Multi-locus genome-wide association analysis supports the role of glutamatergic synaptic transmission in the etiology of major depressive disorder

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S1. Study Samples

Table S1.1. The summary of the number of genotyped subjects and SNPs for three GWAS datasets after passing data quality control and imputation

			NESDA/NTR	QIMR	STAR*D	Total
Subjects (N)	**All**	cases	1,673	1,450	1,223	4,346
		controls	1,757	1,703	970	4,430
	Males	cases	512	518	511	1,541
		controls	670	715	525	1,910
	Females	cases	1,161	932	712	2,805
		controls	1,087	988	445	2,520
SNPs (N)	**Genotyped**		404,891	270,799	284,889	
	Imputed		1,944,531	1,872,130	1,655,514	

A. NESDA/NTR[1, 2]

Overview

This NESDA/NTR project was comprised of two large-scale nationwide biological collection studies: the Netherlands Twin Register (NTR) and the Netherlands Study of Depression and Anxiety (NESDA). Within these studies, The National Institute of Health Genetic Association Information Network selected 1,862 MDD cases and 1,857 psychiatry-screened controls for genome-wide genotyping.

Subject Recruitment and Inclusion Criteria

Cases: Depressed subjects (cases) were mostly derived from NESDA. Participants were recruited from September 2004 through February 2007 through mental health organizations, primary care practitioners and community samples from seven outpatient regional facilities in the Netherlands. Additional cases were included from population-based cohorts NEMESIS, ARIADNE, and NTR. Inclusion criteria, described in detail in the original publication, were a lifetime diagnosis of DSM-IV MDD as diagnosed through the CIDI psychiatric interview, an age between 18 and 65 years and self-reported western European ancestry. Participants not fluent in Dutch and those with a primary diagnosis of schizophrenia or schizoaffective disorder, obsessive compulsive disorder, bipolar disorder or severe substance use dependence were excluded.

Controls: Control subjects were mainly derived from NTR. The majority of families were recruited through the city council registration system. Inclusion required availability of both survey data and biological samples. Controls never scored more than 0.65 on a general factor score for anxious depression and never reported a history of MDD in any survey or at the blood-sampling visit. Controls and their parents were born in the Netherlands or western Europe. Eligible controls in a family were matched on sex and age. Only biologically unrelated samples were selected. Additional controls collected from NESDA required no lifetime diagnosis MDD or anxiety disorder assessed by the CIDI and reported low depressive symptoms at baseline.

Genotyping

Perlegen Sciences conducted individual genotyping using SNPs selected to tag common variation in the HapMap European and Asian panels. Cases and controls were randomly allocated to plates and to positions within plates to blind case-control status. HapMap CEU samples were also plated for quality control.

Quality Control

Samples: There were a total of 3,820 Dutch samples sent to Perlegen for genotyping. A total of 104 samples were excluded for the following reasons: 59 did not have GWAS data, 39 had uncertain genotype and phenotype links, 7 had evidence of contamination, 6 failed genotyping, 7 had miscellaneous failures, 8 had missing genotype data of >25%, 1 had high genome-wide homozygosity, 38 had genome-wide estimates consistent with first- or second-degree relationship, and 57 were excluded due to genetic ancestry. The final analysis dataset included 1,738 cases and 1,802 controls.

SNPs: The unfiltered dataset contained 599,156 unique SNPs. The following quality control thresholds were used to exclude SNPs from the final analysis dataset: >2 genotype disagreements in 40 duplicated samples, >2 Mendelian inheritance errors in 38 complete trio samples, minor allele frequency <0.01, or >0.05 missing genotypes in either cases or controls. A final set of 435,291 SNPs was used in the analysis dataset.

B. STAR*D[3-5]

Overview

The Sequenced Treatment Alternative to Relieve Depression (STAR*D) study is a nationwide public health clinical trial to determine the effectiveness of different treatments for people with Major Depressive Disorder (MDD). The NIH National Institute of Mental Health funded a genome-wide association study (GWAS) of MDD in 1,221 cases from this study.

Subject Recruitment and Inclusion Criteria

Cases: Cases were participants in STAR*D and were enrolled from primary care of psychiatric outpatient clinics. Clinician rating of Diagnostic and Statistical Manual of Mental Disorders, 4th edition criteria, determined MDD diagnosis. Out of the 1,953 participants who donated DNA, 1,500 participants that self-identified as "white" were selected for genotyping.

Controls: Control subjects were collected by Knowledge Networks, a survey and market research company whose panel contains approximately 60,000 households representative of the U.S. population. Subjects completed an online psychiatric screen that included questions regarding demographics, ancestry, and DSM-IV criteria for a range of psychiatric disorders. Participants who reported a history of schizophrenia, psychosis, or bipolar disorder were excluded from the GWAS analyses, as previously described[6]. We also excluded individuals (N=126) who met criteria for a history of major depressive episode.

Genotyping

Cases: Genotyping was conducted for 754 cases by Affymetrix, Inc. using the Affymetrix GeneChip Human Mapping 500K Array Set. The remaining 746 cases were genotyped using the Affymetrix Genome-Wide Human SNP 5.0 Array. There were 500,568 SNPs that were assayed by both arrays.

Controls: The NIMH controls were genotyped at the Broad Institute on the Affymetrix Genome-Wide Human SNP 6.0 Array.

Quality Control Analysis

Cases: Pair-wise estimates of identity-by descent detected and removed 3 duplicates and 21 samples with estimates consistent with first- or second-degree relatives. Multidimensional scaling analysis removed 230 samples that were outliers to the main European-ancestry cluster. Cases that had ambiguous gender (N=20) or missingness rates of >5% were also removed. The final dataset for analysis had 1,223 cases.

Controls: Control samples were excluded for the following reasons: genotype missingness rate >5%, inconsistency in self-reported gender and genotypic gender, outliers for mean heterozygosity across genotypes, outliers to the main European-ancestry cluster, and high estimates consistent with first- or second-degree relatives (the sample with the best call rate was retained).

SNPs: SNPs were excluded if they had a call rate <95%, had a minor allele frequency <1%, were inconsistent with Hardy-Weinberg equilibrium at a p value of $<1\times10^{-6}$, or showed significantly different rates of missingness in patients and control subjects.

C. QIMR

Overview: MDD cases and controls were identified as part of a number of community-based epidemiological surveys carried out at the Queensland Institute of Medical Research between 1992 and 2006. Adult twins and their families were recruited through the Australian Twin Registry (ATR, http://www.twins.org.au) under collaborative grant funding to QIMR and the Washington University in St. Louis.

Subject Recruitment and Inclusion Criteria

Cases: MDD cases were identified through psychiatric questionnaires, either the shortened Composite International Diagnostic Interview16 or the SSAGA-OZ interview instrument (a version of the Semi-Structured Assessment for the Genetics of Alcoholism modified for use in Australia), a comprehensive psychiatric interview designed to assess MDD and other psychiatric disorders17 according to DSM-IIIR and DSM-IV criteria. Structured interviews were administered by trained telephone interviewers, closely supervised by a clinical psychologist. All cases and controls were unrelated. Early-onset and recurrent MDD cases were prioritised for genotyping.

Controls: Unrelated controls were selected as genotyped individuals from families in which no individuals qualified for diagnoses of MDD or anxiety disorders. If multiple controls were available from a family, the individual with the lowest neuroticism score was preferentially selected, otherwise an individual was selected at random.

Genotyping: Both cases and controls were genotyped as part of a number of genotyping projects from the Queensland Institute of Medical Research, described in detail in ref[7]. Depending upon the project, subjects were genotyped either on the Illumina 317K, 370K or 610K project. In addition, a further genotyping project using the Illumina 610K platform was carried out at the University of Queensland, Brisbane, Australia. In total, 433 cases and 747 controls were genotyped on the Illumina 610K platform, 906 cases and 765 controls were genotyped on the Illumina 370K platform, and 111 cases and 191 controls were genotyped on the Illumina 317K platform.

Quality Control

The QIMR samples genotyped on Illumina platforms are described in detail in Medland et al[8] (see their Table 2 projects 1-4,6). The Illumina platforms corresponding to the I317, I370 and I610 sample sets are the Illumina 317k, Illumina HumanCNV370-Quadv3 and the Illumina Human610-Quad respectively. QC steps for each project [8] included rejection of SNPs with Bead Studio Gen Call Scores < 0.7, SNP call rate < 0.95, Hardy Weinberg Equlibrium (HWE) test p < 10-6, and SNPs with minor allele frequency (MAF) < 0.01. The different genotyping projects included overlapping individuals and families. After merging of the QIMR Illumina projects, the data were screened for missingness within individuals (removal of individuals where > 0.05 of genotyped SNPs failed), pedigree, sex errors, and Mendelian errors (genotypes for all family members for a given SNP were removed on detection of errors). Ancestry outliers were detected using Principal Components Analysis as described in ref.[8] Non-European ancestry outliers were removed. 11 individuals (4 cases and 7 controls) were dropped from the present analysis due to being ancestry outliers removed.

S2. Genome-wide association analyses

a. Association analyses of individual datasets and meta analysis

PLINK was used to conduct single-SNP based logistic regression of imputed allele dosage within individual samples (i.e., NESDA/NTR, QIMR, and STAR*D). To control for potential population sub-stratification, 10 multi-dimensional scaling (MDS) analysis components were calculated using PLINK. The first 4 MDS components showed inflated association with genetic data, and thus, were included as covariates in regression analysis. Meta analysis was conducted using the fixed effect model on the dosage analysis results from the three datasets using PLINK. Figures S2.1 and S2.2 show the QQ plot and the Manhattan plot of the meta analysis results. We list the LD-clumped top associated regions from the meta analysis in Table S2.1. PLINK LD-clumping options were set as follows: clump-p1=1x10^{-4}; clump-p2=5x10^{-2}; clump-r2=0.5; clump-range-border=20kb.

Table S2.1. List of LD-independent associated regions and their index SNPs with meta analysis p < 5x10^{-5}

SNP	Chr	BP	Alleles	Freq	P	No	Region	Gene
rs12511906	4	108325293	A/G	0.442	1.95E-06	8	chr4:108297821..108334671	
rs9572198	13	69075552	T/G	0.220	2.89E-06	21	chr13:68947049..69089324	
rs13076653	3	72738405	T/C	0.192	4.16E-06	16	chr3:72737330..72761817	
rs12472043	2	20120319	A/G	0.275	5.19E-06	4	chr2:20118496..20125166	LAPTM4A
rs299070	3	22880899	A/G	0.390	1.08E-05	5	chr3:22863568..22890945	
rs9826609	3	128486662	C/T	0.358	1.16E-05	3	chr3:128471629..128489278	
rs4433181	8	116089963	G/A	0.246	1.20E-05	19	chr8:115938333..116102491	
r S5756670	2	1740503	G/A	0.300	1.36E-05	19	chr2:1725147..1758267	PXDN,MYT1L
r S526410	18	64006571	A/C	0.300	1.71E-05	5	chr18:64004151..64011906	
rs2126551	2	20133508	G/A	0.442	2.17E-05	2	chr2:20101557..20133508	LAPTM4A
rs7778252	7	147225029	T/C	0.333	2.26E-05	14	chr7:147164200..147238300	CNTNAP2
rs10811962	9	23718372	G/A	0.242	2.95E-05	12	chr9:23710904..23731278	ELAVL2
rs11061558	12	130536259	G/A	0.119	3.26E-05	37	chr12:130426315..130576020	
rs4671840	2	67774720	A/G	0.342	3.30E-05	39	chr2:67726248..67829090	
rs2893208	7	25447455	C/G	0.127	3.54E-05	5	chr7:25447455..25480258	
rs9640436	7	144414456	T/C	0.425	3.92E-05	26	chr7:144333510..144458065	
rs4853645	2	192412289	T/A	0.142	4.17E-05	2	chr2:192412289..192420968	SDPR
rs9888252	11	11464356	A/G	0.308	4.55E-05	9	chr11:11452928..11511622	GALNTL4
rs7296488	12	33299486	T/C	0.042	4.58E-05	28	chr12:33299187..33326851	
rs1848502	5	54358233	G/C	0.254	4.63E-05	7	chr5:54337165..54360391	GZMK,ESM1
rs9468537	6	11281807	T/C	0.184	4.69E-05	27	chr6:11256335..11332097	NEDD9
rs581190	3	62821149	G/A	0.458	5.14E-05	11	chr3:62739912..62821149	CADPS
rs1538187	13	97312242	G/A	0.483	5.17E-05	1	chr13:97312242..97312242	
rs12553567	9	31155966	T/A	0.348	5.55E-05	35	chr9:31155455..31265261	
rs1929496	9	103306774	C/A	0.133	5.87E-05	6	chr9:103306774..103379633	RNF20,PPP3R2, GRIN3A
rs1578022	1	73716865	C/G	0.400	5.93E-05	155	chr1:73501776..73760737	
rs1738519	6	78168499	A/C	0.025	6.07E-05	44	chr6:78115449..78193405	
rs10069878	5	59267987	T/C	0.288	6.34E-05	32	chr5:59176633..59338351	PDE4D
rs1587504	12	98549289	T/C	0.333	6.34E-05	14	chr12:98519837..98563287	FAM71C,ANKS1B
rs12140791	1	160357908	T/C	0.042	6.38E-05	2	chr1:160355955..160357908	NOS1AP
rs883673	12	130499303	G/C	0.125	6.55E-05	11	chr12:130497296..130506169	
rs13330951	16	68121343	A/G	0.475	7.60E-05	12	chr16:68114084..68292772	NQO1,NFAT5
rs7242423	18	48445999	G/A	0.042	8.00E-05	27	chr18:48445999..48621846	DCC
rs1482463	6	64647424	T/C	0.342	8.13E-05	35	chr6:64409318..64659477	PHF3
rs9870680	3	7504555	T/C	0.442	8.37E-05	35	chr3:7504555..7560070	GRM7
rs9268858	6	32537736	C/T	0.392	8.59E-05	39	chr6:32449451..32759095	HLA-DRB1,many

rs12498707	4	108316567	A/C	0.375	8.64E-05	4	chr4:108300383..108334471	
rs11719917	3	127461430	A/G	0.034	8.64E-05	1	chr3:127461430..127461430	
rs13410433	2	123751993	A/G	0.317	9.09E-05	17	chr2:123699703..123852415	
rs1054897	5	61719717	G/A	0.067	9.12E-05	20	chr5:61588569..61913931	KIF2A,IPO11,DIMT1L
rs1570675	13	42304556	T/C	0.466	9.16E-05	3	chr13:42304556..42337468	
rs2108533	17	66597705	A/G	0.408	9.42E-05	6	chr17:66587759..66597705	
rs12875723	13	48156470	A/G	0.397	9.69E-05	15	chr13:48099041..48181769	CYSLTR2
rs16894602	4	16802749	G/C	0.136	9.85E-05	22	chr4:16671932..16828350	
rs17407838	1	163799370	A/T	0.140	9.94E-05	21	chr1:163793417..163865619	MGST3,LRRC52

Abbreviations Chr: chromosome; BP: base pair position; Freq: minor allele frequency in HapMap II; Alleles: minor allele/major allele; P: meta analysis association *p*-value; No: number of SNPs in the clumped region with meta analysis p < $5x10^{-2}$; Region: genomic regions of clumped SNPs; Gene: list of genes overlapping with LD-clumped regions including 20k up/downstream of genic regions.
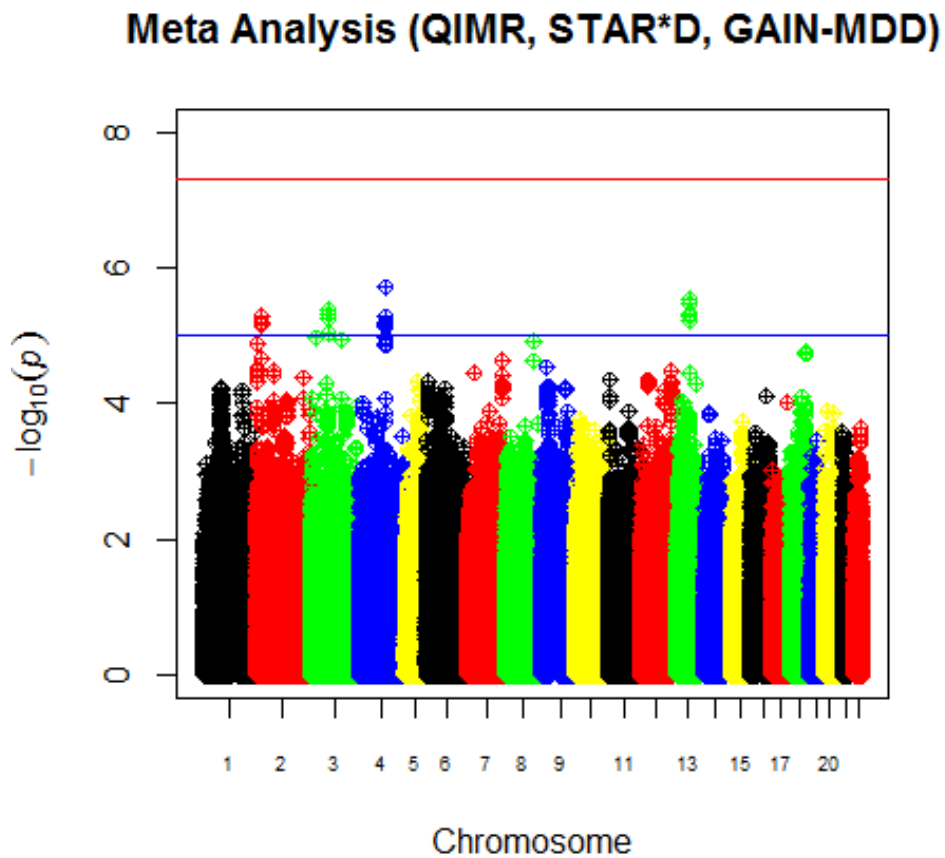
Figure S2.1. Manhattan plots of all SNPs from the meta analysis that passed QC for all of the NESDA/NTR, STAR*D, and QIMR samples.
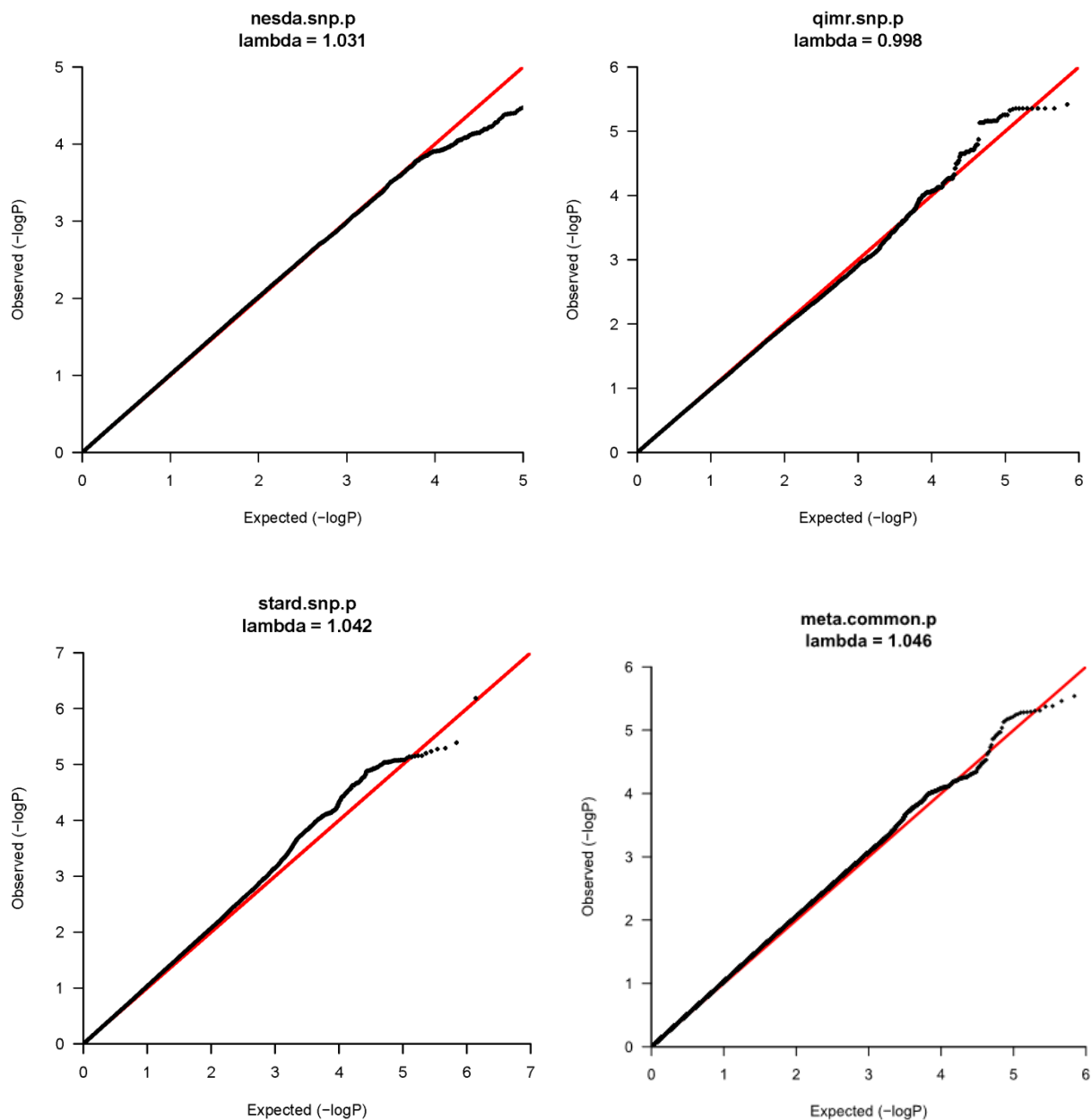
Figure S2.2. Quantile-quantile plots of SNPs from the association analyses of the NESDA/NTR, STAR*D, and QIMR samples, and the combined meta analysis. The genomic control inflation factor λs are 1.031, 0.998, 1.042, and 1.046 for NESDA/NTR, QIMR, STAR*D, and the meta analysis. The number of cases is 4,349 and the number of controls is 4,298. The λ rescaled to a sample size of 1,000 cases and 1,000 controls are 1.018, 0.999, 1.038, and 1.011 for NESDA/NTR (n=1,738/1,802), QIMR (n=1,450/1,703), STAR*D (n=1,223/970), and the meta analysis (n=4,349/4,298), respectively.

S3. Candidate Gene Set Collection

Table S3.1 List of 188 MDD candidate genes collected from Bosker et al.[9], Lewis et al.[10], Shyn et al.[3], Muglia et al.[11], and Wray et al.[7] The number of genes from each study is shown in Table S5.1. This table shows the list of 188 unique genes gathered from the aforementioned five studies.

Symbol	Name	Synonyms	Locus	Entrez ID
ABCB1	ATP-binding cassette, sub-family B (MDR/TAP), member 1	CD243, GP170, ABC20	7q21.12	5243
ACE	angiotensin I converting enzyme (peptidyl-dipeptidase A) 1	ACE1, CD143	17q23.3	1636
ACSL4	acyl-CoA synthetase long-chain family member 4	ACS4, LACS4	Xq22.3-q23	2182
ADCY9	adenylate cyclase 9	AC9	16p13.3	115
ADORA2A	adenosine A2a receptor	RDC8	22q11.23	135
ADRA1A	adrenergic, alpha-1A-, receptor	ADRA1L1	8p21.2	148
ADRA1B	adrenergic, alpha-1B-, receptor	n/a	5q33.3	147
ADRA2A	adrenergic, alpha-2A-, receptor	ADRAR	10q24-q26	150
ADRA2B	adrenergic, alpha-2B-, receptor	ADRARL1	2q11.1	151
ADRA2C	adrenergic, alpha-2C-, receptor	ADRARL2	4p16.3	152
ADRB1	adrenergic, beta-1-, receptor	n/a	10q24-q26	153
AGTR1	angiotensin II receptor, type 1	AT1, AT2R1, AGTR1A, AT2R1A, HAT1R, AG2S, AT2R1B, AT1B	3q24	185
AKT1	v-akt murine thymoma viral oncogene homolog 1	RAC, PKB, PRKBA, AKT	14q32.32-q32.33	207
ANK3	ankyrin 3, node of Ranvier (ankyrin G)	n/a	10q21	288
APOE	apolipoprotein E	n/a	19q13.31	348
AR	androgen receptor	AIS, NR3C4, SMAX1, HUMARA	Xq12	367
AVPR1A	arginine vasopressin receptor 1A	n/a	12q14-q15	552
AVPR1B	arginine vasopressin receptor 1B	n/a	1q32	553
BCR	breakpoint cluster region	D22S662, CML, PHL, ALL	22q11	613
BDNF	brain-derived neurotrophic factor	n/a	11p14.1	627
C5orf20	chromosome 5 open reading frame 20	DCNP1	5q31.1	140947
CACNA1C	calcium channel, voltage-dependent, L type, alpha 1C subunit	Cav1.2, CACH2, CACN2, TS	12p13.3	775
CAMKK2	calcium/calmodulin-dependent protein kinase kinase 2, beta	CAMKK, KIAA0787, CAMKKB, MGC15254	12q24.2	10645
CCK	cholecystokinin	n/a	3pter-p21	885

CCKAR	cholecystokinin A receptor	n/a	4	886
CCKBR	cholecystokinin B receptor	n/a	11p15.4	887
CCL2	chemokine (C-C motif) ligand 2	MCP1, MCP-1, MCAF, SMC-CF, GDCF-2, HC11, MGC9434	17q11.2-q21.1	6347
CCND2	cyclin D2	n/a	12p13	894
CD3E	CD3e molecule, epsilon (CD3-TCR complex)	n/a	11q23	916
CD47	CD47 molecule	IAP, OA3	3q13.1-q13.2	961
CHRFAM7A	CHRNA7 (cholinergic receptor, nicotinic, alpha 7, exons 5-10) and FAM7A (family with sequence similarity 7A, exons A-E) fusion	D-10, CHRNA7-DR1	15q13.2	89832
CHRM2	cholinergic receptor, muscarinic 2	n/a	7q35-q36	1129
CHRNA7	cholinergic receptor, nicotinic, alpha 7	n/a	15q13.3	1139
CHST11	carbohydrate (chondroitin 4) sulfotransferase 11	C4ST1, C4St-1, C4ST, HSA269537	12q23.3	50515
CLOCK	clock homolog (mouse)	KIAA0334, KAT13D, bHLHe8	4q12	9575
CNR1	cannabinoid receptor 1 (brain)	CB1K5, CB-R, CB1, CANN6, CB1A	6q14-q15	1268
CNTF	ciliary neurotrophic factor	HCNTF	11q12	1270
COMT	catechol-O-methyltransferase	n/a	22q11.21	1312
CREB1	cAMP responsive element binding protein 1	n/a	2q34	1385
CRHBP	corticotropin releasing hormone binding protein	CRF-BP, CRFBP	5q	1393
CRHR1	corticotropin releasing hormone receptor 1	CRF-R, CRF1	17q12-q22	1394
CRHR2	corticotropin releasing hormone receptor 2	CRF2, CRF-RB, HM-CRF	7p21-p15	1395
CTLA4	cytotoxic T-lymphocyte-associated protein 4	CD152, CD, GSE, CD28, ICOS	2q33	1493
CYP2C9	cytochrome P450, family 2, subfamily C, polypeptide 9	P450IIC9	10q24.1	1559
DAOA	D-amino acid oxidase activator	G72	13q33.2	267012
DDC	dopa decarboxylase (aromatic L-amino acid decarboxylase)	AADC	7p11	1644
DGKH	diacylglycerol kinase, eta	DGKeta	13q13.3	160851
DISC1	disrupted in schizophrenia 1	n/a	1q42.1	27185
DNAJB2	DnaJ (Hsp40) homolog, subfamily B, member 2	HSPF3	2q32-q34	3300
DRD1	dopamine receptor D1	n/a	5q34-q35	1812
DRD2	dopamine receptor D2	n/a	11q22-q23	1813
DRD3	dopamine receptor D3	n/a	3q13.3	1814
DRD4	dopamine receptor D4	n/a	11p15.5	1815
DRD5	dopamine receptor D5	DRD1B	4p16.1	1816
DTNBP1	dystrobrevin binding protein 1	Dysbindin, My031, HPS7, DBND	6p22.3	84062

DUSP6	dual specificity phosphatase 6	MKP-3, PYST1	12q22-q23	1848
EHD3	EH-domain containing 3	n/a	2p21	30845
ESR1	estrogen receptor 1	NR3A1, Era	6q24-q27	2099
ESR2	estrogen receptor 2 (ER beta)	NR3A2, Erb	14q21-q22	2100
FBXO8	F-box protein 8	FBX8, FBS	4q34.1	26269
FGFR1	fibroblast growth factor receptor 1	H2, H3, H4, H5, CEK, FLG, BFGFR, N-SAM, CD331	8p12	2260
FGFR2	fibroblast growth factor receptor 2	CEK3, TK14, TK25, ECT1, K-SAM, CD332	10q25.3-q26	2263
FGFR3	fibroblast growth factor receptor 3	CEK2, JTK4, CD333	4p16.3	2261
FGFR4	fibroblast growth factor receptor 4	JTK2, CD334	5q33-qter	2264
FKBP5	FK506 binding protein 5	FKBP51, FKBP54, PPIase, P54, Ptg-10	6p21.31	2289
FZD3	frizzled family receptor 3	n/a	8p21	7976
GABBR1	gamma-aminobutyric acid (GABA) B receptor, 1	hGB1a, GPRC3A	6p21.3	2550
GABRA3	gamma-aminobutyric acid (GABA) A receptor, alpha 3	n/a	Xq28	2556
GABRA5	gamma-aminobutyric acid (GABA) A receptor, alpha 5	n/a	15q11-q13	2558
GABRA6	gamma-aminobutyric acid (GABA) A receptor, alpha 6	n/a	5q34	2559
GAD1	glutamate decarboxylase 1 (brain, 67kDa)	n/a	2q31	2571
GMIP	GEM interacting protein	ARHGAP46	19p13.11	51291
GNAL	guanine nucleotide binding protein (G protein), alpha activating activity polypeptide, olfactory type	n/a	18p11.22-p11.21	2774
GNAS	GNAS complex locus	NESP55, NESP, GNASXL, GPSA, SCG6	20q13.2-q13.3	2778
GNB3	guanine nucleotide binding protein (G protein), beta polypeptide 3	n/a	12p13	2784
GPR50	G protein-coupled receptor 50	H9, Mel1c	Xq28	9248
GRIA1	glutamate receptor, ionotropic, AMPA 1	GLURA	5q33	2890
GRIA2	glutamate receptor, ionotropic, AMPA 2	GLURB	4q32-q33	2891
GRIA3	glutamate receptor, ionotrophic, AMPA 3	GLURC, MRX94	Xq25	2892
GRIA4	glutamate receptor, ionotrophic, AMPA 4	GLURD	11q22	2893
GRIK1	glutamate receptor, ionotropic, kainate 1	n/a	21q22	2897
GRIK2	glutamate receptor, ionotropic, kainate 2	MRT6	6q16.3-q21	2898
GRIK3	glutamate receptor, ionotropic, kainate 3	GLUR7	1p34-p33	2899
GRIK4	glutamate receptor, ionotropic, kainate 4	KA1	11q	2900
GRIK5	glutamate receptor, ionotropic, kainate 5	KA2	19q13.2	2901
GRIN1	glutamate receptor, ionotropic, N-methyl D-	n/a	9q34.3	2902

	aspartate 1			
GRIN2A	glutamate receptor, ionotropic, N-methyl D-aspartate 2A	n/a	16p13.2	2903
GRIN2B	glutamate receptor, ionotropic, N-methyl D-aspartate 2B	n/a	12p12	2904
GRIN2C	glutamate receptor, ionotropic, N-methyl D-aspartate 2C	n/a	17q24-q25	2905
GRIN2D	glutamate receptor, ionotropic, N-methyl D-aspartate 2D	EB11, NR2D	19q13.1-qter	2906
GRIN3A	glutamate receptor, ionotropic, N-methyl-D-aspartate 3A	n/a	9q	116443
GRM7	glutamate receptor, metabotropic 7	GPRC1G, MGLUR7	3p26.1	2917
GSK3A	glycogen synthase kinase 3 alpha	n/a	19q13	2931
GSK3B	glycogen synthase kinase 3 beta	n/a	3q13.3	2932
GYPA	glycophorin A (MNS blood group)	GPA, MN, CD235a	4q31.21	2993
HP	haptoglobin	n/a	16q22.2	3240
HS6ST3	heparan sulfate 6-O-sulfotransferase 3	n/a	13q32.2	266722
HTR1A	5-hydroxytryptamine (serotonin) receptor 1A	5-HT1A	5q11.2-q13	3350
HTR1B	5-hydroxytryptamine (serotonin) receptor 1B	S12, 5-HT1B, HTR1D2, 5-HT1DB	6q13	3351
HTR2A	5-hydroxytryptamine (serotonin) receptor 2A	5-HT2A	13q14-q21	3356
HTR2B	5-hydroxytryptamine (serotonin) receptor 2B	5-HT(2B), 5-HT2B	2q36.3-q37.1	3357
HTR2C	5-hydroxytryptamine (serotonin) receptor 2C	5-HT2C	Xq23	3358
HTR3A	5-hydroxytryptamine (serotonin) receptor 3A	5-HT3R, 5-HT3A	11q23.1-q23.2	3359
HTR3B	5-hydroxytryptamine (serotonin) receptor 3B	5-HT3B	11q23.1	9177
HTR4	5-hydroxytryptamine (serotonin) receptor 4	5-HT4	5q31-q33	3360
HTR5A	5-hydroxytryptamine (serotonin) receptor 5A	5-HT5A	7q36.1	3361
HTR6	5-hydroxytryptamine (serotonin) receptor 6	5-HT6, 5-HT6R	1p36-p35	3362
HTR7	5-hydroxytryptamine (serotonin) receptor 7 (adenylate cyclase-coupled)	5-HT7	10q21-q24	3363
IL1B	interleukin 1, beta	IL1F2, IL-1B, IL1-BETA	2q14	3553
IL6	interleukin 6 (interferon, beta 2)	IL-6, BSF2, HGF, HSF	7p21-p15	3569
ITPR1	inositol 1,4,5-trisphosphate receptor, type 1	Insp3r1, IP3R1	3p26.1	3708
KCNC2	potassium voltage-gated channel, Shaw-related subfamily, member 2	Kv3.2	12q14.1	3747
KLHL29	kelch-like 29 (Drosophila)	KIAA1921	2p23.3	114818
LBP	lipopolysaccharide binding protein	BPIFD2	20q11.23	3929
LEP	leptin	n/a	7q31	3952
LEPR	leptin receptor	OBR, CD295	1p31	3953
LRP1	low density lipoprotein receptor-related protein 1	LRP, CD91	12q13-q14	4035
M6PR	mannose-6-phosphate receptor (cation	n/a	12	4074

	dependent)			
MAOA	monoamine oxidase A	n/a	Xp11.4-p11.3	4128
MAOB	monoamine oxidase B	n/a	Xp11.4-p11.3	4129
MMP2	matrix metallopeptidase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)	TBE-1	16q13-q21	4313
MTHFR	methylenetetrahydrofolate reductase (NAD(P)H)	n/a	1p36.3	4524
MYO5B	myosin VB	KIAA1119	18q	4645
NFE2L3	nuclear factor (erythroid-derived 2)-like 3	Nrf3	7p15.2	9603
NFKB1	nuclear factor of kappa light polypeptide gene enhancer in B-cells 1	KBF1, p105, NFKB-p50, p50, NF-kappaB, NFkappaB	4q24	4790
NGFR	nerve growth factor receptor	TNFRSF16, CD271, p75NTR	17q21-q22	4804
NOS1	nitric oxide synthase 1 (neuronal)	nNOS	12q14-qter	4842
NOS3	nitric oxide synthase 3 (endothelial cell)	ECNOS, eNOS	7q36	4846
NPY	neuropeptide Y	PYY4	7p15.3	4852
NR3C1	nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor)	GR	5q31-q32	2908
NTRK2	neurotrophic tyrosine kinase, receptor, type 2	TRKB	9q22.1	4915
NTRK3	neurotrophic tyrosine kinase, receptor, type 3	TRKC	15q24-q25	4916
OASL	2'-5'-oligoadenylate synthetase-like	TRIP14, p59OASL	12q24.2	8638
OLIG1	oligodendrocyte transcription factor 1	BHLHB6, bHLHe21	21q22.11	116448
OLIG2	oligodendrocyte lineage transcription factor 2	RACK17, OLIGO2, bHLHe19	21q22.11	10215
OLIG3	oligodendrocyte transcription factor 3	Bhlhb7, bHLHe20	6q23.3	167826
OPRD1	opioid receptor, delta 1	n/a	1p36.1-p34.3	4985
OPRK1	opioid receptor, kappa 1	KOR	8q11.2	4986
OPRM1	opioid receptor, mu 1	MOR1	6q24-q25	4988
P2RX4	purinergic receptor P2X, ligand-gated ion channel, 4	P2X4	12q24.32	5025
P2RX7	purinergic receptor P2X, ligand-gated ion channel, 7	P2X7, MGC20089	12q24	5027
PAM	peptidylglycine alpha-amidating monooxygenase	PAL, PHM	5q	5066
PCLO	piccolo (presynaptic cytomatrix protein)	KIAA0559, DKFZp779G1236, ACZ	7q11.23-q21.3	27445
PDE10A	phosphodiesterase 10A	n/a	6q26	10846
PDE11A	phosphodiesterase 11A	n/a	2q31.3	50940
PDE1A	phosphodiesterase 1A, calmodulin-dependent	n/a	2q32.1	5136
PDE2A	phosphodiesterase 2A, cGMP-stimulated	n/a	11q13.1-q14.1	5138
PDE5A	phosphodiesterase 5A, cGMP-specific	n/a	4q27	8654
PDE6C	phosphodiesterase 6C, cGMP-specific, cone, alpha prime	PDEA2	10q24	5146

PDE9A	phosphodiesterase 9A	n/a	21q22.3	5152
PENK	proenkephalin	n/a	8q23-q24	5179
PER1	period homolog 1 (Drosophila)	RIGUI	17p13.1	5187
PER2	period homolog 2 (Drosophila)	KIAA0347	2q37.3	8864
PER3	period homolog 3 (Drosophila)	n/a	1p36.23	8863
PHACTR3	phosphatase and actin regulator 3	n/a	20q13.32-q13.33	116154
PLA2G2A	phospholipase A2, group IIA (platelets, synovial fluid)	n/a	1p35	5320
PLA2G4A	phospholipase A2, group IVA (cytosolic, calcium-dependent)	cPLA2-alpha	1q25	5321
POMC	proopiomelanocortin	MSH, POC, CLIP, ACTH, NPP, LPH	2p23	5443
PRKCH	protein kinase C, eta	PKC-L, PKCL	14q23.1	5583
PSMB4	proteasome (prosome, macropain) subunit, beta type, 4	HN3, PROS26	1q21	5692
PSMD9	proteasome (prosome, macropain) 26S subunit, non-ATPase, 9	p27, Rpn4	12q24.31-q24.32	5715
PTPRR	protein tyrosine phosphatase, receptor type, R	PTPBR7, PTP-SL, EC-PTP, PCPTP1	12q15	5801
ROS1	c-ros oncogene 1 , receptor tyrosine kinase	MCF3, ROS, c-ros-1	6q21-q22	6098
SERPINA3	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 3	ACT, alpha-1-antichymotrypsin	14q32.1	12
SLC25A21	solute carrier family 25 (mitochondrial oxodicarboxylate carrier), member 21	ODC1, ODC	14q13.3	89874
SLC6A1	solute carrier family 6 (neurotransmitter transporter, GABA), member 1	GAT1, GABATR, GABATHG	3p25-p24	6529
SLC6A2	solute carrier family 6 (neurotransmitter transporter, noradrenalin), member 2	NET	16q12.2	6530
SLC6A3	solute carrier family 6 (neurotransmitter transporter, dopamine), member 3	DAT	5p15.3	6531
SLC6A4	solute carrier family 6 (neurotransmitter transporter, serotonin), member 4	5-HTT, SERT1	17q11.2	6532
SMG7	smg-7 homolog, nonsense mediated mRNA decay factor (C. elegans)	KIAA0250, EST1C, SGA56M, SMG-7	1q25	9887
SPAG16	sperm associated antigen 16	PF20, FLJ22724, DKFZp666P1710, WDR29	2q34	79582
STAT3	signal transducer and activator of transcription 3 (acute-phase response factor)	APRF	17q21	6774
SYN3	synapsin III	n/a	22q12.3	8224
TAC1	tachykinin, precursor 1	NPK	7q21-q22	6863
TACR1	tachykinin receptor 1	SPR, NK1R, NKIR	2p13.1-p12	6869
TBX21	T-box 21	TBLYM, T-bet	17q21.2	30009
TCF20	transcription factor 20 (AR1)	AR1, SPBP	22q13.3	6942

