

Supplemental Data

Presence of Multiple Independent Effects in Risk

Loci of Common Complex Human Diseases

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Table S1. List of RA, CD, T1D, and T2D Loci Being Investigated in the Study

Chr	Locus	SNPs with $p \leq 5 \times 10^{-8}$	SNPs with $p \leq 2.3 \times 10^{-6}$	Reported SNPs with p Values in the Samples	References
RA					
1	CD247 [MIM 186780]	0	0	rs840016 (0.0045)	1
1	MMEL1-TNFRSF14 [MIM 602746]	15	26	rs3890745 (2.34×10^{-6})	1
1	POU3F1 [MIM 602479]	0	0	rs12131057 (9.6×10^{-11})	1
1	PTPN22 [MIM 600716]	12	16	rs2476601 (1.56×10^{-28})	1
2	AFF3 [MIM 601464]	0	0	rs11676922 (2.91×10^{-3})	1
2	CTLA4 [MIM 123890]	0	0	rs3087243 (0.082)	1
2	REL [MIM 164910]	0	0	rs13031237 (0.36)	1
2	SPRED2 [MIM 609292]	0	0	rs934734 (0.094)	1
2	STAT4 [MIM 600558]	0	0	rs7574865 (0.049)	1
3	PXK [MIM 611450]	0	0	rs13315591 (0.027)	1
4	IL2[MIM 147680]-IL21 [MIM 605185]	0	1	rs13119723 (0.0065)	1
5	C5orf30	0	0	rs26232 (0.00062)	1
5	ANKRD55 -IL6ST [MIM 600694]	0	0	rs6859219 (0.015)	1
6	CCR6 [MIM 601835]	0	0	rs3093023 (0.027)	1
6	OLIG3 [MIM 609323] -TNFAIP3 [MIM 191163]	0	6	rs6920220 (8.91×10^{-7}), rs10499194 (0.0042)	2-3
7	CDK6 [MIM 603368]	0	0	rs42041 (0.00082)	4
7	IRF5 [MIM 607218]	0	1	rs10488631 (4.9×10^{-6})	1
8	BLK [MIM 191305]	0	0	rs2736340 (0.0080)	5
9	CCL21 [MIM 602737]	0	0	rs951005 (0.20)	1
9	TRAF1 [MIM 601711]-C5 [MIM 120900]	0	0	rs3761847 (0.86)	1
10	IL2RA [MIM 147730]	0	6	rs706778 (8.90×10^{-6})	1
10	PRKCQ [MIM 600448]	0	0	rs4750316 (0.00028)	1
12	KIF5A [MIM 602821]	1	6	rs1678542 (1.31×10^{-6})	4
12	SH2B3 [MIM 300017]	0	0	rs3184504 (0.11)	1
14	BATF [MIM 612476]	0	0	rs7155603 (0.066)	1
17	IKZF3 [MIM 606221]	0	0	rs2872507 (0.54)	1
20	CD40 [MIM 109535]	0	0	rs4810485 (0.13)	1
21	UBASH3A [MIM 605736]	0	0	rs11203203 (0.16)	1
CD					
1	IL23R [MIM 607562]	47	55	rs11465804 (5.9×10^{-22})	6
1	ITLN1 [MIM 609873]	0	6	rs2274910 (4.84×10^{-6})	7

