

Gene	CHR	Trait 1	Trait 2	Trait3
SNP-based analysis				
PTPRF	chr1:43991707-44089343	gF, rs2819336, p = 8.442e-11, +	Education, rs673253, p = 8.275e-10, +	
ST3GAL3	chr1:44173203-44396837	ADHD, rs17531412, p = 3.612e-13, +	gF, rs2906455, p = 5.5e-09, -	Education, rs2993621, p = 1.429e-07, +
AK5	chr1:77747661-78025654	BPD, rs12751064, p = 7.9e-07, -	Education, rs12754946, p = 1.769e-06, +	
MIR137HG	chr1:98453555-98515249	SCZ, rs1702294, p = 2.794e-17, -	gF, rs2391903, p = 3.693e-06, +	
C1orf132	chr1:207974862-207996048	gF, rs2724373, p = 9.134e-07, +	SCZ, rs7523273, p = 1.609e-07, +	
BCL11A	chr2:60678301-60780633	gF, rs10189857, p = 1.127e-09, +	SCZ, rs7599488, p = 3.114e-07, -	Education, rs7599488, p = 2.046e-11
ALMS1	chr2:73612885-73837046	SCZ, rs56145559, p = 8.424e-08, +	gF, rs6546827, p = 2.224e-08, -	
ARHGAP15	chr2:143886898-144525921	gF, rs13428598, p = 3.439e-09, +	Education, rs6430030, p = 2.049e-11, +	
Block(TANK;LOC101929512)	chr2:161993465-162111154	Neuroticism, rs3754970, p = 4.741e-06, -	Education, rs7309, p = 3.026e-10, -	
DPP4	chr2:162848754-162931052	Hippocampus, rs2268894, p = 2.213e-07, -	gF, rs2284871, p = 2.624e-12, +	SCZ, rs2909457, p = 4.375e-08, -
CUL3	chr2:225334866-225450114	SCZ, rs11685299, p = 1.109e-08, -	Anorexia, rs72974222, p = 3.947e-06, -	
Block(ITIH3;ITIH4)	chr3:52828783-52864717	BPD, rs2071044, p = 9.097e-09, -	SCZ, rs2535627, p = 3.956e-11, +	
SLC39A8	chr4:103172197-103266410	gF, rs17032400, p = 8.258e-10, -	Consc, rs233826, p = 2.699e-06, -	
TET2.AS1	chr4:106092510-106274038	gF, rs2726513, p = 4.927e-18, -	Education, rs2726518, p = 2.249e-10, +	
MEF2C	chr5:88014057-88199922	Education, rs304138, p = 2.643e-10, -	gF, rs42850, p = 1.691e-12, -	
SLC22A23	chr6:3269206-3456793	Education, rs9503598, p = 1.462e-06, +	gF, rs9503599, p = 2.898e-07, -	
Block(NEU1;SLC44A4)	chr6:31826828-31846823	SCZ, rs2242665, p = 2.402e-07, +; rs2507954, p = 3.61e-07, +	gF, rs494620, p = 5.435e-06, -	
EHMT2	chr6:31847535-31865484	SCZ, rs2242665, p = 2.402e-07, +	gF, rs494620, p = 5.435e-06, -	
ENPP5	chr6:46126918-46138747	gF, rs2143745, p = 2.789e-06, +	AUT, rs9472703, p = 6.133e-07, -	
FOXO3	chr6:108881025-109005971	ICV, rs3813498, p = 8.909e-07, +	SCZ, rs9398171, p = 3.373e-08, -	
CALN1	chr7:71244475-71877360	SCZ, rs2867673, p = 1.647e-06, +	gF, rs56150095, p = 5.894e-09, -	Education, rs6979866, p = 1.766e-06, +
SRPK2	chr7:104756820-105029377	gF, rs1144, p = 1.008e-08, +	SCZ, rs3801278, p = 8.431e-09, -	
FGFR1	chr8:38268655-38326352	SCZ, rs57709857, p = 2.324e-07, -	BPD, rs6984358, p = 2.131e-06, -	
TSNARE1	chr8:143293440-143484610	gF, rs13262595, p = 2.688e-13, -	SCZ, rs4129585, p = 2.028e-13, +	
APBA1	chr9:72042448-72287275	gF, rs1105307, p = 2.39e-06, -	Education, rs9775451, p = 9.646e-08, -	