TDRD3	tudor domain containing 3	FLJ21007	13q14.3	81550
TFCP2	transcription factor CP2	CP2, LSF, LBP-1C, TFCP2C	12q13	7024
TH	tyrosine hydroxylase	DYT5b	11p15.5	7054
TNF	tumor necrosis factor	TNFSF2, DIF, TNF-alpha	6p21.3	7124
TPH1	tryptophan hydroxylase 1	n/a	11p15.3-p14	7166
TPH2	tryptophan hydroxylase 2	NTPH, FLJ37295	12q15	121278
TSPAN8	tetraspanin 8	CO-029	12q14.1-q21.1	7103
UGT2A1	UDP glucuronosyltransferase 2 family, polypeptide A1, complex locus	n/a	4q13	10941
VGLL4	vestigial like 4 (Drosophila)	KIAA0121	3p25.2	9686
WFS1	Wolfram syndrome 1 (wolframin)	DIDMOAD, WFS	4p16.1	7466
ZNF804A	zinc finger protein 804A	n/a	2q32.1	91752

Table S3.2. Functional relationship analysis results from GRAIL for MDD candidate genes

Gene	GRAIL P	Selected Similar Genes (Rank in Parentheses)
HTR2A	5.76E-111	HTR2B(1), HTR6(2), HTR2C(3), HTR1A(4), SLC6A4(5), HTR5A(6), HTR1B(7), HTR7(10), HTR3A(11), HTR3B(13), TPH2(14), HTR4(15), ADRA2A(17), ADRA2B(18), ADORA2A(19), TPH1(20), ADRA2C(21), MAOA(23), DRD2(26), DRD1(27), DRD3(30), DRD4(31), ADRB1(33), GRIK3(35), GNB3(36), TACR1(38), ADRA1A(40), AGTR1(41), DTNBP1(47), IL6(48), DAOA(57), ADRA1B(58), GABBR1(59), IL1B(63), TNF(65), DRD5(72), GRIA3(73), GRIA4(74), ESR1(81), ITPR1(89), SLC6A2(92), GRIN1(93), CHRM2(96), SLC6A3(110), TAC1(115), GABRA3(117), CCKBR(118), GPR50(120), NR3C1(122), GRIN2A(134), GRIN2D(138), GRIA1(146), GRM7(150), GRIN2B(153), CCKAR(158), COMT(161), GRIN2C(166), GNAS(168), CTLA4(172), CRHR1(174), GABRA6(176), APOE(177), AVPR1A(179), ACE(181), TH(204), CNR1(208), ESR2(212), CRHR2(216), ABCB1(219), OPRM1(224), BDNF(228), MTHFR(232), LEPR(234), OPRD1(255), AVPR1B(258), OPRK1(267), GNAL(276), NOS3(281), P2RX7(299), FZD3(301), GRIK4(303), FGFR2(310), AR(316), GABRA5(318), POMC(354), SERPINA3(355), GAD1(359), CYP2C9(369), CACNA1C(382), GRIA2(386), DDC(414), NPY(416), CHRNA7(421), GRIK1(433), LEP(454), PENK(459), CCL2(497), GRIK2(539), ADCY9(556), GRIN3A(611), FGFR1(737), CHRFAM7A(748), FGFR3(751), AKT1(765), LRP1(790), CREB1(796), NOS1(800), FGFR4(808), NGFR(833), MMP2(936), CCK(960), GRIK5(1104), P2RX4(1129), NFKB1(1168), PLA2G2A(1200), MAOB(1289), NTRK2(1345), DISC1(1347), PDE1A(1359), GSK3B(1361), SYN3(1439), WFS1(1542), ROS1(1585), SLC6A1(1586), GMIP(1727), PRKCH(1801)
DRD3	4.52E-109	DRD2(1), DRD1(2), DRD5(3), DRD4(4), SLC6A3(5), TH(10), CCND2(14), HTR1B(15), HTR1A(16), ADORA2A(17), HTR2A(19), ADRA2B(20), ADRA2A(28), HTR2C(31), ADRA2C(36), CCKBR(38), AGTR1(40), OPRM1(48), GRIN1(49), ADRB1(50), SLC6A2(51), GRIA4(53), TACR1(54), GRIK3(55), HTR6(58), HTR3A(59), ADRA1B(60), HTR5A(63), SLC6A4(65), CNR1(66), GRIA1(68), GRIA3(71), GABBR1(74), PENK(79), DTNBP1(84), BDNF(85), OPRK1(86), GABRA3(89), ADRA1A(90), OPRD1(93), IL6(94), CCKAR(101), HTR7(105), CHRM2(111), ESR1(113), GRIN2C(122), GRIN2D(123), HTR2B(126), CRHR1(128), GRIN2A(133), TNF(134), TAC1(138), GABRA6(147), NR3C1(152), GRM7(155), ITPR1(158), MAOA(160), LEPR(163), CRHR2(167), HTR4(169), COMT(172), GRIN2B(177), DAOA(187), DDC(191), AVPR1A(193), GNAL(199), IL1B(217), GNAS(218), AVPR1B(222), GAD1(226), ESR2(228), APOE(239), FGFR2(244), POMC(274), CREB1(279), ABCB1(298), NPY(300), GRIK4(308), GABRA5(314), ADCY9(318), TPH2(319), NOS3(333), LEP(340), P2RX7(347), GRIA2(349), CHRNA7(354), NOS1(366), AR(371), ACE(380), GNB3(397), FZD3(404), NTRK2(423), FGFR1(481), FGFR3(517), GRIN3A(547), NGFR(550), GRIK1(560), MAOB(566), GRIK2(610), CTLA4(615), CCK(639), AKT1(640), GPR50(666), LRP1(683), CACNA1C(707), FGFR4(766), GRIK5(833), SYN3(863), CHRFAM7A(875), GSK3B(904), TPH1(938), CYP2C9(945), NTRK3(961), ROS1(1010), P2RX4(1019), SERPINA3(1023), MMP2(1119), CRHBP(1129), NFKB1(1148), CCL2(1202), HTR3B(1224), PDE10A(1304), DISC1(1309), PSMD9(1453), MTHFR(1784), SLC6A1(1832)
DRD4	2.21E-104	DRD2(1), DRD3(2), SLC6A3(3), DRD1(4), DRD5(5), SLC6A4(12), HTR2A(13), COMT(14), DAOA(15), DTNBP1(16), TH(17), MAOA(19), ADRA2B(25), HTR1B(27), HTR6(28), GRIK3(29), ADRA2A(30), TPH2(31), HTR1A(33), SLC6A2(35), GNB3(36), ADRA2C(37), HTR2C(39), ADRB1(59), AGTR1(60), IL6(63), GRIA4(65), GABBR1(68), ADORA2A(72),

		GABRA3(74), ESR1(75), GRIN1(78), GPR50(81), TNF(83), CTLA4(85), GRIA3(86), TPH1(87), GRIA1(90), ACE(94), IL1B(100), GNAS(103), CCKBR(106), APOE(110), HTR3A(113), HTR5A(124), MTHFR(133), ABCB1(144), CCKAR(145), DDC(154), CYP2C9(159), AR(164), ADRA1B(168), GRIN2A(176), SYN3(177), ADRA1A(182), GABRA6(183), NR3C1(190), TACR1(193), GRIN2B(194), GRM7(211), CCND2(220), ADCY9(222), GAD1(224), HTR4(227), CNR1(233), CHRM2(235), NOS3(243), GNAL(249), OPRM1(250), BDNF(251), FZD3(261), PENK(263), HTR7(266), GABRA5(270), MAOB(272), GRIK4(274), GRIN2C(276), GRIN2D(286), HTR2B(287), ESR2(299), CRHR1(303), CHRFAM7A(306), DISC1(312), TAC1(338), ITPR1(339), LEPR(344), AVPR1A(352), FGFR2(358), OPRK1(404), POMC(415), AVPR1B(419), CRHR2(421), SERPINA3(493), WFS1(495), OPRD1(507), CHRNA7(508), GRIK2(522), P2RX7(525), GRIA2(557), NPY(566), CREB1(569), GRIK1(641), LEP(673), FGFR3(684), CCL2(713), CACNA1C(856), FGFR4(966), CRHBP(989), LRP1(1002), NOS1(1101), ROS1(1115), FGFR1(1198), AKT1(1210), GYPA(1212), CCK(1242), GRIN3A(1271), MMP2(1581), NFKB1(1621), GSK3B(1717), SLC6A1(1783), GRIK5(1792), NGFR(1896)
DRD2	1.59E-102	DRD1(1), DRD3(2), DRD5(3), SLC6A3(4), DRD4(5), CCND2(6), TH(12), ADORA2A(13), HTR1B(20), HTR2A(24), ADRA2B(25), HTR1A(26), ADRA2A(29), ADRA2C(35), CCKBR(40), HTR2C(41), GRIA1(42), GABBR1(43), ADRB1(45), GRIN1(47), OPRM1(48), GRIA4(54), ADRA1B(60), GRIK3(61), TACR1(62), AGTR1(63), HTR3A(64), SLC6A2(66), CNR1(71), OPRD1(72), OPRK1(74), ADRA1A(75), GRIA3(80), CHRM2(82), GABRA3(84), HTR6(85), PENK(89), ESR1(93), IL6(95), SLC6A4(102), HTR5A(106), GRIN2C(107), GRIN2A(122), TNF(125), GRM7(126), GRIN2D(128), CCKAR(131), HTR2B(132), CRHR1(134), GABRA6(135), GRIN2B(151), POMC(153), TAC1(154), HTR7(155), GNAL(156), AVPR1B(158), CRHR2(170), MAOA(171), GAD1(172), GNAS(176), NR3C1(177), ITPR1(183), IL1B(190), LEPR(192), HTR4(194), COMT(203), ESR2(206), ADCY9(208), DTNBP1(229), CREB1(233), AVPR1A(238), GRIA2(244), BDNF(247), GABRA5(254), APOE(256), DDC(272), FGFR2(276), ABCB1(296), NPY(307), GRIK4(337), P2RX7(352), AR(362), LEP(369), CHRNA7(374), MAOB(405), GRIK1(413), AKT1(446), GRIK2(460), NOS3(476), CACNA1C(490), GNB3(502), DAOA(504), GRIN3A(507), FGFR1(516), NOS1(521), NGFR(532), GPR50(554), ACE(635), GRIK5(664), CCK(677), FGFR3(686), TPH2(706), LRP1(736), CTLA4(748), PDE10A(752), NFKB1(775), NTRK2(813), FGFR4(862), FZD3(917), GSK3B(935), SLC6A1(957), MMP2(963), P2RX4(981), CYP2C9(1005), ROS1(1029), SERPINA3(1083), HTR3B(1125), CCL2(1238), CHRFAM7A(1252), CRHBP(1254), SYN3(1273), NTRK3(1277), TPH1(1584), STAT3(1734), PSMD9(1832), PRKCH(1928), PLA2G2A(1936)
HTR1B	1.49E-101	HTR1A(1), HTR2B(3), HTR2A(4), HTR5A(6), HTR2C(7), HTR6(8), HTR7(9), HTR3A(10), SLC6A4(11), HTR3B(12), HTR4(13), TPH2(15), ADRA1B(16), DRD1(18), ADRA2C(19), DRD2(20), DRD3(21), MAOA(22), ADRA2A(24), ADRA2B(26), ADRA1A(27), TPH1(29), TACR1(30), ADORA2A(32), DRD5(33), GRM7(34), CHRM2(39), GRIA1(41), CNR1(45), AGTR1(46), GABBR1(47), ADRB1(50), SLC6A3(52), GRIA3(54), AVPR1B(56), GRIN1(57), CCKBR(59), GRIK3(63), SLC6A2(65), CRHR2(68), CRHR1(73), IL6(79), GRIA4(80), TAC1(83), GABRA5(85), TH(87), GABRA6(92), OPRM1(94), ITPR1(96), ESR1(103), DRD4(106), NR3C1(107), GABRA3(110), GRIN2A(113), AVPR1A(115), PENK(123), GRIN2D(130), IL1B(133), TNF(141), GRIN2C(151), OPRK1(154), BDNF(162), LEPR(164), OPRD1(166), GRIN2B(176), CCKAR(177), APOE(180), ESR2(181), GRIA2(183), POMC(205), GNAS(219), GRIK1(226), NPY(235), CHRNA7(247), GRIK4(259), ABCB1(261), LEP(262), CREB1(270), NOS1(281), NOS3(288), GAD1(298), P2RX7(305),

		GRIK2(321), DDC(349), CACNA1C(371), NGFR(432), FGFR2(448), GRIK5(458), NTRK2(468), AR(483), ADCY9(500), SLC6A1(538), GRIN3A(580), KCNC2(592), DTNBP1(607), GNAL(667), CCK(682), GPR50(743), P2RX4(769), ROS1(908), GNB3(929), FGFR1(933), MAOB(934), AKT1(953), NFKB1(967), CTLA4(1002), FGFR3(1045), NTRK3(1059), MMP2(1102), LRP1(1144), CYP2C9(1195), FZD3(1198), PER1(1255), FGFR4(1257), GSK3B(1271), ACE(1291), PER2(1324), CLOCK(1357), SERPINA3(1373), PER3(1380), PDE1A(1415), DAOA(1465), COMT(1480), CHRFAM7A(1514), CRHBP(1600), PDE10A(1830), CCND2(1900), CCL2(1922)
HTR1A	3.26E-95	HTR1B(1), HTR2A(2), HTR2B(3), HTR5A(4), HTR7(7), HTR6(8), HTR2C(9), HTR3A(10), SLC6A4(11), HTR3B(14), HTR4(15), TPH2(16), ADRA1A(17), DRD1(19), ADRA2B(20), ADRA1B(21), ADRA2C(23), ADRA2A(24), DRD3(25), TPH1(28), DRD2(29), AGTR1(34), GABBR1(37), ADRB1(38), MAOA(39), TACR1(44), AVPR1A(45), ADORA2A(49), GRM7(53), DRD5(56), GRIA3(57), CCKBR(66), CRHR1(67), CHRM2(68), GRIA1(73), CRHR2(75), GRIN1(77), GRIA4(79), ITPR1(84), GABRA3(86), CNR1(90), GNAS(95), ESR1(96), GABRA5(102), SLC6A2(104), GRIK3(106), GABRA6(111), NR3C1(113), AVPR1B(120), IL6(121), TH(124), TAC1(125), GRIN2D(140), TNF(146), OPRM1(162), ESR2(164), GRIN2A(169), GRIN2C(170), OPRD1(182), GRIN2B(184), IL1B(185), GRIA2(186), OPRK1(187), LEPR(188), PENK(189), CCKAR(191), ADCY9(215), BDNF(216), SLC6A3(218), DRD4(222), POMC(227), CREB1(248), GRIK4(271), NPY(294), LEP(308), CACNA1C(309), GAD1(313), GRIN3A(321), CHRNA7(336), GNAL(337), FGFR2(362), APOE(364), P2RX7(372), GRIK1(380), DDC(383), ABCB1(398), PDE1A(405), SLC6A1(422), AR(436), NOS1(482), GPR50(486), GNB3(509), GRIK2(554), AKT1(566), NGFR(572), NOS3(584), NTRK2(702), GRIK5(711), CCK(730), P2RX4(751), FGFR1(768), NFKB1(769), LRP1(774), ROS1(961), GSK3B(966), DTNBP1(991), FGFR3(1015), CTLA4(1030), CRHBP(1082), MMP2(1155), FGFR4(1204), FZD3(1260), MAOB(1311), SERPINA3(1351), CCL2(1386), ACE(1485), NTRK3(1548), CYP2C9(1553), STAT3(1977), KCNC2(1985)
HTR2C	2.80E-86	HTR2A(1), HTR2B(2), HTR6(3), HTR1A(4), HTR5A(6), HTR1B(7), HTR3A(10), SLC6A4(11), HTR7(12), HTR3B(13), HTR4(14), ADRA2C(16), TPH2(17), ADRA2B(18), DRD1(21), TPH1(22), ADRA2A(24), DRD2(27), DRD3(31), ADRB1(37), ADORA2A(43), ADRA1B(44), ADRA1A(46), MAOA(47), TACR1(52), ITPR1(53), LEPR(55), DRD5(60), GRIA3(62), GRIA4(69), AGTR1(74), CCKBR(75), GRIK3(77), LEP(87), GABBR1(97), CHRM2(106), ESR1(108), IL6(118), CRHR1(119), GRIN1(121), GRIN2C(122), GRIA1(123), NR3C1(124), CRHR2(141), TH(145), CNR1(146), GPR50(153), SLC6A2(157), GRM7(160), CCKAR(163), TNF(172), GABRA3(174), OPRD1(184), GRIN2D(185), POMC(196), FGFR2(205), TAC1(210), GNAS(212), GABRA6(221), AVPR1B(223), ESR2(227), OPRK1(233), NPY(238), GRIN2A(242), DRD4(245), OPRM1(247), GRIA2(260), AVPR1A(281), SLC6A3(287), IL1B(290), GRIN2B(310), GABRA5(320), AR(331), P2RX7(360), CACNA1C(412), PENK(436), GRIK1(442), DDC(455), ABCB1(463), APOE(465), BDNF(474), FGFR1(475), GNAL(497), GRIK2(514), GRIK4(540), CHRNA7(570), AKT1(594), GNB3(599), GAD1(698), ADCY9(703), FGFR3(704), CREB1(741), FGFR4(811), NGFR(815), DTNBP1(852), ROS1(915), GRIN3A(932), LRP1(943), NOS3(967), NTRK2(996), CTLA4(1038), NOS1(1067), P2RX4(1096), CCK(1134), GRIK5(1154), GSK3B(1212), CYP2C9(1232), NFKB1(1268), FZD3(1289), NTRK3(1640), SLC6A1(1742), MMP2(1785), PSMD9(1804), SERPINA3(1815), CCL2(1971)
DRD1	7.21E-83	DRD2(1), DRD5(2), DRD3(3), SLC6A3(4), DRD4(6), ADORA2A(12), TH(13), GRIN1(14),

		CCND2(15), HTR1A(16), HTR1B(18), GRIN2C(19), ADRA2B(22), GRIN2A(23), GRIA1(25), ADRA2A(27), GRIN2D(29), GRIA4(34), HTR2A(39), ADRB1(41), ADRA2C(42), ADRA1B(44), GRIN2B(45), HTR2C(46), AGTR1(55), ADRA1A(56), CCKBR(58), OPRM1(62), GRIA3(66), HTR3A(69), OPRK1(71), CNR1(74), GABBR1(75), OPRD1(77), TACR1(78), HTR5A(84), GNAL(89), HTR6(93), GRM7(96), CHRM2(99), GRIK3(103), ADCY9(104), HTR2B(112), PENK(118), HTR7(124), CREB1(128), SLC6A2(130), GRIN3A(137), GABRA3(139), ITPR1(141), GNAS(143), ESR1(147), GRIA2(148), CRHR1(150), HTR4(163), IL6(175), CCKAR(182), CRHR2(189), AVPR1A(195), TAC1(201), NR3C1(204), TNF(207), GABRA6(208), AVPR1B(235), SLC6A4(261), GABRA5(268), GRIK1(270), LEPR(278), ESR2(283), IL1B(300), FGFR2(305), GAD1(307), P2RX7(311), BDNF(320), AKT1(335), GRIK4(342), POMC(355), GRIK2(360), NPY(384), DDC(388), NOS1(389), CACNA1C(411), CHRNA7(442), FGFR1(456), GRIK5(491), AR(507), NGFR(530), APOE(547), NOS3(553), MAOA(566), GSK3B(571), NFKB1(586), PSMD9(589), PDE10A(593), NTRK2(605), LEP(606), LRP1(712), HTR3B(735), P2RX4(779), ABCB1(783), FGFR3(784), CCK(821), FGFR4(838), ROS1(968), COMT(997), GPR50(1103), STAT3(1108), NTRK3(1115), SLC6A1(1140), PDE1A(1185), MAOB(1195), MMP2(1246), DTNBP1(1374), ACE(1451), CTLA4(1473), FZD3(1484), GNB3(1527), PRKCH(1678), M6PR(1705), CCL2(1752), CRHBP(1792), TPH2(1865), SERPINA3(1947)
HTR7	5.20E-82	HTR2B(1), HTR1A(2), HTR5A(3), HTR6(4), HTR2A(6), HTR3A(7), HTR1B(8), HTR2C(10), HTR4(12), HTR3B(13), SLC6A4(14), TPH2(16), ADRA2B(17), ADRA1A(23), DRD1(25), ADRA2C(27), GRIA4(31), TPH1(32), ADORA2A(33), ADRA2A(36), TACR1(37), ADRA1B(38), DRD3(39), ADRB1(41), DRD2(44), DRD5(47), GRM7(50), ITPR1(54), GRIK3(57), GRIA3(60), CCKBR(62), MAOA(66), AGTR1(69), GABBR1(74), ADCY9(88), CHRM2(95), GRIN1(98), CRHR1(109), CRHR2(111), OPRK1(121), GRIA1(126), OPRD1(127), GRIN2D(130), CNR1(134), GRIN2C(148), IL6(151), AVPR1A(152), AVPR1B(154), NR3C1(155), GRIK4(159), GABRA6(172), ESR1(176), CACNA1C(181), TAC1(182), GNAS(183), P2RX7(197), GABRA3(201), OPRM1(203), GRIN2A(205), CCKAR(218), GRIN2B(222), GRIK1(234), GRIA2(241), GABRA5(249), ESR2(256), TNF(262), IL1B(279), CHRNA7(298), GRIN3A(323), FGFR2(324), TH(325), LEPR(330), GRIK5(360), PDE1A(373), GRIK2(379), SLC6A2(389), P2RX4(403), CREB1(421), PENK(450), POMC(485), GNAL(496), AR(539), GPR50(571), DRD4(581), ABCB1(617), FGFR1(628), LRP1(660), NOS1(705), PDE11A(707), PDE10A(710), DDC(778), NPY(783), LEP(789), NOS3(829), BDNF(832), GAD1(860), FGFR4(907), AKT1(937), SLC6A3(950), APOE(951), NGFR(954), FZD3(1044), FGFR3(1082), NFKB1(1135), CCK(1146), PDE9A(1149), SERPINA3(1233), PDE5A(1293), GNB3(1330), NTRK2(1336), CHRFAM7A(1356), MMP2(1491), ROS1(1562), DTNBP1(1609), SLC6A1(1626), GSK3B(1660), CTLA4(1871), FKBP5(1919), PDE2A(1935)
CCKAR	9.28E-78	CCK(1), CCKBR(2), ADRA2B(8), ADRB1(10), DRD1(16), DRD2(18), DRD3(19), ADRA2C(20), ADRA1A(22), AR(23), HTR3A(24), ADRA2A(25), ADRA1B(27), HTR2A(28), HTR1A(39), AGTR1(40), TACR1(41), LEPR(45), HTR2C(49), IL6(50), LEP(55), CRHR1(59), ADORA2A(62), ITPR1(64), NPY(68), HTR1B(69), TNF(72), DRD5(78), ESR1(83), GABBR1(91), HTR6(99), CHRM2(101), IL1B(103), CRHR2(112), HTR5A(120), AVPR1A(123), HTR2B(134), TAC1(138), GRIA3(140), GRIK3(142), NR3C1(148), POMC(154), PENK(160), GNAS(164), TH(166), HTR4(167), HTR7(170), AVPR1B(171), GRIA4(176), GRM7(186), GRIN1(189), APOE(208), CNR1(211), OPRD1(243), OPRK1(246), FGFR2(266), ESR2(269), CACNA1C(275), GABRA6(276), OPRM1(296), DRD4(323), GABRA3(332), NOS3(342), GRIA1(350), NOS1(378), ABCB1(380),

		SLC6A4(407), GNB3(450), P2RX7(457), GPR50(515), GRIN2C(517), GRIN2A(533), CTLA4(560), GRIN2D(562), GRIN2B(604), NFKB1(664), AKT1(667), FGFR4(735), SERPINA3(743), SLC6A2(755), FGFR1(786), ADCY9(793), SLC6A3(830), MMP2(838), GNAL(871), GRIA2(878), GAD1(899), CREB1(913), LRP1(946), CCL2(967), ACE(980), FGFR3(1071), P2RX4(1090), CHRNA7(1145), DTNBP1(1151), NGFR(1164), BDNF(1188), PLA2G2A(1216), GABRA5(1226), CYP2C9(1247), GRIK4(1418), FZD3(1419), PSMD9(1457), ROS1(1465), GRIK1(1508), GRIN3A(1536), GRIK2(1546), MAOA(1600), HTR3B(1784), NTRK2(1901)
SLC6A4	6.29E-77	HTR2A(1), HTR1A(2), HTR2B(3), HTR6(4), HTR2C(5), HTR1B(6), TPH2(8), HTR5A(9), HTR3A(11), SLC6A2(13), HTR7(14), SLC6A3(15), TPH1(16), MAOA(17), HTR3B(19), HTR4(20), SLC6A1(31), DRD4(38), ADRA2B(50), GNB3(55), DRD2(66), DRD3(69), ABCB1(79), DTNBP1(80), ADRA2C(82), IL6(95), COMT(99), DRD1(110), TNF(112), DAOA(113), ACE(114), APOE(116), TH(133), IL1B(140), DDC(142), ADRA2A(144), MTHFR(147), GRIK3(153), AGTR1(158), NOS3(181), ADRB1(185), CYP2C9(186), CTLA4(202), BDNF(204), GNAS(206), ESR1(212), GPR50(233), DRD5(235), ADRA1A(259), TACR1(261), TAC1(297), SERPINA3(322), GABRA6(334), GABRA3(341), LEPR(350), ADRA1B(376), MAOB(395), GRIA3(399), NR3C1(407), GABBR1(417), WFS1(424), POMC(435), GRIA4(455), PENK(467), CACNA1C(470), GAD1(499), ESR2(506), ADORA2A(522), LEP(540), CRHR1(541), AVPR1A(568), CNR1(579), ITPR1(597), CCKBR(642), GRM7(660), CHRM2(667), GRIN1(680), NOS1(688), CCL2(701), AR(702), GRIA1(740), CCKAR(747), CRHR2(759), CREB1(762), FZD3(781), ADCY9(860), NPY(872), FGFR2(873), GABRA5(932), SYN3(934), MMP2(1003), GNAL(1010), OPRM1(1011), AVPR1B(1073), GRIN2B(1135), GMIP(1168), GRIK4(1233), GRIN2A(1312), CHRNA7(1451), NFKB1(1497), GRIN2D(1523), CCK(1625), AKT1(1633), P2RX7(1646), GSK3B(1673), FGFR3(1677), ROS1(1729), DISC1(1878), OPRK1(1927)
MAOA	1.54E-69	MAOB(1), SLC6A4(4), HTR2A(5), HTR1B(8), HTR1A(10), HTR6(12), TPH2(18), HTR2C(22), HTR2B(23), DRD4(27), SLC6A2(30), HTR3A(31), HTR5A(35), SLC6A3(39), DRD2(45), TPH1(47), COMT(49), DRD3(53), HTR7(54), IL6(73), ADRA2B(74), DRD1(79), TH(83), ADRA2C(89), TNF(100), ADRA2A(102), APOE(110), GNB3(116), HTR4(120), GRIK3(124), DTNBP1(129), IL1B(141), DRD5(153), DAOA(155), ACE(156), ABCB1(161), ESR1(162), AGTR1(179), NOS3(185), ADRB1(196), DDC(208), HTR3B(249), LEPR(251), PENK(262), BDNF(265), GNAS(274), CTLA4(286), CYP2C9(292), GABBR1(293), POMC(314), ADRA1A(316), SERPINA3(328), GAD1(330), GABRA3(331), MTHFR(337), LEP(361), TACR1(365), ADRA1B(371), AR(383), TAC1(389), NR3C1(399), GRIA4(418), CCKBR(467), ESR2(477), GRIA3(487), NOS1(493), CRHR1(516), ADORA2A(550), GABRA6(557), GRIN1(579), MMP2(630), CREB1(697), GRIA1(720), GPR50(740), CHRM2(761), ADCY9(788), NPY(790), CRHR2(836), FZD3(870), FGFR2(879), CNR1(918), AVPR1B(922), CCKAR(931), AVPR1A(950), WFS1(985), ITPR1(1000), NFKB1(1055), CCL2(1214), GRM7(1218), CACNA1C(1286), CCND2(1290), OPRM1(1336), AKT1(1410), GRIN2A(1456), GRIK4(1472), GABRA5(1480), SLC6A1(1517), GRIN2B(1622), ACSL4(1637), GSK3B(1666), GRIN2D(1672), GRIN2C(1771), GNAL(1822), ROS1(1885), GMIP(1899), CHRNA7(1922), FGFR3(1927), CCK(1975)
ADRA2A	7.15E-68	ADRA2C(1), ADRA2B(2), ADRA1A(3), ADRA1B(4), ADRB1(6), ADORA2A(9), HTR2A(10), AR(15), HTR1A(21), DRD1(22), HTR1B(28), TNF(31), DRD2(32), HTR2C(33), SLC6A2(36), DRD3(38), ESR1(44), HTR2B(45), OPRM1(46), CHRM2(48), GNAS(53), AGTR1(56), IL6(60), DRD5(63), TACR1(67), HTR6(71), OPRD1(77), HTR3A(80),

		HTR5A(92), OPRK1(93), GABRA3(102), CCKBR(116), HTR7(127), TH(130), ESR2(134), ADCY9(135), GRM7(137), CACNA1C(141), GABRA6(144), CCKAR(153), IL1B(162), HTR4(179), SLC6A3(187), CNR1(190), CRHR2(195), POMC(197), LEPR(203), GRIN2A(206), DRD4(208), LEP(213), SLC6A4(220), GRIA4(221), CRHR1(224), GRIA3(226), GABBR1(227), NR3C1(231), GRIN1(234), ITPR1(235), GRIN2D(239), GNAL(255), GRIA1(264), TAC1(269), SERPINA3(276), GABRA5(282), NOS3(292), VGLL4(298), CHRNA7(300), AVPR1A(307), APOE(317), GNB3(319), PENK(323), GRIN2C(330), AVPR1B(356), CREB1(366), GRIK3(372), AKT1(385), NPY(415), MAOA(455), NOS1(460), GRIN2B(468), P2RX7(476), ABCB1(499), NFKB1(555), LRP1(615), GRIA2(669), FGFR2(684), MMP2(760), P2RX4(790), TPH2(809), GSK3B(866), NGFR(928), BDNF(973), GRIK1(984), CCK(1031), GRIK2(1070), CTLA4(1090), GRIN3A(1109), ACE(1116), PLA2G4A(1167), FGFR1(1194), GPR50(1197), PDE2A(1251), GRIK4(1293), ROS1(1309), CCL2(1322), GAD1(1389), CYP2C9(1450), DTNBP1(1519), STAT3(1556), FGFR3(1583), GRIK5(1640), HTR3B(1649), TPH1(1682), GSK3A(1759), FGFR4(1805), PRKCH(1817), SLC6A1(1907)
HTR6	7.16E-68	HTR2A(1), HTR2B(2), HTR5A(3), HTR2C(5), HTR7(6), HTR1A(7), HTR3A(8), HTR1B(10), SLC6A4(11), HTR3B(13), HTR4(14), TPH2(16), ADRA2B(21), TPH1(22), MAOA(36), DRD1(37), GRIK3(40), GNAS(44), IL6(51), ADRA2C(53), ADCY9(54), ADRB1(55), ADRA2A(56), DRD2(57), ADRA1A(58), DRD3(59), GRIA4(61), DRD5(70), ADORA2A(71), DTNBP1(72), ITPR1(74), AGTR1(76), ADRA1B(93), GRIA3(103), DRD4(121), GPR50(125), CCKBR(140), DAOA(141), GNAL(145), GABRA6(152), TACR1(162), CHRM2(170), GNB3(181), ESR1(184), GRIN1(187), GABRA3(191), GABBR1(193), NR3C1(210), TNF(212), GRIK4(239), GRIN2D(248), OPRD1(259), FGFR2(286), CRHR1(292), APOE(301), GRIA1(312), CCKAR(331), GRIN2B(334), OPRK1(335), IL1B(341), GRIN2A(356), GRIN2C(362), SERPINA3(368), TH(399), FZD3(409), CACNA1C(417), GRM7(426), CNR1(440), SLC6A2(441), CRHR2(454), AVPR1B(456), LEPR(459), ESR2(470), AVPR1A(472), AR(497), CTLA4(500), GABRA5(562), DDC(596), CHRNA7(643), GRIK1(656), LRP1(667), SLC6A3(670), OPRM1(690), P2RX7(700), GRIK2(708), TAC1(739), FGFR3(771), CHRFAM7A(772), FGFR1(823), ABCB1(921), FGFR4(959), GRIA2(993), M6PR(1026), GRIN3A(1092), GRIK5(1098), POMC(1148), COMT(1278), ACE(1311), NOS3(1388), PSMB4(1418), BDNF(1506), CCL2(1528), LEP(1579), CYP2C9(1590), NPY(1617), GAD1(1687), PDE1A(1695), ROS1(1807)
HTR4	2.39E-66	HTR7(1), HTR2B(2), HTR6(3), HTR5A(4), HTR1A(5), HTR3A(6), HTR2A(7), HTR1B(10), HTR2C(11), HTR3B(12), SLC6A4(14), TPH2(16), ADRA1A(17), ADRA2B(19), DRD1(23), ADRB1(29), ADRA2C(37), CNR1(43), ADRA2A(47), ITPR1(49), GABBR1(50), ADORA2A(51), GRIA4(53), DRD2(54), DRD3(61), ADRA1B(62), DRD5(65), GRIA3(67), GRM7(70), CCKBR(73), TACR1(76), ADCY9(87), TPH1(88), GRIN1(95), GRIK3(100), CHRM2(105), OPRK1(108), PDE1A(110), GNAS(111), AGTR1(114), CRHR2(115), OPRD1(116), NR3C1(122), GRIA1(128), AVPR1B(133), CRHR1(136), CACNA1C(145), ESR1(171), OPRM1(200), MAOA(206), CCKAR(207), GRIN2D(208), AVPR1A(217), FGFR2(218), GABRA6(237), ESR2(238), GRIN2C(252), GABRA3(253), GRIN2B(283), GRIN2A(300), TH(308), GRIA2(315), GNAL(327), IL6(330), TAC1(334), LEPR(343), TNF(355), P2RX7(363), GABRA5(374), GRIK1(381), GRIK4(404), GRIK2(437), IL1B(496), FGFR4(516), GPR50(524), AR(525), P2RX4(535), FGFR1(550), POMC(565), DRD4(567), CHRNA7(583), SLC6A2(586), GRIN3A(607), CREB1(624), PENK(670), PDE11A(715), DDC(792), PDE9A(800), FGFR3(874), GRIK5(891), LRP1(983), GAD1(1011), ABCB1(1129), AKT1(1152), PDE10A(1182), CHRFAM7A(1187), DTNBP1(1342),

		SLC6A3(1414), LEP(1434), BDNF(1469), NPY(1498), APOE(1535), ROS1(1588), NFKB1(1596), FZD3(1609), NTRK2(1640), CCK(1651), NOS1(1706), NGFR(1729), PRKCH(1788), ANK3(1821), CTLA4(1822), PDE5A(1890), SERPINA3(1926)
TACR1	2.46E-66	TAC1(1), IL6(17), HTR3A(22), HTR1A(23), DRD1(27), HTR1B(32), TNF(38), IL1B(39), HTR2A(41), GABBR1(44), ADRA2B(48), ADORA2A(50), AGTR1(64), DRD2(67), GRIA3(73), DRD3(78), ADRB1(79), ADRA2A(80), HTR2C(86), ADRA2C(87), GRIN1(90), GRIA1(103), CCKBR(104), CHRM2(110), HTR2B(113), CRHR1(117), OPRM1(120), ADRA1A(121), ADRA1B(125), ITPR1(136), HTR7(142), CRHR2(145), GRM7(146), GRIN2C(149), ESR1(150), GRIA4(155), GRIN2D(162), CNR1(163), ABCB1(166), GRIN2A(178), TH(181), LEPR(186), PENK(187), OPRD1(188), NGFR(190), OPRK1(202), HTR5A(210), NR3C1(217), P2RX7(228), GRIK3(244), AVPR1A(253), NPY(256), CCKAR(260), GRIN2B(279), NFKB1(297), POMC(303), ESR2(309), GABRA6(310), GABRA3(321), NOS1(330), DRD5(335), HTR6(336), HTR4(340), GRIA2(343), NOS3(388), FGFR2(404), LEP(431), AVPR1B(434), GRIK1(436), AKT1(439), CREB1(446), P2RX4(463), CACNA1C(489), FGFR1(490), BDNF(506), APOE(517), SLC6A4(564), MMP2(574), GAD1(576), CCL2(594), GRIN3A(599), AR(656), NTRK2(660), GABRA5(668), LRP1(686), NTRK3(754), GRIK2(783), CHRNA7(811), GNAS(813), GRIK4(827), SLC6A2(832), FGFR4(834), CCK(892), GRIK5(979), FGFR3(1039), SERPINA3(1048), CTLA4(1087), STAT3(1158), HTR3B(1236), CD3E(1247), SLC6A1(1249), GSK3B(1328), ADCY9(1409), SLC6A3(1423), ROS1(1452), DRD4(1502), PLA2G2A(1514), PLA2G4A(1681), PRKCH(1815), CCND2(1850), MAOA(1970)
ADRA2B	5.58E-64	ADRA2C(1), ADRA2A(2), ADRA1A(4), ADRB1(5), ADRA1B(6), HTR2B(10), HTR2A(15), AR(16), HTR2C(21), ADORA2A(24), HTR1A(25), TNF(27), AGTR1(32), DRD1(34), HTR6(41), GNAS(42), DRD2(49), ADCY9(50), HTR5A(52), ESR1(56), CHRM2(57), HTR1B(61), HTR3A(63), IL6(64), GNB3(71), DRD5(73), DRD3(76), SLC6A2(89), GABRA3(93), HTR7(98), GRIA4(120), GABRA6(122), TACR1(127), GRIA3(131), LEPR(132), CCKAR(136), GRIK3(137), SLC6A4(152), SERPINA3(156), IL1B(157), ACE(158), GRM7(161), CACNA1C(170), ITPR1(176), CCKBR(179), ESR2(185), HTR4(188), TH(189), LEP(201), VGLL4(220), NOS3(221), NR3C1(230), GABBR1(248), OPRD1(264), CRHR2(275), GRIN2C(289), TAC1(303), GRIN2D(310), AVPR1A(311), GRIN2B(316), CRHR1(320), OPRK1(327), APOE(328), GRIN1(343), POMC(368), GPR50(375), FGFR2(377), AVPR1B(378), GRIA1(388), GNAL(411), GABRA5(428), GRIN2A(486), OPRM1(499), ABCB1(519), DRD4(524), CHRNA7(544), CNR1(582), NPY(615), P2RX7(629), CYP2C9(673), LRP1(744), MMP2(757), NOS1(763), CTLA4(779), GRIK4(849), AKT1(909), CREB1(1019), FGFR1(1068), PENK(1095), GRIA2(1103), GRIK1(1125), P2RX4(1181), MAOA(1182), ROS1(1193), CCL2(1274), MTHFR(1305), GAD1(1349), NFKB1(1387), FGFR4(1394), FGFR3(1453), GRIK2(1478), GRIN3A(1502), SLC6A3(1553), TPH2(1597), PLA2G4A(1621), NGFR(1746), CCK(1865), GRIK5(1913), HTR3B(1933), GSK3B(1943)
SLC6A3	3.33E-63	DRD2(1), DRD3(2), DRD1(3), DRD4(4), SLC6A2(5), DRD5(6), SLC6A4(7), TH(10), SLC6A1(16), HTR1B(32), HTR2A(39), MAOA(49), ADRA2A(60), HTR1A(71), ADRA2C(77), TPH2(83), COMT(89), ABCB1(98), HTR2C(101), ADORA2A(103), IL6(104), DTNBP1(111), ADRA2B(114), DDC(125), TNF(129), PENK(147), APOE(153), HTR6(175), GRIA1(181), IL1B(184), ESR1(191), ADRA1B(192), GRIK3(201), MAOB(205), ADRB1(211), DAOA(228), AGTR1(236), BDNF(239), GRIN1(248), GAD1(257), TAC1(258), GABBR1(260), HTR3A(261), CNR1(267), TPH1(269), GRIA4(270), GABRA3(273), TACR1(282), OPRM1(295), CCKBR(303), ADRA1A(317), HTR5A(321),

