	1	1	Serum Ferritin level	7.00E-07	18464913
FADS2	rs174546	4.58E-06	0.11	rs174546	1	1	LDL cholesterol	1.00E-07	19060910
FAM113B	rs214697	4.67E-05	0.09	rs11610206	0.896	0.119	LDL cholesterol	1.00E-07	19060910
FBLN5	rs2284340	4.08E-07	-0.137	rs17153027	0.556	0.191	Alzheimer's disease	3.00E-07	19118814
FLJ43752	rs210138	3.73E-06	0.111	rs210138	1	1	Height	1.00E-10	18391951
GATM	rs1346268	3.44E-04	0.067	rs2467853	NA	NA	Testicular germ cell tumor	1.00E-13	19483681
GSDML	rs7216389	5.30E-05	0.083	rs7216389	1	1	Renal function and chronic kidney disease	6.00E-14	19430482
	rs2872507	3.20E-05	0.088	rs2872507	1	1	Asthma	9.00E-11	17611496
	rs2290400	4.07E-06	0.108	rs2290400	1	1	Crohn's disease	5.00E-09	18587394
HERC2	rs8039195	1.44E-04	-0.073	rs12913832	NA	NA	Type 1 diabetes	6.00E-13	19430480
	rs916977			rs916977	1	0.858	Black vs. blond hair color	4.00E-103	18483556
HLA-E	rs2516649	3.59E-05	0.092	rs2647044	NA	NA	Iris color	1.00E-43	18252221
ICOSLG	rs3788111	3.71E-07	0.133	rs762421	0.53	0.06	Type 1 diabetes	1.00E-16	17632545
IGLL1	rs131429	6.93E-04	-0.065	rs5751614	0.05	0.002	Crohn's disease	1.00E-09	18587394
IL16	rs859	3.43E-10	0.183	rs17172689	0.086	0.006	Height	6.00E-06	18391951
IL18R1	rs1420101	6.88E-04	0.064	rs1420101	1	1	Inattentive symptoms	4.00E-06	18821565
	rs12998521	1.23E-04	0.081	rs13015714	1	0.165	Plasma eosinophil count	5.00E-14	19198610
IL1RN	rs17669228	6.93E-04	0.063	rs6761276	0.07	0.002	Celiac disease	4.00E-09	18311140
IL23R	rs7517847	4.87E-04	0.066	rs7517847	1	1	Serum IL1RA protein level	7.00E-06	18464913
	rs2201841			rs2201841	0.742	0.196	Crohn's disease	3.00E-12	17435756
	rs7506045			rs7506045	1	0.015	IBD	4.00E-13	17068223
IMPA2	rs619671	3.20E-04	-0.069	rs8034191	1	1	Pсориаз	3.00E-08	19169254
IREB2	rs8034191	2.87E-04	0.07	rs8034191	1	1	Stroke	7.00E-07	17434096
							Lung cancer	5.00E-20	18385738
								3.00E-18	18385676
							COPD	1.00E-08	18780872
IRF5	rs1874332	1.81E-13	-0.27	rs10488631	1	0.107		1.00E-10	19300482
	rs12537284			rs12537284	NA	NA	SLE	2.00E-11	18204098
KIAA1598	rs10787735	2.66E-04	0.068	rs740363	0.955	0.311		4.00E-19	18204446
	rs4776472			rs4776472	NA	NA	Heart failure	9.00E-06	17903304
L3MBTL3	rs6899976	9.74E-21	0.373	rs6899976	1	1	Atrial fibrillation	8.00E-06	
LCORL	rs13102976	4.70E-04	-0.067	rs16896068	1	0.729	Height	6.00E-06	18391951
	rs6830062			rs6830062	NA	NA	Height	2.00E-13	18391952
LEPR	rs1045895	5.10E-05	0.086	rs1892534	0.596	0.107		5.00E-09	19343178
	rs12753193			rs12753193	NA	NA	C-reactive protein	1.00E-10	18391951
LIG3	rs16970468	1.51E-05	-0.098	rs2074518	0.787	0.428	Other metabolic traits	7.00E-21	18439548
LIPC	rs936960	6.90E-14	0.268	rs3825776	1	0.079	QT interval	4.00E-07	19060910
	rs1532085			rs1532085	0.565	0.032	ALS	6.00E-12	19305408
	rs1800588			rs1800588	0.191	0.015	HDL cholesterol	9.00E-06	18084291
	rs10468017			rs10468017	0.273	0.004		2.00E-10	19060910
	rs4775041			rs4775041	0.515	0.014		1.00E-35	19060911
	rs4775041			rs4775041	0.515	0.014		2.00E-32	18193044
	rs4775041			rs4775041	0.515	0.014		8.00E-23	19060906
LOC51057	rs959195	1.09E-06	0.127	rs11683229	1	0.041	Phosphatidylethanoamine	3.00E-20	18193043
LRRC16	rs7764258	3.33E-04	-0.068	rs2274089	0.298	0.001	Serum IL-6 protein level	1.00E-07	19043545