MIR4481	chr10:12695136-12695196	gF, rs61663121, p = 2.909e-06, -	Education, rs7087145, p = 2.408e-06, +	
Block(BORCS7-ASMT;AS3MT)	chr10:104613966-104661655	SCZ, rs12244388, p = 1.087e-17, -	BPD, rs12764899, p = 5.632e-06, -	
MARK2	chr11:63606399-63678492	SCZ, rs4963432, p = 1.312e-06, +	BPD, rs4980532, p = 8.953e-07, -	
DLG2	chr11:83166055-85338314	SCZ, rs1864774, p = 5.477e-07, -	Putamen, rs6592145, p = 3.159e-08, -	
DISC1FP1	chr11:89984399-90648220	Education, rs10741373, p = 2.763e-07, +	gF, rs4753292, p = 3.97e-07, -	
ATF7IP	chr12:14518565-14655869	Education, rs10845998, p = 3.023e-11, +	gF, rs7978070, p = 2.286e-07, +	
Block(SUOX;LOC105369781)	chr12:56391042-56418875	Education, rs10876864, p = 3.319e-09, -	gF, rs772921, p = 1.044e-10, +	
ANKS1B	chr12:99128568-100378432	BPD, rs10745843, p = 3.411e-07, +	gF, rs61940242, p = 4.2e-07, -	SCZ, rs935143, p = 1.805e-06, +
MPHOSPH9	chr12:123640942-123717785	gF, rs1727301, p = 1.135e-06, -	SCZ, rs2102949, p = 2.416e-14, -	
FARP1	chr13:98794815-99102027	Thal, rs12261, p = 2.571e-06, +	Education, rs2281767, p = 4.677e-09, -	Neuroticism, rs7983438, p = 7.523e-07, +
STK24	chr13:99102452-99229405	Thal, rs12261, p = 2.571e-06, +	Education, rs2281767, p = 4.677e-09, -	Neuroticism, rs7983438, p = 7.523e-07, +
PRKD1	chr14:30045685-30396948	SCZ, rs2068012, p = 4.142e-08, -	gF, rs3783300, p = 6.989e-10, -	
AKAP6	chr14:32798478-33302268	ADHD, rs10133551, p = 5.098e-06, -	SCZ, rs12883788, p = 3.421e-07, +	
RTN1	chr14:60062693-60337557	SCZ, rs12431410, p = 4.217e-07, -	gF, rs35097543, p = 7.229e-08, +	
BCL11B	chr14:99635624-99738050	BPD, rs11624408, p = 3.642e-06, +	SCZ, rs2693698, p = 1.375e-08, -	
LINGO1	chr15:77905365-78113242	Neuroticism, rs12903563, p = 2.864e-08, +	Education, rs3935685, p = 3.723e-08, -	
GRIN2A	chr16:9847261-10276611	BPD, rs11647445, p = 1.217e-07, -	SCZ, rs9922678, p = 6.721e-09, +	
SH2B1	chr16:28857920-28885534	Caud, rs11150623, p = 4.907e-07, -	gF, rs62037363, p = 1.089e-18, +	
Block(LINC02210-CRHR1;CR1)	chr17:43697694-43913194	ICV, rs17689882, p = 2.855e-07, -	gF, rs4327090, p = 6.762e-11, +	Education, rs62057121, p = 2.8e-08, -
DCC	chr18:49866541-51062273	gF, rs11662271, p = 5.652e-13, +	SCZ, rs4632195, p = 4.186e-06, +	Putamenen, rs62097986, p = 3.242e-10, +
SLC27A5	chr19:59009699-59023432	gF, rs12980430, p = 3.66e-07, -	BPD, rs28821001, p = 3.51e-06, -	
ARFGEF2	chr20:47538274-47653230	Education, rs4810893, p = 1.223e-06, -	Deprsym, rs4810896, p = 9.004e-07, -	
Gene-based analysis				
DPYD	chr1:97543299-98386615	SCZ, rs1702294, p_min = 2.794e-17	Education, rs61785883, p_min = 1.771e-08	gF, rs2391903, p_min = 3.693e-06
MIR2682; MIR137	chr1:98510798-98511727	SCZ, rs1702294, p_min = 2.794e-17	Education, rs61785883, p_min = 1.771e-08	