		GRIA3(328), GNAS(339), NOS3(340), CREB1(341), GNB3(372), GNAL(375), LEPR(381), POMC(393), HTR2B(419), CHRM2(438), GRIN2A(449), CTLA4(450), NR3C1(472), CCKAR(482), ACE(507), NOS1(512), ESR2(531), LEP(552), GRIN2C(555), GABRA6(563), ADCY9(565), CRHR1(585), SERPINA3(603), CYP2C9(615), HTR7(616), GRM7(617), SYN3(645), NPY(684), GRIN2D(697), AR(705), HTR4(713), OPRK1(719), AKT1(728), GRIN2B(738), MTHFR(755), ITPR1(762), CRHR2(769), CHRNA7(793), GSK3B(798), CACNA1C(844), MMP2(898), FGFR2(953), GRIK4(968), GABRA5(978), CCND2(989), CCK(990), OPRD1(1016), PDE10A(1070), P2RX7(1109), AVPR1B(1131), NFKB1(1134), WFS1(1204), ROS1(1228), FZD3(1251), CCL2(1279), AVPR1A(1348), GRIA2(1373), GPR50(1620), NGFR(1630), LRP1(1642), FGFR3(1681), PRKCH(1727), GRIK2(1900), MYO5B(1915)
CNR1	3.88E-63	DRD1(3), ZNF804A(6), DRD2(7), HTR1B(8), ADORA2A(10), HTR1A(13), DRD3(16), HTR3A(18), GRIA1(19), GABBR1(23), TACR1(25), GRM7(27), OPRM1(29), HTR4(31), GRIA3(35), GRIN1(36), ADRA2B(37), ADRA2A(39), OPRK1(41), HTR2A(43), HTR2C(44), OPRD1(46), PENK(50), CHRM2(55), CCKBR(56), ADRB1(57), GRIA4(58), GRIK3(63), DRD5(66), CRHR1(68), ADRA2C(69), AGTR1(73), IL6(76), GRIN2C(82), GRIN2A(83), HTR5A(87), GABRA6(88), GABRA3(90), HTR7(95), GRIN2D(97), ITPR1(98), HTR2B(99), TAC1(100), CRHR2(101), ADRA1B(103), TNF(104), ADRA1A(106), GRIN2B(112), ESR1(114), GRIA2(117), LEPR(123), GABRA5(129), HTR6(131), TH(132), NR3C1(150), IL1B(156), P2RX7(157), CCKAR(168), LEP(172), BDNF(188), GRIK1(193), POMC(198), AVPR1A(209), ESR2(216), CREB1(219), SLC6A4(235), NPY(237), AVPR1B(268), AKT1(275), SLC6A3(280), GNAS(284), APOE(292), GAD1(296), GRIN3A(302), GRIK2(305), ADCY9(317), SLC6A2(318), NOS1(327), FGFR2(331), CACNA1C(332), GRIK4(336), NTRK2(338), NGFR(345), GRIK5(348), DRD4(383), CHRNA7(396), NFKB1(433), ABCB1(440), SLC6A1(450), AR(464), NOS3(531), FGFR1(563), P2RX4(570), LRP1(618), GNAL(718), CCK(732), MMP2(761), HTR3B(811), GSK3B(867), FGFR3(950), MAOA(964), FGFR4(983), ROS1(1002), NTRK3(1022), STAT3(1087), CTLA4(1095), PDE10A(1198), CCL2(1203), SERPINA3(1413), CCND2(1494), TPH2(1561), CRHBP(1574), FZD3(1666), PLA2G4A(1704), DTNBP1(1801), KCNC2(1808), PDE1A(1827), GPR50(1904), PRKCH(1969)
ADRA2C	1.16E-61	ADRA2A(1), ADRA2B(2), ADRA1B(4), ADRA1A(5), ADRB1(6), AR(10), HTR2C(11), HTR2A(13), HTR1B(18), HTR1A(19), ADORA2A(20), HTR2B(21), DRD1(25), DRD2(30), HTR3A(33), SLC6A2(37), GABRA3(41), HTR5A(43), TNF(45), CHRM2(47), GRM7(50), DRD5(51), DRD3(52), ESR1(72), GNAS(74), HTR7(80), HTR6(81), TH(86), TACR1(88), GRIA3(92), AGTR1(99), IL6(121), GABRA6(122), SLC6A4(125), GRIA4(131), CACNA1C(136), GABBR1(138), GRIA1(149), CCKBR(154), CCKAR(157), ESR2(163), GRIK3(165), GRIN2C(167), HTR4(168), ADCY9(173), GABRA5(179), NR3C1(181), GRIN2D(198), GRIN1(199), CRHR2(209), VGLL4(212), AVPR1B(223), CRHR1(224), IL1B(227), ITPR1(237), TAC1(242), SLC6A3(294), OPRK1(301), CHRNA7(306), GRIN2A(336), POMC(343), DRD4(344), OPRD1(346), CNR1(355), PENK(356), AVPR1A(364), SERPINA3(365), CREB1(400), GRIN2B(405), OPRM1(416), GNAL(432), FGFR2(461), LEPR(473), APOE(510), MAOA(546), GAD1(566), NOS3(582), NPY(594), GRIA2(605), AKT1(615), GRIK1(638), P2RX7(646), ABCB1(698), LEP(711), NOS1(714), TPH2(749), GRIK4(787), GNB3(822), NFKB1(937), CYP2C9(1031), LRP1(1040), BDNF(1068), NGFR(1079), P2RX4(1122), GRIK2(1195), MMP2(1217), FGFR1(1228), DTNBP1(1311), GSK3B(1335), HTR3B(1451), CCK(1459), FGFR4(1480), FGFR3(1487), ROS1(1541), GRIN3A(1546), TPH1(1629), SLC6A1(1705), GRIK5(1707), DDC(1737),

		KCNC2(1781), CTLA4(1824), PDE1A(1843), FZD3(1891)
ADORA2A	7.70E-61	ADRA2A(5), DRD1(7), DRD2(8), HTR2A(9), ADRA2B(10), ADRA2C(12), DRD3(15), ADRB1(16), IL6(20), HTR1A(27), TNF(28), HTR1B(30), DRD5(31), ADRA1B(35), ADRA1A(36), TACR1(42), HTR2B(51), HTR3A(53), HTR2C(57), IL1B(62), AGTR1(63), P2RX7(68), CNR1(72), CHRM2(80), GRIA3(82), GRM7(84), GRIN1(86), HTR7(89), HTR5A(98), HTR6(99), OPRD1(100), GRIN2C(101), CCKBR(103), GRIN2A(104), OPRK1(109), GRIA4(110), GABBR1(111), OPRM1(113), ITPR1(122), GRIA1(123), TAC1(133), GNAL(134), GRIN2D(137), ESR1(158), CRHR1(168), CRHR2(170), TH(174), CREB1(175), HTR4(176), GRIN2B(190), GRIK3(205), AR(235), LEPR(236), NR3C1(237), NFKB1(255), GRIA2(256), AKT1(271), CCKAR(274), AVPR1A(278), GABRA6(279), GABRA3(285), POMC(294), PENK(306), GNAS(314), ESR2(316), NOS3(325), GRIN3A(334), SLC6A3(340), P2RX4(342), AVPR1B(345), ADCY9(353), GRIK2(355), CACNA1C(368), APOE(383), NOS1(390), GRIK1(427), LEP(443), DRD4(456), SLC6A2(471), NPY(482), NGFR(487), MMP2(495), GABRA5(497), BDNF(505), CHRNA7(518), FGFR2(522), CCL2(524), PDE10A(596), FGFR1(644), PDE2A(668), ABCB1(701), LRP1(711), SLC6A4(721), GRIK5(748), GRIK4(770), PLA2G4A(772), STAT3(807), GSK3B(831), HTR3B(849), NTRK2(872), CTLA4(934), PLA2G2A(956), GAD1(991), FGFR4(1118), CCND2(1124), FGFR3(1186), CCK(1202), SERPINA3(1216), PDE1A(1352), PDE5A(1393), SLC6A1(1473), ROS1(1488), CD3E(1526), NTRK3(1528), PRKCH(1572), MAOA(1662), PDE11A(1859)
CRHR2	4.58E-60	CRHR1(1), CRHBP(3), POMC(13), AVPR1B(20), HTR1A(23), HTR3A(29), ADRA2B(32), DRD1(34), HTR1B(42), TACR1(43), NR3C1(47), IL6(54), CCKBR(57), NPY(58), DRD2(59), GABBR1(68), AGTR1(72), ADRA1B(73), ADRB1(74), ADORA2A(75), ADRA2C(76), ADRA1A(78), HTR2C(82), ADRA2A(83), HTR2B(85), HTR2A(87), TNF(88), DRD3(89), ITPR1(90), GRM7(95), GRIA3(109), TH(112), CREB1(113), ESR1(118), AVPR1A(120), LEPR(138), HTR5A(139), PENK(147), ADCY9(167), HTR7(171), IL1B(172), TAC1(174), GRIN1(177), LEP(193), CHRM2(194), GABRA6(195), DRD5(197), HTR4(199), ESR2(203), CNR1(212), FGFR2(222), GRIN2C(224), GRIA1(231), GRIK3(232), GRIA4(236), CCKAR(242), GNAS(245), GRIN2D(274), GABRA3(283), OPRK1(290), HTR6(292), CACNA1C(321), OPRM1(353), OPRD1(374), AKT1(382), GRIN2A(420), GRIN2B(430), FGFR1(460), NFKB1(504), P2RX7(522), GRIA2(535), NOS1(565), FGFR4(572), NGFR(592), BDNF(593), AR(621), GAD1(650), P2RX4(671), SLC6A4(725), GABRA5(729), GRIK5(750), LRP1(773), CCK(807), APOE(812), GRIN3A(849), GRIK1(875), GRIK4(927), NTRK2(934), FGFR3(943), SLC6A2(1001), GRIK2(1002), MMP2(1020), ROS1(1068), TPH2(1189), CHRNA7(1209), GSK3B(1213), PDE1A(1264), NOS3(1275), STAT3(1355), CCL2(1447), GNAL(1484), ABCB1(1488), DRD4(1526), NTRK3(1690), PRKCH(1909), GPR50(1919), SLC6A3(1942), MAOA(1966)
CRHR1	4.58E-60	CRHR2(1), CRHBP(3), POMC(11), AVPR1B(14), HTR1A(27), NR3C1(30), DRD1(37), HTR3A(43), CCKBR(46), ITPR1(49), IL6(52), AGTR1(53), TACR1(55), ADRA2B(61), DRD2(62), HTR1B(68), TNF(69), ADRB1(71), NPY(72), GABBR1(75), ADRA1B(77), ESR1(79), ADRA1A(85), AVPR1A(91), DRD3(93), ADCY9(94), HTR2C(97), HTR2A(101), ADORA2A(102), GNAS(107), CREB1(110), TH(114), ADRA2C(117), GRM7(120), ADRA2A(144), PENK(154), LEPR(160), GRIN1(164), IL1B(165), TAC1(169), ESR2(175), HTR5A(195), HTR2B(196), CNR1(201), CCKAR(205), GRIA3(206), LEP(219), CHRM2(222), FGFR2(229), HTR7(232), GRIN2C(237), GRIA1(252), DRD5(255), GRIA4(262), OPRK1(268), HTR6(270), GABRA6(271), GRIK3(274), HTR4(305), AKT1(322), OPRD1(342), GRIN2D(352), OPRM1(358), GABRA3(389), FGFR1(415),

		CACNA1C(431), GRIN2A(435), AR(437), NFKB1(440), NOS1(468), GRIN2B(478), FGFR4(490), P2RX7(548), APOE(568), CCK(607), LRP1(609), BDNF(637), GRIA2(648), NOS3(661), NGFR(680), SLC6A4(692), FGFR3(816), GAD1(834), MMP2(840), SLC6A2(884), GRIN3A(902), CCL2(944), ABCB1(972), GABRA5(975), P2RX4(986), ROS1(1019), GRIK5(1076), NTRK2(1156), GSK3B(1170), STAT3(1204), GPR50(1287), CHRNA7(1295), SERPINA3(1303), GRIK4(1306), GRIK2(1381), PRKCH(1412), DRD4(1431), GNAL(1478), GRIK1(1495), PDE1A(1523), PDE10A(1711), MAOA(1765), SLC6A3(1903), PLA2G4A(1922), CCND2(1997)
CCKBR	1.23E-58	CCKAR(1), CCK(2), DRD1(9), DRD2(12), DRD3(17), HTR1A(20), HTR3A(21), ADRA2B(27), GABBR1(35), TACR1(37), ADRB1(40), HTR1B(45), CRHR1(47), ADRA2A(54), ADORA2A(55), HTR2C(57), AGTR1(60), DRD5(63), ADRA1B(64), OPRD1(68), HTR2B(71), HTR2A(72), IL6(74), OPRK1(81), ADRA2C(82), ADRA1A(83), ESR1(84), OPRM1(90), CRHR2(92), HTR5A(110), ITPR1(112), LEPR(116), GRM7(127), TNF(130), HTR7(134), NR3C1(152), CHRM2(161), GRIA3(165), PENK(167), FGFR2(168), HTR6(171), POMC(185), AR(188), AVPR1B(190), HTR4(193), CNR1(197), IL1B(216), GRIA4(219), GRIN1(224), ESR2(225), AKT1(227), TH(228), TAC1(245), GABRA3(264), LEP(284), GABRA6(287), AVPR1A(288), GRIA1(295), GNAS(305), GRIK3(307), NFKB1(339), NPY(340), FGFR1(346), FGFR4(375), GRIN2D(390), GRIN2C(441), P2RX7(456), GRIN2A(484), ABCB1(578), FGFR3(618), CREB1(646), APOE(654), LRP1(664), CACNA1C(671), MMP2(720), GABRA5(739), GRIN2B(743), DRD4(753), GRIA2(765), CCND2(780), NGFR(826), ROS1(871), ADCY9(883), NOS3(927), NOS1(933), GAD1(1000), STAT3(1041), SLC6A4(1059), GNAL(1139), NTRK2(1172), GSK3B(1228), DUSP6(1258), SLC6A3(1263), P2RX4(1312), PRKCH(1330), BDNF(1396), SLC6A2(1414), CHRNA7(1426), PSMD9(1476), HTR3B(1525), GRIN3A(1527), CTLA4(1590), GRIK4(1631), CCL2(1712), CD3E(1800), SERPINA3(1839), GRIK1(1855), GRIK2(1857), GPR50(1867), PLA2G2A(1953)
AVPR1A	1.27E-58	AVPR1B(1), HTR1A(9), ADRA1A(12), AGTR1(14), ADRA2B(19), DRD1(20), ADRA1B(21), CRHR1(27), HTR3A(29), ADRB1(31), HTR2A(34), TACR1(36), HTR1B(38), DRD2(43), DRD3(48), ITPR1(51), CRHR2(53), GABBR1(54), HTR2B(59), ADRA2C(60), ADORA2A(62), CACNA1C(63), ADRA2A(68), HTR2C(78), CCKBR(80), ESR1(83), GNAS(94), GRIA3(95), IL6(100), HTR7(101), CHRM2(106), CCKAR(110), NR3C1(111), DRD5(113), HTR5A(115), GRM7(128), GRIN1(134), GRIA4(135), HTR6(137), ESR2(138), POMC(142), TAC1(152), TNF(167), HTR4(169), LEPR(187), GRIK3(190), NPY(202), OPRK1(212), IL1B(216), GABRA3(219), OPRD1(230), PENK(235), CNR1(243), TH(252), GRIA1(261), GRIN2C(262), SLC6A4(269), GRIN2D(282), NOS1(287), NOS3(300), GABRA6(318), FGFR2(323), OPRM1(328), P2RX7(333), AR(357), GRIN2A(405), GRIN2B(434), LEP(436), ADCY9(525), GRIA2(528), P2RX4(541), LRP1(562), AKT1(564), GAD1(598), GRIN3A(602), ABCB1(604), CREB1(621), FGFR1(660), DRD4(686), PDE1A(700), APOE(712), SLC6A2(722), GRIK2(762), CRHBP(790), GRIK1(808), NGFR(875), GPR50(878), GABRA5(901), FGFR4(908), CHRNA7(924), NFKB1(931), GRIK4(957), MMP2(971), CCK(972), FGFR3(994), GNB3(1000), GRIK5(1045), SERPINA3(1091), ROS1(1128), MYO5B(1150), GNAL(1197), MAOA(1222), HTR3B(1255), ACE(1322), BDNF(1389), PLA2G4A(1483), CCL2(1516), CTLA4(1583), GSK3B(1627), NTRK2(1631), PLA2G2A(1754), SLC6A3(1844), SLC6A1(1894), STAT3(1934)
TPH2	3.97E-57	TPH1(1), SLC6A4(2), HTR2A(3), HTR1A(4), HTR6(5), TH(6), HTR2B(7), HTR1B(8), HTR2C(9), HTR5A(10), HTR3A(13), HTR7(14), HTR4(29), HTR3B(30), MAOA(31),

		DTNBP1(35), DAOA(37), SLC6A2(56), DRD4(58), SLC6A3(65), DRD3(91), DDC(92), ADRA2B(97), GPR50(98), ADRA2C(111), COMT(129), IL6(134), WFS1(137), DRD2(138), GNB3(139), ABCB1(144), TNF(168), BDNF(176), ADRA2A(190), GAD1(199), ACE(200), GRIK3(213), CYP2C9(222), IL1B(242), CTLA4(243), GNAS(244), FZD3(245), GABRA3(272), APOE(277), DRD1(281), ESR1(285), ADCY9(301), PER3(307), DISC1(339), ADRB1(341), PENK(356), MTHFR(378), TAC1(392), NR3C1(395), AGTR1(398), GMIP(415), POMC(416), DRD5(428), CRHR2(447), GRIA3(479), NOS3(481), LEPR(485), GNAL(513), SERPINA3(546), SYN3(555), GRIA4(565), GRIK4(607), ESR2(612), FGFR2(746), SLC25A21(748), GABBR1(763), GABRA6(770), TACR1(795), NOS1(847), MAOB(889), ADRA1A(910), PDE1A(913), CACNA1C(940), CLOCK(978), CRHR1(997), ADRA1B(1089), CCKBR(1112), LEP(1137), GRIN1(1236), CRHBP(1245), PER2(1270), NPY(1342), AVPR1B(1345), AR(1357), PDE9A(1429), GABRA5(1442), PER1(1477), CREB1(1578), CCL2(1586), PHACTR3(1600), ITPR1(1609), MMP2(1631), GRM7(1663), ADORA2A(1722), PDE11A(1727), FGFR3(1732), FGFR4(1734), CNR1(1870), AVPR1A(1985)
DRD5	2.17E-56	DRD1(1), DRD2(2), DRD3(3), SLC6A3(5), DRD4(6), TH(12), ADRA2B(13), ADORA2A(17), HTR1B(18), ADRA2C(19), HTR1A(20), ADRA2A(29), ADRA1A(33), HTR5A(34), ADRB1(39), HTR2A(40), ADRA1B(44), HTR2C(45), GRIA1(49), HTR3A(52), HTR6(53), HTR2B(54), ADCY9(59), GRIN1(60), GRIA4(62), CCKBR(65), GABBR1(73), CCND2(74), CHRM2(76), GRIA3(81), HTR7(88), GABRA3(93), GNAS(95), SLC6A2(106), GRIK3(111), GRIN2C(112), AGTR1(116), HTR4(129), GRIN2A(130), GRIN2D(136), GNAL(139), GRM7(146), TACR1(147), CNR1(166), ITPR1(168), ESR1(179), DDC(182), OPRD1(187), OPRK1(190), OPRM1(192), AVPR1B(217), CREB1(218), CRHR1(230), CCKAR(232), GABRA6(240), CRHR2(246), GABRA5(247), SLC6A4(252), GRIN2B(267), FGFR2(282), NR3C1(295), IL6(302), AVPR1A(309), PENK(314), GRIK4(348), GRIA2(356), TNF(402), GAD1(416), ESR2(427), ROS1(475), GRIK1(484), TAC1(524), MAOA(584), CHRNA7(600), GRIK2(665), IL1B(700), AR(720), PSMD9(769), GRIN3A(789), LEPR(807), P2RX7(816), FGFR1(853), BDNF(888), POMC(934), FGFR3(971), CACNA1C(992), PDE10A(1021), GRIK5(1260), DTNBP1(1295), GPR50(1400), FGFR4(1485), AKT1(1503), HTR3B(1519), NTRK2(1545), NGFR(1550), APOE(1563), GSK3B(1590), LRP1(1599), P2RX4(1618), NOS1(1647), CCK(1846), PDE1A(1850), NPY(1888), MAOB(1905), TPH2(1926)
NPY	1.15E-55	LEP(8), LEPR(14), POMC(19), IL6(42), CRHR1(46), TAC1(47), CRHR2(50), TH(54), TACR1(60), ADRA2B(61), TNF(70), DRD1(75), PENK(85), DRD2(86), HTR1A(87), HTR2C(89), CCKAR(90), AGTR1(92), HTR2A(109), IL1B(110), DRD3(111), CCKBR(114), HTR1B(119), ESR1(120), APOE(124), ADRA2A(126), ADRA2C(127), ADRB1(133), GABBR1(138), CCK(151), ADORA2A(160), ADRA1B(168), NOS1(194), BDNF(201), HTR3A(202), GAD1(205), ADRA1A(212), AVPR1A(213), NR3C1(215), GRIA3(223), GRIN1(236), ESR2(238), NOS3(239), GRIA1(278), CNR1(292), GRIK3(296), CHRM2(303), GABRA6(313), GRM7(315), ITPR1(320), AVPR1B(324), GNAS(354), GRIN2C(355), GRIA4(373), ABCB1(397), CREB1(419), SLC6A4(435), SLC6A2(436), GABRA3(437), CACNA1C(438), OPRM1(440), NGFR(473), AKT1(483), HTR6(488), AR(490), ACE(551), MMP2(568), GRIN2D(569), GRIN2B(597), GNB3(607), CRHBP(608), DRD5(619), GRIN2A(640), SERPINA3(695), HTR7(700), HTR5A(708), P2RX7(748), FGFR2(767), NFKB1(777), GRIA2(796), HTR2B(808), GABRA5(828), ADCY9(886), NTRK2(887), CTLA4(907), SLC6A3(915), CCL2(926), OPRK1(950), MAOA(989), HTR4(994), GSK3B(1022), DRD4(1073), OPRD1(1117), STAT3(1131), SLC6A1(1137),

		GRIK4(1204), CHRNA7(1278), GRIN3A(1366), TPH2(1403), FGFR1(1405), CCND2(1435), P2RX4(1444), LRP1(1462), KCNC2(1484), GPR50(1491), CYP2C9(1582), GRIK1(1588), NTRK3(1591), CNTF(1676), DTNBP1(1679), MTHFR(1690), GRIK2(1713), FGFR4(1731), FGFR3(1791), PLA2G2A(1861), GRIK5(1900), TPH1(1959)
HTR5A	1.40E-55	HTR2B(1), HTR6(2), HTR1A(4), HTR2A(5), HTR7(6), HTR3A(7), HTR2C(8), HTR1B(10), HTR3B(11), HTR4(13), SLC6A4(14), TPH2(17), ADRA2B(27), DRD1(39), ADRA2C(40), TPH1(44), ITPR1(47), ADRA1A(50), GRIA4(57), DRD5(62), GRIA3(64), GRIK3(68), DRD2(75), DRD3(78), ADRA2A(81), GABBR1(88), ADRA1B(89), ADORA2A(96), GABRA3(103), MAOA(104), GRIK4(105), ADRB1(106), GRM7(115), GABRA6(125), CCKBR(134), TACR1(136), GRIN1(139), GRIN2D(141), GRIA1(151), GABRA5(156), CHRM2(161), GNAL(162), OPRK1(169), GRIN2C(174), ADCY9(180), GNAS(195), OPRD1(200), AGTR1(223), CRHR1(229), CRHR2(243), AVPR1B(281), NR3C1(284), GRIN2A(300), CNR1(301), FGFR2(306), CACNA1C(309), FZD3(328), TH(330), ESR1(343), GRIN2B(347), GRIA2(406), GAD1(419), CCKAR(420), GRIN3A(426), GPR50(439), AVPR1A(465), IL6(487), GRIK1(498), OPRM1(508), DTNBP1(513), ESR2(517), TAC1(555), P2RX7(565), CHRNA7(620), GRIK5(661), TNF(734), SLC6A2(756), FGFR1(761), GRIK2(789), DDC(815), IL1B(857), PENK(928), DRD4(990), PDE1A(1005), OASL(1019), LEPR(1083), P2RX4(1101), AR(1166), FGFR4(1172), SLC6A1(1196), FGFR3(1310), POMC(1402), LRP1(1460), BDNF(1611), NGFR(1645), SLC6A3(1746)
OPRM1	6.44E-55	OPRD1(1), OPRK1(2), PENK(8), DRD1(15), DRD2(19), ADRA2A(25), DRD3(30), POMC(31), TACR1(38), ADORA2A(40), CCKBR(46), CNR1(49), HTR1A(50), ADRA2B(53), HTR1B(54), HTR3A(55), HTR2A(62), ADRB1(69), ADRA1B(73), GRIN1(76), TAC1(78), DRD5(81), HTR2C(83), ADRA2C(84), IL6(86), GRIA3(90), ADRA1A(91), GABBR1(92), GRIA1(93), AGTR1(97), CHRM2(101), GRIA4(109), ESR1(116), CRHR1(119), GABRA6(127), HTR5A(130), GRIK3(131), GRIN2A(135), TNF(137), HTR2B(138), HTR7(140), NR3C1(143), HTR4(146), CREB1(147), TH(153), CRHR2(155), GRM7(156), ITPR1(159), GRIN2C(169), GRIN2D(187), IL1B(196), HTR6(197), GABRA3(199), CCKAR(226), ESR2(237), LEPR(239), AVPR1B(244), GRIN2B(246), AVPR1A(269), GNAS(272), GRIA2(277), SLC6A2(291), SLC6A3(299), GABRA5(303), FGFR2(306), P2RX7(320), ABCB1(324), NPY(337), CCK(355), DRD4(373), SLC6A4(386), NFKB1(388), NOS1(392), AR(428), NGFR(431), CACNA1C(439), APOE(457), GRIK1(470), ADCY9(473), CHRNA7(490), AKT1(511), GAD1(533), LEP(536), BDNF(552), GRIN3A(575), GRIK2(598), FGFR1(600), GRIK4(612), PRKCH(624), P2RX4(701), LRP1(709), NOS3(751), NTRK2(786), GRIK5(807), GNAL(815), FGFR4(913), FGFR3(960), GSK3B(1027), HTR3B(1119), SLC6A1(1127), ROS1(1149), NTRK3(1154), CTLA4(1200), STAT3(1214), MAOA(1247), CCL2(1262), GPR50(1328), MMP2(1383), PDE1A(1439), SERPINA3(1446), CCND2(1504), CD3E(1544), CYP2C9(1690), GNB3(1780), FZD3(1823), CRHBP(1870), TPH2(1914)
AVPR1B	4.06E-54	AVPR1A(1), POMC(7), CRHR1(13), ADRA1B(20), CRHR2(23), ADRA1A(25), CRHBP(27), HTR1B(31), HTR1A(38), ADRA2B(43), DRD1(44), HTR3A(45), DRD2(46), AGTR1(53), ESR1(60), ADRA2C(62), NR3C1(68), GNAS(72), HTR2B(74), CCKBR(81), HTR2A(85), ADRB1(88), ITPR1(89), GRM7(101), HTR2C(102), ESR2(104), DRD3(105), TACR1(114), DRD5(118), HTR5A(120), ADRA2A(129), CHRM2(132), ADORA2A(137), GABBR1(138), HTR4(152), HTR7(157), TH(158), GRIA3(172), IL6(177), GRIA4(190), HTR6(224), GRIN1(249), OPRK1(251), PENK(264), CCKAR(266), LEPR(268), FGFR2(270), CACNA1C(275), OPRD1(291), FGFR4(292), GRIA1(309), AR(313), GRIK3(320),

		GABRA3(323), GABRA6(324), GPR50(345), GRIN2D(348), GRIN2C(349), TNF(364), IL1B(385), CREB1(432), OPRM1(433), TAC1(452), NPY(462), CNR1(469), P2RX7(564), GRIN2A(597), FGFR1(625), GRIN2B(696), ADCY9(710), GRIK5(735), LEP(786), GRIA2(802), SLC6A4(803), SLC6A2(810), P2RX4(823), GNAL(906), GRIK4(928), LRP1(930), AKT1(960), ABCB1(976), GABRA5(1031), ROS1(1085), NOS1(1126), FGFR3(1154), GRIK2(1236), GRIN3A(1262), DRD4(1272), PDE1A(1279), GAD1(1288), GRIK1(1360), NGFR(1396), MYO5B(1475), APOE(1545), PRKCH(1599), CHRNA7(1648), CCK(1694), NFKB1(1699), MAOA(1838), PLA2G4A(1910)
COMT	1.13E-52	DAOA(1), DTNBP1(3), DRD4(6), SLC6A4(10), HTR2A(11), MAOA(13), DRD2(14), DRD3(15), GNB3(17), SLC6A3(21), MTHFR(29), ACE(30), TPH2(41), DRD1(42), MAOB(47), DISC1(58), APOE(61), IL6(69), ESR1(71), ADRA2B(72), TH(76), HTR6(83), TNF(92), CYP2C9(97), IL1B(111), TPH1(113), CTLA4(120), SLC6A2(121), ABCB1(128), GRIK3(134), SERPINA3(136), HTR1A(140), DRD5(143), GPR50(155), NOS3(167), GNAS(186), HTR1B(187), SYN3(191), AGTR1(193), FZD3(198), ADRB1(200), WFS1(205), ADRA2C(210), HTR2C(232), BDNF(257), ESR2(261), DDC(279), PENK(280), ADRA2A(300), HTR5A(309), CCL2(355), CHRFAM7A(366), ADCY9(384), GAD1(434), AR(441), LEPR(497), NR3C1(500), POMC(546), GABRA3(579), GRIK4(589), LEP(640), GRIA4(649), CCKAR(671), GRIN1(698), CHRM2(744), NOS1(768), TAC1(793), GNAL(800), MMP2(803), ADRA1A(840), GABBR1(842), GRIN2B(905), FGFR2(906), GRM7(914), NPY(940), CCKBR(972), HTR3A(989), CACNA1C(1024), GABRA6(1064), OPRM1(1092), ADORA2A(1100), GMIP(1109), TACR1(1115), GRIA3(1192), P2RX7(1260), CRHR1(1266), GSK3B(1321), HTR4(1360), CREB1(1414), ADRA1B(1419), HP(1559), GRIA1(1570), AKT1(1642), CNR1(1668), FGFR3(1676), AVPR1B(1703), CHRNA7(1708), AVPR1A(1775), CCK(1782), FGFR4(1862), GRIN2A(1903), HS6ST3(1962)
HTR2B	5.87E-52	HTR2A(1), HTR6(2), HTR5A(3), HTR2C(4), HTR1A(7), HTR7(8), HTR3A(9), HTR1B(10), SLC6A4(12), HTR3B(13), HTR4(14), ADRA2B(16), TPH2(17), ADRA2C(22), TPH1(24), ADRA1A(26), ADRA1B(35), ADRA2A(39), ADRB1(42), DRD1(48), ADORA2A(50), MAOA(62), ITPR1(63), AGTR1(83), TACR1(88), GRIA3(93), DRD5(96), FGFR2(102), DRD2(103), CCKBR(111), GRIA4(123), DRD3(152), CHRM2(160), GRIN2C(170), GRIN2D(194), CRHR2(201), TNF(206), GRIK3(211), GABBR1(226), GRIN1(229), GRIN2B(240), ESR1(241), IL6(244), AVPR1B(246), NR3C1(259), OPRD1(260), OPRK1(272), FGFR1(303), TH(309), CRHR1(332), AVPR1A(339), GRM7(349), CACNA1C(350), IL1B(357), ESR2(378), GRIA1(382), DDC(402), GABRA6(425), GABRA3(428), GNAS(473), GRIN2A(479), CNR1(541), P2RX7(574), TAC1(595), GRIK4(621), NOS1(634), FGFR3(666), LEPR(713), FGFR4(717), CCKAR(737), SLC6A2(764), ROS1(817), AKT1(826), GABRA5(854), GRIK1(859), OPRM1(894), NOS3(904), GRIA2(982), ADCY9(1005), AR(1015), P2RX4(1084), GNAL(1266), LRP1(1269), CHRNA7(1297), NGFR(1307), POMC(1323), NFKB1(1437), GRIK2(1589), PENK(1659), GPR50(1734), GRIN3A(1802), CREB1(1969)
HTR3A	3.73E-49	HTR3B(1), HTR2B(4), HTR5A(5), HTR6(6), HTR2A(7), HTR1A(8), HTR7(9), HTR2C(11), HTR1B(12), HTR4(16), SLC6A4(17), CHRNA7(24), GRIA3(25), GRIA4(29), CACNA1C(31), TPH2(34), GRIN2D(43), ITPR1(53), GRIN1(54), GRIA1(55), ADRA2B(62), GABBR1(67), CHRM2(71), GRIK3(72), TACR1(76), DRD1(78), GRIN2C(82), GABRA3(84), GABRA6(90), ADRA2C(92), GRIN2A(95), GRIA2(98), GABRA5(115), GRIN2B(121), ADRA1A(132), P2RX4(134), DRD2(139), CCKBR(141), GRM7(142), ADORA2A(145), GRIK1(148), GRIK5(152), TPH1(153), GRIK2(168), ADRB1(171), ADRA2A(173), GRIK4(179),

		DRD3(182), P2RX7(193), KCNC2(194), GRIN3A(197), CRHR1(198), CRHR2(202), ADRA1B(205), CHRFAM7A(212), CNR1(214), DRD5(219), OPRD1(224), AGTR1(227), MAOA(230), OPRK1(236), TAC1(243), AVPR1B(269), CCKAR(281), ESR1(285), NR3C1(287), OPRM1(310), AVPR1A(313), FGFR2(348), SLC6A1(385), TH(399), ESR2(419), GNAS(490), IL6(500), PENK(588), GAD1(639), TNF(644), AR(652), POMC(658), LEPR(668), NGFR(671), FGFR1(718), SLC6A2(762), ANK3(772), CCK(805), IL1B(814), FGFR3(858), NTRK2(888), FGFR4(1029), PSMB4(1043), LRP1(1044), ADCY9(1139), BDNF(1144), NTRK3(1170), NPY(1219), DDC(1239), PDE1A(1269), GNAL(1291), DRD4(1358), ROS1(1369), CREB1(1399), NOS1(1431), AKT1(1451), ABCB1(1504), SLC6A3(1796), CRHBP(1828), LEP(1850), M6PR(1891), APOE(1937), NFKB1(1950)
CHRM2	4.32E-47	ADRA2B(9), HTR3A(14), ADRB1(18), ADRA2C(21), DRD1(26), CHRNA7(27), ADRA2A(29), HTR1A(35), ADRA1A(36), ADRA1B(38), HTR1B(41), DRD2(45), ADORA2A(48), TACR1(49), HTR2A(54), GRM7(57), ITPR1(58), GABBR1(61), AGTR1(62), DRD5(68), DRD3(74), GRIA3(80), HTR2C(84), GRIA1(87), GRIN2C(92), HTR2B(93), IL6(97), GRIA4(99), GRIN1(108), HTR5A(114), CACNA1C(118), CCKBR(119), ESR1(129), GRIK3(131), CNR1(140), GABRA3(141), HTR6(143), CHRFAM7A(152), GRIN2D(154), TNF(162), HTR7(163), OPRD1(167), GRIN2A(169), CRHR1(172), TAC1(173), GABRA6(179), HTR4(180), APOE(183), P2RX7(188), GRIN2B(190), CRHR2(192), AVPR1B(195), OPRK1(199), NOS3(209), CCKAR(216), OPRM1(219), NR3C1(220), LEPR(221), GRIA2(229), ESR2(230), AVPR1A(231), TH(240), IL1B(243), GNAS(265), P2RX4(272), GABRA5(305), NOS1(310), GRIK1(314), FGFR2(370), GRIK5(381), POMC(415), HTR3B(419), GRIK2(433), NGFR(436), PENK(447), AR(451), ADCY9(470), AKT1(473), GRIN3A(502), CREB1(534), LEP(544), NPY(561), GRIK4(565), LRP1(571), SLC6A2(577), ABCB1(594), SLC6A4(605), BDNF(686), FGFR1(727), MMP2(737), SERPINA3(811), DRD4(817), GAD1(852), NTRK2(882), FGFR3(885), NFKB1(915), FGFR4(949), SLC6A1(954), CCK(994), SLC6A3(1010), GNAL(1059), GSK3B(1061), CTLA4(1152), GNB3(1166), PDE1A(1269), ROS1(1284), KCNC2(1293), NTRK3(1316), GPR50(1411), CCL2(1418), ACE(1538), M6PR(1581), MAOA(1639), PLA2G4A(1689), STAT3(1869), PLA2G2A(1871), ANK3(1899), DTNBP1(1947)
TAC1	1.72E-44	TACR1(1), IL6(13), TNF(19), IL1B(31), ABCB1(38), PENK(44), TH(53), ADRA2B(62), DRD1(66), AGTR1(67), HTR1A(74), HTR3A(78), HTR2A(80), NGFR(84), NPY(104), NOS1(108), ADORA2A(109), DRD2(110), POMC(118), HTR1B(123), DRD3(151), NOS3(152), LEPR(161), ESR1(172), GABBR1(189), ADRB1(194), ADRA2C(195), GRIA3(214), CRHR1(242), NFKB1(255), HTR2C(273), LEP(275), ADRA2A(284), ADRA1A(288), BDNF(298), OPRM1(311), GRIN1(317), CHRM2(322), CCKBR(332), APOE(335), ESR2(337), ADRA1B(342), GRIA1(348), CRHR2(349), MMP2(359), ITPR1(361), NR3C1(374), GRM7(375), CCL2(376), GNAS(378), GAD1(381), AKT1(387), GRIA4(403), GRIN2C(428), CREB1(435), CNR1(440), FGFR2(451), P2RX7(457), NTRK3(463), CACNA1C(464), HTR2B(474), OPRD1(501), GABRA6(541), GRIK3(554), GRIN2D(557), SLC6A4(559), CCKAR(598), OPRK1(604), HTR7(606), SERPINA3(625), GRIN2A(635), HTR5A(654), AVPR1A(739), GRIN2B(762), NTRK2(789), FGFR1(923), SLC6A2(927), DRD5(930), CCK(948), GABRA3(965), CTLA4(1001), AR(1005), HTR6(1026), FGFR4(1120), GSK3B(1144), HTR4(1178), ACE(1199), GRIA2(1218), STAT3(1263), ADCY9(1266), CHRNA7(1275), PLA2G2A(1282), P2RX4(1306), AVPR1B(1326), SLC6A3(1345), FGFR3(1435), GRIN3A(1513), CCND2(1520), GRIK1(1526), LRP1(1560), GABRA5(1697), PLA2G4A(1767), PRKCH(1779),