MEIS2	rs8036552	2.16E-05	-0.098	rs8041675	NA	NA	Serum markers of iron status	6.00E-06	18464913
							Hyperactive-impulsive symptoms	3.00E-07	19084217
								4.00E-06	18821565

Gene	eSNP	eSNP association p-value	% Expression Variance Explained	Trait-associated SNP	Linkage Disequilibrium		Trait	Trait-association p-value	PubMedID
					D'	r2			
MMEL1	rs3890745	1.33E-06	0.098	rs3890745	1	1	Rheumatoid arthritis	1.00E-07	18794853
MRPL42	rs11107052	5.42E-04	-0.062	rs3825199	0.009	0	Height	2.00E-07	18391951
MSRA	rs555200	8.65E-04	0.062	rs11775334	0.75	0.359	Hypertension	4.00E-06	19430479
MT1F	rs7189840	1.73E-17	0.341	rs7209435	NA	NA	Height	7.00E-07	18391951
MYT1L	rs6759577	1.83E-10	0.199	rs2241685	NA	NA	ADHD	8.00E-06	18839057
NAPRT1	rs2290416	2.97E-04	0.068	rs2290416	1	1	ADHD	9.00E-06	18821565
NCOA3	rs1569438	7.07E-04	-0.064	rs6125048	NA	NA	ALL treatment response	2.00E-06	19176441
NCR3	rs986475	3.34E-21	-0.373	rs2844479	0.378	0.016	Weight	2.00E-08	19079260
NBPf3	rs4654748	4.35E-07	-0.136	rs4654748	1	1	Vitamin B6	8.00E-18	19303062
	rs1780324	2.26E-10	-0.203	rs1780324	1	1	Alkaline phosphatase	7.00E-15	18940312
	rs7298096	4.22E-10	0.198	rs12425791	1	0.276	Stroke	1.00E-09	19369658
NKX2-3	rs10736142	4.42E-04	0.066	rs10883365	0.973	0.923	Crohn's disease	4.00E-10	17554261
								6.00E-08	17554300
				rs11190140	NA	NA		3.00E-16	18587394
NOD2	rs7194886	2.48E-05	0.092	rs5743289	1	0.176	Crohn's disease	6.00E-17	17804789
								4.00E-10	18758464
				rs17221417	1	0.312		4.00E-11	17554300
				rs2066847	NA	NA		3.00E-24	18587394
NRG1	rs17646307	8.84E-07	-0.119	rs16879552	1	0.002	Hirschsprung's disease	2.00E-08	19196962
				rs10503887	NA	NA	Hip geometry	2.00E-07	17903296
				rs4964805	1	0.048	ADHD	5.00E-06	18839057
NT5DC3	rs10861116	1.06E-08	-0.174	rs11243676	0.594	0.011	SLE	3.00E-06	18204098
NTNG2	rs7046350	7.78E-05	-0.084	rs11243676	0.594	0.011	SLE	3.00E-06	18204098
	rs7216389	1.63E-08	0.165	rs7216389	1	1	Asthma	9.00E-11	17611496
	rs2872507	7.98E-09	0.172	rs2872507	1	1	Crohn's disease	5.00E-09	18587394
ORMDL3	rs2290400	3.05E-09	0.182	rs2290400	1	1	Type 1 diabetes	6.00E-13	19430480
	rs6695214	9.73E-05	0.081	rs7538876	1	0.413	Basal cell carcinoma (cutaneous)	4.00E-12	18849993
PADI6	rs6695214	9.73E-05	0.081	rs7538876	1	0.413	Basal cell carcinoma (cutaneous)	4.00E-12	18849993
PEX1	rs10488516	1.49E-05	0.099	rs2282978	0.931	0.223	Height	1.00E-08	18391951
PHTF1	rs3827733	3.05E-05	0.093	rs6679677	1	0.042	Type 1 diabetes	8.00E-24	17554260
PITRM1	rs1053000	6.04E-05	0.089	rs2764980	0.096	0.005	ADHD	9.00E-06	18951430
PLEK	rs10496164	1.26E-05	0.094	rs9309413	0.19	0.008	Serum metabolites	2.00E-09	19043545
PLEKHA7	rs4757490	9.68E-06	0.101	rs11024074	0.133	0.015	Diastolic blood pressure	1.00E-06	19430479
				rs381815	NA	NA	Systolic blood pressure	2.00E-09	
POLR3B	rs2077730	4.44E-05	0.088	rs3891355	0.626	0.104	Cognitive performance	3.00E-06	17903297
POMC	rs13428823	2.46E-07	0.144	rs6733301	1	0.078	Height	8.00E-07	18391951
PRKG2	rs3733553	6.63E-04	-0.065	rs710841	0.328	0.087	Height	2.00E-06	18391951
								2.00E-08	19343178
PTCH1	rs10512249	1.66E-06	-0.123	rs10512248	1	0.308	Height	4.00E-11	18391952
PTER	rs7909832	9.88E-57	-0.752	rs10508503	NA	NA	Obesity	2.00E-07	19151714
PTPN1	rs4602269	1.71E-05	-0.093	rs17696736	NA	NA	Type 1 diabetes	2.00E-14	17554300