MTCH2	chr11:47638857-47664206	Neuroticism, rs7107356, p_min = 1.265e-07	gF, rs3817334, p_min = 4.392e-09	
AGBL2	chr11:47681142-47736928	Neuroticism, rs7107356, p_min = 1.265e-07	gF, rs3817334, p_min = 4.392e-09	
FNBP4	chr11:47738061-47789030	Neuroticism, rs7107356, p_min = 1.265e-07	gF, rs3817334, p_min = 4.392e-09	
C11orf84	chr11:63580845-63595190	SCZ, rs4963432, p_min = 1.312e-06	BPD, rs4980532, p_min = 8.953e-07	
MTMR2	chr11:95566043-95657371	Education, rs523934, p_min = 1.089e-08	gF, rs523934, p_min = 2.582e-07	
RCOR2	chr11:63678692-63684316	SCZ, rs4963432, p_min = 1.312e-06	BPD, rs4980532, p_min = 8.953e-07	
CACNA1C-IT3	chr12:2378941-2397911	SCZ, rs2007044, p_min = 2.625e-17	BPD, rs10744560, p_min = 2.918e-09	
PTPRO	chr12:15475190-15751265	Education, rs10846170, p_min = 4.838e-06	gF, rs1318878, p_min = 1.122e-09	
PRKAG1	chr12:49396054-49412629	BPD, rs7969091, p_min = 3.248e-07	gF, rs10875914, p_min = 1.174e-10	
KMT2D	chr12:49412757-49449107	BPD, rs7969091, p_min = 3.248e-07	gF, rs10875914, p_min = 1.174e-10	
RHEBL1	chr12:49458458-49463808	BPD, rs7969091, p_min = 3.248e-07	gF, rs10875914, p_min = 1.174e-10	
LOC101928937	chr12:99487136-99498789	SCZ, rs660884, p_min = 1.701e-06	BPD, rs10745843, p_min = 3.411e-07	gF, rs61940242, p_min = 4.2e-07
NOVA1	chr14:26915088-27066960	Education, rs2224039, p_min = 3.413e-07	gF, rs1268446, p_min = 2.369e-06	
EXD2	chr14:69658193-69710737	Education, rs242093, p_min = 1.153e-06	gF, rs11158785, p_min = 1.308e-06	
HACD3	chr15:65822826-65870693	Education, rs12900061, p_min = 2.458e-10	gF, rs67089111, p_min = 1.824e-06	
ZNF592	chr15:85291817-85349663	SCZ, rs950169, p_min = 7.62e-11	BPD, rs71395455, p_min = 1.934e-08	
ATXN2L	chr16:28834368-28848558	Putamen, rs4787452, p_min = 1.669e-05	Caud, rs11150623, p_min = 4.907e-07	Education, rs8049439, p_min = 2.686e-09
TUFM	chr16:28853731-28857729	Putamen, rs4787452, p_min = 1.669e-05	Caud, rs11150623, p_min = 4.907e-07	Education, rs8049439, p_min = 2.686e-09
MIR4721	chr16:28855239-28855328	Putamen, rs4787452, p_min = 1.669e-05	Caud, rs11150623, p_min = 4.907e-07	Education, rs8049439, p_min = 2.686e-09
ATP2A1	chr16:28889808-28915830	Putamen, rs4787452, p_min = 1.669e-05	Caud, rs11150623, p_min = 4.907e-07	Education, rs8049439, p_min = 2.686e-09
ATP2A1-AS1	chr16:28890277-28891242	Putamen, rs4787452, p_min = 1.669e-05	Caud, rs11150623, p_min = 4.907e-07	Education, rs8049439, p_min = 2.686e-09
RAI1	chr17:17584786-17714765	SCZ, rs8082590, p_min = 6.841e-09	gF, rs4925114, p_min = 1.265e-08	
SREBF1	chr17:17714662-17740325	SCZ, rs8082590, p_min = 6.841e-09	gF, rs4925114, p_min = 1.265e-08	
MIR6777	chr17:17716793-17716859	SCZ, rs8082590, p_min = 6.841e-09	gF, rs4925114, p_min = 1.265e-08	
MIR33B	chr17:17717149-17717245	SCZ, rs8082590, p_min = 6.841e-09	gF, rs4925114, p_min = 1.265e-08	
GID4	chr17:17942610-17971718	SCZ, rs8082590, p_min = 6.841e-09	gF, rs4925114, p_min = 1.265e-08	
NSF	chr17:44668034-44834828	ICV, rs17689882, p_min = 3.268e-07	Education, rs62057121, p_min = 2.8e-08	Neuroticism, rs193236081, p_min = 6.264
WNT3	chr17:44839871-44896126	ICV, rs17689882, p_min = 3.268e-07	Education, rs62057121, p_min = 2.8e-08	Neuroticism, rs193236081, p_min = 6.264
KATNAL2	chr18:44526786-44628614	Education, rs12962421, p_min = 1.495e-08	Consc, rs2576037, p_min = 4.908e-08	
SKOR2	chr18:44738459-44775554	Education, rs12962421, p_min = 1.495e-08	Consc, rs2576037, p_min = 4.908e-08	
ZNF446	chr19:58988545-59000900	BPD, rs28821001, p_min = 3.51e-06	gF, rs12980430, p_min = 3.66e-07	
ZBTB45	chr19:59024896-59053079	BPD, rs28821001, p_min = 3.51e-06	gF, rs12980430, p_min = 3.66e-07	
CSE1L	chr20:47662782-47713497	Education, rs6122735, p_min = 9.672e-08	gF, rs6095417, p_min = 4.342e-16	
CACNA1I	chr22:39966757-40085740	SCZ, rs5995756, p_min = 2.836e-11	Education, rs5995757, p_min = 1.022e-07	gF, rs5757730, p_min = 6.545e-08
L3MBTL2	chr22:41601312-41627275	SCZ, rs9607771, p_min = 5.174e-09	Neuroticism, rs2273085, p_min = 5.115e-07	
CENPM	chr22:42334724-42343168	SCZ, rs6002655, p_min = 1.475e-09	gF, rs5758605, p_min = 2.045e-11	
LINC00634	chr22:42348190-42354946	SCZ, rs6002655, p_min = 1.475e-09	gF, rs5758605, p_min = 2.045e-11	
CYP2D7	chr22:42535602-42540576	SCZ, rs6002655, p_min = 1.475e-09	gF, rs5758605, p_min = 2.045e-11	