		GRIK4(1946), SLC6A1(1987)
AGTR1	7.27E-42	ACE(4), ADRA2B(19), ADRA1A(23), IL6(26), NOS3(34), TNF(38), ADRB1(39), HTR1A(40), DRD1(42), ADRA1B(54), IL1B(74), LEPR(83), HTR2A(84), AVPR1A(85), ESR1(86), GNB3(87), TACR1(100), DRD3(102), DRD2(108), ADRA2A(109), APOE(111), ADORA2A(123), HTR1B(130), ITPR1(133), ADRA2C(145), HTR2B(158), CRHR1(173), NR3C1(180), MMP2(189), TAC1(196), NOS1(200), HTR3A(201), AKT1(203), HTR2C(206), HTR6(213), CCKBR(214), CHRM2(224), GNAS(226), ESR2(230), CACNA1C(231), LEP(245), CCL2(258), TH(271), CRHR2(319), AVPR1B(327), FGFR2(342), ABCB1(345), GABBR1(351), NFKB1(361), DRD5(363), CCKAR(365), POMC(399), HTR7(410), GRIA3(435), GRIA4(440), AR(468), SLC6A4(492), OPRD1(500), P2RX7(505), CTLA4(509), HTR5A(526), GRM7(529), GRIN1(534), GRIK3(540), SERPINA3(551), FGFR1(567), CNR1(577), GABRA6(623), NPY(631), LRP1(665), GRIA1(670), HTR4(743), OPRM1(766), MTHFR(792), GRIN2C(808), SLC6A2(809), GRIN2A(810), PENK(813), OPRK1(816), GRIN2D(818), DUSP6(823), GABRA3(829), FGFR4(847), FGFR3(880), CREB1(892), DRD4(899), GRIN2B(960), P2RX4(1035), STAT3(1079), NGFR(1094), CYP2C9(1095), ADCY9(1104), ROS1(1229), PLA2G2A(1251), GSK3B(1258), PLA2G4A(1287), GPR50(1410), M6PR(1580), GRIA2(1594), BDNF(1601), PDE1A(1672), CHRNA7(1695), CCND2(1746), PDE5A(1752), MAOA(1753), GABRA5(1772), SLC6A3(1823), PRKCH(1939), CCK(1979), GRIN3A(1992)
ADRA1B	9.34E-42	ADRA1A(2), ADRB1(3), ADRA2C(4), ADRA2B(5), ADRA2A(6), AR(9), HTR1B(13), HTR1A(20), DRD1(31), TNF(36), AGTR1(37), GNAS(41), VGLL4(42), CACNA1C(47), ADORA2A(57), HTR2B(58), ESR1(67), AVPR1B(70), DRD2(73), CHRM2(84), HTR2C(88), IL6(91), HTR2A(96), IL1B(110), TH(117), DRD3(121), SLC6A2(128), DRD5(129), HTR3A(141), ITPR1(147), GABRA3(151), HTR5A(154), GABRA6(155), TACR1(160), AVPR1A(166), ESR2(177), CCKBR(182), HTR7(191), GRM7(200), HTR6(207), CRHR1(209), GRIA4(211), GABBR1(220), CCKAR(228), NR3C1(251), CRHR2(266), GRIA3(267), ADCY9(282), OPRD1(301), SERPINA3(313), GRIA1(316), HTR4(343), AKT1(345), GABRA5(380), LEPR(386), GRIN1(395), OPRK1(402), GRIN2C(445), OPRM1(452), FGFR2(453), GNAL(472), POMC(473), CREB1(499), GRIN2D(512), TAC1(533), NFKB1(554), GRIK3(584), NOS1(588), NOS3(622), CHRNA7(633), GRIN2A(654), PENK(667), CNR1(672), LEP(715), FGFR1(757), APOE(769), LRP1(796), STAT3(886), PDE1A(933), ABCB1(939), GRIN2B(975), GRIA2(1024), P2RX7(1053), NPY(1056), GSK3B(1080), SLC6A4(1094), NGFR(1164), MMP2(1189), P2RX4(1233), FGFR4(1289), ROS1(1402), SLC6A3(1427), FGFR3(1471), GRIN3A(1522), KCNC2(1593), PRKCH(1602), GRIK4(1644), GAD1(1740), PSMD9(1754), GRIK1(1855), CCND2(1857), GNB3(1940), DRD4(1960), GSK3A(1991), ANK3(1995)
CCK	4.04E-38	CCKAR(1), CCKBR(2), IL6(25), PENK(26), HTR3A(32), ADRA2B(37), NPY(38), DRD1(43), TNF(49), TH(50), POMC(53), LEPR(55), DRD2(63), LEP(69), TACR1(71), HTR1A(76), TAC1(91), CRHR1(100), DRD3(101), IL1B(106), HTR2A(108), ADRB1(129), ADRA2C(138), AGTR1(173), HTR2C(185), ESR1(197), GABBR1(204), ADRA2A(206), ITPR1(218), HTR1B(225), ADRA1B(241), CRHR2(247), GRIA3(251), ADRA1A(259), OPRK1(279), GNAS(282), OPRM1(284), CACNA1C(300), GRIA4(306), GAD1(318), NR3C1(323), ADORA2A(338), GRIN1(397), GRM7(403), CHRM2(404), FGFR2(406), DRD5(410), ABCB1(416), OPRD1(419), APOE(426), AR(455), HTR5A(460), SERPINA3(545), GRIA1(558), GRIK3(562), NFKB1(564), GABRA3(582), HTR2B(605), NOS1(608), HTR6(629), MMP2(702), SLC6A4(708), ESR2(754), AKT1(757), CNR1(758), GABRA6(776), GRIN2C(782), BDNF(783), CREB1(808), AVPR1A(842), HTR7(927),

		AVPR1B(978), HTR4(1040), NOS3(1058), GRIN2D(1079), SLC6A2(1160), FGFR1(1244), ADCY9(1250), GRIN2A(1267), GRIN2B(1309), SLC6A3(1338), GABRA5(1382), PSMD9(1434), P2RX7(1439), NGFR(1459), FGFR4(1507), PSMB4(1519), CCL2(1538), SLC6A1(1549), ROS1(1550), GSK3B(1705), FGFR3(1801), PLA2G2A(1836), GNAL(1871), CTLA4(1913), GRIA2(1960), GRIN3A(1979), GRIK4(1993)
ACE	6.16E-38	AGTR1(2), GNB3(10), MTHFR(14), NOS3(18), ADRA2B(20), IL6(25), APOE(30), TNF(31), IL1B(46), SLC6A4(49), HTR2A(52), SERPINA3(80), ABCB1(82), CYP2C9(90), CTLA4(91), LEPR(100), ADRB1(134), COMT(151), DRD3(154), CCL2(160), ESR1(176), LEP(179), DRD2(182), MMP2(197), DRD4(211), MAOA(255), GNAS(283), TAC1(292), DTNBP1(295), TPH2(297), DRD1(304), NOS1(310), TH(324), DAOA(330), HTR6(363), ADRA2A(371), ADRA1A(386), HTR1A(405), TPH1(426), POMC(445), NPY(494), ADRA2C(502), AR(519), GPR50(523), SLC6A2(527), TACR1(536), ESR2(557), GRIK3(561), NR3C1(569), HTR2C(578), SLC6A3(611), CCKAR(655), HTR1B(710), ADRA1B(730), HP(792), PLA2G2A(804), CHRM2(814), CACNA1C(858), WFS1(917), AKT1(971), NFKB1(1034), PENK(1112), AVPR1A(1139), CCKBR(1150), ADORA2A(1229), CRHR1(1234), FGFR2(1239), MAOB(1251), ADCY9(1356), BDNF(1359), ITPR1(1400), GRIA4(1424), FZD3(1550), SYN3(1551), CCND2(1590), HTR3A(1630), HTR2B(1636), GRIN1(1658), GABRA6(1676), DRD5(1682), CCK(1707), GAD1(1709), FGFR3(1736), ACSL4(1769), GSK3B(1771), GRIN2B(1816), GABBR1(1826), GABRA3(1851), P2RX7(1874), FGFR4(1954)
GNB3	2.12E-37	ACE(7), MTHFR(11), ADRA2B(18), ADRB1(21), GNAS(28), HTR2A(29), AGTR1(34), SLC6A4(42), CTLA4(43), IL6(44), TNF(53), NOS3(55), IL1B(67), APOE(73), SERPINA3(84), ABCB1(91), GNAL(95), CYP2C9(103), COMT(123), HTR6(124), GPR50(125), DRD4(127), GABRA6(129), ADRA2A(148), CCL2(153), LEPR(162), ESR1(164), LEP(165), GRIK3(172), DTNBP1(194), DAOA(198), DRD2(210), GABRA3(222), DRD3(223), HTR1A(225), ADRA1A(244), ADRA2C(256), MAOA(257), HTR2C(283), CACNA1C(284), TPH2(286), ADCY9(369), PSMB4(374), ESR2(411), DRD1(443), ADRA1B(468), POMC(472), SLC6A2(487), GABRA5(493), TPH1(498), CCKAR(531), GRIA4(570), WFS1(574), AR(610), SLC6A3(624), NR3C1(630), MMP2(633), GRIA3(650), GABBR1(696), HTR1B(711), HP(715), TAC1(725), NPY(757), FZD3(774), GRIN2B(775), TH(855), HTR3A(875), CHRM2(883), PSMD9(927), HTR5A(989), NOS1(1109), GRIN1(1148), GRIN2A(1171), CCKBR(1189), AVPR1A(1202), TACR1(1206), GRIN2D(1227), AKT1(1239), CD3E(1247), NFKB1(1371), DRD5(1383), GMIP(1401), HTR7(1432), HTR2B(1468), SYN3(1484), FGFR2(1553), ANK3(1556), CHRNA7(1576), P2RX7(1583), ADORA2A(1625), GYPA(1658), HTR4(1665), GRIN2C(1712), BDNF(1723), GSK3B(1774), GRIA1(1799), MAOB(1806), PENK(1823), HTR3B(1864), GRIK4(1883), FGFR3(1983), ITPR1(1995)
TPH1	2.13E-37	TPH2(1), SLC6A4(3), TH(4), HTR2A(5), HTR6(6), HTR1A(8), HTR2B(10), HTR2C(12), HTR1B(16), HTR5A(20), HTR3A(27), HTR7(37), MAOA(42), DTNBP1(60), HTR4(61), HTR3B(72), DAOA(80), SLC6A2(82), ADRA2B(86), DRD4(98), DDC(99), IL6(124), TNF(144), ADRA2C(164), SLC6A3(171), IL1B(185), GNB3(192), DRD3(202), ESR1(209), CYP2C9(234), ACE(248), DRD2(257), ABCB1(262), GNAS(279), COMT(285), GRIK3(301), FZD3(313), SERPINA3(327), ADRB1(348), GPR50(359), GAD1(369), AGTR1(378), ADRA2A(402), APOE(427), WFS1(476), CTLA4(493), POMC(512), ADRA1A(527), PENK(532), SLC25A21(543), NR3C1(598), TAC1(631), MTHFR(648), ESR2(654), NOS3(710), DRD1(729), FGFR2(771), ADCY9(780), CACNA1C(788), BDNF(819), GRIA4(845), TACR1(964), MAOB(990), LEPR(1007), DRD5(1022),

		GABRA3(1153), GRIA3(1161), CRHR1(1274), CRHR2(1319), ADRA1B(1386), CREB1(1418), AR(1484), ITPR1(1489), GABRA6(1543), PSMB4(1549), FGFR4(1570), NOS1(1620), GABBR1(1625), PDE1A(1706), PSMD9(1898), CCL2(1963)
SLC6A2	7.87E-37	SLC6A3(1), SLC6A4(2), SLC6A1(11), TH(19), ADRA2A(39), ADRA2B(40), ADRA2C(42), DRD2(61), DRD1(66), DRD3(71), ADRA1B(81), HTR1A(87), HTR2A(88), MAOA(93), ADRB1(96), HTR1B(97), ADRA1A(112), DRD5(123), TPH2(136), HTR2C(142), ABCB1(143), IL6(148), DRD4(152), TNF(185), AGTR1(221), HTR3A(240), HTR2B(276), HTR6(286), TPH1(290), GRIK3(294), ADORA2A(307), GRIA3(313), IL1B(319), PENK(332), TACR1(337), ESR1(342), GNAS(346), CACNA1C(350), HTR5A(367), APOE(376), TAC1(382), GRIA4(390), BDNF(417), LEPR(429), GRIA1(438), DDC(453), DTNBP1(460), GRIN1(473), NOS3(480), POMC(481), NR3C1(491), GABRA6(510), LEP(515), GAD1(521), CREB1(526), GABBR1(534), GRM7(542), CHRM2(544), NOS1(607), CRHR1(609), HTR7(610), GNB3(629), GABRA3(643), OPRM1(648), CNR1(684), FGFR2(714), NPY(760), CCKBR(770), ESR2(771), ITPR1(798), GRIN2D(812), HTR4(816), AKT1(831), AR(847), OPRK1(885), SERPINA3(897), ADCY9(916), GRIN2A(920), MAOB(922), CRHR2(929), AVPR1B(950), GRIN2B(955), COMT(1007), ACE(1047), OPRD1(1078), GRIN2C(1086), CCKAR(1096), ROS1(1100), CTLA4(1139), NGFR(1147), MMP2(1159), GSK3B(1193), AVPR1A(1303), CYP2C9(1375), GNAL(1435), NFKB1(1452), GABRA5(1486), PRKCH(1534), MYO5B(1630), WFS1(1659), P2RX7(1720), GRIA2(1754), FGFR3(1764), GRIK4(1801), GRIN3A(1803), CHRNA7(1826), CCL2(1841), NTRK3(1884)
HTR3B	8.00E-37	HTR3A(1), HTR2B(4), HTR5A(5), HTR6(7), HTR2A(8), HTR1A(9), HTR7(10), HTR2C(12), HTR1B(13), SLC6A4(15), HTR4(17), CACNA1C(24), TPH2(32), GRIN2D(34), GRIA3(35), GRIA4(44), GRIK5(55), GRIN2C(62), GABRA6(71), GRIN2A(82), GABRA3(87), GRIN1(94), GRIK3(98), GRIA1(99), ITPR1(104), GRIN2B(105), GRIN3A(108), GRIA2(116), GABRA5(123), GRIK1(144), CHRNA7(153), GABBR1(155), TPH1(169), DRD1(171), GRIK2(172), ADRA2B(183), GRIK4(190), P2RX4(195), KCNC2(206), ADRA1A(228), CHRM2(230), ADRA2C(259), TACR1(262), ADORA2A(269), DRD2(272), MAOA(307), ADRB1(317), P2RX7(324), GRM7(340), PSMB4(354), CCKBR(359), DRD3(375), DRD5(377), ESR1(381), GNAS(410), ADRA1B(424), ESR2(432), ADRA2A(449), OPRD1(461), GNAL(484), AGTR1(487), OPRK1(546), FGFR2(551), TH(559), TAC1(601), CNR1(634), NR3C1(649), CRHR1(730), CRHR2(745), AVPR1A(771), AVPR1B(794), CCKAR(800), NGFR(845), OPRM1(847), GNB3(966), IL6(1036), TNF(1095), NTRK3(1127), DDC(1159), SLC6A2(1161), LEPR(1225), ANK3(1227), FGFR3(1283), AR(1308), NTRK2(1348), FGFR1(1350), FGFR4(1369), CHRFAM7A(1386), PDE1A(1435), IL1B(1438), GAD1(1543), SLC6A1(1591), LRP1(1618), POMC(1756), BDNF(1809), PENK(1818), NFKB1(1964), ABCB1(1967)
ADRA1A	3.41E-36	ADRA1B(2), ADRA2C(3), ADRA2B(4), ADRB1(5), ADRA2A(6), HTR1A(9), AR(11), CACNA1C(22), AGTR1(27), TNF(32), GNAS(36), HTR2B(39), VGLL4(42), DRD1(44), HTR1B(53), ESR1(74), ITPR1(75), AVPR1A(84), ADORA2A(94), HTR2A(95), ADCY9(107), GRM7(111), HTR3A(113), HTR7(114), HTR5A(117), CHRM2(121), HTR4(138), HTR2C(143), DRD2(145), IL6(146), AKT1(149), ESR2(159), DRD5(164), HTR6(173), AVPR1B(175), GRIA4(179), PDE1A(196), IL1B(199), GRIA3(233), TACR1(250), GABRA6(261), GABBR1(265), SERPINA3(266), DRD3(279), NR3C1(285), TH(296), CCKBR(323), GABRA3(324), CCKAR(336), SLC6A2(349), CRHR1(369), OPRD1(403), GRIK3(413), CREB1(417), CRHR2(449), FGFR2(464), GRIN1(476), GRIA1(490), OPRK1(518), NFKB1(519), GRIN2D(552), GRIN2C(575), GNAL(619), LEPR(627),

		POMC(644), PRKCH(653), TAC1(711), NOS3(751), P2RX4(771), CHRNA7(775), GABRA5(829), FGFR1(844), NOS1(886), LRP1(911), P2RX7(926), GSK3B(958), GRIN2B(961), GRIN2A(964), OPRM1(974), CAMKK2(1038), GRIN3A(1039), CNR1(1082), MMP2(1107), SLC6A4(1109), PDE2A(1122), GRIA2(1177), LEP(1218), ROS1(1312), FGFR4(1317), PENK(1483), GNB3(1500), ABCB1(1505), PLA2G4A(1515), ANK3(1637), CCL2(1663), GSK3A(1685), STAT3(1692), PSMD9(1725), FGFR3(1743), GRIK4(1764), APOE(1785), PDE11A(1853), NPY(1955), GRIK1(1987)
ADRB1	4.65E-35	ADRA1B(3), ADRA2B(4), ADRA1A(5), ADRA2C(6), ADRA2A(8), AR(11), ADCY9(17), GNAS(51), DRD1(57), AGTR1(60), ADORA2A(63), HTR1A(67), VGLL4(75), CHRM2(82), GNB3(85), TNF(86), IL6(88), HTR2A(89), CACNA1C(94), ESR2(96), DRD2(97), ESR1(100), IL1B(101), HTR2C(124), HTR2B(131), CCKAR(156), DRD3(159), TACR1(166), HTR6(168), AKT1(171), HTR3A(176), DRD5(187), HTR1B(189), NR3C1(194), CCKBR(212), ITPR1(251), GRM7(265), SLC6A2(275), GABRA3(284), HTR4(286), CREB1(289), HTR5A(308), LEPR(309), GRIA4(313), CRHR1(320), POMC(332), HTR7(334), TH(338), OPRD1(343), GABRA6(366), NOS3(368), GABBR1(390), GRIA3(420), AVPR1A(421), GSK3B(440), CRHR2(445), OPRK1(447), LEP(461), GRIK3(508), TAC1(529), GRIN1(532), APOE(543), GRIA1(569), LRP1(592), FGFR2(606), NFKB1(612), P2RX7(617), OPRM1(639), AVPR1B(640), CNR1(648), MMP2(682), GRIN2C(702), GPR50(721), SLC6A4(737), ABCB1(740), GNAL(755), SERPINA3(771), CHRNA7(855), P2RX4(860), NOS1(862), FGFR1(864), GRIN2A(869), GRIN2B(870), CCL2(882), PSMB4(888), CTLA4(985), GRIN2D(1029), GSK3A(1031), ACE(1090), DRD4(1095), PSMD9(1159), NPY(1160), GABRA5(1220), PDE2A(1231), CAMKK2(1318), GRIA2(1363), ROS1(1369), CYP2C9(1390), PENK(1391), STAT3(1398), FGFR3(1415), ANK3(1585), PRKCH(1629), NGFR(1702), FGFR4(1758), PDE1A(1824), GRIK2(1874), CD3E(1931)
MAOB	6.58E-34	MAOA(1), DRD2(44), SLC6A4(70), DRD3(72), COMT(74), TH(77), DRD1(78), GABBR1(80), SLC6A3(83), HTR2A(91), HTR1A(95), SLC6A2(112), DRD4(115), HTR1B(118), IL6(125), DRD5(129), TNF(136), ESR1(138), APOE(152), ADRA2B(169), HTR6(191), CCKBR(202), DDC(211), TPH2(220), HTR3A(237), IL1B(244), TPH1(245), ADRA2C(253), ABCB1(261), HTR2C(263), SERPINA3(264), ESR2(268), NFKB1(304), ACE(317), NOS3(318), GNAS(322), AGTR1(323), GNB3(356), HTR2B(360), HTR5A(362), PENK(375), ADRA2A(377), ADRB1(473), NR3C1(490), LEPR(508), ADRA1A(544), GAD1(588), NOS1(625), AKT1(626), TAC1(633), ADRA1B(664), CYP2C9(673), TACR1(687), POMC(742), MMP2(745), MTHFR(765), GRIA3(809), GRIK3(812), BDNF(826), DTNBP1(851), CCKAR(855), GRIA4(868), LEP(883), CTLA4(888), HTR7(904), AR(941), GABRA3(982), ADORA2A(994), HTR4(1039), FGFR2(1073), CRHR1(1079), ITPR1(1110), CREB1(1125), CCND2(1180), GNAL(1280), GSK3B(1307), PSMB4(1350), CHRM2(1359), CACNA1C(1373), CCL2(1402), DAOA(1483), GRIN1(1540), NPY(1573), CRHR2(1576), GRIA1(1627), PLA2G2A(1630), CCK(1654), GYPA(1658), ADCY9(1662), CNR1(1791), GRM7(1829), ACSL4(1837), GABRA6(1941), PSMD9(1954)
POMC	1.93E-33	AVPR1B(12), CRHR1(15), PENK(16), LEP(17), IL6(28), CRHR2(29), LEPR(30), TNF(31), NPY(33), CRHBP(37), IL1B(55), OPRM1(81), ESR1(83), GNAS(94), NR3C1(98), TH(100), ADRA2B(127), ADRB1(143), DRD2(147), ESR2(148), OPRD1(149), TAC1(156), OPRK1(157), ADRA2A(238), AGTR1(264), DRD1(279), TACR1(288), HTR1A(291), NFKB1(304), CCKBR(312), HTR2C(323), ADRA1A(331), ADRA2C(373), ADRA1B(389), ADORA2A(438), APOE(442), AKT1(451), FGFR2(464), HTR2A(467), CREB1(471), SERPINA3(484), HTR1B(495), NOS1(504), DRD3(520), GABRA6(545), HTR3A(560),

		ABCB1(667), MMP2(692), CACNA1C(739), NOS3(793), ITPR1(812), AR(826), GSK3B(905), CCKAR(927), GAD1(940), AVPR1A(942), CCK(945), STAT3(984), BDNF(1071), FGFR4(1075), GABBR1(1083), GRIA3(1085), CCL2(1117), GABRA3(1144), ADCY9(1148), SLC6A4(1224), HTR2B(1234), CHRM2(1277), PSMD9(1299), GRIN1(1307), FGFR1(1324), CNR1(1419), NGFR(1463), CCND2(1468), SLC6A2(1551), GRIA4(1553), ROS1(1644), FGFR3(1645), PSMB4(1661), PRKCH(1748), CTLA4(1762), GSK3A(1779), DRD5(1824), HTR5A(1836), HTR6(1856), GNB3(1868), LRP1(1883), CD3E(1896), GRIA1(1913)
OPRK1	1.99E-33	OPRD1(1), OPRM1(2), PENK(10), DRD1(21), DRD2(36), NFKB1(40), ADRA2A(41), ADRA2B(50), DRD3(51), ADORA2A(52), HTR3A(53), CCKBR(59), POMC(62), TACR1(65), ADRB1(68), GRIA4(70), HTR1A(72), CNR1(79), HTR5A(84), ADRA1A(88), HTR2B(98), GRIN1(99), ADRA2C(104), ADRA1B(105), HTR2A(106), GRIA3(112), HTR1B(123), GABRA6(139), HTR2C(141), DRD5(143), GABBR1(160), NR3C1(167), HTR7(168), GRIN2C(171), HTR4(173), GRIK3(177), CRHR1(184), CHRM2(186), AGTR1(199), HTR6(203), ITPR1(205), GRIN2D(206), GRIA1(214), ESR1(218), GRM7(224), GRIN2A(234), CREB1(241), TAC1(255), CRHR2(271), AVPR1B(294), IL6(295), TNF(299), FGFR2(311), TH(324), GABRA3(367), GRIN2B(370), GNAS(387), AVPR1A(394), CCKAR(413), ESR2(426), IL1B(441), P2RX7(480), GRIN3A(547), GRIK4(569), GRIA2(589), ADCY9(592), FGFR1(593), GABRA5(604), AR(644), GRIK1(692), CD3E(705), CACNA1C(768), NGFR(778), CCK(788), LEPR(813), AKT1(818), PRKCH(829), SLC6A2(884), FGFR4(909), P2RX4(916), GAD1(945), GRIK5(961), GRIK2(963), GNAL(973), LRP1(1040), NOS1(1156), FGFR3(1192), CHRNA7(1290), NTRK2(1310), ABCB1(1409), PDE1A(1417), DRD4(1424), HTR3B(1432), ROS1(1447), GSK3B(1558), NTRK3(1601), BDNF(1684), GPR50(1733), NPY(1773), SLC6A4(1774), SLC6A3(1809), CCL2(1860), FKBP5(1978), PSMB4(1986)
MTHFR	3.17E-31	GNB3(11), ACE(15), APOE(39), IL6(40), NOS3(51), HTR2A(63), SLC6A4(65), CTLA4(67), TNF(72), CYP2C9(73), IL1B(78), SERPINA3(89), ABCB1(92), ADRA2B(93), AGTR1(97), COMT(108), DTNBP1(117), DAOA(128), ESR1(170), DRD4(172), CCL2(175), LEPR(219), LEP(223), MAOA(230), ADRB1(242), TPH2(250), GNAS(279), DRD2(296), GPR50(298), HTR6(312), DRD3(315), TPH1(342), MMP2(353), WFS1(379), AR(383), SLC6A3(390), HP(426), GRIK3(440), HTR1A(476), HTR2C(516), ADRA2C(527), ESR2(530), NOS1(543), TAC1(557), SLC6A2(574), HTR1B(581), NPY(607), CCKAR(632), POMC(660), ADRA2A(672), NR3C1(691), FZD3(796), DRD1(811), TH(834), MAOB(843), TACR1(976), FGFR3(1036), ADRA1A(1039), SYN3(1055), CHRM2(1064), CCKBR(1087), FGFR2(1095), BDNF(1118), CACNA1C(1253), GMIP(1285), NFKB1(1315), PLA2G2A(1387), PENK(1404), ADCY9(1438), FGFR4(1472), AKT1(1475), CRHR1(1531), CCK(1539), ADORA2A(1560), HTR7(1563), GAD1(1581), HTR5A(1589), GABRA6(1591), GYPA(1647), HTR3A(1713), P2RX7(1726), GRIA4(1771), GABBR1(1775), GABRA3(1799), TBX21(1898), GSK3B(1984), ITPR1(1999)
LEP	4.51E-31	LEPR(1), NPY(15), IL6(20), POMC(29), TNF(32), IL1B(79), ADRA2B(88), APOE(92), HTR2C(133), AGTR1(138), ESR1(144), NOS3(166), ADRB1(168), STAT3(169), AKT1(186), ADRA2A(193), NR3C1(228), TAC1(232), CCKAR(235), TH(243), ABCB1(251), CRHR1(262), GNAS(267), HTR1A(271), TACR1(283), NOS1(294), CCKBR(299), DRD2(301), CRHR2(317), GNB3(321), MMP2(324), ESR2(325), DRD1(328), ADRA1B(359), HTR2A(364), DRD3(367), ADRA1A(380), CCL2(393), HTR1B(401), NFKB1(403), ADORA2A(416), PENK(418), ADRA2C(429), ACE(482), AR(535), SERPINA3(538), CCK(540), CNR1(589), CREB1(604), CNTF(627), GSK3B(634),

		CTLA4(660), ITPR1(670), SLC6A4(677), BDNF(693), CHRM2(720), SLC6A2(737), GPR50(801), HTR3A(812), FGFR2(844), CACNA1C(856), GSK3A(932), LRP1(964), AVPR1A(1022), HTR6(1059), MTHFR(1087), GAD1(1094), PSMD9(1095), PLA2G2A(1120), GRIN1(1141), CYP2C9(1149), GABBR1(1165), AVPR1B(1171), GABRA6(1181), HTR2B(1187), CCND2(1196), PLA2G4A(1214), MAOA(1228), ACSL4(1241), P2RX7(1251), NGFR(1261), GRIA3(1394), FGFR1(1451), OPRM1(1478), HTR7(1491), FGFR4(1530), CRHBP(1538), SLC6A3(1571), ADCY9(1595), PRKCH(1604), FGFR3(1652), GRIA1(1721), GRIA4(1726), HTR5A(1748), GABRA3(1749), GRM7(1762), DRD5(1769), GRIN2C(1861), WFS1(1971), GRIN2A(1975), HTR4(1997)
GPR50	1.47E-30	DAOA(13), HTR2A(37), ADRA2B(38), DTNBP1(46), HTR6(63), HTR2C(68), GNB3(78), ADRB1(88), SLC6A4(119), HTR5A(134), TPH2(135), HTR1A(139), GNAS(142), DRD2(144), GRIK3(158), DRD4(173), ESR1(186), LEPR(189), AGTR1(190), DRD1(198), AVPR1B(216), DRD3(220), HTR2B(235), ADRA1A(237), GNAL(241), IL6(262), GABRA3(267), LEP(271), POMC(303), TNF(307), APOE(310), DISC1(313), NR3C1(325), ADRA2C(340), HTR4(343), ADRA1B(345), ADRA2A(353), HTR1B(355), CCKAR(365), DRD5(371), FZD3(382), CTLA4(388), GABBR1(389), GRIA4(396), HTR7(397), CRHR1(401), HTR3A(402), AR(420), ACE(438), FGFR2(440), ADCY9(442), IL1B(447), CCKBR(451), TPH1(456), GRIK4(460), GRIA3(469), ESR2(478), MTHFR(530), COMT(555), ABCB1(571), OPRD1(577), CYP2C9(630), CHRM2(642), AVPR1A(648), TACR1(690), GMIP(747), OPRK1(757), MAOA(763), GRM7(820), CRHR2(823), LRP1(868), CHRFAM7A(960), ADORA2A(972), GABRA6(984), NOS3(995), SERPINA3(1159), FGFR4(1188), FGFR1(1225), ITPR1(1237), GRIN1(1279), NPY(1283), TAC1(1325), OPRM1(1379), SLC6A2(1410), P2RX7(1425), SYN3(1450), CCL2(1451), FGFR3(1484), PSMD9(1506), WFS1(1509), TH(1522), ROS1(1690), GRIA1(1702), PSMB4(1717), CRHBP(1741), SLC6A3(1794), CNR1(1948)
OPRD1	6.10E-30	OPRK1(1), OPRM1(2), PENK(8), DRD1(21), DRD2(36), ADRA2A(45), ADRA2B(49), HTR3A(58), ADORA2A(59), DRD3(60), CCKBR(61), POMC(71), ADRB1(74), TACR1(78), ADRA1A(85), HTR1A(89), ADRA1B(100), GABRA6(101), CNR1(106), HTR2B(120), GRIA4(126), HTR2C(130), GRIN1(131), HTR5A(132), HTR2A(133), GRIA3(136), AGTR1(143), ADRA2C(157), HTR1B(159), CHRM2(160), DRD5(165), CD3E(168), ITPR1(172), GABBR1(174), HTR6(182), ESR1(187), HTR7(193), GRIK3(194), GRM7(196), HTR4(202), GRIN2D(210), GRIA1(216), NR3C1(221), GRIN2C(222), IL6(225), TAC1(228), NFKB1(232), CRHR1(242), GRIN2A(246), CREB1(277), TNF(290), FGFR2(297), PRKCH(300), GABRA3(315), CRHR2(347), ESR2(348), GNAS(349), AVPR1B(351), ADCY9(352), GRIN2B(370), P2RX7(408), IL1B(414), CCKAR(417), TH(425), AVPR1A(435), CACNA1C(489), GRIA2(516), FGFR1(534), GABRA5(560), LEPR(572), LRP1(628), AR(634), GRIK1(650), AKT1(656), GRIK5(678), GRIN3A(737), GRIK4(767), P2RX4(768), NGFR(817), GRIK2(824), FGFR4(912), GNAL(918), CCK(1019), SLC6A2(1030), FGFR3(1045), CHRNA7(1082), HTR3B(1102), GAD1(1143), ROS1(1192), NTRK2(1206), ABCB1(1233), GPR50(1267), GSK3B(1293), GYPA(1302), NOS1(1359), APOE(1569), DRD4(1598), CCND2(1632), NTRK3(1644), M6PR(1675), FKBP5(1696), BDNF(1746), STAT3(1795), LEP(1828), NPY(1856), CCL2(1974), SLC6A4(1984)
NOS3	6.26E-30	NOS1(1), AGTR1(19), TNF(21), IL6(23), APOE(34), AKT1(37), IL1B(41), ACE(42), ADRA2B(67), GNB3(89), LEPR(103), ESR1(105), ADRB1(122), GSK3B(127), TAC1(138), LEP(139), MMP2(142), PDE5A(143), MTHFR(147), ABCB1(169), NFKB1(179), GSK3A(196), HTR2A(216), CCL2(219), TACR1(224), ADRA1A(227), SLC6A4(228), ADRA2A(229), CTLA4(272), DRD1(278), ESR2(280), ADORA2A(281), CACNA1C(286),

		ADRA1B(295), PDE2A(301), CHRM2(307), TH(308), SERPINA3(325), ADRA2C(342), DRD3(344), DRD2(346), POMC(408), GNAS(424), HTR1B(444), HTR2B(448), HTR1A(452), CYP2C9(462), NR3C1(516), NPY(617), CRHR1(631), ITPR1(652), SLC6A2(679), CCKBR(700), MAOA(726), HTR2C(730), CREB1(737), AVPR1A(745), CCKAR(778), AR(807), PLA2G4A(814), PENK(868), BDNF(873), P2RX7(885), ADCY9(910), GRIN2C(937), HTR6(955), SLC6A3(1015), DTNBP1(1028), STAT3(1062), GRIN1(1070), DRD4(1071), PLA2G2A(1137), FGFR2(1145), HTR3A(1165), FGFR1(1171), GRM7(1193), GRIA4(1248), GABBR1(1297), CNR1(1361), GRIA1(1407), TPH2(1413), CRHR2(1428), DRD5(1430), PRKCH(1438), GRIA3(1447), GRIN2A(1479), HTR7(1498), CCND2(1521), NGFR(1535), GRIN2D(1565), LRP1(1572), COMT(1576), PDE11A(1594), GRIK3(1602), GABRA6(1633), GRIN2B(1671), P2RX4(1680), CHRNA7(1685), CAMKK2(1693), FGFR4(1706), GAD1(1727), FGFR3(1794), TPH1(1806), OPRM1(1829), PDE1A(1844)
BDNF	1.68E-29	NTRK2(2), NTRK3(7), NGFR(10), TH(27), CNTF(28), GRIN1(40), GRIA3(44), GRIA1(45), DRD3(51), GRIN2C(53), GRIN2A(66), GRIN2B(72), IL6(74), TNF(78), DRD1(83), GAD1(85), GRIA2(89), HTR1A(92), HTR2A(94), CREB1(97), DRD2(104), GABBR1(105), GRIA4(114), HTR1B(122), TAC1(123), DNAJB2(128), SLC6A4(138), GRIN2D(142), IL1B(159), TACR1(162), GRM7(167), GRIK3(173), LEPR(183), GABRA5(195), APOE(214), NOS1(221), GABRA3(226), GABRA6(229), HTR2C(241), ADORA2A(258), PENK(271), FGFR2(285), POMC(292), GRIN3A(294), HTR3A(299), AKT1(300), GRIK4(307), ESR1(316), NPY(322), ITPR1(325), ADRA2C(340), ADRA2B(344), CNR1(366), SLC6A2(370), CRHR1(387), AGTR1(390), TPH2(397), LEP(430), DTNBP1(465), GRIK1(468), SLC6A3(484), CRHR2(512), FGFR1(513), DRD5(525), GSK3B(542), ADRA2A(549), NR3C1(553), ADRB1(578), SLC6A1(582), ADRA1B(587), NOS3(590), CHRM2(597), NFKB1(604), HTR5A(605), GNAS(632), MAOA(633), CACNA1C(654), ESR2(669), CCKBR(671), ABCB1(688), HTR6(691), HTR2B(701), GRIK2(736), DRD4(753), FGFR3(780), ADRA1A(794), ADCY9(858), CHRNA7(889), FZD3(909), FGFR4(932), GRIK5(995), MMP2(1015), SYN3(1049), OPRM1(1058), P2RX7(1060), HTR7(1082), STAT3(1130), OLIG2(1131), ROS1(1159), KCNC2(1237), CCND2(1255), OLIG1(1275), CCKAR(1294), AR(1302), CCK(1305), OPRK1(1342), CCL2(1383), PDE10A(1408), SERPINA3(1415), CTLA4(1431), HTR4(1457), TPH1(1458), OPRD1(1542), DDC(1549), LRP1(1690), GSK3A(1763), GNAL(1764), DAOA(1809), CAMKK2(1828), AVPR1A(1865), COMT(1890)
CHRNA7	4.02E-29	CHRFAM7A(7), HTR3A(25), CHRM2(33), GABRA3(42), GRIA3(44), CACNA1C(51), GABRA6(54), GRIA4(55), GRIA1(65), GRIN1(67), GABRA5(69), GRIN2D(70), GRIK3(71), ADRA2B(73), GABBR1(83), GRIN2C(85), GRIN2A(93), ADRA2C(96), DRD1(102), GRIN2B(107), TNF(108), ADRA1A(109), ADRA2A(111), HTR1A(116), ADRB1(117), DRD2(119), ADRA1B(124), GRIA2(129), HTR2A(130), HTR3B(131), ITPR1(139), HTR1B(143), DRD3(147), GRIN3A(150), GRM7(154), TH(180), HTR5A(188), ESR1(191), TACR1(193), ADORA2A(195), GNAS(196), GRIK4(199), HTR2C(201), GRIK5(206), HTR6(230), GRIK1(231), HTR2B(237), GRIK2(244), IL6(249), P2RX7(250), DRD5(260), P2RX4(269), HTR7(282), AGTR1(285), TAC1(308), DTNBP1(324), IL1B(335), NOS1(369), KCNC2(393), GAD1(399), NR3C1(406), CCKBR(420), ESR2(423), HTR4(435), FGFR2(459), CNR1(464), SERPINA3(475), CRHR1(489), PSMB4(521), SLC6A1(526), AR(540), NGFR(546), BDNF(565), GNAL(591), OPRM1(596), OPRD1(601), PENK(602), CRHR2(608), POMC(614), NTRK2(633), APOE(651), OPRK1(686), LEPR(699), SLC6A4(709), NFKB1(714), CREB1(778), AKT1(787), NOS3(791), CCKAR(800),

		AVPR1A(833), ADCY9(864), SLC6A2(918), DRD4(931), AVPR1B(960), LRP1(980), FGFR1(1025), SLC6A3(1026), FGFR3(1105), GSK3B(1141), ROS1(1208), FZD3(1211), GNB3(1246), NPY(1252), DAOA(1275), ANK3(1344), ABCB1(1358), LEP(1455), PSMD9(1616), NTRK3(1634), MMP2(1744), FGFR4(1769)
LEPR	1.30E-28	LEP(1), IL6(19), NPY(21), TNF(27), POMC(42), AGTR1(71), ADRA2B(76), IL1B(93), APOE(94), ESR1(112), HTR2C(124), NOS3(174), STAT3(175), ADRB1(180), NR3C1(196), AKT1(215), TACR1(221), CCKBR(238), DRD1(248), TH(258), DRD2(260), HTR1A(268), TAC1(269), GNAS(288), NOS1(289), ESR2(296), ADRA2A(299), DRD3(309), CCKAR(313), HTR2A(333), CRHR1(356), ADRA1B(357), ABCB1(361), MMP2(368), ADRA1A(383), ADORA2A(387), FGFR2(422), HTR1B(424), CRHR2(443), ITPR1(451), ACE(487), NFKB1(501), CCL2(503), AR(512), PENK(532), GNB3(565), ADRA2C(570), CTLA4(579), HTR3A(603), BDNF(624), CHRM2(643), HTR2B(734), CNR1(740), FGFR1(774), LRP1(776), CREB1(786), GAD1(839), PSMD9(843), HTR6(844), GRIA3(858), GABBR1(866), GRIN1(868), GSK3B(869), CACNA1C(872), NGFR(874), SLC6A4(888), SERPINA3(907), CCK(913), AVPR1B(971), GABRA6(984), GRIA4(992), FGFR3(1004), AVPR1A(1068), FGFR4(1070), P2RX7(1071), GPR50(1105), GRIA1(1158), GSK3A(1187), WFS1(1204), SLC6A2(1254), CCND2(1279), CNTF(1312), HTR5A(1375), ACSL4(1415), HTR4(1437), HTR7(1468), OPRM1(1472), GABRA3(1502), DRD5(1520), GRIN2A(1554), GRIN2C(1570), OPRD1(1603), GRM7(1619), ROS1(1643), PRKCH(1664), GRIK3(1713), ADCY9(1769), GRIN2D(1793), MAOA(1796), PLA2G4A(1817), CD3E(1839), PLA2G2A(1844), CYP2C9(1848), GRIN2B(1937)
GABBR1	1.94E-28	SLC6A1(10), GABRA5(13), GABRA3(14), GABRA6(26), GAD1(30), GRIA3(43), GRM7(44), GRIK3(46), GRIA1(47), HTR1A(53), HTR3A(55), GRIN1(56), DRD1(59), GRIA4(63), GRIN2C(67), GRIA2(68), GRIN2D(70), DRD2(71), TACR1(78), GRIN2B(79), GRIN2A(83), GRIK1(93), HTR2A(95), HTR1B(103), GRIK5(107), CCKBR(108), ITPR1(111), ADRA2B(115), GRIK2(128), DRD3(129), HTR5A(133), ADRA1A(139), ADORA2A(147), CHRM2(151), ADRA2C(152), CNR1(154), DRD5(162), CRHR1(168), HTR2C(172), CACNA1C(175), GRIN3A(176), ADRA1B(181), GRIK4(190), ADRB1(191), CRHR2(195), HTR4(209), AGTR1(219), TAC1(229), KCNC2(235), CHRNA7(238), HTR2B(247), HTR7(260), ADRA2A(264), TH(268), BDNF(272), ESR1(279), P2RX7(284), AVPR1A(307), HTR6(320), NTRK2(350), TNF(359), IL6(362), GNAS(367), OPRD1(374), OPRK1(381), NR3C1(395), OPRM1(422), FGFR2(436), CCKAR(448), AVPR1B(450), HTR3B(472), ESR2(487), IL1B(488), P2RX4(490), NPY(534), NFKB1(556), DRD4(577), GNAL(579), CREB1(580), PENK(582), LEPR(625), AKT1(633), NGFR(637), POMC(727), NOS1(737), SLC6A4(774), ADCY9(782), PCLO(825), MAOB(873), FGFR1(877), AR(907), PDE1A(1066), SLC6A2(1104), ROS1(1132), SLC6A3(1160), FGFR3(1265), CCK(1271), NTRK3(1284), FGFR4(1287), ANK3(1333), ABCB1(1347), APOE(1370), LRP1(1409), MAOA(1494), GSK3B(1495), PSMB4(1528), GPR50(1628), LEP(1697), PDE10A(1705), GNB3(1739), NOS3(1900), DTNBP1(1909), CD3E(1999)
P2RX7	2.33E-28	P2RX4(3), IL1B(15), IL6(21), TNF(29), ADORA2A(34), HTR3A(42), GRIA3(57), ITPR1(58), GRM7(65), CACNA1C(67), GRIK3(88), GRIA4(96), TACR1(100), DRD1(105), ADRA2B(110), GABBR1(130), ADRB1(132), GRIA1(134), AGTR1(146), HTR2A(160), GRIN1(168), ESR1(178), GRIN2C(182), DRD2(192), AKT1(204), NFKB1(206), ADRA1A(211), GRIN2D(215), CHRM2(218), HTR1A(227), TAC1(251), HTR2B(252), DRD3(275), HTR2C(277), GRIA2(283), ADRA2C(301), NR3C1(317), CCKBR(327), ADRA2A(338), GRIN2A(364), HTR5A(376), HTR7(377), GRIN2B(381), FGFR2(395), GABRA3(401), HTR1B(402), ADRA1B(415), GABRA6(424), ABCB1(448), CNR1(463),