1	PTPN22 [MIM 600716]	0	0	rs2476601 (0.0052)	7
1	SCAMP3 [MIM 606913]-MUC1 [MIM 158340]	0	0	rs3180018 (0.14)	8
2	ATG16L1 [MIM 610767]	42	48	rs3828309 (3.88x10 ⁻¹⁴)	7
2	THADA [MIM 611800]	0	0	rs10495903 (0.0066)	8
3	MST1 [MIM 142408]	1	3	rs3197999 (4.43x10 ⁻⁷)	7
5	IL12B [MIM 161561]	0	6	rs10045431 (4.52x10 ⁻⁷)	7
5	IRGM [MIM 608212]	0	64	rs11747270 (1.28x10 ⁻⁷)	7
5	PTGER4 [MIM 601586]	196	221	rs4613763 (1.08x10 ⁻¹⁵)	7
6	CCR6 [MIM 601835]	0	0	rs2301436 (0.0011)	7
6	CDKAL1[MIM 611259]	0	1	rs6908425 (1.30x10 ⁻⁵)	7
6	PRDM1 [MIM 603423]	0	0	rs6568421 (7.09x10 ⁻⁵)	7
9	JAK2 [MIM 147796]	0	0	rs10758669 (2.92x10 ⁻⁶)	7
9	TNFSF15 [MIM 604052]	0	1	rs4263839 (4.76x10 ⁻⁶)	7
10	NKX2-3 [MIM 606727]	7	9	rs11190140 (8.52x10 ⁻⁹)	7
10	ZNF365 [MIM 607818]	0	1	rs10995271 (2.47x10 ⁻⁷)	7
11	C11orf30	0	0	rs7927894 (1.21x10 ⁻⁵)	7
11	NELL1 [MIM 602319]	0	0	rs1793004 (0.0019)	8
12	LRRK2 [MIM 609007]-MUC19 [MIM 612170]	0	1	rs11175593 (0.00046)	7
14	GALC [MIM 606890]-GPR65 [MIM 604620]	2	10	rs8005161 (2.18x10 ⁻⁵)	8
14	ZFP36L1 [MIM 601064]	0	0	rs4902642 (0.049)	8
16	NOD2 [MIM 605956]	22	36	rs2076756 (8.25x10 ⁻¹⁸)	8
17	ORMDL3 [MIM 610075]	0	0	rs2872507 (0.0036)	7
17	STAT3 [MIM 102582]	0	0	rs744166 (2.75x10 ⁻⁵)	7
18	PTPN2 [MIM 176887]	37	37	rs2542151 (1.90x10 ⁻⁹)	7
19	FUT2 [MIM 182100]	0	0	rs504963 (3.32x10 ⁻¹⁹)	6
19	TYK2 [MIM 176941]-ICMA1 [MIM 147840]-ICAM3 [MIM 146631]	0	0	rs12720356 (1.92x10 ⁻⁹)	8
21	ICOSLG [MIM 605717]	0	0	rs762421 (2.93x10 ⁻⁵)	7
T1D					
1	IL10 [MIM 124092]	0	0	rs3024505 (0.0037)	9
1	PGM1 [MIM 171900]	5	26	rs2269241 (6.52x10 ⁻⁸)	9
1	PTPN22 [MIM 600716]	13	15	rs2476601 (3.91x10 ⁻²⁵)	9
2	AFF3 [MIM 601464]	1	8	rs9653442 (2.28x10 ⁻⁵)	10
2	CTLA4 [MIM 123890]	0	0	rs3087243 (8.19x10 ⁻⁶)	9
2	IFIH1 [MIM 606951]	0	0	rs1990760 (1.16x10 ⁻⁵)	9
4	IL2 [MIM 147680]	0	5	rs4505848 (4.92x10 ⁻⁶)	9
5	CAPSL	0	1	rs1445898 (0.0001)	10
6	BACH2 [MIM 605394]	0	0	rs11755527 (0.00051)	9
6	C6orf173	0	0	rs9388489 (0.0037)	9
7	COBL [MIM 610317]	0	0	rs4948088 (0.0058)	9
9	GLIS3 [MIM 610192]	0	0	rs7020673 (0.00095)	9
10	C10orf59	0	0	rs10509540 (0.0086)	9
10	IL2RA [MIM 147730]	12	22	rs12251307 (4.53x10 ⁻⁶)	9
10	PRKCQ [MIM 600448]	0	0	rs11258747 (0.12)	9
11	INS [MIM 176730]	0	0	rs7111341 (3.67x10 ⁻¹²)	9
12	C12orf30	0	3	rs17696736 (1.7x10 ⁻¹⁵)	11
12	CD69 [MIM 107273]	0	1	rs4763879 (0.0028)	9
12	ERBB3 [MIM 164870]	8	8	rs2292239 (2.13x10 ⁻¹²)	9
12	SH2B3 [MIM 300017]	4	20	rs3184504 (0.0011)	9
14	DLK1 [MIM 176290]-MEG3 [MIM	0	0	rs941576 (3.47x10 ⁻⁵)	12