Column names: Gene - RefSeq gene names; coordinates - chromosome position (hg19); Trait 1 - trait name, rs id of selected in cojo-GCTA SNP, p-value of association with the Trait 1; Trait 2 - trait name, rs id of selected in cojo-GCTA SNP, p-value of association with the Trait 2; Trait 3 - trait name, rs id of selected in cojo-GCTA SNP, p-value of association with the Trait 3, etc. Markers selected for Trait1, Trait2 and Trait3 etc are LD – dependent.
Method – name of the method and reference, if a corresponding gene was selected in previous studies.
SCZ - schizophrenia; BPD - bipolar disorder; Alz - Alzheimer

Genes highlighted with bold, have genome-wide significant associations with 2+ traits

Trait4

Trait 5

Trait 6

Method

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019),
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019), cFDR, SCZ/education (Le Hellard et al, 2017)
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019),cFDR, SCZ/education (Le Hellard et al, 2017)
MTAG, education/intelligence (Hill et al, 2019), cFDR, SCZ/education (Le Hellard et al, 2017)
MTAG, education/intelligence (Hill et al, 2019), cFDR, SCZ/education (Le Hellard et al, 2017)

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

Education121, rs2268894, p = 4.689e-09

Deprsym, rs9584855, p = 3.325e-06, +

Neuroticism, rs62057143, p = 1.762e-10, -

Education, rs62100765, p = 1.126e-08, -

Deprsym, rs8099160, p = 2.683e-08, +

Neuroticism139, rs4632195, p = 4.573e-07

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
 MTAG, education/intelligence (Hill et al, 2019).
 MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

cFDR, SCZ/education (Le Hellard et al, 2017)

MTAG, education/intelligence (Hill et al, 2019).
 MTAG, education/intelligence (Hill et al, 2019).
 MTAG, education/intelligence (Hill et al, 2019).

[illegible]

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).

gF, rs62037363, p_min = 1.089e-18
gF, rs62037363, p_min = 1.089e-18
gF, rs62037363, p_min = 1.089e-18
gF, rs62037363, p_min = 1.089e-18
gF, rs62037363, p_min = 1.089e-18

gF, rs113434679, p_min = 1.441e-11
gF, rs113434679, p_min = 1.441e-11

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).
MTAG, education/intelligence (Hill et al, 2019).

MTAG, education/intelligence (Hill et al, 2019).