		GRIK5(468), LEPR(482), CRHR1(514), ESR2(523), CHRNA7(547), HTR6(554), GRIK1(560), OPRD1(565), CCL2(568), GRIK2(582), TH(611), NGFR(613), GRIN3A(619), CRHR2(667), OPRK1(674), FGFR1(709), MMP2(712), DRD5(726), HTR4(728), GNAS(752), GRIK4(774), STAT3(797), AVPR1A(820), PLA2G4A(833), LRP1(848), CTLA4(857), NOS3(883), APOE(894), AVPR1B(904), CCKAR(938), POMC(939), NOS1(954), HTR3B(955), OPRM1(956), AR(1006), ADCY9(1035), CREB1(1043), GSK3B(1072), GABRA5(1074), PENK(1080), FGFR3(1136), ROS1(1137), SLC6A1(1185), FGFR4(1215), PLA2G2A(1221), LEP(1281), CD3E(1335), PSMD9(1351), NTRK2(1479), BDNF(1566), GAD1(1569), NPY(1629), KCNC2(1720), SLC6A4(1754), SERPINA3(1817), SLC6A2(1882), PRKCH(1945)
APOE	5.69E-28	IL6(28), TNF(41), LRP1(42), NOS3(60), IL1B(64), AGTR1(74), LEPR(76), SERPINA3(81), LEP(99), ESR1(102), ACE(105), ADRA2B(122), ABCB1(135), CCL2(137), MTHFR(157), GNB3(161), SLC6A4(175), HTR2A(178), ADRB1(224), CTLA4(243), MMP2(246), DRD2(252), ESR2(271), NOS1(299), HTR1B(314), TAC1(318), ADRA2A(325), TH(328), DRD3(330), POMC(332), GNAS(333), CYP2C9(352), DRD1(356), CHRM2(366), HTR1A(377), HTR6(387), TACR1(391), ADRA2C(399), NPY(438), ADORA2A(459), NR3C1(465), ADRA1B(482), DTNBP1(509), BDNF(525), AKT1(566), HTR2C(573), MAOA(588), NFKB1(598), AR(628), SLC6A3(652), PENK(658), ADRA1A(694), CCKBR(703), CCKAR(731), SLC6A2(732), PLA2G2A(735), CRHR1(748), DRD4(797), COMT(917), GSK3B(924), ITPR1(937), FGFR2(941), GRIN1(967), GRIK3(975), GRIA4(988), CREB1(1017), GAD1(1021), CACNA1C(1043), GRIA1(1044), NGFR(1054), GRIA3(1112), CNR1(1150), HP(1165), HTR3A(1175), GPR50(1246), P2RX7(1251), CD3E(1255), GABRA6(1267), GABBR1(1289), CCND2(1297), TPH2(1310), GRIN2A(1329), CRHR2(1338), FGFR4(1386), TFCP2(1402), PLA2G4A(1496), FGFR3(1531), DRD5(1598), GRIN2B(1604), GRM7(1625), GRIN2D(1657), FGFR1(1673), DAOA(1676), PSMD9(1701), WFS1(1703), GABRA3(1771), OPRM1(1801), CCK(1827), GSK3A(1867), ACSL4(1920), GRIN2C(1935)
GRIK3	1.34E-26	GRIK5(1), GRIK2(2), GRIK4(3), GRIK1(4), GRIA3(5), GRIA4(6), GRIA1(7), GRIA2(9), GRM7(10), GRIN1(21), GRIN2D(22), GRIN2B(25), GRIN2C(26), GRIN2A(27), GABBR1(38), GRIN3A(39), GABRA6(45), GABRA3(48), HTR3A(50), GAD1(54), HTR2A(60), GABRA5(67), HTR6(68), DRD1(71), ADRA2B(73), DRD2(76), DRD3(91), DTNBP1(97), HTR5A(99), HTR1A(122), HTR1B(141), HTR2C(149), ITPR1(178), ADRA2C(180), P2RX7(199), SLC6A1(218), CHRNA7(219), ADRA1A(220), HTR7(231), GNAS(236), CACNA1C(237), TACR1(238), DRD5(241), HTR3B(249), ADRB1(256), DRD4(263), HTR2B(264), ESR1(271), ADORA2A(282), DAOA(283), CHRM2(300), SLC6A4(313), CNR1(340), AGTR1(351), FGFR2(377), HTR4(451), OPRK1(497), ADRA1B(498), PCLO(510), OPRD1(519), CCKBR(534), CRHR1(544), GNB3(561), PSMB4(562), BDNF(570), ADRA2A(571), NR3C1(585), P2RX4(641), TH(652), GNAL(666), TNF(674), CRHR2(711), ESR2(716), TAC1(854), IL6(937), OPRM1(960), KCNC2(995), NTRK2(1004), SLC6A2(1013), CCKAR(1016), GPR50(1136), FZD3(1159), TDRD3(1181), IL1B(1186), MAOA(1237), ADCY9(1310), ROS1(1344), AVPR1A(1436), PHACTR3(1490), AR(1553), AVPR1B(1568), MYO5B(1591), FGFR3(1626), SLC6A3(1813), FGFR1(1911)
PENK	1.55E-25	OPRD1(2), OPRM1(3), OPRK1(4), POMC(6), TH(16), DRD1(21), IL6(24), DRD2(32), TAC1(33), DRD3(46), IL1B(61), TACR1(76), TNF(81), GAD1(103), HTR1A(114), HTR1B(138), CCKBR(159), CNR1(160), CRHR1(181), NR3C1(271), ADRA2C(276), NPY(277), ESR1(289), CRHR2(314), ADRA2B(333), ADRA2A(349), ADORA2A(351),

		HTR3A(358), LEPR(371), GRIA3(427), CCK(434), ADRA1B(453), AGTR1(472), GRIN1(478), CREB1(493), HTR2A(516), FGFR2(566), GRIA4(570), GNAS(587), ESR2(594), DRD5(629), GRIA1(676), LEP(681), HTR2C(701), GABBR1(703), GRIN2C(752), ADRA1A(764), ABCB1(778), ADRB1(780), NOS1(800), GABRA6(814), CCKAR(836), NFKB1(845), SLC6A3(861), SLC6A2(869), AVPR1B(872), BDNF(885), APOE(906), GRIN2D(919), ITPR1(921), PDE10A(955), CD3E(1062), SERPINA3(1085), SLC6A4(1216), PSMB4(1227), GABRA3(1262), CACNA1C(1269), HTR5A(1272), CHRM2(1293), NGFR(1341), AVPR1A(1376), AKT1(1377), AR(1389), GRM7(1406), CCND2(1431), HTR2B(1435), MMP2(1445), CTLA4(1541), GNAL(1542), FGFR1(1622), ROS1(1638), GRIN2A(1735), GRIK3(1805), GABRA5(1878), ADCY9(1894), FGFR4(1979)
GRIN1	2.47E-25	GRIN2C(1), GRIN2D(2), GRIN2A(3), GRIN2B(4), GRIN3A(5), GRIA3(7), GRIA1(9), GRIA4(11), GRIA2(14), GRIK3(20), GRIK1(21), GRIK4(23), DRD1(25), GRIK5(26), GRIK2(29), GRM7(36), HTR3A(50), GABBR1(58), GABRA6(67), CACNA1C(77), DRD2(85), GABRA5(88), GABRA3(97), ITPR1(121), DRD3(124), HTR1A(126), TACR1(136), BDNF(142), HTR1B(148), HTR2A(157), ADORA2A(159), CREB1(176), DRD5(178), ADRA2B(182), NTRK2(189), GAD1(215), TH(225), CHRNA7(244), HTR2C(249), HTR5A(252), ADRA2C(253), CNR1(264), HTR3B(273), CHRM2(284), NOS1(288), ADRA1A(291), ADRB1(302), HTR2B(310), ADRA2A(336), OPRK1(344), CRHR1(350), NR3C1(351), ESR1(352), ADRA1B(356), OPRD1(358), HTR6(382), AGTR1(385), OPRM1(399), CCKBR(402), HTR7(406), P2RX7(417), TAC1(418), NGFR(428), HTR4(430), IL6(435), FGFR2(437), CRHR2(448), TNF(451), P2RX4(457), GNAS(481), IL1B(517), PENK(543), KCNC2(625), SLC6A1(628), ESR2(664), AKT1(670), AVPR1A(719), LEPR(739), DRD4(774), AVPR1B(782), PSMB4(821), FGFR1(831), CCKAR(867), ROS1(871), GSK3B(925), NTRK3(926), AR(967), LRP1(977), POMC(998), NPY(1027), NFKB1(1034), MYO5B(1070), GNAL(1096), DTNBP1(1104), ADCY9(1146), SLC6A2(1157), APOE(1216), FGFR3(1289), SLC6A3(1297), SLC6A4(1368), FGFR4(1372), CAMKK2(1441), PDE1A(1462), FZD3(1512), CHRFAM7A(1564), CCND2(1573), PSMD9(1613), PDE10A(1631), CD3E(1691), ANK3(1706), DAOA(1785), NOS3(1802), LEP(1923)
GABRA3	1.86E-23	GABRA5(8), GABRA6(9), GABBR1(14), SLC6A1(22), GAD1(36), GRIA3(45), GRIK3(65), GRIA4(69), GRIN2D(70), HTR3A(74), GRIN2C(76), ADRA2B(77), GRIA1(78), ADRA2C(82), GRIN2A(83), GRIN1(92), GRIN2B(107), DRD1(112), GRIA2(120), DRD2(124), HTR1A(126), CACNA1C(127), CHRNA7(135), ADRA2A(140), ADRA1B(147), GRIK5(148), DRD3(157), GRIK1(158), ADRB1(160), HTR5A(165), HTR2A(166), GRM7(170), ADRA1A(171), GRIN3A(184), GRIK2(189), GRIK4(190), KCNC2(197), HTR3B(201), DRD5(203), GNAS(224), HTR1B(226), ESR1(271), TNF(273), HTR2C(278), TACR1(288), PSMB4(297), CHRM2(309), HTR6(334), TH(356), ITPR1(365), GNAL(381), ADORA2A(384), CCKBR(409), HTR2B(421), CNR1(455), AGTR1(516), NR3C1(545), ESR2(558), IL6(592), GNB3(617), BDNF(633), CRHR1(635), CRHR2(645), FGFR2(658), DRD4(685), SLC6A4(701), HTR7(708), P2RX7(719), OPRD1(745), IL1B(791), POMC(853), P2RX4(889), HTR4(902), OPRK1(905), AVPR1B(930), TAC1(946), OPRM1(973), AVPR1A(993), PENK(1010), AR(1057), NTRK2(1067), DTNBP1(1117), SERPINA3(1177), CHRFAM7A(1183), LEPR(1241), FZD3(1295), CCKAR(1311), GPR50(1315), FGFR1(1341), ADCY9(1351), ROS1(1419), SLC6A3(1425), SLC6A2(1501), FGFR3(1547), LRP1(1549), CD3E(1625), TPH2(1634), NGFR(1663), ANK3(1666), NOS1(1672), NPY(1742), PSMD9(1744), FGFR4(1760), CREB1(1984)
GRM7	3.77E-23	GRIA3(8), GRIA1(9), GRIA4(10), GRIK3(11), GRIA2(19), GRIK1(21), GRIK5(26),

		GRIN1(29), GABBR1(31), GRIK2(36), CACNA1C(38), GRIN2D(47), GRIK4(48), GRIN2C(51), ITPR1(52), GRIN2B(54), GRIN2A(58), HTR1A(68), ADRA2C(69), DRD1(71), HTR1B(72), GRIN3A(76), ADRA1A(79), HTR3A(84), ADRA2B(86), ADORA2A(126), CHRM2(132), DRD2(133), ADRB1(139), TACR1(144), GAD1(145), ADRA2A(148), P2RX7(157), ADRA1B(159), GABRA3(162), HTR5A(173), CNR1(175), HTR2A(184), GABRA5(190), HTR7(193), GABRA6(201), CCKBR(202), NR3C1(207), CRHR1(216), DRD3(220), PCLO(222), HTR2C(238), CRHR2(246), HTR4(250), DRD5(261), CREB1(265), SLC6A1(278), AGTR1(284), AVPR1B(293), HTR2B(298), CAMKK2(309), ADCY9(321), TAC1(335), OPRD1(340), TH(343), BDNF(350), P2RX4(357), ESR1(396), IL6(399), OPRK1(409), GNAS(412), CHRNA7(415), NTRK2(432), TNF(450), HTR6(453), PDE1A(456), AVPR1A(479), KCNC2(517), NOS1(537), OPRM1(567), CCKAR(584), FGFR2(684), AKT1(700), ESR2(715), PENK(737), NGFR(774), MYO5B(781), IL1B(808), NPY(852), SLC6A2(858), PRKCH(879), SLC6A4(887), LEPR(894), PDE10A(962), POMC(988), ANK3(1036), ROS1(1044), DRD4(1052), GNAL(1071), HTR3B(1075), FGFR1(1119), GSK3B(1173), AR(1233), APOE(1243), NOS3(1289), PLA2G2A(1338), CCK(1355), NFKB1(1375), FGFR4(1403), LRP1(1490), SYN3(1516), PLA2G4A(1537), ABCB1(1629), NTRK3(1690), FGFR3(1780), SLC6A3(1904), LEP(1911), DTNBP1(1972)
GRIN2D	5.78E-23	GRIN2C(1), GRIN2A(2), GRIN2B(3), GRIN1(4), GRIN3A(5), GRIA3(7), GRIA4(9), GRIA1(11), GRIA2(15), GRIK3(17), GRIK1(19), GRIK5(23), GABRA6(26), GRIK4(28), GRIK2(37), CACNA1C(48), DRD1(52), HTR3A(53), GRM7(63), GABRA3(68), GABBR1(84), GABRA5(91), HTR3B(108), ITPR1(126), ADRA2B(161), DRD2(162), TACR1(190), HTR1A(199), ADORA2A(203), HTR2A(207), DRD3(214), CHRNA7(233), ADRA2C(235), HTR5A(241), KCNC2(250), HTR2B(259), CD3E(271), HTR1B(285), DRD5(292), ADRA1A(296), GAD1(305), ADRA2A(308), PSMB4(314), HTR2C(317), NOS1(325), TH(335), CHRM2(342), ESR1(350), P2RX4(351), ADRA1B(375), HTR6(395), BDNF(405), NTRK2(409), P2RX7(422), HTR7(436), OPRD1(460), CNR1(462), AGTR1(476), ADRB1(477), OPRK1(491), ESR2(501), CCKBR(514), CRHR1(546), TAC1(552), NR3C1(565), CRHR2(589), CREB1(626), GNAS(640), IL1B(666), HTR4(674), NGFR(675), IL6(681), FGFR2(685), PENK(699), TNF(720), OPRM1(785), SLC6A1(791), AVPR1B(861), GNAL(911), AVPR1A(982), FGFR1(1041), PRKCH(1119), PSMD9(1143), AKT1(1163), NTRK3(1183), LRP1(1194), LEPR(1207), FGFR4(1235), NFKB1(1272), ADCY9(1329), SLC6A2(1387), ROS1(1397), AR(1418), CCKAR(1424), PHACTR3(1463), POMC(1464), APOE(1550), NPY(1595), DRD4(1617), GSK3B(1641), FGFR3(1656), ANK3(1669), PDE10A(1729), CCND2(1785), FZD3(1840), MYO5B(1859)
GRIK2	1.30E-22	GRIK5(1), GRIK1(2), GRIK3(3), GRIK4(4), GRIA4(5), GRIA3(6), GRIA1(7), GRIA2(8), GRIN1(12), GRIN2D(15), GRIN2C(16), GRIN2A(17), GRIN2B(18), GRM7(21), GRIN3A(37), HTR3A(42), GABBR1(46), GABRA3(59), GABRA6(61), CACNA1C(66), GABRA5(81), DRD1(84), ADORA2A(131), ADRA2B(134), DRD2(137), ITPR1(142), HTR3B(159), HTR2A(162), HTR1A(169), TACR1(180), HTR2C(182), GAD1(186), HTR1B(190), HTR5A(218), CHRNA7(230), P2RX4(238), DRD3(239), HTR6(241), CHRM2(244), ADRB1(246), ADRA2C(249), P2RX7(250), HTR2B(258), DRD5(260), ADRA1A(277), HTR7(311), HTR4(328), CNR1(343), GNAS(345), ADRA2A(354), KCNC2(368), NR3C1(370), ESR1(372), TH(397), NTRK2(398), ADRA1B(407), BDNF(429), SLC6A1(430), OPRD1(434), CRHR2(466), AGTR1(468), TAC1(473), OPRK1(484), FGFR2(486), CRHR1(496), CCKBR(522), IL6(549), DTNBP1(557), PSMB4(558), TNF(601), AVPR1A(641), OPRM1(657), AVPR1B(690), ESR2(718), PCLO(756), GNAL(786), CREB1(802), AR(846), MYO5B(857), DRD4(873), CCKAR(991),

		FGFR1(1018), ROS1(1048), SLC6A4(1058), IL1B(1076), NGFR(1104), ANK3(1152), ADCY9(1170), PENK(1176), LEPR(1205), PSMD9(1239), NOS1(1248), FGFR3(1278), CHRFAM7A(1417), LRP1(1493), FGFR4(1523), AKT1(1544), PDE10A(1570), POMC(1580), NPY(1591), SLC6A2(1599), FZD3(1679), APOE(1857)
GRIK4	2.52E-22	GRIK5(1), GRIK3(2), GRIK2(3), GRIK1(4), GRIA4(5), GRIA3(6), GRIA1(7), GRIA2(8), GRIN1(11), GRIN2B(13), GRIN2D(14), GRIN2C(15), GRIN2A(16), GRIN3A(26), GRM7(27), HTR3A(49), GABRA5(66), HTR5A(71), DTNBP1(72), GABRA6(79), GABRA3(81), GABBR1(82), GAD1(92), DRD1(112), DAOA(128), ADRA2B(138), HTR1A(143), HTR2A(151), DRD2(175), HTR6(179), CACNA1C(218), DRD3(228), HTR2B(252), HTR7(261), HTR1B(273), ITPR1(275), DRD5(300), HTR3B(317), ADRA2C(318), FGFR2(323), FZD3(331), HTR2C(352), TACR1(367), CHRNA7(373), ADRA1A(388), BDNF(391), TH(395), DISC1(427), GNAL(495), NTRK2(508), GNAS(524), ADRA1B(541), ADORA2A(545), NR3C1(551), CHRM2(583), IL6(624), ESR1(625), P2RX7(631), OPRK1(644), HTR4(647), KCNC2(659), P2RX4(709), PSMB4(739), ADRB1(755), TNF(772), CNR1(790), FGFR1(848), OPRD1(858), ADRA2A(919), CRHR2(928), TAC1(955), NGFR(988), CCKBR(989), AGTR1(991), IL1B(1007), CRHR1(1031), DRD4(1055), MYO5B(1066), ROS1(1091), GPR50(1191), AVPR1B(1207), FGFR3(1212), SLC6A4(1225), PHACTR3(1327), PENK(1336), ESR2(1341), FGFR4(1355), ADCY9(1386), OPRM1(1535), NTRK3(1576), TPH2(1594), SLC6A1(1640), LRP1(1700), AR(1746), AVPR1A(1829), APOE(1882), SLC6A2(1888), PCLO(1916), CREB1(1951)
GRIN2C	3.78E-22	GRIN2D(1), GRIN2A(2), GRIN1(3), GRIN2B(4), GRIN3A(5), GRIA3(7), GRIA4(12), GRIA1(13), GRIA2(15), GRIK1(16), GRIK3(20), GRIK5(24), GRIK4(26), DRD1(27), GABRA6(28), GRIK2(32), GRM7(55), CACNA1C(61), HTR3A(72), GABRA3(77), GABBR1(78), ITPR1(114), GABRA5(127), DRD2(141), ADRA2B(154), ADORA2A(166), HTR3B(169), BDNF(174), TACR1(179), ADRA2C(205), NOS1(213), DRD3(218), CHRM2(234), HTR1A(235), HTR2C(239), HTR2A(240), TH(241), HTR2B(253), GAD1(255), NTRK2(256), DRD5(270), HTR5A(301), CHRNA7(308), ADRA1A(319), KCNC2(327), HTR1B(344), ESR1(351), CREB1(354), ADRA1B(360), ADRB1(367), P2RX7(418), CD3E(419), CRHR1(420), CNR1(432), ADRA2A(438), OPRK1(449), NFKB1(453), NR3C1(471), IL1B(472), P2RX4(485), IL6(486), TNF(489), TAC1(491), NGFR(505), PSMB4(507), AGTR1(511), OPRD1(524), HTR7(526), CRHR2(529), HTR6(544), CCKBR(606), AKT1(617), ESR2(650), FGFR2(653), PENK(681), GNAS(730), OPRM1(808), SLC6A1(834), HTR4(856), ADCY9(941), AVPR1B(955), PDE10A(964), GNAL(966), FGFR1(983), NTRK3(1017), AVPR1A(1045), GSK3B(1075), PRKCH(1090), LEPR(1156), PSMD9(1161), NPY(1255), LRP1(1285), ROS1(1356), FGFR4(1365), POMC(1388), AR(1390), NOS3(1399), CCKAR(1514), MYO5B(1518), CCND2(1635), FGFR3(1683), DRD4(1742), SLC6A2(1879), PDE1A(1908), ANK3(1928), APOE(1977)
NOS1	4.10E-22	NOS3(1), TNF(43), IL6(49), TH(54), AGTR1(62), GSK3B(64), TAC1(75), IL1B(85), GRIN2C(87), AKT1(100), GRIN1(110), LEPR(111), PDE5A(117), GSK3A(118), CACNA1C(131), ADRA2B(136), TACR1(143), DRD1(144), GRIN2D(148), APOE(178), LEP(207), ESR1(213), ADRA1A(215), NFKB1(218), ADRB1(219), ADRA1B(225), POMC(226), GRIA1(246), GRIA3(262), HTR2B(278), ADORA2A(284), ITPR1(295), DRD3(303), DRD2(313), HTR1A(315), ADRA2A(324), CREB1(327), GRIN2A(329), NGFR(338), GRIA4(340), BDNF(345), ADRA2C(361), GAD1(366), HTR1B(378), MMP2(394), GRIN2B(396), PENK(406), CHRM2(408), GRM7(436), CRHR1(439), PDE2A(460), ESR2(467), GABBR1(483), NPY(489), HTR2A(508), GNAS(567), NR3C1(605), HTR3A(628), GABRA6(669), ABCB1(678), ADCY9(697), CCKBR(709),

		AVPR1A(740), CRHR2(757), ACE(768), HTR2C(808), SLC6A4(839), FGFR2(847), SLC6A2(851), CCKAR(857), GRIN3A(888), CHRNA7(976), CNR1(990), GRIA2(1007), P2RX7(1024), GABRA3(1030), GRIK3(1043), PLA2G4A(1075), AR(1098), PDE1A(1111), SERPINA3(1166), NTRK2(1192), OPRM1(1206), CCL2(1266), DRD5(1271), CCND2(1308), ROS1(1326), CAMKK2(1338), FGFR1(1345), HTR7(1453), STAT3(1489), OPRK1(1492), PLA2G2A(1506), SLC6A1(1521), NTRK3(1540), ANK3(1546), SLC6A3(1568), MAOA(1627), AVPR1B(1669), CCK(1693), DDC(1695), PRKCH(1696), GABRA5(1710), CTLA4(1736), PDE11A(1743), HTR5A(1778), PDE10A(1786), OPRD1(1836), KCNC2(1867), P2RX4(1872), PSMD9(1948), FGFR3(1982), GNB3(1994)
GRIN2A	4.14E-22	GRIN2B(1), GRIN2D(2), GRIN2C(3), GRIN1(4), GRIN3A(5), GRIA3(10), GRIA1(11), GRIA4(13), GRIA2(16), GRIK1(23), GRIK3(24), GRIK4(29), GRIK5(30), GRIK2(32), DRD1(35), GABRA6(48), GRM7(58), GABRA5(64), HTR3A(66), CACNA1C(68), GABRA3(70), GABBR1(87), DRD2(125), ITPR1(130), ADORA2A(132), HTR2A(155), TACR1(158), ADRA2B(166), HTR3B(170), HTR1A(172), BDNF(174), DRD3(176), HTR1B(190), ADRA2A(198), DRD5(214), NTRK2(222), CHRNA7(236), ADRA2C(251), CREB1(252), CHRM2(270), HTR2C(279), CNR1(305), ADRB1(313), HTR5A(315), HTR2B(325), ADRA1A(326), TH(329), ADRA1B(342), AGTR1(355), HTR6(374), GAD1(376), IL6(382), OPRD1(405), ESR1(410), OPRK1(416), NOS1(425), PSMB4(427), NR3C1(432), P2RX4(445), OPRM1(458), CCKBR(460), TAC1(472), P2RX7(481), TNF(501), CRHR1(502), HTR7(504), IL1B(512), KCNC2(521), CD3E(539), GNAS(571), NGFR(608), CRHR2(628), AKT1(658), FGFR2(684), HTR4(690), SLC6A1(734), LEPR(802), PENK(804), ESR2(838), DRD4(891), NFKB1(909), LRP1(943), GSK3B(974), ROS1(976), AVPR1B(981), FGFR1(992), AVPR1A(995), APOE(1003), GNAL(1040), AR(1065), CCKAR(1078), SLC6A2(1175), PSMD9(1192), POMC(1287), NPY(1352), SLC6A3(1357), ADCY9(1420), SLC6A4(1449), MYO5B(1472), NTRK3(1493), FGFR4(1499), NOS3(1541), FGFR3(1579), DTNBP1(1586), CCND2(1700), PRKCH(1749), PDE10A(1753), ANK3(1829), GNB3(1920), FZD3(1947), LEP(1961)
CYP2C9	7.01E-22	ABCB1(35), IL6(53), ADRA2B(65), GNB3(66), MTHFR(94), ACE(98), TNF(101), SLC6A4(104), APOE(117), HTR2A(121), IL1B(122), AGTR1(172), ADRB1(182), SERPINA3(193), NOS3(194), CTLA4(205), ADRA2C(234), GNAS(254), ESR1(256), DRD2(314), DTNBP1(339), TH(344), TPH2(359), DRD4(362), HTR2C(409), DRD3(410), LEPR(427), NR3C1(471), TPH1(494), MAOA(497), COMT(513), HTR6(532), HTR1A(537), AR(577), LEP(597), CCL2(618), ADRA2A(619), TAC1(620), ADRA1A(621), MMP2(723), DRD1(787), POMC(826), HTR1B(878), ESR2(883), CACNA1C(896), SLC6A2(901), UGT2A1(906), DAOA(923), TACR1(932), GPR50(1009), PENK(1016), GYPA(1037), SLC6A3(1044), GRIK3(1062), ADCY9(1097), FGFR2(1112), NOS1(1150), CCKAR(1157), HTR3A(1194), PDE11A(1368), ITPR1(1378), ADRA1B(1389), CCKBR(1398), PDE1A(1438), GABRA6(1555), GABRA3(1610), WFS1(1613), ACSL4(1621), HTR2B(1659), HTR5A(1776), AKT1(1799), FGFR4(1801), PSMB4(1828), GRIA4(1902), PLA2G2A(1979)
GRIK1	7.65E-22	GRIK5(1), GRIK2(2), GRIK3(3), GRIK4(4), GRIA4(5), GRIA3(6), GRIA1(7), GRIA2(8), GRIN1(13), GRIN2C(15), GRIN2D(16), GRM7(18), GRIN2B(19), GRIN2A(21), GRIN3A(31), HTR3A(40), GABBR1(43), GABRA3(60), GABRA5(63), GABRA6(67), DRD1(79), CACNA1C(120), TACR1(133), ADRA2B(135), HTR3B(144), HTR1A(150), GAD1(152), DRD2(155), HTR1B(159), ITPR1(161), HTR2A(166), ADRA2C(180), ADORA2A(185), HTR5A(191), HTR2C(193), HTR2B(204), CHRM2(214), HTR7(235), DRD5(243), DRD3(245), P2RX4(248), CHRNA7(257), HTR6(260), ADRA1A(267),

		P2RX7(272), CNR1(284), NTRK2(289), KCNC2(311), BDNF(317), PCLO(324), HTR4(334), ADRB1(337), ADRA1B(338), ADRA2A(361), SLC6A1(368), TAC1(380), OPRD1(394), OPRK1(405), CRHR2(438), TH(456), ESR1(462), AGTR1(533), FGFR2(539), GNAS(544), CCKBR(571), OPRM1(581), CRHR1(586), NR3C1(595), IL6(601), DTNBP1(681), NGFR(706), AVPR1A(721), PSMB4(747), ESR2(782), AVPR1B(800), MYO5B(825), TNF(849), CREB1(853), GNAL(869), CCKAR(1060), FZD3(1121), DRD4(1175), PENK(1177), IL1B(1198), FGFR1(1274), NOS1(1318), ANK3(1336), ROS1(1341), NTRK3(1401), PSMD9(1412), SLC6A4(1532), AR(1542), SLC6A2(1584), CHRFAM7A(1623), FGFR3(1646), NPY(1674), PHACTR3(1697), LEPR(1740), SYN3(1816), ADCY9(1948), LRP1(1992), FGFR4(1995)
HP	1.05E-21	IL6(7), TNF(13), IL1B(17), SERPINA3(20), APOE(34), ADRA2B(36), GNB3(65), AGTR1(101), ESR1(115), ACE(120), CCL2(127), GNAS(157), MTHFR(167), ADRB1(171), LEPR(181), ABCB1(186), LEP(192), NOS3(223), HTR2A(256), MMP2(287), CTLA4(336), SLC6A4(338), ADRA1A(345), HTR6(370), CYP2C9(379), ESR2(413), LRP1(444), POMC(494), ADRA2A(507), NR3C1(591), ADRA2C(626), TAC1(765), NFKB1(766), PSMB4(768), ADRA1B(782), DRD2(845), CACNA1C(847), TH(896), PLA2G2A(916), FGFR2(1010), AR(1012), PSMD9(1022), CRHR1(1153), HTR2B(1167), GYPA(1175), TACR1(1233), DTNBP1(1306), PENK(1324), GABRA6(1338), AKT1(1342), GRIK3(1394), HTR1A(1437), ITPR1(1462), SLC6A2(1480), GABRA3(1567), DRD3(1632), WFS1(1743), MAOA(1772), DRD1(1822), HTR2C(1823), NOS1(1975), DRD4(1995)
GABRA5	9.82E-21	GABRA3(5), GABRA6(11), GABBR1(14), SLC6A1(19), GAD1(31), GRIA1(41), GRIA3(52), GRIN2A(53), GRIN1(56), GRIN2D(58), HTR3A(62), GRIK3(63), GRIA4(78), GRIA2(79), GRIN2B(80), GRIN2C(86), HTR1A(100), GRIK4(110), GRIK1(121), ADRA2B(122), CACNA1C(125), HTR1B(129), ADRA2C(134), GRIK5(136), GRM7(137), DRD1(138), CHRNA7(141), GNAS(152), GRIN3A(165), HTR5A(168), GRIK2(176), ADRA1B(184), DRD2(187), HTR3B(195), ADRA2A(215), HTR2A(225), ADRA1A(237), DRD5(275), HTR2C(279), DRD3(305), TNF(311), KCNC2(323), BDNF(326), GNAL(328), ITPR1(336), ADRB1(354), TACR1(365), CNR1(373), ESR1(388), HTR2B(396), CHRM2(412), ADORA2A(421), TH(434), PSMB4(463), HTR6(467), HTR7(496), CCKBR(545), NTRK2(572), NR3C1(624), FGFR2(653), AGTR1(664), ESR2(669), HTR4(721), IL6(728), OPRD1(739), PENK(766), OPRK1(787), IL1B(805), GNB3(818), CRHR2(846), CRHR1(852), OPRM1(856), POMC(884), CHRFAM7A(899), CREB1(903), TAC1(913), P2RX4(926), SLC6A4(985), P2RX7(994), LEPR(1026), DRD4(1135), ADCY9(1298), PHACTR3(1314), AVPR1B(1435), NGFR(1450), FZD3(1508), PSMD9(1531), SERPINA3(1548), AR(1565), NOS1(1604), FGFR1(1656), ABCB1(1688), SLC6A2(1705), APOE(1724), NPY(1770), CD3E(1804), AVPR1A(1853), FGFR3(1910), CCKAR(1921)
GRIN2B	2.17E-20	GRIN2A(1), GRIN2D(2), GRIN2C(3), GRIN1(4), GRIN3A(5), GRIA3(10), GRIA1(11), GRIA4(13), GRIA2(15), GRIK3(20), GRIK1(22), GRIK4(29), GRIK5(30), GRIK2(35), DRD1(41), GRM7(49), GABRA6(67), CACNA1C(77), GABBR1(80), HTR3A(81), GABRA3(92), GABRA5(98), ITPR1(123), ADRA2B(128), DRD2(152), HTR2A(166), BDNF(178), HTR1A(179), ADORA2A(197), TACR1(205), HTR3B(212), HTR2B(215), DRD3(218), NTRK2(229), CREB1(234), CHRNA7(263), HTR1B(275), ADRA2C(292), TH(303), ADRB1(307), GAD1(317), CHRM2(319), ADRA1A(326), HTR2C(337), HTR5A(350), HTR6(361), DRD5(366), CNR1(384), ESR1(404), AGTR1(407), ADRA2A(420), TNF(459), IL1B(464), NOS1(466), P2RX7(468), ADRA1B(469), AKT1(473), IL6(478), NR3C1(485), P2RX4(500), GNAS(505), KCNC2(508), TAC1(518), HTR7(520), CRHR1(523), PSMB4(577), NGFR(583), OPRD1(587), GSK3B(596),

		OPRK1(602), CRHR2(611), CCKBR(621), HTR4(652), FGFR2(662), SLC6A1(726), DTNBP1(727), OPRM1(779), ESR2(823), GNAL(826), CD3E(890), DRD4(926), LRP1(978), FGFR1(980), LEPR(988), PENK(1006), ROS1(1028), AVPR1A(1033), NFKB1(1047), AVPR1B(1072), CCKAR(1133), APOE(1150), DAOA(1160), AR(1200), SLC6A2(1206), SLC6A4(1261), CAMKK2(1291), NPY(1293), ADCY9(1294), GNB3(1339), PSMD9(1366), NTRK3(1370), ANK3(1404), POMC(1415), PDE10A(1601), MYO5B(1603), FGFR4(1610), FZD3(1632), FGFR3(1641), SYN3(1705), PCLO(1744), NOS3(1747), PRKCH(1766), ABCB1(1834), CHRFAM7A(1942), PDE1A(1977)
IL6	4.25E-20	IL1B(4), TNF(36), STAT3(91), NFKB1(93), CCL2(117), LEP(158), LEPR(185), APOE(209), AGTR1(215), TAC1(260), ESR1(263), AKT1(284), TACR1(293), CTLA4(303), NOS3(309), POMC(312), ADRA2B(319), MMP2(321), TBX21(336), ADORA2A(348), ABCB1(354), SERPINA3(362), ADRB1(401), NR3C1(430), P2RX7(491), HTR2A(533), ESR2(570), PLA2G2A(595), ADRA2A(613), PENK(616), ADRA1B(623), HTR6(633), TH(641), GNAS(644), ADRA1A(651), CREB1(689), LBP(702), GNB3(705), ACE(714), DRD2(727), GABRA6(779), DRD1(792), NOS1(817), GSK3B(858), CRHR1(863), ADRA2C(886), FGFR2(898), AR(914), HTR1A(927), NPY(990), DRD3(999), CCKBR(1034), CCND2(1037), SLC6A4(1082), PRKCH(1096), HTR1B(1109), ITPR1(1118), CRHR2(1147), M6PR(1159), PLA2G4A(1166), CACNA1C(1202), FGFR4(1219), MTHFR(1239), HTR2C(1261), FGFR1(1317), CHRM2(1341), CD3E(1342), CNTF(1349), BDNF(1371), CYP2C9(1404), FGFR3(1420), NGFR(1458), LRP1(1589), HTR2B(1602), CCKAR(1637), SLC6A2(1743), PSMD9(1765), GSK3A(1872), HTR3A(1936), CNR1(1989)
GRIN3A	7.13E-20	GRIN1(2), GRIN2C(3), GRIN2D(4), GRIN2A(5), GRIN2B(6), GRIA3(9), GRIA4(12), GRIA1(23), GRIK3(32), GRIA2(33), GRIK4(36), GRIK5(40), GRIK1(42), GRM7(61), GRIK2(66), DRD1(76), PSMB4(83), CACNA1C(85), HTR3A(104), GABBR1(152), GABRA6(157), GABRA3(164), PSMD9(197), ITPR1(198), GABRA5(201), HTR3B(227), HTR1A(293), ADORA2A(325), ADRA1A(336), ADRA2B(356), TACR1(370), CHRNA7(378), HTR5A(380), DRD2(383), HTR2A(441), BDNF(505), DRD3(528), TNF(547), GAD1(600), NR3C1(605), TH(608), IL1B(649), ADRA1B(652), P2RX7(656), CHRM2(681), HTR7(701), HTR2B(714), HTR2C(720), IL6(735), DRD5(736), ADRB1(737), NTRK2(753), ADRA2C(757), OPRK1(777), HTR6(786), CREB1(793), AGTR1(800), P2RX4(802), HTR1B(806), CRHR1(829), NFKB1(837), NOS1(840), CNR1(849), TAC1(856), ADRA2A(910), ADCY9(916), ESR1(951), GNAS(953), OPRD1(972), CRHR2(998), CCKBR(1070), LRP1(1072), HTR4(1076), NGFR(1127), PHACTR3(1128), AKT1(1267), AVPR1A(1293), PDE1A(1297), PENK(1321), MYO5B(1339), SLC6A1(1351), KCNC2(1379), GNAL(1389), FGFR2(1406), PRKCH(1476), OPRM1(1555), AVPR1B(1672), CCL2(1692), GSK3B(1773), PDE10A(1778), ESR2(1794), FGFR1(1810), SLC6A2(1942)
DAOA	1.09E-19	DTNBP1(1), DISC1(5), FZD3(17), SYN3(23), CHRFAM7A(25), COMT(29), GPR50(31), HTR2A(36), TPH2(43), DRD4(44), SLC6A4(69), GRIK3(76), HTR6(77), DRD3(78), GRIK4(82), GNB3(115), DRD2(122), TPH1(128), MTHFR(135), CTLA4(140), MAOA(166), WFS1(173), ABCB1(177), SLC6A3(181), ACE(198), GAD1(216), GRIN1(238), GMIP(241), GNAL(243), TNF(249), GRIN2B(253), APOE(260), ADRA2B(307), IL1B(308), GNAS(311), IL6(314), GRIA4(315), HTR5A(317), CYP2C9(330), HTR1B(376), DRD1(392), HTR2C(398), SLC6A2(439), HTR1A(441), ESR1(443), ADRA2C(484), NOS3(488), BDNF(499), CHRNA7(511), AGTR1(515), SERPINA3(540), GRIN2A(591), GABRA3(621), DDC(696), DRD5(718), ADRB1(744), PER3(816), CCKAR(877), ADRA2A(909), ADCY9(992), HTR4(1002), GRIA3(1052), CCL2(1070), AR(1247), GRIK2(1252),