RAD51L1	rs4902619	1.66E-06	0.12	rs999737	NA	NA	Breast cancer	2.00E-07	19330030
RASGEF1A	rs2503846	7.00E-04	-0.062	rs2742234	0.912	0.093	Hirschsprung's disease	4.00E-18	19196962
RBMS1	rs1020732	3.01E-04	-0.07	rs10192369	NA	NA	ALS	9.00E-06	19451621
RELN	rs2906634	3.02E-04	0.073	rs17157903	NA	NA	Multiple sclerosis (onset)	3.00E-06	19010793
				rs3914132	NA	NA	Otosclerosis	2.00E-08	19230858
				rs7341475	NA	NA	Schizophrenia	9.00E-07	18282107
				rs9836484	NA	NA	Schizophrenia (imaging)	4.00E-06	19023125
ROBO1	rs1865862	5.53E-05	-0.088	rs9834373	NA	NA	Serum GP130 protein	4.00E-06	18464913
				rs6899976	0.064	0.002	Height	6.00E-06	18391951
SAMD3	rs7749850	1.03E-05	-0.103	rs6899976	0.064	0.002	Height	6.00E-06	18391951
SAMM50	rs6006467	3.49E-05	-0.089	rs2281135	1	0.049	Plasma levels of liver enzymes	8.00E-16	18940312
SLC17A3	rs942379	7.82E-06	0.105	rs1165205	1	0.979	Serum urate	4.00E-29	18834626
SLC22A5	rs2188962	2.42E-13	-0.261	rs2188962	1	1	Crohn's disease	2.00E-18	18587394
SLC23A3	rs17655123	3.25E-06	-0.111	rs1052483	0.836	0.509	Height	1.00E-06	18391951
SP110	rs1004868	1.84E-04	-0.077	rs13397985	0.686	0.013	Chronic lymphocytic leukemia	6.00E-10	18758461
SPACA1	rs10455478	3.11E-04	0.07	rs366676	NA	NA	Echocardiographic traits	2.00E-06	17903301
SPATA5L1	rs1346268	1.68E-05	-0.098	rs2467853	NA	NA	Renal function	6.00E-14	19430482
STK39	rs9917256	2.01E-04	0.074	rs6749447	NA	NA	Blood pressure	2.00E-07	19114657

Gene	eSNP	eSNP association p-value	% Expression Variance Explained	Trait-associated SNP	Linkage Disequilibrium		Trait	Trait-association p-value	PubMedID
					D'	r2			
SUOX	rs1701704	2.02E-06	0.118	rs1701704	1	1	Type 1 diabetes	9.00E-10	18198356
SUPT3H	rs3799977	5.87E-13	-0.25	rs3799977	1	1	ADHD	5.00E-06	18839057
	rs9472409	3.83E-15	0.292	rs9395066	NA	NA	Height	8.00E-06	18391951
TAGLN	rs7112513	2.47E-04	0.068	rs7112513	1	1	Soluble transferrin receptor	6.00E-09	18464913
TMEM4	rs2066808	4.23E-04	0.071	rs2066808	1	1	Psoriasis	1.00E-09	19169254
TNIK	rs12486818	6.86E-04	0.062	rs2088885	NA	NA	Schizophrenia (imaging)	6.00E-06	19023125
TPCN2	rs3750965	7.69E-10	-0.183	rs35264875	NA	NA	Blond vs. brown hair color	4.00E-30	18488028
TRIP11	rs1051340	3.14E-04	0.072	rs8007661	NA	NA	Height	6.00E-10	18391950
				rs7153027	NA	NA		1.00E-10	18391951
TTC39B	rs11792305	4.38E-28	-0.481	rs471364	0.654	0.072	HDL cholesterol	3.00E-10	19060906
VAMP1	rs2534721	2.23E-04	0.074	rs10492096	1	0.084	Hip geometry	3.00E-06	17903296
XKR6	rs7832722	5.11E-05	-0.085	rs7819412	0.122	0.006	Triglycerides	3.00E-08	19060906
YEATS4	rs6581889	7.91E-04	0.062	rs11177669	NA	NA	Height	3.00E-06	18391951
ZDHHC7	rs12600202	7.63E-05	-0.078	rs2326458	0.323	0.002	Height	8.00E-07	18391951
ZNF365	rs10821993	2.32E-06	-0.117	rs10995271	NA	NA	Crohn's disease	4.00E-20	18587394
ZNF544	rs431093	6.29E-04	0.063	rs260461	0.689	0.051	ADHD	8.00E-06	18821565

SNPs in red denote variants with both eSNP and disease associations. Pairwise linkage disequilibrium metrics derived using HapMap (release 21) CEU data. Values of % variance explained less than zero denote that minor allele is associated with lower levels of transcript abundance as compared to the minor allele. P-values are FDR and Genomic Inflation Factor (lambda=1.05) adjusted.