	605636]-RTL1 [MIM 611896]-DIO3 [MIM 601038]				
15	CTSH [MIM 116820]	0	0	rs3825932 (0.00081)	9
16	C16orf75-PRM3-TNP2 [MIM 190232]	0	0	rs416603 (0.00018)	11
16	CLEC16A [MIM 611303]	44	63	rs12708716 (1.04×10^{-8})	9
16	IL27 [MIM 608273]	0	0	rs4788084 (1.97×10^{-12})	9
18	CD226 [MIM 605397]	0	0	rs763361 (0.005)	10
18	PTPN2 [MIM 176887]	0	20	rs1893217 (8.90×10^{-8})	9
19	TYK2 [MIM 176941]-ICMA1 [MIM 147840]-ICAM3 [MIM 146631]	0	0	rs2304256 (2.56×10^{-11})	12
21	UBASH3A [MIM 605736]	0	0	rs11203203 (0.0022)	9
22	C1QTNF6	0	0	rs229541 (0.0001)	9
T2D					
1	NOTCH2[MIM 600275]-ADAM30 [MIM 604779]	0	0	rs10923931 (0.13)	13
2	BCL11A [MIM 606557]	0	0	rs243021 (6.83×10^{-5})	14
2	IRS1 [MIM 147545]	0	0	rs7578326 (0.0092)	14
2	RBMS1 [MIM 602310]-ITGB6 [MIM 147558]	2	19	rs7593730 (2.78×10^{-6})	15
2	THADA [MIM 611800]	0	0	rs7578597 (0.0075)	13
3	ADAMTS9 [MIM 605421]	0	0	rs4607103 (0.014)	13
3	IGF2BP2 [MIM 608289]	0	0	rs1470579 (2.78×10^{-6})	14
3	PPARG [MIM 601487]-SYN2 [MIM 600755]	0	1	rs13081389 (0.0028), rs17036101 (0.0018)	14
4	WFS1 [MIM 606201]	0	0	rs1801214 (0.0069)	14
5	ZBED3	0	0	rs4457053 (0.0092)	14
6	CDKAL1[MIM 611259]	11	54	rs10440833 (8.3×10^{-11})	14
7	JAZF1 [MIM 606246]	0	1	rs849134 (1.32×10^{-5})	14
7	KLF14 [MIM 609393]	0	0	rs972283 (0.00033)	14
8	SLC30A8 [MIM 611145]	0	0	rs3802177 (0.62)	14
8	TP53INP1 [MIM 606185]	0	0	rs896854 (0.0025)	14
9	CDKN2A [MIM 600160]-CDKN2B [MIM 600431]	0	4	rs10965250 (6.8×10^{-8}), rs7020996 (0.00019)	14
10	CDC123-CAMK1D [MIM 607957]	0	0	rs12779790 (0.020)	13
10	IDE [MIM 146680]	0	1	rs5015480 (0.00055)	14
10	TCF7L2 [MIM 602228]	52	57	rs7903146 (1.04×10^{-18})	14
11	CENTD2 [MIM 606646]	0	0	rs1552224 (0.020)	14
11	KCNJ11 [MIM 600937]	0	0	rs5219 (0.0037)	16
11	KCNQ1 [MIM 607542]	0	0	rs231362 (0.41)	14
12	DCD [MIM 606634]	0	0	rs1153188 (0.0078)	13
12	HMGGA2 [MIM 600698]	0	0	rs1531343 (0.075)	14
12	HNF1A [MIM 142410]	0	0	rs7967197 (0.00072)	14
12	TSPAN8 [MIM 600769]-LGR5 [MIM 606667]	6	15	rs4760790 (1.64×10^{-7})	14
15	PRC1 [MIM 603484]	0	0	rs8042680 (0.017)	14
15	ZFAND6 (MIM 610183)	0	0	rs11634397 (0.0053)	14
16	FTO [MIM 610966]	82	90	rs11642841 (7.3×10^{-10})	14
17	HNF1B (MIM 189907)	0	0	rs4430796 (0.0015)	14

Only SNPs with imputation information scores (in both cases and controls) ≥ 0.90 , $MAF \geq 5\%$ were included, except for SNPs whose associations were reported and confirmed in the literature.

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