		GABBR1(1276), GABRA5(1360), TH(1404), GRIN2D(1439), POMC(1472), NR3C1(1531), GSK3B(1575), TFCP2(1645), MAOB(1772), FGFR2(1829), LEPR(1833), ESR2(1865), HTR7(1913), NOS1(1985)
GABRA6	1.73E-19	GABRA3(8), GABRA5(12), GABBR1(15), SLC6A1(24), GRIN2D(36), GRIN2C(46), GRIA4(55), GRIA3(59), GAD1(62), GRIK3(71), GRIN2A(75), GRIA1(80), HTR3A(85), GRIN1(86), CACNA1C(95), GRIN2B(96), ADRA2B(105), GRIK5(128), GRIA2(140), IL6(148), HTR1A(169), ADRA1B(172), ADRA2C(175), ADRA1A(179), DRD2(186), DRD1(189), TNF(191), GNAS(197), ITPR1(207), CHRNA7(215), HTR3B(222), ADRA2A(225), GRIK1(234), GRIN3A(241), ADRB1(245), GRIK4(248), KCNC2(261), HTR5A(263), HTR1B(265), GRIK2(268), HTR2A(285), GRM7(288), DRD3(300), OPRD1(322), ESR1(332), PSMB4(335), TACR1(366), HTR6(370), GNB3(423), GNAL(437), HTR2C(444), OPRK1(462), ADORA2A(464), TH(487), NR3C1(504), AGTR1(510), CHRM2(522), HTR2B(535), CCKBR(546), CNR1(568), DRD5(569), CRHR2(581), CRHR1(582), POMC(586), ESR2(606), IL1B(617), TAC1(697), HTR7(721), FGFR2(735), OPRM1(743), BDNF(783), SLC6A4(818), PENK(862), P2RX7(915), LEPR(939), CD3E(1009), P2RX4(1019), HTR4(1036), AVPR1B(1103), SERPINA3(1159), NGFR(1259), CCKAR(1272), NOS1(1292), FGFR1(1359), CREB1(1361), NTRK2(1405), SLC6A2(1415), NPY(1472), ADCY9(1502), AVPR1A(1530), AR(1559), LRP1(1576), PSMD9(1577), ANK3(1680), DRD4(1694), ROS1(1700), NFKB1(1714), APOE(1770), FGFR4(1813), FGFR3(1934)
GRIK5	2.66E-19	GRIK2(1), GRIK1(2), GRIK4(3), GRIK3(4), GRIA4(5), GRIA3(6), GRIA1(7), GRIA2(8), GRIN2D(12), GRIN1(13), GRIN2C(14), GRM7(18), GRIN2A(20), GRIN2B(22), GRIN3A(29), HTR3A(47), GABRA6(48), GABBR1(51), HTR3B(56), GABRA3(61), GABRA5(86), CACNA1C(102), DRD1(121), ITPR1(156), ADRA2B(179), DRD2(200), HTR5A(203), GAD1(210), CHRNA7(211), P2RX7(222), P2RX4(224), HTR1A(227), CHRM2(235), TACR1(245), ESR1(262), HTR1B(276), ADORA2A(287), HTR2A(291), HTR7(316), DRD3(320), ADRA1A(322), HTR6(324), KCNC2(333), ADRA2C(337), HTR2C(339), ADRB1(345), HTR2B(346), CRHR2(367), OPRD1(375), CRHR1(395), CNR1(397), ESR2(398), DRD5(400), PCLO(416), NTRK2(425), AVPR1B(439), NR3C1(465), OPRK1(474), SLC6A1(512), GNAS(519), ADRA2A(528), FGFR2(542), PSMB4(547), HTR4(550), CCKBR(569), BDNF(571), ADRA1B(585), MYO5B(653), AGTR1(667), TH(725), TAC1(746), LRP1(804), OPRM1(805), AVPR1A(816), NGFR(861), GNAL(867), FGFR1(873), ANK3(892), IL6(1045), DTNBP1(1092), TNF(1095), CCKAR(1196), AR(1282), ROS1(1421), LEPR(1436), NPY(1437), FGFR4(1440), CREB1(1461), FZD3(1466), FGFR3(1492), NOS1(1519), PSMD9(1527), IL1B(1544), NTRK3(1587), ADCY9(1660), SLC6A2(1685), PENK(1752), POMC(1761), AKT1(1827), DRD4(1897)
GRIA4	4.40E-19	GRIA3(1), GRIA1(2), GRIA2(3), GRIK3(5), GRIK4(6), GRIK1(7), GRIK2(8), GRIK5(9), GRM7(16), GRIN1(19), GRIN2D(20), GRIN2C(22), GRIN2A(25), GRIN2B(26), GRIN3A(32), HTR3A(41), GABRA6(55), CACNA1C(56), DRD1(57), GABRA3(82), ITPR1(91), GABBR1(92), ADRA2B(124), DRD2(133), GABRA5(159), HTR5A(169), HTR1A(172), DRD3(173), HTR3B(183), GAD1(190), ADRA1A(195), HTR2A(198), HTR6(205), HTR7(244), HTR2C(253), ADRA2C(265), DRD5(270), ADORA2A(276), TACR1(302), HTR2B(303), ADRB1(305), CHRNA7(318), HTR1B(332), ADRA1B(335), P2RX4(338), GNAS(369), KCNC2(390), P2RX7(406), CHRM2(417), TH(419), HTR4(426), OPRK1(434), ESR1(453), NR3C1(508), ADRA2A(509), AGTR1(543), OPRD1(552), FGFR2(564), TNF(573), CNR1(609), MYO5B(614), BDNF(629), NTRK2(660),

		CCKBR(661), PSMB4(749), ANK3(758), GNAL(771), DTNBP1(789), CRHR1(862), ADCY9(883), TAC1(888), IL6(890), FZD3(1011), SLC6A1(1014), ESR2(1042), CRHR2(1078), FGFR4(1085), OPRM1(1104), PENK(1116), FGFR1(1132), AVPR1B(1168), IL1B(1188), DRD4(1211), NOS1(1230), CREB1(1255), ROS1(1305), AR(1319), AVPR1A(1336), NGFR(1423), LRP1(1473), CCKAR(1561), LEPR(1569), FGFR3(1641), PSMD9(1689), CHRFAM7A(1876), SLC6A2(1899), SLC6A4(1939), AKT1(1991)
P2RX4	5.34E-19	P2RX7(5), CACNA1C(12), HTR3A(19), GRIA3(40), ITPR1(42), GRIA4(48), GRIA1(79), GRIN2D(82), ADRA1A(88), GRIN1(110), ADRA2B(111), ADRB1(112), TACR1(113), GRIN2C(122), ADORA2A(123), GRM7(124), GRIA2(126), GRIK3(133), GABBR1(137), DRD1(157), GRIN2A(161), AGTR1(164), CHRM2(168), HTR3B(191), GRIN2B(196), HTR2B(210), GRIK5(221), GABRA6(222), ADRA1B(225), GRIK1(232), GABRA3(236), HTR1A(237), IL6(249), GRIK2(254), ADRA2C(258), CHRNA7(270), KCNC2(272), ADRA2A(286), HTR5A(289), DRD2(290), HTR2A(293), TNF(306), TAC1(322), HTR2C(334), GRIN3A(336), CRHR2(350), HTR7(363), GRIK4(371), CRHR1(384), CCKBR(410), DRD3(411), GABRA5(427), HTR4(429), IL1B(438), OPRD1(441), HTR1B(446), ESR1(461), OPRK1(505), NR3C1(512), DRD5(519), FGFR2(520), AVPR1B(528), AVPR1A(532), TH(539), CNR1(632), AKT1(638), HTR6(651), SLC6A1(675), ESR2(687), GNAS(715), NGFR(718), LEPR(729), CCKAR(734), ADCY9(739), FGFR1(741), NOS1(762), NOS3(773), OPRM1(797), ABCB1(891), CREB1(892), ANK3(908), PDE1A(977), FGFR4(1007), NTRK2(1043), MMP2(1052), POMC(1132), NFKB1(1176), PENK(1221), LRP1(1242), NPY(1284), AR(1305), BDNF(1338), FGFR3(1364), M6PR(1449), ROS1(1474), PLA2G4A(1486), GAD1(1553), LEP(1574), NTRK3(1612), PSMD9(1642), PSMB4(1823), GSK3B(1833), CAMKK2(1891), SLC6A2(1908), MYO5B(1939), APOE(1962)
GRIA2	1.08E-18	GRIA3(1), GRIA1(2), GRIA4(3), GRIK1(8), GRIK4(9), GRIK3(10), GRIK2(12), GRIK5(13), GRIN1(14), GRIN2A(16), GRIN2B(17), GRIN2C(18), GRIN2D(20), GRM7(25), GRIN3A(36), HTR3A(56), GABBR1(57), CACNA1C(65), GABRA5(71), GABRA6(75), GABRA3(76), DRD1(77), ITPR1(100), HTR1A(152), BDNF(167), DRD2(184), NTRK2(192), HTR3B(195), TACR1(197), GAD1(202), ADORA2A(209), HTR1B(233), HTR2C(239), ADRA2B(240), HTR2A(252), P2RX4(273), CHRNA7(281), CHRM2(300), HTR5A(302), ADRA1A(306), DRD3(307), ADRA2C(309), P2RX7(311), TH(312), CNR1(315), DRD5(347), ADRB1(350), ADRA1B(364), HTR2B(371), ESR1(394), CREB1(409), SLC6A1(418), HTR7(419), NGFR(420), TNF(423), KCNC2(436), ADRA2A(445), NR3C1(446), CCKBR(461), GNAS(474), AGTR1(480), CRHR1(484), HTR4(504), CRHR2(529), TAC1(531), FGFR2(534), OPRD1(543), HTR6(554), IL6(593), OPRK1(611), MYO5B(622), OPRM1(629), NOS1(703), ESR2(706), IL1B(780), PSMB4(791), AKT1(835), PCLO(845), AVPR1B(887), AVPR1A(892), LEPR(964), NTRK3(965), PENK(967), FGFR1(978), GNAL(1002), CCKAR(1075), ROS1(1076), LRP1(1077), AR(1121), NFKB1(1191), NPY(1252), ANK3(1312), FGFR3(1330), PSMD9(1335), GSK3B(1340), POMC(1388), CAMKK2(1422), SLC6A2(1425), FGFR4(1436), ADCY9(1479), APOE(1561), DRD4(1626), SLC6A4(1700), PDE10A(1782)
GRIA1	1.41E-18	GRIA3(1), GRIA2(2), GRIA4(3), GRIK3(6), GRIK1(7), GRIK4(8), GRIK2(10), GRIK5(11), GRIN1(14), GRM7(15), GRIN2A(19), GRIN2B(21), GRIN2C(24), GRIN2D(25), GRIN3A(43), DRD1(56), GABBR1(58), GABRA5(69), HTR3A(70), GABRA6(90), GABRA3(106), DRD2(111), CACNA1C(121), ITPR1(122), GAD1(131), HTR1A(146), HTR1B(149), TACR1(186), NTRK2(189), DRD3(198), BDNF(202), DRD5(205), CNR1(221), ADORA2A(248), ADRA2B(249), ADRA2C(252), TH(259), CREB1(269),

		HTR2A(278), CHRNA7(282), CHRM2(285), HTR2C(306), SLC6A1(318), HTR5A(337), HTR3B(340), ADRA1B(342), ADRA1A(344), ADRB1(367), P2RX7(398), MYO5B(415), P2RX4(425), ADRA2A(431), NGFR(455), ESR1(458), KCNC2(473), HTR2B(474), NR3C1(483), TAC1(486), GNAS(487), AGTR1(500), CRHR1(510), CCKBR(523), TNF(524), HTR7(525), OPRM1(541), PCLO(542), FGFR2(555), HTR6(572), NOS1(578), OPRD1(584), HTR4(605), CRHR2(620), OPRK1(622), IL6(657), CAMKK2(705), PENK(724), ESR2(849), ROS1(851), PSMB4(854), IL1B(912), DRD4(916), AVPR1B(961), AKT1(979), FGFR1(994), NTRK3(1000), LEPR(1015), SLC6A3(1021), GNAL(1079), SLC6A2(1104), ANK3(1168), AVPR1A(1191), NPY(1197), LRP1(1222), PSMD9(1251), ADCY9(1256), AR(1281), PDE10A(1302), FGFR3(1347), GSK3B(1350), APOE(1359), CCKAR(1398), POMC(1498), SLC6A4(1529), FGFR4(1542), DTNBP1(1546), SYN3(1575), NFKB1(1689), FZD3(1996)
IL1B	2.15E-18	IL6(3), TNF(36), NFKB1(80), CCL2(108), STAT3(174), MMP2(238), TACR1(269), AGTR1(271), P2RX7(274), ESR1(280), ADRB1(281), AKT1(282), CTLA4(298), PLA2G2A(299), SERPINA3(312), TAC1(325), POMC(326), APOE(331), NOS3(339), LEPR(364), LEP(365), ADRA2B(367), TBX21(386), ADORA2A(400), HTR2A(438), NR3C1(441), ADRA1B(449), ABCB1(484), ADRA1A(490), ESR2(529), PENK(607), CREB1(633), LBP(646), GNB3(658), TH(678), NOS1(707), GNAS(709), GSK3B(726), ADRA2A(740), ACE(754), DRD2(792), HTR1A(808), PLA2G4A(814), DRD1(838), PRKCH(847), ADRA2C(848), SLC6A4(923), CACNA1C(957), FGFR2(961), HTR1B(986), ITPR1(987), CRHR1(1020), CD3E(1137), CCKBR(1148), DRD3(1172), HTR2B(1230), MTHFR(1254), AR(1262), CRHR2(1306), LRP1(1344), FGFR1(1349), PSMD9(1370), CYP2C9(1387), HTR2C(1403), CCND2(1411), BDNF(1429), GRIN2C(1437), GRIN1(1489), NPY(1513), FGFR4(1525), GABRA6(1534), ADCY9(1573), CCKAR(1576), HTR6(1583), GABBR1(1597), GRIA3(1631), FGFR3(1690), CHRM2(1724), HTR3A(1747), GRIA4(1782), GSK3A(1786), NGFR(1840), DTNBP1(1881), GRIN2B(1982)
CHRFAM7A	4.70E-18	CHRNA7(1), DTNBP1(25), DAOA(26), HTR3A(30), DISC1(36), CHRM2(40), HTR2A(65), GRIA4(73), CACNA1C(74), HTR6(81), FZD3(87), ADRA2B(95), GABRA3(97), GRIK3(112), DRD3(115), DRD2(118), GRIN1(138), TNF(141), GABRA5(143), GNAS(149), CREB1(173), GRIA3(177), NFKB1(183), HTR5A(191), DRD1(198), IL6(209), ADRA2C(211), GABRA6(214), DRD4(229), ESR1(241), SYN3(267), ITPR1(273), ADRA1A(311), DRD5(317), HTR1A(323), GABBR1(348), GRIA1(360), HTR2C(381), ADRA2A(384), HTR4(397), ADRB1(417), ADRA1B(430), HTR1B(471), GRIN2B(473), FGFR2(483), GNAL(523), GRM7(551), GRIK4(561), AGTR1(583), HTR7(628), NR3C1(633), GPR50(647), HTR2B(649), GRIN2A(670), AKT1(697), IL1B(729), GRIN3A(758), GRIN2D(798), GRIN2C(823), SLC6A4(866), TH(913), GRIK1(937), GRIK2(947), ADORA2A(971), P2RX7(1045), CCKAR(1062), GNB3(1203), COMT(1220), APOE(1232), SERPINA3(1270), AR(1311), PSMB4(1319), ESR2(1325), TACR1(1352), PSMD9(1375), FGFR3(1378), CCKBR(1472), PHACTR3(1494), CAMKK2(1517), FGFR4(1537), HTR3B(1613), GSK3B(1695), GAD1(1755), FGFR1(1797), P2RX4(1811), GRIA2(1922), ADCY9(1998)
CCL2	5.17E-18	IL6(16), TNF(18), IL1B(20), NFKB1(53), APOE(152), AGTR1(154), MMP2(187), SERPINA3(232), AKT1(251), NOS3(281), CTLA4(294), ESR1(295), STAT3(326), LEPR(331), GNB3(348), TAC1(350), ABCB1(353), ADRB1(355), ADRA2B(371), TACR1(441), HTR2A(454), LEP(461), NR3C1(483), ACE(495), GNAS(553), ADORA2A(598), PRKCH(604), ADRA1A(607), ESR2(622), POMC(658), PSMD9(659), P2RX7(747), FGFR2(755), PLA2G2A(855), CREB1(915), MTHFR(939), TH(940),

		GSK3B(968), ITPR1(980), LRP1(1026), SLC6A4(1032), DRD2(1071), PLA2G4A(1078), CRHR1(1099), FGFR1(1114), DRD1(1133), AR(1167), PSMB4(1169), ADRA1B(1171), HTR1A(1207), HTR6(1286), FGFR4(1300), ADRA2A(1361), CACNA1C(1370), DRD3(1375), PENK(1426), CCKBR(1492), NOS1(1497), CYP2C9(1499), ADRA2C(1536), FGFR3(1570), CCND2(1590), TBX21(1619), HTR2C(1680), DUSP6(1817), DTNBP1(1826), ADCY9(1876), CD3E(1890), CCKAR(1967), HTR2B(1977), LBP(1997)
CRHBP	1.33E-17	CRHR1(2), CRHR2(3), POMC(10), AVPR1B(17), NR3C1(42), ESR1(55), IL6(94), ESR2(105), CREB1(118), GNAS(133), TH(142), ADRA2B(146), HTR1A(147), HTR3A(161), DRD2(190), DRD1(216), TNF(229), ADCY9(267), DRD3(282), HTR5A(333), ITPR1(432), NPY(433), PENK(467), GRIA4(468), GRIA3(505), CCKBR(514), AGTR1(529), AR(543), HTR2A(568), ADRA2C(571), HTR2C(602), ADRA1A(609), LEP(614), ADRA1B(647), DRD5(650), LEPR(652), IL1B(674), AVPR1A(712), FGFR2(734), GABBR1(789), GRIN1(826), TAC1(830), TACR1(835), GRIK3(988), ADRB1(1030), HTR2B(1062), HTR1B(1063), GABRA3(1134), FGFR4(1221), ADRA2A(1258), GRIK4(1300), HTR6(1323), GAD1(1372), GABRA6(1415), ABCB1(1432), GRIN3A(1433), ADORA2A(1440), SLC6A4(1449), LRP1(1535), FKBP5(1577), CACNA1C(1582), APOE(1598), PSMB4(1600), TPH2(1658), CHRM2(1761), GRM7(1785), SERPINA3(1853), OPRK1(1911)
GRIA3	1.98E-17	GRIA4(1), GRIA2(2), GRIA1(3), GRIK3(4), GRIK4(6), GRIK1(7), GRIK5(10), GRIK2(12), GRIN1(14), GRM7(18), GRIN2D(19), GRIN2C(21), GRIN2B(27), GRIN2A(28), GRIN3A(32), HTR3A(49), GABBR1(54), GABRA3(64), GABRA6(77), CACNA1C(78), DRD1(117), GABRA5(131), GAD1(140), ITPR1(151), HTR1A(180), ADRA2B(183), HTR3B(200), TACR1(213), DRD2(234), HTR5A(245), ADRA2C(264), HTR2A(273), HTR1B(293), ADORA2A(298), BDNF(302), HTR2C(304), CHRNA7(306), DRD3(311), ADRA1A(323), HTR2B(329), P2RX7(369), NTRK2(374), P2RX4(381), DRD5(412), TH(418), CHRM2(441), KCNC2(452), HTR6(474), FGFR2(501), PSMB4(506), GNAS(516), ADRB1(519), SLC6A1(526), CNR1(544), ADRA1B(549), HTR7(572), MYO5B(594), ESR1(679), CCKBR(691), TAC1(700), ADRA2A(706), AGTR1(715), HTR4(726), ROS1(759), CRHR2(783), TNF(788), NR3C1(789), OPRD1(800), OPRK1(837), NGFR(853), CRHR1(933), IL6(1053), ANK3(1135), GNAL(1183), OPRM1(1213), PENK(1270), ESR2(1359), NTRK3(1371), AVPR1A(1417), NOS1(1445), CREB1(1457), PCLO(1496), IL1B(1513), FGFR1(1525), AVPR1B(1599), FGFR3(1610), PSMD9(1655), ADCY9(1762), PHACTR3(1837), CCKAR(1890), LEPR(1974)
TNF	2.21E-17	IL6(4), IL1B(9), NFKB1(14), CCL2(105), ESR1(152), SERPINA3(173), ADRA2B(174), AKT1(197), MMP2(248), LEPR(257), LEP(262), ADRA1A(271), NOS3(302), AGTR1(315), APOE(327), GNAS(332), ADRA2A(337), STAT3(339), ADRA1B(343), POMC(360), TAC1(371), CTLA4(396), ADRB1(433), ADORA2A(468), ADRA2C(483), TACR1(485), ABCB1(500), NR3C1(536), ESR2(547), LBP(615), CREB1(657), P2RX7(694), PLA2G4A(736), GSK3B(754), TH(805), HTR2A(815), NOS1(834), TBX21(876), PRKCH(883), FGFR2(896), CACNA1C(921), GNB3(944), PLA2G2A(952), ACE(983), DRD2(1040), NGFR(1074), DRD1(1112), CD3E(1122), LRP1(1123), GABRA6(1124), CRHR1(1172), FGFR1(1247), HTR1A(1265), CCND2(1364), ITPR1(1366), AR(1386), PENK(1405), SLC6A4(1407), DRD3(1447), FGFR4(1461), PSMD9(1489), CCKBR(1533), BDNF(1559), FGFR3(1622), HTR2B(1635), DUSP6(1654), GSK3A(1683), CRHR2(1687), GNAL(1771), NPY(1779), PDE2A(1783), GABRA3(1789), HTR2C(1806), GRIA4(1880), HTR1B(1886), GRIA3(1912)
GNAL	6.04E-17	GNAS(19), DRD1(66), ADCY9(88), ADRA2B(207), ADORA2A(222), DRD2(223),

		UGT2A1(288), GNB3(359), HTR5A(368), TNF(376), HTR6(379), DRD5(382), ADRA1A(389), DRD3(392), ADRA2A(396), HTR2A(404), GABRA6(416), ADRA1B(425), GABRA3(434), ADRB1(435), GRIA4(441), HTR1A(451), ADRA2C(453), GRIA3(459), GRIK3(494), TH(514), GABRA5(517), ESR1(555), GABBR1(564), HTR2C(593), PDE10A(624), GAD1(634), CACNA1C(654), HTR2B(694), HTR3A(715), IL6(752), GRIA1(760), GRIN2C(771), ANK3(775), GRIK4(785), GRIN1(791), GRIN2D(805), HTR4(841), SERPINA3(843), GPR50(851), PENK(856), FGFR2(912), FZD3(922), PSMD9(957), GRIN2B(962), CCKBR(998), DTNBP1(1039), HTR1B(1075), GRM7(1179), GRIN2A(1189), PSMB4(1199), AGTR1(1200), HTR7(1203), ESR2(1228), IL1B(1236), DRD4(1260), DAOA(1293), SLC6A3(1307), SLC6A4(1308), TAC1(1361), NR3C1(1365), OPRD1(1381), OPRK1(1407), ITPR1(1414), AVPR1B(1529), TACR1(1535), CRHR1(1540), GRIA2(1565), CHRNA7(1591), CHRM2(1593), GRIN3A(1640), CCKAR(1723), POMC(1725), HTR3B(1735), TPH2(1771), AKT1(1805), CREB1(1808), PHACTR3(1918), SLC6A2(1926), CRHR2(1966)
CTLA4	6.58E-17	IL6(32), TNF(42), IL1B(65), CD3E(74), GNB3(92), TBX21(118), HTR2A(189), ABCB1(190), APOE(224), MTHFR(227), ADRA2B(230), AGTR1(253), CCL2(275), GNAS(285), ACE(289), SLC6A4(310), NOS3(332), ESR1(352), LEPR(353), SERPINA3(355), DTNBP1(362), ADRB1(373), NFKB1(387), AKT1(467), HTR6(532), ITPR1(535), CYP2C9(573), DRD4(596), DAOA(597), NR3C1(607), DRD2(639), DRD3(699), TAC1(707), TACR1(755), LEP(775), FGFR4(810), MMP2(813), PENK(827), GRIK3(840), FGFR2(869), HTR1A(870), DRD1(899), HTR2C(918), GMIP(923), POMC(929), TH(978), AR(993), ADORA2A(1024), P2RX7(1036), TPH2(1040), ADRA2C(1058), ADRA2A(1094), PSMD9(1127), ADRA1A(1150), STAT3(1216), MAOA(1222), FGFR3(1244), ESR2(1264), WFS1(1283), CCND2(1290), GRIA4(1311), CCKAR(1316), GPR50(1357), CCKBR(1358), ADCY9(1477), FZD3(1507), COMT(1512), GSK3B(1582), HTR1B(1609), CREB1(1626), SLC6A3(1637), SLC6A2(1673), FGFR1(1705), GRIA3(1727), CACNA1C(1776), CHRM2(1779), HTR3A(1827), ADRA1B(1855), TPH1(1861), CD47(1871), GABBR1(1881), GAD1(1892), LRP1(1902), NOS1(1948)
CNTF	1.05E-16	BDNF(11), IL6(19), STAT3(24), TNF(34), NTRK2(35), NGFR(43), IL1B(51), TH(67), LEP(70), LEPR(75), AKT1(121), FGFR2(141), OLIG2(148), NTRK3(171), TAC1(235), FGFR1(242), OLIG1(274), NFKB1(287), TACR1(303), GRIA3(315), POMC(351), CREB1(361), ESR1(377), ADRA2B(381), CACNA1C(415), APOE(425), GRIN2C(440), FGFR3(449), GAD1(462), NOS1(503), DRD1(510), PENK(524), GSK3B(551), GRIN1(553), ROS1(565), GRIA1(575), AGTR1(578), ITPR1(584), FGFR4(601), DRD2(621), NPY(638), ADORA2A(644), ADRB1(650), GABBR1(670), NR3C1(673), GRIA4(683), CRHR1(712), GABRA6(717), ADRA1A(725), ADRA2C(731), ADRA1B(738), HTR1A(749), HTR2A(760), DRD3(761), CRHR2(762), GNAS(815), HTR3A(834), ADRA2A(923), GRIA2(957), ESR2(984), HTR2C(1002), GRIN2D(1033), ABCB1(1060), P2RX7(1077), CCL2(1090), SERPINA3(1094), HTR1B(1110), MMP2(1159), GRM7(1172), GABRA3(1212), GRIN2B(1235), GRIN2A(1246), GRIK3(1298), CHRM2(1300), CCND2(1355), HTR2B(1362), AR(1377), ADCY9(1416), PRKCH(1428), CNR1(1436), DUSP6(1440), CCKBR(1450), NOS3(1470), LRP1(1592), GNAL(1621), PSMD9(1718), FZD3(1778), CHRNA7(1836), GSK3A(1837), GRIN3A(1860), ANK3(1903)
ESR1	2.65E-16	ESR2(1), TCF20(38), TNF(41), AR(49), IL6(67), ADRA2B(78), NR3C1(103), ADRA1A(132), ADRB1(144), IL1B(145), ADRA2A(158), AGTR1(178), AKT1(183), ADRA1B(185), GNAS(207), ADRA2C(221), DRD1(252), SERPINA3(262), LEPR(266),

		DRD2(272), NFKB1(277), POMC(285), APOE(286), FGFR2(288), TH(307), HTR2A(310), HTR1A(311), NOS3(456), TACR1(458), CREB1(486), CCKBR(488), DRD3(511), CRHR1(527), LEP(531), HTR3A(547), FGFR4(552), ITPR1(555), HTR2C(566), ADORA2A(620), LRP1(670), HTR1B(677), AVPR1B(702), FGFR1(703), MMP2(704), CACNA1C(706), STAT3(725), GRIA4(742), TAC1(747), ABCB1(761), GSK3B(782), GABRA6(790), GRIK3(816), GRIA3(822), HTR2B(852), GABRA3(875), CHRM2(914), GABBR1(915), FGFR3(921), GRIN1(954), CCND2(995), CRHR2(1006), GRIN2C(1050), HTR6(1054), GRIN2D(1093), CCL2(1115), DRD5(1130), PENK(1156), GRIA1(1157), ROS1(1192), P2RX7(1249), PRKCH(1306), NOS1(1316), SLC6A4(1339), OPRD1(1362), AVPR1A(1390), GNB3(1432), CTLA4(1438), CCKAR(1447), NGFR(1483), HTR5A(1498), PSMD9(1580), NPY(1590), CNR1(1705), OPRK1(1712), GRM7(1717), FKBP5(1722), OPRM1(1790), GRIN2B(1797), GRIN2A(1812), HTR7(1846), GNAL(1884), HTR4(1940), GABRA5(1994)
ESR2	3.38E-16	ESR1(1), AR(36), ADRB1(60), TCF20(63), TNF(67), IL6(88), ADRA2B(104), ADRA1A(113), NR3C1(126), IL1B(161), ADRA1B(191), AGTR1(203), ADRA2A(205), POMC(224), ADRA2C(229), HTR1A(248), DRD1(277), TH(281), DRD2(305), FGFR2(314), LEPR(315), HTR2A(320), GNAS(324), AKT1(327), HTR3A(356), TACR1(369), CRHR1(410), APOE(426), NFKB1(464), CCKBR(476), HTR2C(486), AVPR1B(490), DRD3(515), HTR1B(518), HTR2B(533), TAC1(537), SERPINA3(558), FGFR4(564), ITPR1(572), ADORA2A(610), NOS3(629), CACNA1C(633), CREB1(634), LEP(681), CRHR2(689), MMP2(693), GABRA6(708), GRIA3(716), GABBR1(752), GRIA4(756), GRIN2D(760), FGFR1(766), GRIK3(771), CHRM2(776), GABRA3(788), PENK(821), GSK3B(834), LRP1(855), GRIN1(888), HTR5A(935), GRIN2C(943), HTR6(988), ABCB1(991), AVPR1A(995), CCND2(1005), FGFR3(1033), STAT3(1072), DRD5(1113), GRIA1(1116), CCL2(1150), NOS1(1159), OPRD1(1205), HTR4(1252), P2RX7(1295), HTR7(1335), NGFR(1398), NPY(1435), OPRK1(1445), PRKCH(1455), GRM7(1460), SLC6A4(1474), PSMD9(1484), CRHBP(1489), CCKAR(1490), ROS1(1518), CNR1(1541), GABRA5(1654), OPRM1(1656), GNB3(1663), ADCY9(1754), WFS1(1793), GRIN2A(1816), GAD1(1817), GRIN2B(1826), FKBP5(1992)
TH	1.66E-15	TPH2(9), TPH1(11), DRD1(13), DRD2(15), DRD3(18), DDC(32), SLC6A3(33), SLC6A2(50), DRD5(63), GAD1(166), ROS1(174), PENK(183), FGFR2(185), NGFR(211), CREB1(259), IL6(276), BDNF(277), ADRA2B(286), ADRA2C(325), TNF(332), DRD4(339), NTRK3(352), ADRA1B(362), FGFR1(388), ESR1(396), NTRK2(419), TAC1(422), POMC(438), NOS1(492), HTR1A(529), AKT1(542), ADRA2A(557), ADRA1A(568), GNAS(618), GRIA3(648), GRIA1(652), ADRB1(661), IL1B(674), NR3C1(677), AGTR1(704), GRIN1(705), TACR1(725), HTR1B(735), CACNA1C(750), GSK3B(759), PTPRR(770), FGFR3(798), NPY(807), GRIN2C(825), ITPR1(839), FGFR4(841), ADCY9(853), GRIA4(877), LEPR(880), ESR2(886), ADORA2A(888), CRHR1(923), HTR2A(958), HTR2C(1002), SLC6A4(1008), HTR3A(1064), CCND2(1102), GABBR1(1127), CRHR2(1242), HTR2B(1272), NFKB1(1290), GRIN2D(1311), STAT3(1316), LEP(1356), DUSP6(1389), AR(1406), GABRA3(1413), CCKBR(1431), GABRA6(1496), APOE(1551), GSK3A(1605), GRIN2B(1643), OLIG2(1707), GRM7(1781), GRIN2A(1792), PSMD9(1794), HTR5A(1818), ABCB1(1855), OLIG1(1887), MAOA(1889), NOS3(1931)
NR3C1	6.06E-15	FKBP5(12), ESR1(44), AR(54), IL6(57), NFKB1(68), TNF(72), CRHR1(124), IL1B(148), ESR2(160), ADRA2B(163), ADRB1(170), CREB1(187), POMC(208), FGFR2(210), HTR1A(238), AGTR1(239), DRD1(260), ADRA1A(276), AKT1(301), HTR2A(306),

		GNAS(321), CRHR2(323), LEPR(336), TH(351), HTR3A(364), ITPR1(393), ADRA2C(396), DRD2(413), ADRA1B(425), HTR2C(439), TACR1(447), HTR1B(480), GRM7(484), DRD3(508), AVPR1B(518), CCKBR(552), GRIA4(590), HTR2B(623), ADRA2A(631), PSMD9(643), FGFR1(662), GRIN1(676), STAT3(693), GRIA3(699), ADORA2A(733), LEP(740), ABCB1(760), LRP1(819), PENK(821), HTR6(880), ADCY9(892), GSK3B(912), FGFR4(942), GABRA6(949), FGFR3(963), GRIA1(979), TCF20(1009), GABBR1(1024), OPRK1(1029), HTR5A(1041), TAC1(1078), CD3E(1093), GRIN2C(1141), GRIK3(1212), HTR4(1217), ROS1(1231), OPRD1(1314), CHRM2(1328), CACNA1C(1333), GABRA3(1377), HTR7(1391), PSMB4(1395), APOE(1405), CRHBP(1418), DRD5(1436), AVPR1A(1492), GRIN2D(1546), P2RX7(1550), CCL2(1566), GRIN2A(1573), MMP2(1575), SERPINA3(1614), PRKCH(1656), NGFR(1723), CCKAR(1740), GRIN2B(1831), CCND2(1838), OPRM1(1859), CNR1(1895)
NTRK2	1.94E-14	BDNF(2), NTRK3(3), NGFR(6), GRIA1(32), TH(34), GRIA3(54), GRIN1(56), GRIN2C(74), GRIN2A(96), GRIN2B(100), GRIA2(102), GRIA4(118), GABBR1(126), FGFR2(136), GRIN2D(152), AKT1(164), DRD1(168), FGFR1(169), CREB1(191), CNTF(207), GRM7(220), TACR1(223), GAD1(227), HTR3A(229), GRIK3(236), DRD3(238), ITPR1(239), ROS1(290), TAC1(294), HTR1A(304), DRD2(351), GABRA5(376), FGFR3(398), GSK3B(405), GABRA3(410), GRIK1(420), GRIK4(425), TNF(432), HTR1B(436), GABRA6(483), FGFR4(495), HTR2C(496), IL6(498), GRIN3A(502), ESR1(517), ADORA2A(529), HTR2A(545), CCKBR(566), ADRA2B(575), NR3C1(586), CNR1(642), ADRA2C(655), HTR2B(668), GRIK2(686), ADRA1B(704), CRHR1(717), GRIK5(734), LEPR(737), AGTR1(744), CRHR2(752), ADRA1A(756), NOS1(777), CHRM2(796), DRD5(801), ADRB1(812), CACNA1C(835), PENK(842), PTPRR(843), HTR5A(847), STAT3(876), NFKB1(975), CHRNA7(1034), P2RX7(1042), IL1B(1046), ESR2(1048), GSK3A(1087), POMC(1104), OPRD1(1106), OPRK1(1130), SLC6A1(1159), DUSP6(1170), CAMKK2(1217), FZD3(1224), ADRA2A(1231), LRP1(1246), GNAS(1262), NPY(1362), DNAJB2(1383), AR(1408), APOE(1423), OPRM1(1448), OLIG1(1511), HTR4(1567), HTR6(1570), CCND2(1631), ADCY9(1633), OLIG2(1643), P2RX4(1667), HTR7(1672), SLC6A2(1705), AVPR1B(1810), PRKCH(1840), CCKAR(1875)
ABCB1	5.04E-14	IL6(31), TNF(41), TAC1(61), IL1B(84), SLC6A4(102), CYP2C9(106), APOE(145), TACR1(150), ADRA2B(192), GNAS(200), CTLA4(202), AGTR1(218), GNB3(223), SERPINA3(241), ESR1(246), HTR2A(265), NOS3(276), SLC6A2(292), LEPR(313), NR3C1(355), ACE(380), DRD2(386), LEP(399), DTNBP1(405), ADRB1(420), MMP2(449), AKT1(479), NFKB1(483), SLC6A3(504), CCL2(523), MTHFR(567), TH(583), HTR1A(599), DRD3(611), POMC(698), HTR1B(792), DRD1(831), ADRA2C(842), FGFR2(880), AR(881), ADRA2A(897), HTR2C(899), ADRA1B(912), ESR2(931), PENK(942), ADRA1A(948), CCKBR(1062), P2RX7(1099), TPH2(1197), SLC6A1(1253), ITPR1(1266), PSMD9(1288), FKBP5(1352), CACNA1C(1388), GSK3B(1402), CREB1(1482), ADORA2A(1500), MAOA(1518), HTR3A(1630), NOS1(1639), DAOA(1643), PRKCH(1671), FGFR4(1715), HTR6(1726), CCND2(1755), DRD4(1822), GRIA4(1891), LRP1(1937), CHRM2(1949), FGFR3(1972)
LBP	1.37E-13	TNF(14), IL6(19), IL1B(24), TFCP2(32), NFKB1(78), CCL2(196), APOE(270), ADORA2A(359), STAT3(380), LEP(393), TAC1(408), LEPR(410), AKT1(422), P2RX7(438), TACR1(440), NR3C1(453), SERPINA3(461), AGTR1(465), LRP1(474), ESR1(477), PLA2G4A(490), POMC(532), CREB1(559), PLA2G2A(585), ADRA2B(605), ABCB1(608), ADRB1(612), NOS3(654), MMP2(700), NOS1(719), ITPR1(794), GNAS(827), ADRA1A(861), ADRA2A(936), ADRA1B(1000), CRHR2(1015), FGFR2(1016),

		CTLA4(1031), CRHR1(1044), PENK(1054), TH(1061), CACNA1C(1125), PSMD9(1144), DRD1(1180), ESR2(1248), HTR3A(1256), DRD2(1359), HTR1A(1422), GSK3B(1440), ADRA2C(1470), TBX21(1559), PSMB4(1574), HTR1B(1578), AR(1685), PRKCH(1691), CHRM2(1717), CCKBR(1773), CCND2(1931), DRD3(1979), FGFR1(1991)
PDE5A	3.45E-13	PDE11A(1), PDE9A(2), PDE2A(3), PDE10A(4), PDE1A(17), PDE6C(19), NOS3(52), NOS1(56), AKT1(105), CREB1(109), ADCY9(125), CACNA1C(128), ADRA1A(144), AGTR1(156), TNF(162), ADRB1(167), IL6(169), ADRA2B(170), GNAS(171), ITPR1(213), IL1B(322), HTR5A(345), HTR2B(348), ADORA2A(362), NFKB1(368), TH(380), HTR3A(417), ADRA1B(466), DRD1(500), HTR2A(511), MMP2(521), ESR1(528), NR3C1(558), ADRA2C(567), GSK3B(569), HTR1A(577), PLA2G2A(606), SERPINA3(643), FGFR2(695), ABCB1(709), CRHR1(717), HTR7(762), LEPR(785), GRIA4(834), HTR4(873), TAC1(884), ADRA2A(888), AR(904), HTR6(924), TACR1(983), POMC(1020), HTR2C(1034), GRIN2C(1079), PLA2G4A(1093), GSK3A(1120), DRD2(1138), PRKCH(1174), ESR2(1231), PENK(1299), CHRM2(1371), LEP(1447), DUSP6(1454), PSMB4(1472), CRHR2(1537), GRIA3(1543), CCKBR(1615), FGFR1(1723), PSMD9(1733), APOE(1737), SLC6A4(1753), DRD5(1861), STAT3(1872), DRD3(1908), GABBR1(1910), FGFR4(1971)
DISC1	7.59E-13	DTNBP1(4), DAOA(5), FZD3(26), CHRFAM7A(27), SYN3(32), GRIK4(50), COMT(52), HTR2A(59), GPR50(65), TPH2(69), DRD3(71), DRD4(74), HTR6(75), GRIK3(86), SLC6A4(89), WFS1(99), DRD2(105), HTR5A(121), GAD1(143), GABRA3(189), TPH1(208), GRIA4(241), GRIN1(253), GNAS(254), GNAL(292), HTR1A(316), BDNF(354), SLC6A3(382), HTR2C(415), DRD1(417), SLC6A2(470), TNF(477), MAOA(486), CHRNA7(497), GNB3(498), GRIN2B(511), FGFR2(626), IL6(627), APOE(632), HTR1B(658), GRIA3(671), GRIA1(677), ABCB1(692), GABRA5(709), CTLA4(718), ADRA2C(728), TH(749), IL1B(799), ADRA2B(857), ADCY9(971), GSK3B(977), GMIP(982), ESR1(986), GABBR1(1046), GRIN2A(1079), MTHFR(1112), NR3C1(1266), DRD5(1326), PSMD9(1452), FGFR3(1494), PHACTR3(1568), CREB1(1583), DDC(1599), ADRB1(1622), AR(1824), SERPINA3(1921)
AR	6.93E-12	ADRB1(7), ADRA1A(13), ADRA1B(15), ADRA2C(27), ADRA2B(31), ADRA2A(42), ESR1(45), ESR2(67), NR3C1(83), IL6(180), FGFR2(191), CCKAR(222), TNF(251), AKT1(257), GNAS(342), AGTR1(389), CCKBR(390), ADORA2A(411), FKBP5(436), TH(465), HTR2A(484), NFKB1(501), IL1B(515), FGFR1(528), DRD1(531), LEPR(550), DRD2(562), CREB1(568), FGFR3(619), HTR3A(634), HTR2C(681), GSK3B(697), FGFR4(700), HTR1A(731), ITPR1(758), TCF20(787), DRD3(811), ROS1(821), TACR1(831), POMC(909), ABCB1(919), GRIA4(939), SERPINA3(985), GRIA3(990), CRHR1(998), STAT3(1024), HTR6(1025), APOE(1051), HTR2B(1095), LEP(1177), CCND2(1194), AVPR1B(1308), PSMD9(1322), MMP2(1327), GRIK3(1348), LRP1(1382), GRIN1(1391), TAC1(1459), CHRM2(1506), GABBR1(1532), GABRA3(1541), PENK(1564), HTR1B(1670), DRD5(1686), HTR5A(1733), GRIA1(1759), NGFR(1795), CACNA1C(1822), CRHR2(1918), GABRA6(1944), NOS3(1970), DRD4(1984), CTLA4(1993), SLC6A4(1995)
SERPINA3	1.41E-11	TNF(15), IL6(47), IL1B(71), ADRA2B(83), APOE(91), ESR1(104), GNAS(123), ADRA1A(163), MMP2(236), GNB3(277), ABCB1(309), ADRA1B(311), LRP1(339), CCL2(344), PSMB4(393), ACE(428), AGTR1(471), ADRA2A(472), ADRA2C(494), ADRB1(534), ESR2(554), HTR2A(578), POMC(611), NFKB1(629), MTHFR(636), CTLA4(654), CACNA1C(720), NOS3(743), AKT1(784), HTR6(805), NR3C1(929), SLC6A4(958), TAC1(973), AR(1046), TH(1082), LEPR(1090), CYP2C9(1092),

		GSK3B(1188), LEP(1222), PSMD9(1224), HP(1322), FGFR2(1350), PENK(1355), GABRA6(1503), PLA2G2A(1537), TACR1(1556), GSK3A(1607), GNAL(1733), GABRA3(1771), GRIK3(1781), TFCP2(1785), FGFR4(1853), DRD2(1876), GRIA4(1897), ITPR1(1900), DTNBP1(1998)
NGFR	1.50E-11	NTRK3(7), NTRK2(11), BDNF(16), TH(41), TNF(81), TAC1(93), FGFR2(103), TACR1(123), AKT1(125), IL6(154), FGFR1(166), GRIA3(228), GRIA1(260), NFKB1(284), GRIN1(285), DRD1(308), FGFR3(336), ESR1(362), HTR3A(371), GRIN2C(377), OLIG1(398), ADRA2B(468), DRD2(469), NOS1(481), CNTF(483), ITPR1(488), IL1B(489), GSK3B(491), CREB1(494), ROS1(508), FGFR4(523), AGTR1(532), NR3C1(536), HTR1A(552), LEPR(554), ADORA2A(561), GABBR1(562), GAD1(567), GRIA4(572), GRIN2D(596), ADRA1B(642), GRIA2(672), DRD3(686), GRIN2B(698), ADRB1(702), STAT3(709), GRIN2A(713), HTR2A(716), HTR2B(733), PTPRR(736), ADRA2C(750), OLIG2(775), ESR2(789), LRP1(797), CHRM2(799), HTR1B(822), PENK(843), P2RX7(853), HTR2C(859), CCKBR(860), POMC(873), ADRA1A(877), GABRA6(879), CRHR1(880), CCND2(885), GRM7(922), GRIK3(945), AR(959), CRHR2(988), APOE(989), ADRA2A(1018), DUSP6(1180), HTR5A(1190), GABRA3(1221), CNR1(1241), FZD3(1292), OPRK1(1298), GNAS(1300), NPY(1336), OPRD1(1354), GSK3A(1356), GRIN3A(1439), GRIK4(1444), DRD5(1452), CACNA1C(1477), MMP2(1501), OPRM1(1554), LEP(1581), CHRNA7(1607), ANK3(1692), HTR6(1709), SLC6A2(1726), GABRA5(1819), CD3E(1870), NOS3(1941), GRIK1(1968)
DTNBP1	1.58E-11	DAOA(1), DISC1(5), FZD3(16), SYN3(19), CHRFAM7A(38), COMT(53), HTR2A(59), TPH2(66), DRD4(73), GRIK3(76), SLC6A4(89), HTR6(96), DRD3(97), GRIK4(107), GPR50(120), DRD2(143), WFS1(195), ABCB1(196), TPH1(199), GRIA4(229), TNF(269), GAD1(275), CTLA4(284), GNAS(301), GNB3(329), SLC6A3(333), IL6(343), APOE(393), HTR5A(437), MTHFR(438), IL1B(443), ADRA2B(605), MAOA(642), GMIP(794), GRIA3(950), ESR1(954), GRIN1(966), SLC6A2(996), ADRA2C(1018), HTR2C(1020), GABRA3(1025), GRIN2B(1052), DRD1(1094), HTR1A(1119), BDNF(1141), ACE(1151), CYP2C9(1210), SERPINA3(1287), CHRNA7(1323), TDRD3(1327), FGFR2(1353), HTR1B(1420), TH(1454), GNAL(1490), GRIA1(1494), ADRB1(1610), DDC(1661), DRD5(1771), NOS3(1824), AKT1(1896), PSMD9(1954)
GAD1	6.11E-10	GABBR1(3), SLC6A1(7), GABRA5(19), GABRA3(20), DDC(23), GABRA6(35), GRIK3(57), GRIA3(58), TH(68), GRIA1(86), GRIA4(114), GRM7(165), GRIN1(184), DRD2(206), PENK(240), GRIK4(243), GRIN2C(246), DRD1(263), BDNF(282), GRIN2D(327), MYO5B(338), GRIA2(356), FGFR2(403), DRD3(442), HTR1A(480), IL6(486), HTR2A(511), TAC1(539), GRIN2B(548), DTNBP1(580), HTR3A(584), GRIK1(593), KCNC2(608), ADRA2B(609), ADRA2C(663), TACR1(674), TNF(677), GRIN2A(693), HTR5A(744), NTRK2(873), FZD3(895), NOS1(915), LEPR(927), GNAS(935), HTR1B(993), NGFR(994), POMC(1009), GRIK2(1026), DRD5(1066), ESR1(1067), IL1B(1098), ITPR1(1104), CACNA1C(1111), GRIK5(1136), GNAL(1143), ROS1(1158), OLIG2(1197), PSMD9(1254), NPY(1298), HTR2C(1366), GRIN3A(1457), OLIG1(1540), SLC6A4(1568), CCND2(1577), FGFR1(1646), CREB1(1674), NTRK3(1695), NR3C1(1728), PDE10A(1824), TPH2(1851), ADRA1B(1885), SLC6A2(1896), ADCY9(1908), CCKBR(1910), APOE(1923), FGFR3(1925)
SLC6A1	1.97E-08	GABBR1(5), GABRA5(16), GABRA3(19), GAD1(29), GABRA6(32), SLC6A2(48), SLC6A4(72), SLC6A3(87), GRIK3(184), GRIA3(186), GRIA1(190), HTR3A(207), GRM7(241), CACNA1C(308), HTR1A(318), GRIA4(320), TH(331), GRIN1(353), KCNC2(356), ITPR1(449), GRIA2(456), GRIN2C(469), ABCB1(475), GRIN2D(488),

		DRD1(497), PCLO(515), DRD2(554), GRIN2B(563), GRIN2A(571), HTR5A(604), TACR1(610), ANK3(621), HTR1B(626), ADRA2B(670), ADRA2C(697), GRIK1(707), BDNF(731), ADRA1A(776), HTR2A(805), IL6(869), ADRA1B(872), GRIK2(876), MYO5B(896), TAC1(913), P2RX7(929), HTR2C(964), TNF(966), CNR1(986), CHRM2(996), CHRNA7(1003), ROS1(1009), AGTR1(1038), GRIK5(1060), GRIN3A(1133), PENK(1137), ADORA2A(1163), HTR6(1188), NOS1(1194), IL1B(1215), ADRB1(1249), P2RX4(1332), ADRA2A(1336), NTRK2(1349), DRD5(1385), DRD3(1391), GRIK4(1516), FGFR2(1545), CCKBR(1582), AKT1(1631), ESR1(1667), GNAS(1679), NR3C1(1778), NGFR(1791), CREB1(1817), HTR2B(1857), PSMB4(1862), LEPR(1894), POMC(1988)
SYN3	3.93E-08	DTNBP1(4), DAOA(5), DISC1(34), PCLO(69), GRIK3(109), FZD3(113), DRD3(131), DRD4(136), HTR2A(137), DRD2(140), GRIA1(142), SLC6A4(176), GRIA3(214), GRIA4(225), GRM7(263), CHRFAM7A(272), GAD1(291), BDNF(295), GRIN1(298), TH(302), TPH2(318), DRD1(319), GNAS(339), GRIN2B(349), SLC6A3(391), HTR6(410), COMT(427), ADRA2B(454), AGTR1(471), GRIK4(500), SLC6A2(505), TNF(542), NOS1(543), FGFR2(568), GABBR1(573), GNB3(576), IL6(631), APOE(698), IL1B(833), HTR1A(850), ADRA2C(857), GRIK1(882), GPR50(884), HTR1B(885), ITPR1(901), ACE(902), ADCY9(940), ANK3(954), ABCB1(963), NOS3(990), GRIN2A(1038), SLC6A1(1047), GRIA2(1057), DRD5(1080), HTR2C(1085), CTLA4(1141), MYO5B(1145), CACNA1C(1192), ESR1(1219), GABRA3(1223), TPH1(1232), GNAL(1274), NTRK2(1341), MAOA(1405), GRIK2(1433), GSK3B(1542), ADRB1(1611), FGFR3(1692), CYP2C9(1728), GABRA5(1731), HTR5A(1768), DDC(1793), GRIN2D(1824), ROS1(1836), NGFR(1839)
PDE2A	6.40E-08	PDE11A(1), PDE5A(2), PDE9A(4), PDE10A(5), PDE1A(13), PDE6C(21), ADCY9(59), CREB1(69), TNF(85), NOS3(123), ADRA1A(132), GNAS(150), ADRB1(153), CACNA1C(175), IL1B(186), NOS1(190), ADRA2B(209), IL6(230), ADORA2A(243), AKT1(257), CAMKK2(311), ADRA2A(495), ADRA1B(547), ITPR1(562), TH(652), ADRA2C(712), NFKB1(724), MMP2(729), HTR2B(813), GRIA4(879), AGTR1(941), DRD1(1163), HTR5A(1168), PSMB4(1193), FGFR2(1295), ESR1(1367), CRHR1(1394), POMC(1396), HTR2A(1418), GRM7(1441), TAC1(1464), GSK3B(1567), GRIA3(1656), SERPINA3(1704), ANK3(1884), NR3C1(1885), PSMD9(1924), FGFR1(1927)
MMP2	1.00E-07	TNF(44), IL6(55), IL1B(68), AKT1(141), NFKB1(161), AGTR1(173), SERPINA3(237), CCL2(259), NOS3(283), ESR1(293), ADRA2B(348), APOE(358), FGFR2(362), LEPR(365), ADRB1(405), LRP1(458), ABCB1(460), TAC1(494), LEP(552), ESR2(566), FGFR1(580), ADRA1A(602), TACR1(613), PLA2G2A(625), TH(636), STAT3(644), POMC(665), CACNA1C(668), FGFR4(728), NR3C1(740), NOS1(818), GSK3B(837), ADORA2A(848), PRKCH(873), CREB1(913), ACE(930), GNAS(968), ADRA1B(992), DUSP6(995), AR(1071), PLA2G4A(1073), CCKBR(1102), ITPR1(1125), HTR2A(1175), FGFR3(1214), ADRA2C(1221), DRD1(1243), CCND2(1286), ADRA2A(1290), PENK(1325), DRD2(1344), CTLA4(1376), P2RX7(1468), CRHR1(1553), HTR1A(1599), PSMD9(1677), HTR2B(1748), ADCY9(1822), GSK3A(1867), CHRM2(1913)
GNAS	1.07E-07	ADCY9(15), GNAL(26), ADRA2B(45), ADRB1(62), ADRA1A(63), TNF(79), ADRA1B(98), GNB3(125), HTR6(169), ADRA2A(177), ESR1(189), ADRA2C(211), FGFR2(217), IL6(219), CACNA1C(224), DRD1(242), SERPINA3(312), HTR1A(313), POMC(350), AGTR1(502), GABRA6(505), FGFR3(517), NR3C1(560), TH(571), IL1B(685), GRIA4(727), DRD2(752), GRIA3(778), HTR2A(786), CREB1(788), DRD5(796), ABCB1(803), CRHR1(843), GABRA5(860), GRIK3(870), GABRA3(904), PSMD9(946), LEPR(958), ESR2(1022), AR(1102), PSMB4(1106), AVPR1B(1116), HTR5A(1221), ITPR1(1257),

		ROS1(1269), ANK3(1396), HTR2C(1468), PDE1A(1474), HTR3A(1487), DRD3(1534), AKT1(1565), GSK3A(1575), CTLA4(1591), PDE11A(1642), LEP(1657), GABBR1(1672), WFS1(1705), NFKB1(1754), APOE(1771), GRIA1(1809), SLC6A4(1843), ADORA2A(1907), TAC1(1971), GRIN1(1984)
PLA2G2A	1.17E-07	PLA2G4A(7), IL1B(36), IL6(40), TNF(50), MMP2(166), NFKB1(168), CACNA1C(193), AKT1(249), AGTR1(286), ADRA2B(327), APOE(351), ITPR1(380), ADRA1A(394), SERPINA3(409), TH(440), CCL2(497), HTR2A(555), TAC1(557), HTR2B(602), ADORA2A(688), ESR1(695), GNAS(704), TACR1(734), LEPR(740), FGFR2(765), ABCB1(780), ACSL4(827), NR3C1(838), CREB1(923), LEP(952), NOS3(977), ADRB1(1003), P2RX7(1025), PRKCH(1062), GRM7(1123), GSK3B(1130), POMC(1156), LRP1(1185), DRD2(1198), CCKBR(1233), DRD1(1238), NOS1(1306), PDE1A(1325), HTR2C(1363), FGFR1(1368), STAT3(1425), ADRA1B(1453), GRIA3(1455), PSMD9(1471), FGFR4(1525), PSMB4(1540), PENK(1568), GRIA4(1574), HTR3A(1614), ESR2(1721), ADCY9(1808), CRHR1(1859), ACE(1872), CCKAR(1874), PDE5A(1941)
PER2	1.44E-07	PER3(1), PER1(2), CLOCK(3), CREB1(101), HTR1B(165), GSK3B(176), IL6(179), TH(189), TPH2(300), TNF(305), POMC(345), GRIN2C(377), PENK(414), NR3C1(426), CCND2(473), IL1B(481), DRD1(482), FGFR2(590), GRIA3(592), ROS1(609), AKT1(640), HTR7(647), HTR5A(654), NFKB1(686), LEPR(759), ESR1(766), GAD1(847), ITPR1(876), ADRA2B(931), DRD2(949), TAC1(992), AGTR1(995), LEP(1005), DDC(1061), GRIA1(1154), CRHR1(1169), PSMD9(1208), GRIA4(1209), DRD3(1218), GRIN1(1231), GNAS(1245), DUSP6(1391), NPY(1458), HTR1A(1459), CRHR2(1523), STAT3(1595), GRIN2A(1605), GRM7(1611), TACR1(1640), AVPR1A(1659), SLC6A2(1736), ABCB1(1790), GABRA3(1796), GRIN2D(1800), CCKBR(1847), PHACTR3(1965), ESR2(1993)
PLA2G4A	1.67E-07	PLA2G2A(6), TNF(47), IL6(74), IL1B(85), ITPR1(93), CACNA1C(95), AKT1(96), NFKB1(120), ADRA2B(218), ADRA1A(294), AGTR1(346), ACSL4(376), ESR1(384), MMP2(393), PRKCH(440), STAT3(499), CREB1(508), ADORA2A(510), GSK3B(518), TH(578), ADRB1(623), NOS3(632), P2RX7(651), ADRA1B(662), CCL2(663), NR3C1(688), CAMKK2(698), LEPR(701), GNAS(719), ADRA2A(763), FGFR2(765), NOS1(791), TAC1(794), TACR1(818), GSK3A(828), HTR2B(836), APOE(863), SERPINA3(903), DRD1(915), POMC(928), FGFR1(971), LEP(973), ADRA2C(994), HTR2A(1054), PDE1A(1070), CCKBR(1190), HTR2C(1199), GRM7(1200), ESR2(1237), DUSP6(1273), ADCY9(1372), DRD2(1383), GRIA4(1398), ABCB1(1440), CRHR1(1447), GRIA3(1483), LRP1(1501), PSMD9(1629), HTR3A(1640), FGFR4(1697), HTR1A(1777), CHRM2(1811), GRIN2C(1832)
NTRK3	1.92E-07	NTRK2(2), NGFR(5), BDNF(8), TH(26), FGFR2(105), GRIA3(151), TAC1(156), FGFR1(166), TACR1(236), HTR3A(293), GRIN1(311), DRD1(318), GRIA1(320), ROS1(327), AKT1(331), FGFR3(334), GRIN2C(380), GAD1(387), GRIA4(392), FGFR4(431), ITPR1(492), GRIN2D(508), GABBR1(512), DRD2(526), DRD3(540), GSK3B(570), HTR2B(589), ADRA2B(593), OLIG1(603), IL6(622), PENK(624), TNF(625), PTPRR(630), FZD3(632), HTR1A(647), ADRA2C(687), HTR2C(694), ESR1(702), CNTF(721), ADRA1B(734), GABRA6(747), GRIK3(755), ADRA1A(778), CREB1(783), GRIA2(788), OLIG2(818), GRIN2B(848), HTR2A(851), HTR5A(858), HTR1B(861), NOS1(890), ADORA2A(903), GABRA3(904), GSK3A(910), GRIN2A(913), NR3C1(928), GRM7(957), AGTR1(964), CHRM2(1009), CCKBR(1011), DUSP6(1016), GRIK4(1025), ESR2(1026), ADRB1(1070), LEPR(1088), CACNA1C(1113), STAT3(1124), OPRK1(1132), CRHR2(1190), POMC(1200), DRD5(1262), CRHR1(1283), SLC6A2(1292), OPRD1(1304),

		GNAS(1373), IL1B(1400), NFKB1(1453), CCND2(1470), GABRA5(1493), AR(1537), CNR1(1545), ADRA2A(1560), GRIK1(1740), OPRM1(1778), P2RX7(1783), GRIN3A(1859), PRKCH(1872), LRP1(1875), HTR6(1913), ANK3(1980)
PER1	2.17E-07	PER2(1), PER3(2), CLOCK(3), CREB1(70), TH(151), HTR1B(200), GSK3B(204), IL6(211), POMC(338), NR3C1(391), PENK(421), TNF(441), TPH2(465), GRIN2C(476), DRD1(526), ROS1(581), FGFR2(610), LEPR(627), AKT1(640), ESR1(702), HTR7(705), ITPR1(708), IL1B(738), NFKB1(744), HTR5A(751), CCND2(756), ADRA2B(784), LEP(788), DDC(795), GAD1(827), TAC1(840), DRD2(897), CRHR1(921), AGTR1(1046), HTR2C(1140), DRD3(1171), GNAS(1200), HTR1A(1207), GRIA3(1219), CRHR2(1231), NOS1(1333), ADRA1A(1365), GRIN1(1402), TACR1(1413), ADRB1(1441), ADRA1B(1485), HTR2B(1487), NPY(1537), PSMD9(1546), CCKBR(1612), GRIA1(1618), STAT3(1621), ADRA2C(1667), GRIA4(1724), PRKCH(1777), DUSP6(1839), GRIN2A(1878), GABBR1(1883), ADRA2A(1918), ESR2(1972)
CREB1	1.09E-06	AKT1(63), CAMKK2(81), NFKB1(121), TNF(141), TH(154), GSK3B(156), DRD1(158), IL6(185), NR3C1(226), STAT3(233), GRIN1(273), PDE10A(288), ADRB1(296), IL1B(332), TCF20(334), ESR1(343), PDE1A(351), PDE11A(360), PDE2A(366), GRIA1(377), GNAS(421), ADRA1A(425), ADORA2A(456), CRHR1(463), FGFR2(466), ADCY9(467), PRKCH(468), DRD2(549), ITPR1(553), BDNF(570), GRIN2B(646), HTR1A(661), GSK3A(669), GRM7(672), CRHR2(673), GRIN2C(719), GRIN2A(746), FGFR1(778), ADRA1B(840), ADRA2B(847), ADRA2C(878), CACNA1C(893), TACR1(903), CCND2(906), DRD5(917), POMC(925), AR(943), ROS1(967), ESR2(986), DRD3(1009), ADRA2A(1032), DUSP6(1048), TAC1(1065), PENK(1128), PSMD9(1139), GRIA3(1145), NTRK2(1159), AGTR1(1189), NOS1(1325), OPRK1(1329), HTR1B(1358), LEPR(1364), NGFR(1365), GRIA4(1393), GABBR1(1398), OPRD1(1415), PER1(1464), GRIN2D(1478), TFCP2(1548), OPRM1(1584), MMP2(1623), FGFR4(1647), GRIA2(1718), FGFR3(1729), PDE5A(1733), CCKBR(1777), HTR2A(1821), LEP(1934), HTR2C(1973)
PDE10A	1.75E-06	PDE11A(1), PDE9A(2), PDE2A(4), PDE5A(7), PDE1A(15), PDE6C(19), CREB1(57), ADCY9(97), DRD1(112), TH(138), GNAS(166), GNAL(200), PENK(218), DRD2(239), ADORA2A(249), GRIN2C(310), GAD1(391), GRIA1(409), GRIA3(511), GRIA4(528), CACNA1C(540), DRD5(545), GRM7(556), GRIN1(653), ITPR1(666), ADRA1A(771), ADRA2C(798), ADRA2B(826), PHACTR3(841), PSMB4(906), GABBR1(907), DRD3(940), ADRB1(984), TAC1(1047), GRIK3(1169), GRIN2D(1179), HTR7(1185), AKT1(1227), CRHR1(1376), HTR3A(1394), ADRA1B(1455), MYO5B(1464), GABRA6(1478), GRIN2B(1490), IL6(1553), NOS1(1599), HTR5A(1641), HTR1A(1655), GRIN2A(1701), DNAJB2(1713), CAMKK2(1744), HTR4(1760), GRIN3A(1775), FGFR2(1854), PSMD9(1922)
ITPR1	2.17E-06	CACNA1C(19), HTR3A(102), GRM7(113), GRIA4(134), ADRA1A(146), GRIA3(153), GRIA1(174), HTR5A(185), CAMKK2(210), GRIN2C(223), GRIN1(230), ADRA2B(231), DRD1(240), GRIN2D(252), HTR2B(258), HTR1A(265), HTR2C(269), AGTR1(273), GABBR1(299), HTR2A(337), GRIA2(343), CRHR1(350), ADRA1B(354), GRIN2B(366), ADRB1(368), GRIN2A(373), CHRM2(385), PDE1A(386), AKT1(392), HTR6(397), TACR1(408), P2RX7(411), P2RX4(434), GABRA6(438), FGFR2(439), ADORA2A(441), IL6(475), GRIK3(478), ESR1(505), TNF(529), NR3C1(531), HTR1B(553), CCKBR(559), DRD2(570), ANK3(580), TH(583), HTR7(591), ADCY9(606), HTR4(610), GRIN3A(666), PLA2G4A(671), ROS1(688), DRD3(701), ADRA2C(714), CREB1(748), HTR3B(755), CRHR2(756), IL1B(810), ADRA2A(822), FGFR1(830), GNAS(855), AVPR1B(898), AVPR1A(915), DRD5(978), FGFR4(1007), CCKAR(1027), GABRA3(1039), LEPR(1072),

		GSK3B(1092), OPRD1(1138), ESR2(1185), TAC1(1214), NFKB1(1239), FGFR3(1273), PRKCH(1367), PSMD9(1396), LRP1(1406), KCNC2(1414), CNR1(1437), GRIK1(1478), OPRK1(1520), PSMB4(1527), CHRNA7(1572), GRIK5(1588), GRIK2(1611), AR(1638), NOS1(1682), GABRA5(1688), GRIK4(1774), MYO5B(1794), NGFR(1842), POMC(1898), NTRK2(1963)
LRP1	3.31E-06	APOE(22), TNF(87), ESR1(146), SERPINA3(183), IL6(191), ADRA2B(200), ADRB1(204), FGFR2(215), NR3C1(258), AKT1(270), MMP2(293), AGTR1(327), IL1B(331), ADRA1A(342), FGFR1(343), ITPR1(375), DRD1(466), ADRA1B(489), ESR2(498), LEPR(526), TACR1(528), NFKB1(586), GNAS(599), GRIA4(656), GRIA3(661), HTR3A(672), PSMB4(732), ADRA2A(760), DRD2(769), CCKBR(777), HTR2A(787), FGFR4(790), PSMD9(815), ADRA2C(820), HTR2B(827), HTR1A(846), HTR6(848), AR(859), GRIN1(871), CRHR1(914), NGFR(917), GSK3B(932), ROS1(938), ADORA2A(1002), CACNA1C(1003), DRD3(1011), FGFR3(1020), CREB1(1055), TH(1080), GRIA1(1108), GRIK3(1110), STAT3(1125), HTR2C(1158), CHRM2(1232), ABCB1(1284), CD3E(1312), CCL2(1335), GABRA6(1340), POMC(1368), HTR5A(1384), P2RX7(1418), GRIN2C(1422), OPRD1(1455), GRIN2D(1466), GABRA3(1484), TAC1(1489), GRIN2A(1506), CRHR2(1546), LEP(1587), GRIN2B(1602), GABBR1(1622), PRKCH(1625), EHD3(1660), GSK3A(1739), M6PR(1759), GRIN3A(1811), FKBP5(1865), DRD5(1996)
TBX21	4.36E-06	IL6(48), IL1B(74), TNF(87), CTLA4(95), CD3E(123), NFKB1(242), STAT3(349), TH(484), CCL2(503), TAC1(574), TACR1(595), AKT1(639), PENK(645), ESR1(691), ABCB1(719), PSMD9(792), APOE(802), LEPR(811), CREB1(826), NR3C1(847), AGTR1(900), CCND2(918), FGFR2(948), POMC(982), MMP2(1024), ADORA2A(1070), NOS3(1101), LEP(1116), ADRB1(1152), P2RX7(1287), FGFR1(1302), GNAS(1364), FGFR3(1370), GNB3(1385), GSK3B(1416), ADCY9(1444), ESR2(1456), TFCP2(1542), ITPR1(1627), PRKCH(1653), PLA2G4A(1729), FGFR4(1744), ADRA2B(1799), SERPINA3(1812), GABRA6(1860), AR(1872), OLIG2(1910), NOS1(1920)
ADCY9	1.13E-05	GNAS(13), ADRB1(16), ADRA2B(35), PDE1A(56), DRD1(62), ADRA1A(63), GNAL(65), HTR6(83), CACNA1C(92), PDE2A(100), DRD5(140), ADRA2A(163), ADRA2C(236), CRHR1(284), TH(315), ITPR1(328), CREB1(358), ADRA1B(366), DRD2(409), HTR1A(492), HTR5A(522), PDE11A(659), HTR7(705), TDRD3(753), HTR4(880), NR3C1(882), PDE10A(912), TNF(946), CRHR2(973), IL6(984), GRM7(1029), PDE9A(1054), GRIA4(1166), FGFR2(1186), CAMKK2(1250), PSMD9(1264), PRKCH(1272), ADORA2A(1310), IL1B(1359), PSMB4(1364), DRD3(1377), PHACTR3(1627), GRIA3(1648), HTR2A(1678), ROS1(1824), AGTR1(1834), AKT1(1895)
STAT3	3.35E-05	IL6(10), AKT1(36), IL1B(47), NFKB1(53), TNF(58), CREB1(218), FGFR4(222), GSK3B(295), LEPR(300), FGFR2(302), FGFR3(400), FGFR1(405), LEP(422), ESR1(439), PRKCH(549), DUSP6(555), NR3C1(560), CNTF(561), TH(598), CCND2(629), CCL2(710), GSK3A(758), ROS1(816), MMP2(900), TCF20(1001), ADRA1B(1036), AGTR1(1072), ADRB1(1125), AR(1144), POMC(1194), ESR2(1199), PSMD9(1204), ADRA1A(1243), ITPR1(1352), NGFR(1360), DRD1(1390), GNAS(1492), CD3E(1625), TACR1(1638), PLA2G4A(1647), LRP1(1701), ADORA2A(1729), TAC1(1744), TBX21(1790), CCKBR(1817), P2RX7(1909), ADRA2B(1931)
PER3	7.74E-05	PER2(1), PER1(2), CLOCK(3), CREB1(118), TPH2(179), GSK3B(184), IL6(296), TH(363), DTNBP1(380), HTR1B(390), ROS1(533), TNF(557), FGFR2(558), DDC(681), NR3C1(802), POMC(808), ESR1(836), ADRA2B(864), GNAS(898), IL1B(1007), ADCY9(1046), HTR5A(1073), AKT1(1155), AGTR1(1159), PENK(1177), SLC6A4(1238), DRD1(1244),

		PSMD9(1263), HTR7(1276), DRD2(1310), HTR2A(1340), GABRA3(1361), DRD3(1378), DAOA(1443), ABCB1(1444), GRIN2C(1490), GAD1(1547), LEPR(1587), NFKB1(1613), ITPR1(1660), GRIA3(1760), CCND2(1912)
PDE1A	0.000329	PDE11A(3), PDE2A(5), PDE9A(8), PDE10A(10), PDE5A(17), PDE6C(27), CAMKK2(33), CACNA1C(57), ADCY9(60), ADRA1A(83), ITPR1(96), CREB1(131), GNAS(310), HTR4(452), HTR1A(519), FGFR2(615), AKT1(703), GRM7(730), ADRA1B(800), MYO5B(1036), HTR3A(1282), TH(1303), PSMB4(1322), ADRB1(1362), DRD1(1421), ADRA2B(1472), HTR5A(1608), AGTR1(1662), TNF(1690), IL6(1780), GRIA3(1837), FGFR4(1860), FGFR1(1871), NR3C1(1957), GRIA4(1963), GABBR1(1964)
NFKB1	0.00036	TNF(36), IL1B(72), IL6(74), AKT1(106), STAT3(223), CCL2(257), GSK3B(291), NR3C1(348), CREB1(367), ESR1(550), OPRK1(574), MMP2(656), PRKCH(679), DUSP6(801), TFCP2(805), PSMD9(925), FGFR2(947), AGTR1(1035), CCND2(1045), GSK3A(1131), ADRA1A(1138), NFE2L3(1141), TACR1(1161), NOS3(1191), POMC(1203), ADRB1(1214), TAC1(1276), PLA2G4A(1286), TH(1295), CD3E(1297), ADORA2A(1332), PSMB4(1336), FGFR1(1359), ESR2(1371), AR(1448), NGFR(1473), GNAS(1491), LEPR(1520), ABCB1(1552), ADRA1B(1553), ITPR1(1577), NOS1(1586), GRIN2C(1609), P2RX7(1610), CACNA1C(1623), SERPINA3(1651), TCF20(1692), DRD1(1707), ADRA2B(1774), CCKBR(1798), FGFR4(1804), CTLA4(1831), PLA2G2A(1901), OPRD1(1925), FGFR3(1963)
PDE11A	0.000798	PDE9A(1), PDE10A(2), PDE2A(3), PDE5A(4), PDE1A(11), PDE6C(19), CREB1(52), ADCY9(77), GNAS(95), ADRA1A(382), ADRA2B(522), CACNA1C(650), TDRD3(875), FGFR2(1117), ADRB1(1129), PHACTR3(1427), ITPR1(1461), PSMB4(1464), TH(1486), IL6(1524), HTR4(1751), ADRA2C(1870)
FGFR4	0.000865	FGFR1(1), FGFR2(2), FGFR3(8), STAT3(115), DUSP6(173), ESR1(246), AKT1(253), IL6(263), TH(306), TNF(308), ROS1(562), ITPR1(597), NR3C1(675), ESR2(715), TCF20(805), ADRA2B(890), IL1B(892), PRKCH(893), NFKB1(909), GNAS(919), AR(939), AGTR1(959), CCKBR(986), GRIA4(1010), HTR2B(1092), CCND2(1122), MMP2(1130), ADRA1A(1134), GSK3B(1193), NGFR(1244), DRD1(1270), GRIA3(1379), HTR3A(1383), TACR1(1434), CREB1(1439), CRHR1(1487), POMC(1495), AVPR1B(1553), LEPR(1573), LRP1(1619), FZD3(1634), HTR2A(1642), ADRA1B(1681), ADRB1(1693), DRD2(1815), CACNA1C(1857), PTPRR(1939), GSK3A(1956), HTR2C(1960)
CLOCK	0.000903	PER3(2), PER1(3), PER2(4), CREB1(161), TH(236), GSK3B(271), HTR1B(304), ROS1(318), IL6(323), TPH2(431), DDC(469), POMC(533), FGFR2(636), TNF(716), DRD1(845), ESR1(851), DRD2(863), NR3C1(915), ADRA2B(1010), LEPR(1075), DRD3(1079), PENK(1102), IL1B(1119), GNAS(1198), AGTR1(1243), CCND2(1259), HTR7(1282), PSMD9(1424), GRIN2C(1435), ITPR1(1448), HTR1A(1489), GAD1(1527), TAC1(1554), AVPR1A(1632), NFKB1(1651), HTR5A(1660), LEP(1695), CRHR1(1744), AKT1(1967), AVPR1B(1978)
KCNC2	0.001519	CACNA1C(29), HTR3A(165), GRIA3(187), GABRA6(190), GABRA3(193), GRIA4(195), GRIN2D(206), GABBR1(214), ANK3(215), GRIN2C(224), GRIA1(247), ITPR1(263), GAD1(265), GABRA5(279), GRIN1(286), SLC6A1(288), GRIK3(303), GRM7(318), GRIN2A(323), GRIN2B(329), HTR3B(338), GRIA2(356), P2RX4(404), ADRA1B(413), ADRA2B(415), GRIK1(422), TH(440), HTR1B(484), GRIK4(485), GRIK5(489), ADRA2C(505), GRIK2(537), CHRNA7(556), IL6(626), GNAS(766), LEPR(799), HTR5A(806), GRIN3A(828), ADRA1A(829), HTR1A(831), DRD1(957), CHRM2(992), DRD2(1011), P2RX7(1070), HTR2C(1082), NOS1(1092), PSMB4(1098), BDNF(1109), PENK(1138), TNF(1150), HTR2A(1191), PHACTR3(1295), FGFR2(1299), IL1B(1319),

		TAC1(1381), TACR1(1510), ADCY9(1546), HTR2B(1754), FBXO8(1760), ADRA2A(1784), DRD3(1789), PSMD9(1843), POMC(1962), ADRB1(1965), MYO5B(1979)
M6PR	0.002267	IL6(70), AGTR1(313), HTR6(385), FGFR2(393), HTR3A(424), ADRA2B(469), DRD1(471), GRIA3(533), TNF(555), HTR2B(579), LRP1(594), GRIA4(595), FGFR1(597), ADRB1(601), EHD3(642), ITPR1(649), NR3C1(672), ESR1(718), ADRA1A(838), TACR1(880), TH(917), GABRA6(932), GNAS(948), CCKBR(955), HTR2C(965), DRD2(1040), ABCB1(1047), HTR5A(1081), HTR2A(1093), GRIA1(1127), MYO5B(1182), FGFR3(1202), LEPR(1225), IL1B(1232), CHRM2(1236), FGFR4(1239), ADRA1B(1310), P2RX7(1326), OPRD1(1336), DRD3(1342), GRIN1(1361), GRIK3(1375), ANK3(1397), PSMB4(1428), GABBR1(1445), ROS1(1479), ADORA2A(1487), AR(1506), GABRA3(1549), GRM7(1554), CACNA1C(1569), ESR2(1573), HTR1A(1583), AKT1(1640), ADRA2C(1673), CRHR1(1738), PSMD9(1889), OPRK1(1891), DRD5(1909)
PDE6C	0.003398	PDE11A(5), PDE9A(6), PDE10A(7), PDE2A(9), PDE5A(12), PDE1A(20), PSMB4(141), GNAS(302), ROS1(321), CACNA1C(490), GABRA6(702), ADRA2B(833), GABRA5(1064), GABRA3(1067), ADRA1A(1078), SERPINA3(1112), GNAL(1165), TNF(1235), ADRA1B(1363), GRIA4(1512), GRIA3(1859)
CCND2	0.003477	DRD2(21), DRD1(45), DRD3(61), PSMD9(106), AKT1(233), FGFR2(266), IL6(305), DRD5(309), TNF(381), GSK3B(456), NFKB1(478), TH(557), ESR1(638), STAT3(712), ROS1(780), FGFR1(857), CREB1(859), IL1B(941), PRKCH(958), FGFR3(979), FGFR4(1261), GNAS(1438), ESR2(1439), NR3C1(1479), DUSP6(1537), AR(1665), FBXO8(1689), ZNF804A(1801), ITPR1(1977)
FGFR1	0.004106	FGFR2(1), FGFR4(5), FGFR3(15), DUSP6(90), AKT1(222), TH(263), ROS1(283), TNF(439), IL6(532), STAT3(541), ESR1(597), NGFR(646), OLIG1(661), ITPR1(757), NR3C1(763), GSK3B(766), HTR2B(811), NFKB1(911), CREB1(928), DRD1(929), AGTR1(947), PTPRR(1019), AR(1035), ADRA2B(1038), ADRA1A(1059), CCND2(1081), IL1B(1109), ADRB1(1127), LRP1(1134), TACR1(1174), GNAS(1208), PRKCH(1227), NTRK2(1250), MMP2(1278), CCKBR(1297), TCF20(1308), HTR3A(1334), GSK3A(1335), ESR2(1371), GRIA3(1380), NTRK3(1390), ADRA1B(1411), GRIA4(1450), DRD2(1483), FZD3(1526), LEPR(1546), CACNA1C(1622), CRHR1(1677), HTR2C(1699), PSMD9(1713), DRD3(1867), OLIG2(1916), CD3E(1919), GRIN1(1941)
CACNA1C	0.005107	ITPR1(77), KCNC2(91), ADRA1A(175), HTR3A(196), GRIN2D(226), GRIA4(229), GRM7(236), GRIA3(237), CAMKK2(274), GRIN2C(284), HTR3B(322), GRIN1(327), PDE1A(328), GRIN2A(332), ADRB1(334), ADRA1B(336), GABRA6(342), P2RX4(361), GRIN2B(370), ANK3(373), GRIA1(374), GRIA2(414), ADRA2B(432), GNAS(443), GRIN3A(471), GABRA3(482), ADCY9(491), TNF(533), CHRNA7(624), ADRA2C(631), AGTR1(648), ADRA2A(678), P2RX7(683), GABBR1(704), GABRA5(711), PSMB4(719), IL6(746), TH(752), GRIK2(838), GRIK3(846), ESR1(861), PLA2G4A(897), AKT1(898), FGFR2(940), CHRM2(945), IL1B(991), GRIK5(996), NOS1(1007), DRD1(1110), PRKCH(1118), MYO5B(1183), AVPR1A(1200), HTR2B(1207), GRIK1(1221), PSMD9(1230), HTR1A(1259), CREB1(1320), NFKB1(1398), HTR5A(1411), HTR2A(1414), ESR2(1419), TACR1(1422), NOS3(1430), GRIK4(1522), SLC6A1(1556), VGLL4(1563), SERPINA3(1564), TAC1(1597), NR3C1(1628), ADORA2A(1637), HTR4(1708), DRD2(1713), MMP2(1719), PLA2G2A(1785), POMC(1805), HTR6(1858), HTR2C(1882), HTR7(1938), FGFR1(1967)
AKT1	0.005138	GSK3B(23), GSK3A(54), NFKB1(64), TNF(130), STAT3(149), PRKCH(217), IL6(218), CREB1(233), DUSP6(245), IL1B(377), NOS3(425), ESR1(440), FGFR2(480), CAMKK2(490), ADRA1A(550), FGFR1(568), ADRB1(589), MMP2(666), CCND2(703),

		ITPR1(769), AGTR1(774), TH(791), NR3C1(832), ROS1(871), FGFR3(913), LEPR(932), FGFR4(941), PSMD9(942), NGFR(987), AR(996), NOS1(1037), CACNA1C(1137), LEP(1147), PLA2G4A(1150), ESR2(1181), DRD1(1192), ADRA1B(1219), CCL2(1319), ADRA2B(1414), ADORA2A(1455), CCKBR(1464), GNAS(1465), LRP1(1489), TACR1(1583), POMC(1594), ABCB1(1612), P2RX7(1659), TAC1(1692), CD3E(1734), NTRK2(1767), PTPRR(1835), ADRA2A(1847), DRD2(1916), SERPINA3(1944), CRHR1(1980), TCF20(1981)
OLIG2	0.006925	OLIG1(1), OLIG3(2), FGFR2(258), TH(328), FGFR1(478), GAD1(500), NGFR(543), FGFR3(594), CCND2(628), TNF(685), ROS1(781), IL6(849), CNTF(853), AKT1(888), STAT3(889), FZD3(975), NTRK3(994), PSMD9(1039), CREB1(1052), GSK3B(1106), GRIA3(1156), NFKB1(1159), BDNF(1184), FGFR4(1226), PENK(1341), TAC1(1424), IL1B(1433), TACR1(1459), ESR1(1516), NTRK2(1617), GRIN1(1655), POMC(1715), NR3C1(1798), GRIK4(1807), GRIA1(1824), CD3E(1869), DUSP6(1961), GRIN2C(1971)
GSK3B	0.008616	GSK3A(1), AKT1(5), NFKB1(165), CREB1(281), TNF(311), ROS1(375), PRKCH(385), IL6(434), DUSP6(444), FGFR2(461), NOS1(497), STAT3(513), CAMKK2(547), IL1B(621), TH(630), NOS3(639), ADRB1(687), CCND2(740), ESR1(795), FZD3(864), FGFR1(931), PSMD9(946), FGFR3(1038), NR3C1(1149), ITPR1(1154), DRD1(1333), ADRA1A(1347), GNAS(1441), AR(1505), ESR2(1675), NGFR(1768), FGFR4(1788), ADRA2B(1822), CACNA1C(1844), PSMB4(1889), LEPR(1907), POMC(1924), MMP2(1955)
FGFR3	0.013505	FGFR2(1), FGFR1(2), FGFR4(3), ROS1(146), GNAS(287), DUSP6(298), AKT1(351), TH(414), STAT3(447), IL6(491), TNF(527), ESR1(626), GSK3B(721), NR3C1(887), OLIG1(968), ITPR1(977), NGFR(1025), AR(1053), CCND2(1061), ADRA2B(1183), AGTR1(1282), GRIA3(1339), IL1B(1340), HTR2B(1348), NFKB1(1353), GSK3A(1374), FZD3(1403), HTR3A(1469), DRD1(1477), ADRB1(1676), ESR2(1704), DRD2(1882), LEPR(1884), DRD3(1927), GRIA4(1955), ADRA1A(1962), CCKBR(1963), CREB1(1977)
PRKCH	0.018319	AKT1(48), DGKH(114), CD3E(150), TNF(152), GSK3B(158), NFKB1(190), IL6(244), GSK3A(251), CREB1(334), IL1B(346), DUSP6(396), CAMKK2(418), STAT3(446), FGFR2(462), ADRA1A(482), CACNA1C(498), ESR1(617), CCND2(675), ITPR1(689), FGFR1(705), ADCY9(732), FGFR4(747), PSMD9(791), ROS1(886), TH(960), NR3C1(978), OPRD1(1060), MMP2(1096), CCL2(1143), ADRB1(1238), GNAS(1446), FGFR3(1470), PLA2G4A(1481), TCF20(1499), ESR2(1508), GRIA4(1581), ADRA1B(1618), ABCB1(1654), PSMB4(1685), GRIN2C(1704), POMC(1849), AGTR1(1856), ADRA2B(1875), GRM7(1882), GRIN2D(1929), LEPR(1949), SERPINA3(1987)
PDE9A	0.01933	PDE11A(1), PDE5A(2), PDE10A(4), PDE2A(6), PDE1A(10), PDE6C(18), ADCY9(120), GRIA4(644), PHACTR3(725), GNAS(888), CACNA1C(1002), PSMB4(1028), ADRA2B(1041), ITPR1(1343), HTR5A(1480), GRIA3(1611), ACSL4(1639), FGFR2(1772)
OLIG1	0.023419	OLIG2(1), OLIG3(2), FGFR2(187), FGFR1(296), FGFR3(390), TH(425), NGFR(441), GAD1(654), FGFR4(754), CCND2(834), NTRK3(922), ROS1(958), FZD3(1061), TNF(1109), GRIA3(1223), CNTF(1411), BDNF(1471), IL6(1489), PSMD9(1496), CREB1(1555), STAT3(1629), NTRK2(1710), PENK(1751), GSK3B(1792), GRIK4(1945), NFKB1(1947), AKT1(1981)
OLIG3	0.036708	OLIG2(1), OLIG1(2), TH(379), FGFR2(400), GAD1(494), NGFR(567), NTRK3(571), GRIA3(685), FGFR1(763), FGFR3(878), ADRA2C(898), CCND2(976), ROS1(995), TACR1(1059), GRIN2D(1122), PENK(1150), BDNF(1225), FZD3(1236), NTRK2(1280), HTR3A(1298), TAC1(1364), NOS1(1398), GRIA1(1429), GRIN2C(1433), CREB1(1440), FGFR4(1457), NFE2L3(1466), GRIA4(1473), CNTF(1492), GRIN1(1524), GABBR1(1541), DUSP6(1587), ADRA2B(1627), PSMD9(1675), ITPR1(1719), GSK3B(1781), TNF(1864),

		GRIK4(1866), CACNA1C(1919), STAT3(1924), ADRA1B(1963)
CD3E	0.055695	CTLA4(133), PRKCH(191), TNF(245), TBX21(320), IL6(336), GRIN2D(382), NFKB1(475), IL1B(492), OPRD1(545), GRIN2C(559), NR3C1(595), AKT1(619), FGFR2(662), ROS1(879), PSMD9(882), ESR1(893), FGFR1(970), TH(972), GRIN2A(976), GNAS(1030), GABRA6(1033), PENK(1080), PSMB4(1131), ADRB1(1212), STAT3(1321), CCND2(1395), TACR1(1419), ADRA2B(1539), LRP1(1569), GSK3B(1574), FGFR3(1602), POMC(1633), ABCB1(1643), GRIA3(1661), GRIN2B(1699), CREB1(1725), ESR2(1750), APOE(1787), LEPR(1805), GABRA3(1843), ITPR1(1859), OPRK1(1861), ADRA1A(1979), GRIN1(1989)
FGFR2	0.063011	FGFR1(1), FGFR3(5), FGFR4(11), ROS1(149), DUSP6(290), TH(496), AKT1(610), GNAS(682), ESR1(856), TNF(888), OLIG1(949), NR3C1(975), IL6(1075), GSK3B(1120), HTR2B(1121), CCND2(1158), AR(1199), STAT3(1259), FZD3(1298), ITPR1(1301), ADRA2B(1307), NGFR(1354), GRIA3(1631), NFKB1(1708), CREB1(1828), AGTR1(1838), PSMD9(1853), HTR3A(1869), ADRA1A(1911), DRD1(1915), GSK3A(1990), ESR2(1995)
GSK3A	0.078033	GSK3B(1), AKT1(11), CAMKK2(267), PRKCH(311), DUSP6(385), FGFR2(454), NOS1(465), TNF(479), NFKB1(492), ROS1(545), NOS3(558), CREB1(574), IL6(634), GNAS(672), PSMD9(682), TH(774), STAT3(830), ADRB1(975), FGFR1(1001), FGFR3(1114), IL1B(1163), PSMB4(1210), ESR1(1287), MYO5B(1320), CACNA1C(1347), ITPR1(1432), ADRA1A(1476), PTPRR(1531), NR3C1(1672), LEPR(1788), CCND2(1863), SERPINA3(1903), FGFR4(1908)
DUSP6	0.081729	PTPRR(27), FGFR1(77), AKT1(85), FGFR2(89), GSK3B(267), FGFR4(290), FGFR3(313), NFKB1(323), GSK3A(398), ROS1(461), TNF(465), PRKCH(500), STAT3(550), TH(624), IL6(842), CREB1(849), PSMD9(892), AGTR1(909), PHACTR3(979), IL1B(1220), ESR1(1254), CCND2(1283), MMP2(1383), NR3C1(1621), ITPR1(1804), CAMKK2(1920)
PAM	0.118665	GNAS(54), TNF(71), SERPINA3(170), POMC(205), CACNA1C(247), ADRA1A(274), TH(301), ADRA2B(341), ESR1(490), PENK(548), ADRA1B(590), PSMB4(634), PSMD9(772), FGFR2(978), ANK3(1085), GRIA4(1106), IL6(1197), ADRA2C(1259), ITPR1(1670), MYO5B(1761), PDE1A(1818), CCKBR(1847), ADRA2A(1978)
CD47	0.161446	TNF(81), IL6(178), AKT1(223), IL1B(330), NFKB1(362), CD3E(447), FGFR2(495), LRP1(537), CTLA4(590), ESR1(638), ADRB1(665), ITPR1(749), FGFR1(778), NR3C1(792), MMP2(829), GSK3B(830), GNAS(841), STAT3(866), ADRA1A(914), ROS1(925), CREB1(931), TH(956), ANK3(979), CACNA1C(1008), PSMD9(1027), ADRA2B(1032), CCL2(1065), ABCB1(1096), ADRA1B(1144), GRIA3(1234), GRIA4(1250), GRIA1(1302), AGTR1(1323), POMC(1440), LEPR(1453), DRD1(1465), SERPINA3(1482), FGFR3(1497), GYPA(1520), P2RX7(1544), TACR1(1573), ESR2(1588), PRKCH(1611), ADRA2A(1707), TAC1(1732), FGFR4(1736), PSMB4(1742), HTR3A(1826), GRIN1(1830), NGFR(1831), MYO5B(1835), ADORA2A(1848), PENK(1962)
FKBP5	0.169217	NR3C1(17), AR(124), ESR1(241), NFKB1(403), FGFR2(548), ABCB1(565), TNF(598), ADCY9(649), PSMD9(765), IL6(813), PSMB4(851), ADRA2B(890), ITPR1(931), GNAS(1085), ESR2(1133), TCF20(1144), ADRA1A(1170), AKT1(1200), ADRB1(1312), LRP1(1615), CREB1(1639), MYO5B(1645), GRIA4(1734), FGFR1(1779), IL1B(1905), HTR3A(1923)
TFCP2	0.277285	NFKB1(101), LBP(156), TCF20(235), TNF(324), PSMD9(344), NFE2L3(464), FGFR2(638), CREB1(655), PSMB4(693), NR3C1(745), IL6(930), ESR1(1027), IL1B(1039), SERPINA3(1139), ADRA1A(1326), GNAS(1445), TH(1710), APOE(1734), STAT3(1806), FGFR1(1860), FGFR4(1881)
DDC	0.287916	GAD1(12), TH(13), ROS1(181), SLC6A4(451), DRD3(534), DRD1(537), DRD2(553),

		DRD5(665), HTR2B(772), FGFR2(775), HTR1A(950), HTR2A(976), TPH2(1101), GNAS(1179), SLC6A3(1281), TDRD3(1353), HTR2C(1412), ADRA2B(1470), GRIA3(1499), HTR1B(1711), TPH1(1743), HTR6(1767), HTR3A(1853), HTR5A(1864)
CAMKK2	0.321022	PDE1A(29), CACNA1C(63), CREB1(73), ITPR1(119), AKT1(123), GSK3A(226), GSK3B(236), PRKCH(354), GRM7(424), ADCY9(476), ADRA1A(482), GRIA1(576), ADRB1(600), TNF(866), PDE2A(918), PSMB4(921), DUSP6(930), NFKB1(1045), GRIN1(1048), PLA2G4A(1083), PSMD9(1113), ROS1(1231), GNAS(1293), GRIA3(1294), GRIA4(1311), PTPRR(1372), ADRA1B(1378), FGFR2(1408), STAT3(1473), ESR1(1476), NOS1(1482), IL1B(1502), GRIN2B(1516), TH(1557), FGFR1(1565), ADRA2B(1686), ESR2(1820), NTRK2(1979)
FZD3	0.330747	DTNBP1(64), DAOA(75), FGFR2(200), DISC1(320), GSK3B(339), HTR2A(438), HTR5A(571), GRIA4(633), ROS1(666), FGFR3(739), HTR6(757), FGFR1(767), TH(791), DRD3(804), GAD1(818), GRIK4(908), IL6(909), GRIK3(925), ADRA2B(968), TNF(995), GNAS(1037), FGFR4(1124), GMIP(1279), GRIA3(1353), DRD2(1374), ESR1(1387), CHRFAM7A(1425), ITPR1(1537), IL1B(1542), SYN3(1564), DRD1(1654), GABRA3(1658), GNAL(1659), DUSP6(1823), HTR2B(1895), TPH2(1915), HTR1A(1933), ADRB1(1986)
WFS1	0.378286	DTNBP1(168), GNAS(184), FGFR2(323), ESR1(344), TPH2(389), FGFR3(407), SLC6A4(437), IL6(473), LEPR(485), TNF(514), DAOA(557), ESR2(661), ACSL4(723), IL1B(776), PSMD9(807), HTR2A(823), GNB3(914), CTLA4(934), TH(953), ADRA2B(992), ABCB1(1096), APOE(1114), CACNA1C(1198), ITPR1(1294), GAD1(1314), TPH1(1370), ADRB1(1398), GRIK3(1468), POMC(1722), SLC6A2(1726), AR(1733), NR3C1(1801), DRD4(1859), ADCY9(1903), LEP(1909), FZD3(1941), MTHFR(1954)
NFE2L3	0.543003	NFKB1(43), TFCP2(96), TNF(167), TCF20(172), CREB1(357), FGFR2(659), ESR1(942), NR3C1(1033), IL6(1320), PSMD9(1345), STAT3(1551), FGFR1(1680), FBXO8(1767), PSMB4(1831), AKT1(1958)
BCR	0.639547	AKT1(200), TNF(323), CCND2(331), IL6(339), NFKB1(373), STAT3(408), FGFR2(410), ROS1(434), TH(453), FGFR1(550), FGFR3(732), GSK3B(763), GNAS(784), IL1B(890), ABCB1(955), FGFR4(1094), NR3C1(1254), ESR1(1291), CREB1(1375), GSK3A(1583), PSMD9(1597), DUSP6(1613), PRKCH(1727), ITPR1(1733), PTPRR(1964), CD3E(1992), SERPINA3(1996)
PTPRR	0.660664	DUSP6(37), TH(198), ROS1(251), FGFR1(293), FGFR2(326), PHACTR3(329), AKT1(344), GSK3A(516), GSK3B(533), NGFR(570), FGFR4(631), FGFR3(659), STAT3(843), NR3C1(844), PRKCH(857), NTRK3(970), CAMKK2(1079), NTRK2(1110), PDE9A(1255), CREB1(1288), ITPR1(1390), CACNA1C(1561), GRIA4(1780), TCF20(1871), PSMB4(1914)
UGT2A1	0.698515	GNAL(331), ADCY9(473), CYP2C9(506), GAD1(666), TH(738), ABCB1(826), PDE9A(1208), PENK(1597), HTR5A(1607), GNAS(1662), PDE1A(1834), FGFR2(1990)
DGKH	0.810725	PRKCH(11), NR3C1(21), ANK3(255), EHD3(276), CAMKK2(605), CD3E(672), CACNA1C(707), AKT1(800), PSMB4(813), FKBP5(961), PDE9A(1042), FBXO8(1153), PDE1A(1299), ITPR1(1316), FGFR2(1409), MYO5B(1527), ROS1(1598), ADCY9(1631), GSK3B(1866), PSMD9(1924), PDE11A(1961), GSK3A(1983)
ACSL4	0.94727	IL6(491), PLA2G4A(531), TNF(664), LEPR(707), GNAS(762), OASL(792), WFS1(886), TH(895), FGFR2(907), PDE1A(1005), ITPR1(1034), PLA2G2A(1117), GRIA3(1204), PDE9A(1305), IL1B(1306), ADRA2B(1354), LEP(1450), GRIA4(1470), SERPINA3(1513), FGFR4(1595), NR3C1(1609), APOE(1638), AKT1(1643), POMC(1668), ADCY9(1695), GAD1(1703), ABCB1(1787), ESR1(1810), GABRA6(1829
DNAJB2	0.956022	PSMB4(125), BDNF(214), PSMD9(244), FBXO8(732), PHACTR3(1346), MYO5B(1772), TCF20(1948)

PSMD9	0.959184	PSMB4(12), TDRD3(365), CCND2(819), FBXO8(1749)
GYPA	0.971885	GNAS(132), TNF(778), FGFR2(841), CACNA1C(918), ADRA2B(928), SERPINA3(1050), PSMB4(1276), IL6(1444), PHACTR3(1498), ABCB1(1622), MYO5B(1673)
TCF20	0.97278	ESR1(8), ESR2(157), CREB1(763), FGFR2(1270), PSMD9(1395), TFCP2(1578)
HS6ST3	0.989407	CHST11(14), MYO5B(571), FGFR2(572), ANK3(1481), ESR1(1539), IL6(1573), FGFR1(1869)
VGLL4	0.991709	ADRA1A(382), ADRB1(509), ADRA1B(570), FBXO8(753), ADRA2B(913), ADRA2C(1423), ADRA2A(1786), TDRD3(1923)
PSMB4	0.992859	PSMD9(30), TDRD3(856), GRIN3A(1593), FBXO8(1930)
PCLO	0.992954	GRM7(133), GRIK3(244), GRIA1(259), GRIA3(329), SYN3(587), MYO5B(607), GABBR1(709), SLC6A1(748), ITPR1(1017), GRIK1(1022), GAD1(1162), PSMD9(1221), CACNA1C(1265), GRIA4(1536), PHACTR3(1582), GRIK5(1607), ANK3(1628), EHD3(1665), GRIA2(1784)
TSPAN8	0.993857	ADRA1A(130), HTR1A(629), FGFR2(637), TNF(925), FGFR4(1106), PSMB4(1648), PDE1A(1669), AGTR1(1848), ABCB1(1872)
OASL	0.99422	FBXO8(274), PSMB4(446), HTR5A(641), ACSL4(829), PSMD9(1537), MYO5B(1996)
ANK3	0.994545	CACNA1C(87), ITPR1(375), ROS1(399), KCNC2(486), MYO5B(609), GNAS(687), FGFR2(845), GRIA4(888), GRIA3(967), HTR3A(1415), PSMD9(1862), TH(1997)
SPAG16	0.995349	ROS1(325), PDE1A(373), GNAS(758), FGFR2(887), PSMD9(1129), FBXO8(1239), TH(1627), AR(1675)
ROS1	0.9967	FGFR2(168), TH(391), FGFR3(539), GSK3B(672), FGFR1(701), DDC(792), AKT1(1057), ANK3(1363), ITPR1(1524), DUSP6(1549), GSK3A(1798), GRIA3(1812), GNAS(1869), PTPRR(1893)
CHST11	0.9985	HS6ST3(41), TDRD3(637), FGFR2(1276), PHACTR3(1516)
EHD3	0.999676	MYO5B(138), PSMD9(880), ANK3(981), TCF20(1117), FBXO8(1535), FGFR2(1642), AKT1(1951)
MYO5B	0.999788	SLC25A21(865), PSMD9(916), EHD3(927), PSMB4(1093), GRIA3(1572), ANK3(1938), GAD1(1942)
SLC25A21	0.999836	TDRD3(130), MYO5B(1733)
PHACTR3	0.999934	TDRD3(189)
ZNF804A	0.99997	CNR1(678), TDRD3(778)
GMIP	0.999989	DTNBP1(823), FZD3(883), CTLA4(1202), HTR2A(1701), DAOA(1798)
SMG7	0.999996	PSMD9(951), MYO5B(1460), FBXO8(1596), PSMB4(1674)
C5orf20	0.999999	PHACTR3(1048), ZNF804A(1830), VGLL4(1894)
TDRD3	1	PHACTR3(1305), SLC25A21(1889)
FBXO8	1	TDRD3(1798)

Table S3.3. List of 178 GO (http://www.geneontology.org) gene sets compiled based on GRAIL functional keywords for MDD. Gene sets with at least 5 genes were listed (GO downloaded date: Sep/21/2011).

Keyword: serotonin
GO:0004993 (13 genes) HTR2C(3358), HTR1D(3352), HTR2B(3357), HTR1F(3355), HTR4(3360), HTR1A(3350), HTR1B(3351), HTR1E(3354), HTR5A(3361), HTR7(3363), HTR3B(9177), HTR3A(3359), HTR2A(3356),
GO:0005232 (5 genes) HTR3D(200909), HTR3C(170572), HTR3E(285242), HTR3B(9177), HTR3A(3359),
GO:0007210 (13 genes) HTR2C(3358), HTR1D(3352), HTR2B(3357), HTR1F(3355), HTR4(3360), HTR1A(3350), HTR1B(3351), HTR1E(3354), HTR5A(3361), HTR7(3363), HTR3B(9177), HTR3A(3359), HTR2A(3356),
GO:0042428 (6 genes) MAOA(4128), ATP7A(538), ATP2B2(491), SRD5A1(6715), PDE1B(5153), GRIN2A(2903),
GO:0051378 (9 genes) HTR2C(3358), MAOA(4128), HTR2B(3357), HTR1F(3355), HTR1A(3350), HTR1B(3351), HTR1E(3354), HTR3A(3359), HTR2A(3356),
Keyword: glutamate
GO:0004970 (10 genes) GRIA3(2892), GRIK3(2899), GRIA2(2891), GRID2(2895), GRIA1(2890), GRIK2(2898), GRIN1(2902), GRID1(2894), GRIN2A(2903), GRIK1(2897),
GO:0004972 (6 genes) GRIN3A(116443), GRIN1(2902), GRIN2B(2904), GRIN2A(2903), GRIN2C(2905), GRIN2D(2906),
GO:0005234 (18 genes) GRIA3(2892), GRIK3(2899), GRIA2(2891), GRID2(2895), GRIA1(2890), GRIK2(2898), GRIN3A(116443), GRIN1(2902), GRID1(2894), GRIA4(2893), GRIK4(2900), GRIN2B(2904), STX1B(112755), GRIN2A(2903), GRIN2C(2905), GRIK5(2901), GRIN2D(2906), GRIK1(2897),
GO:0005313 (11 genes) SLC1A7(6512), SLC25A12(8604), SLC1A3(6507), SLC25A13(10165), SLC1A1(6505), SLC17A6(57084), SLC1A2(6506), SLC25A22(79751), SLC17A8(246213), SLC1A6(6511), SLC17A7(57030),
GO:0005314 (5 genes) SLC1A7(6512), SLC1A3(6507), SLC1A1(6505), SLC1A2(6506), SLC1A6(6511),
GO:0006536 (9 genes) GLUD2(2747), GCLM(2730), AADAT(51166), ALDH5A1(7915), GCLC(2729), GOT1(2805), GOT2(2806), TAT(6898), NAGS(162417),
GO:0006537 (5 genes) GLUD2(2747), SLC1A3(6507), GLUD1(2746), PRODH2(58510), PRODH(5625),
GO:0007215 (13 genes) GRIA3(2892), GRIK3(2899), GRID2(2895), GRIK2(2898), GNAQ(2776), GRIA4(2893), GRIK4(2900), GRIN2B(2904), SSTR1(6751), GRIN2A(2903), GRIN2C(2905), PLCB1(23236), GRIK1(2897),
GO:0008066 (12 genes) GRIK3(2899), GRM2(2912), GRM7(2917), GRIA2(2891), GRID2(2895), GRIA1(2890), GRM6(2916), GRM1(2911), GRM4(2914), GRM8(2918), GRM3(2913), GRM5(2915),
GO:0014047 (17 genes) GLS(2744), GRM2(2912), CPLX1(10815), RIMS1(22999), STX1A(6804), STXBP1(6812), NTRK2(4915), BDNF(627), SLC38A2(54407), GLS2(27165), SYT1(6857), TRPV1(7442), VAMP2(6844), GIPC1(10755), RAB3A(5864), SLC17A7(57030), SNAP25(6616),
GO:0014049 (7 genes) AVPR1B(553), NR3C1(2908), DPYSL2(1808), GRIN2B(2904), AVPR1A(552), AVP(551), ADORA2A(135),
GO:0014050 (5 genes) ADORA1(134), IL1B(3553), TRH(7200), GRM7(2917), NPY5R(4889),
GO:0015277 (7 genes) GRIK3(2899), GRIA2(2891), GRIA1(2890), GRIK2(2898), GRIK4(2900), GRIK5(2901), GRIK1(2897),
GO:0015813 (12 genes) PRAF2(11230), SLC1A7(6512), SLC25A12(8604), ARL6IP5(10550), SLC1A3(6507), SLC25A13(10165), SLC1A1(6505), SLC1A2(6506), SLC25A22(79751), PSEN1(5663), SLC1A6(6511), SLC17A7(57030),
GO:0016595 (9 genes) CPS1(1373), GRM7(2917), SLC1A3(6507), GCLC(2729), GRIN1(2902), SLC1A1(6505), GRIN2A(2903), GRIN2D(2906), GRIK1(2897),
GO:0017146 (7 genes) GRIN3A(116443), GRIN1(2902), GRIN2B(2904), EPS8(2059), GRIN2A(2903), GRIN2C(2905), GRIN2D(2906),

GO:0032281 (13 genes) GRIA3(2892), CNIH3(149111), GRIA2(2891), GRIA1(2890), GRIA4(2893), CNIH2(254263), CACNG3(10368), CACNG5(27091), CACNG4(27092), DLG4(1742), CACNG7(59284), CACNG8(59283), CACNG2(10369),
GO:0035235 (9 genes) GRIN3A(116443), GRIN1(2902), GRIN2B(2904), CLN3(1201), GRIN2A(2903), CDK5R1(8851), ATP1A3(478), APP(351), GRIK1(2897),
GO:0035249 (16 genes) SLC1A4(6509), GRID2(2895), ADRB2(154), PARK2(5071), GRM8(2918), CDK5(1020), PLAT(5327), GRIN1(2902), UNC13B(10497), SHC3(53358), CNIH2(254263), P2RX1(5023), CACNA1A(773), UNC13A(23025), GRIN2D(2906), NAPB(63908),
GO:0035254 (5 genes) ATP2B2(491), CAMK2A(815), RASGRF1(5923), C16orf70(80262), GRIN2A(2903),
GO:0035255 (14 genes) OPHN1(4983), DLG3(1741), RAB4A(5867), CTNNB1(1499), ADRB2(154), CANX(821), DRD2(1813), SHANK2(22941), GRIN2B(2904), DLG4(1742), MYO5B(4645), SHANK1(50944), GNAS(2778), SHANK3(85358),
GO:0051966 (9 genes) OPHN1(4983), SERPINE2(5270), UCN(7349), GRM1(2911), CNR1(1268), PSEN1(5663), PRKACA(5566), GRIK1(2897), MAPK8IP2(23542),
GO:0051967 (7 genes) ADORA1(134), GRIK3(2899), GRIK2(2898), HTR1B(3351), DRD2(1813), HTR2A(3356), GRIK1(2897),
GO:0051968 (12 genes) TNR(7143), PTGS2(5743), NRXN1(9378), NLGN1(22871), OXTR(5021), DRD1(1812), NTRK2(4915), GRIA4(2893), CCKBR(887), NLGN2(57555), ADORA2A(135), SHANK3(85358),
GO:0060203 (5 genes) SYT1(6857), ATP6V0D1(9114), VAMP2(6844), RAB3A(5864), SLC17A7(57030),
Keyword: dopamine
GO:0001963 (10 genes) DRD3(1814), SNCA(6622), DRD5(1816), DRD1(1812), CDK5(1020), DRD2(1813), TH(7054), DRD4(1815), ADORA2A(135), RASD2(23551),
GO:0004952 (5 genes) DRD3(1814), DRD5(1816), DRD1(1812), DRD2(1813), DRD4(1815),
GO:0007191 (7 genes) DRD3(1814), ADCY5(111), DRD5(1816), DRD1(1812), SLC9A3R1(9368), GNAL(2774), GNAS(2778),
GO:0007195 (5 genes) FLNA(2316), DRD3(1814), ADCY5(111), DRD2(1813), DRD4(1815),
GO:0007212 (6 genes) D4S234E(27065), HMP19(51617), CALY(50632), DRD4(1815), GNAO1(2775), RGS9(8787),
GO:0014059 (9 genes) CHRNB2(1141), DRD3(1814), SNCA(6622), HTR1B(3351), CHRNA6(8973), SNCG(6623), DRD2(1813), HTR2A(3356), CHRNA4(1137),
GO:0033603 (5 genes) CHRNB2(1141), PINK1(65018), RTN4(57142), GDNF(2668), SLC18A1(6570),
GO:0035240 (8 genes) GPR143(4935), DRD5(1816), SLC6A3(6531), ADRB2(154), DRD1(1812), ADRB1(153), TH(7054), DRD4(1815),
GO:0042053 (7 genes) CHRNB2(1141), NR4A2(4929), TACR3(6870), SLC6A3(6531), DRD1(1812), DRD4(1815), PDE1B(5153),
GO:0042416 (8 genes) TGFB2(7042), NR4A2(4929), SNCA(6622), SLC6A3(6531), DDC(1644), TH(7054), GCH1(2643), CHRNA7(1139),
GO:0042417 (10 genes) ATP7A(538), NPR1(4881), DRD3(1814), SNCAIP(9627), DRD1(1812), SNCB(6620), PARK2(5071), DRD2(1813), DRD4(1815), GRIN2A(2903),
GO:0060158 (8 genes) DRD5(1816), DRD1(1812), GNA14(9630), GNAQ(2776), DRD2(1813), SLC9A3R1(9368), GNA11(2767), GNA15(2769),
GO:0071542 (5 genes) NR4A2(4929), WNT5A(7474), FGF8(2253), PITX3(5309), LRP6(4040),
Keyword: N-methyl-D-aspartate
GO:0004972 (6 genes) GRIN3A(116443), GRIN1(2902), GRIN2B(2904), GRIN2A(2903), GRIN2C(2905), GRIN2D(2906),

GO:0017146 (7 genes) GRIN3A(116443), GRIN1(2902), GRIN2B(2904), EPS8(2059), GRIN2A(2903), GRIN2C(2905), GRIN2D(2906),

Keyword: neuron

GO:0001764 (72 genes) DCX(1641), CDKL5(6792), ARX(170302), CELSR2(1952), CNTN2(6900), MARK1(4139), DISC1(27185), BARHL2(343472), NR4A2(4929), SATB2(23314), DNER(92737), PEX13(5194), CHL1(10752), TOP2B(7155), CCR4(1233), CCK(885), CELSR3(1951), NEUROG2(63973), C4orf31(79625), CCKAR(886), APBB2(323), PHOX2B(8929), ATOH1(474), GFRA3(2676), TLX3(30012), NR2F1(7025), FYN(2534), GJA1(2697), PEX7(5191), KATNA1(11104), DCDC2(51473), KIAA0319(9856), TUBB2B(347733), MDGA1(266727), RELN(5649), NRCAM(4897), MET(4233), FEZF1(389549), CDK5(1020), MNX1(3110), TWIST1(7291), PTK2(5747), FZD3(7976), LMX1B(4010), BARHL1(56751), VAX1(11023), DRGX(644168), PRKG1(5592), ROBO3(64221), PAX6(5080), MARK2(2011), ASCL1(429), NEUROD4(58158), PEX5(5830), GAS6(2621), NKX2-1(7080), PSEN1(5663), ALKBH1(8846), NDN(4692), DYX1C1(161582), NTRK3(4916), NR2F2(7026), YWHAE(7531), PAFAH1B1(5048), CDK5R1(8851), LHX1(3975), ITGA3(3675), NDEL1(81565), MYH10(4628), NTN1(9423), AXL(558), CELSR1(9620),

GO:0007158 (11 genes) NLGN3(54413), TNR(7143), ASTN1(460), NRXN1(9378), NLGN1(22871), CNTN4(152330), CTNND2(1501), NINJ2(4815), CDK5R1(8851), NLGN2(57555), NCAM2(4685),

GO:0010975 (6 genes) FRMD7(90167), IL1RAPL1(11141), CCDC88A(55704), PTEN(5728), AKT1(207), NDEL1(81565),

GO:0010976 (33 genes) ABL2(27), SERPINE2(5270), BCL11A(53335), TWF2(11344), WNT5A(7474), EPHA3(2042), C4orf31(79625), FIG4(9896), PTK7(5754), CNR1(1268), MET(4233), PTK2B(2185), FGFR1(2260), UBE2V2(7336), LYN(4067), STMN2(11075), INPP5E(56623), ITGB1(3688), RET(5979), FEZ1(9638), MARK2(2011), PPP2R5B(5526), P2RY2(5029), ATF1(466), AVIL(10677), LTK(4058), NPTN(27020), KATNB1(10300), SCARF1(8578), DCC(1630), ADNP(23394), PTK6(5753), LIF(3976),

GO:0010977 (17 genes) TNR(7143), WNT3A(89780), ITM2C(81618), BCL11A(53335), DGUOK(1716), HDAC2(3066), KATNA1(11104), STMN2(11075), LPAR1(1902), INPPL1(3636), TRPV4(59341), FKBP4(2288), PMP22(5376), PAFAH1B1(5048), GFAP(2670), DCC(1630), LGALS1(3956),

GO:0016322 (8 genes) EPHA8(2046), FARP2(9855), ANKS1A(23294), GNAQ(2776), RND1(27289), NTN4(59277), SCARF1(8578), APP(351),

GO:0019228 (11 genes) SCN9A(6335), CHRNA1(1134), KCNMB2(10242), KCNMB3(27094), DRD1(1812), GRIK2(2898), P2RX3(5024), P2RX4(5025), KCNMB4(27345), CHRNA7(1139), P2RX1(5023),

GO:0021522 (6 genes) GIGYF2(26058), SOX4(6659), ABT1(29777), MDGA2(161357), CACNA1A(773), NKX2-2(4821),

GO:0021527 (10 genes) PAX7(5081), WNT3A(89780), GDF7(151449), GSX2(170825), MDGA1(266727), ASCL1(429), LHX5(64211), WNT1(7471), GSX1(219409), LHX1(3975),

GO:0021853 (5 genes) ARX(170302), CNTN2(6900), DRD1(1812), LHX6(26468), DRD2(1813),

GO:0021860 (5 genes) ATP7A(538), ATG7(10533), UQCRQ(27089), OGDH(4967), FGFR2(2263),

GO:0021879 (6 genes) DLX1(1745), DLX2(1746), LEF1(51176), OTP(23440), ASCL1(429), LHX5(64211),

GO:0021895 (8 genes) HPRT1(3251), EOMES(8320), NR2E1(7101), ID4(3400), LHX6(26468), PRTFDC1(56952), PEX5(5830), PAFAH1B1(5048),

GO:0021953 (7 genes) LMX1A(4009), NR4A2(4929), MET(4233), SMO(6608), MNX1(3110), TULP3(7289), BCL11B(64919),

GO:0021954 (13 genes) HPRT1(3251), ATP7A(538), MAP2(4133), NEUROG2(63973), LEP(3952), CDK5(1020), NPY(4852), FGFR1(2260), LMX1B(4010), PRTFDC1(56952), ASCL1(429), FOXG1(2290), LINGO1(84894),

GO:0030182 (81 genes) CHRDL1(91851), SMARCA1(6594), S1PR1(1901), WNT2B(7482), HIPK1(204851), SHC1(6464), EFNA1(1942), EPHA2(1969), RXRG(6258), BTG2(7832), WNT9A(7483), WNT3A(89780), ID3(3399), PCSK9(255738), BARHL2(343472), FZD7(8324), FZD5(7855), WNT6(7475), ITM2C(81618), DPYSL5(56896), SOX11(6664), EMX1(2016), VHL(7428), ATP2B2(491), GATA2(2624), RYK(6259), WNT5A(7474), POU4F2(5458), MEF2C(4208), HDAC2(3066), TUBB(203068), TUBB2A(7280), TUBB2B(347733), POU3F2(5454), WNT2(7472), MTPN(136319), HIPK2(28996),

CDK5(1020), FZD1(8321), GPC2(221914), NRBP2(340371), FZD3(7976), STMN2(11075), LHX2(9355), LMX1B(4010), WNT8B(7479), TLX1(3195), LDB1(8861), PSD(5662), FZD8(8325), DRGX(644168), CHAT(1103), PRKCQ(5588), BTG4(54766), BRSK2(9024), WNT11(7481), FZD4(8322), FZD10(11211), WNT5B(81029), WNT10B(7480), HOXC8(3224), PTPRR(5801), RTN1(6252), MYEF2(50804), ALDH1A2(8854), MAP2K1(5604), NGRN(51335), TUBB3(10381), CDK5R1(8851), FZD2(2535), WNT3(7473), WNT9B(7484), GAS7(8522), ADNP2(22850), DAPK3(1613), BRSK1(84446), NNAT(4826), PIGT(51604), CEBPB(1051), EDN3(1908), WNT7B(7477),

GO:0031102 (5 genes) SMO(6608), ADM(133), ULK1(8408), OMG(4974), GFAP(2670),

GO:0031175 (60 genes) L1CAM(3897), UBE4B(10277), NGF(4803), PHGDH(26227), SHC1(6464), UHMK1(127933), BTG2(7832), EPHA8(2046), NCDN(23154), DOCK7(85440), MAP2(4133), EFHD1(80303), SEPT2(4735), UCN(7349), ATG7(10533), RYK(6259), CNTN4(152330), CHL1(10752), LAMB2(3913), PRICKLE2(166336), APC(324), GPRIN1(114787), GDNF(2668), DTNBP1(84062), AGER(177), LAMB1(3912), CNTNAP2(26047), CDK5(1020), IL6(3569), NPY(4852), PPP1R9A(55607), PTK2B(2185), LYN(4067), LGI1(9211), ZFYVE27(118813), STX3(6809), CCDC64(92558), ULK1(8408), HMGB1(3146), ALKBH1(8846), NEDD4(4734), RAB11A(8766), LINGO1(84894), RASGRF1(5923), IGF1R(3480), TBC1D24(57465), GNAO1(2775), CDH1(999), CDK5R1(8851), PLD2(5338), GALR2(8811), RAC3(5881), MYH10(4628), PTPRM(5797), VAPA(9218), PRMT1(3276), NRTN(4902), STMN3(50861), APP(351), ATXN10(25814),

GO:0032809 (5 genes) CX3CR1(1524), ADRB2(154), GABRA6(2559), KCNC3(3748), KCNJ6(3763),

GO:0042551 (6 genes) NR4A2(4929), RET(5979), CDKN1C(1028), CLN5(1203), IRX5(10265), VSX1(30813),

GO:0043005 (75 genes) DCX(1641), FRMD7(90167), BRS3(680), CNKSR2(22866), ATP7A(538), KCND3(3752), S100A4(6275), ATP1A2(477), CACYBP(27101), PTGS2(5743), CAMK1G(57172), EPHA8(2046), KCNQ4(9132), ACOT7(11332), DOCK7(85440), KIF5C(3800), CASP8(841), RTN4(57142), TSGA10(80705), GHSR(2693), CX3CR1(1524), CTNNB1(1499), PTPN13(5783), MYO10(4651), SLC1A3(6507), ITGA1(3672), ARG1(383), ESR1(2099), DTNBP1(84062), PARK2(5071), NRSN1(140767), DAXX(1616), ANKS1A(23294), CPNE5(57699), VGF(7425), NRCAM(4897), GRM8(2918), ADCYAP1R1(117), STX1A(6804), LIMK1(3984), GABBR2(9568), GRIN3A(116443), CTSL2(1515), SLC18A2(6571), KIF5B(3799), HSPA8(3312), TPH1(7166), TH(7054), STX3(6809), KLC2(64837), PPP1CA(5499), FADD(8772), ULK1(8408), GRIN2B(2904), AVIL(10677), TPH2(121278), SYT1(6857), PPM1A(5494), BDKRB1(623), MYO5A(4644), IGF1R(3480), CLN3(1201), CDH13(1012), GRIN2A(2903), ACCN1(40), CYGB(114757), RAC3(5881), SYT4(6860), MARK4(57787), KLC3(147700), PPP5C(5536), SNAP25(6616), GHRH(2691), SLC32A1(140679), STMN3(50861),

GO:0043025 (195 genes) ACSL4(2182), FRMD7(90167), BRS3(680), CNKSR2(22866), DLG3(1741), ATP7A(538), SHROOM2(357), SORT1(6272), KCND3(3752), DVL1(1855), ADORA1(134), CNTN2(6900), CAMK2N1(55450), TGFB2(7042), PSEN2(5664), DLGAP3(58512), NCDN(23154), PPT1(5538), PTPRF(5792), PLK3(1263), NEGR1(257194), KLHL17(339451), ERMN(57471), DFNB59(494513), ALS2(57679), BMPR2(659), MAP2(4133), INHA(3623), SERPINE2(5270), DNER(92737), DPYSL5(56896), CAD(790), UCN(7349), STRN(6801), CRIPT(9419), RTN4(57142), ATP2B2(491), ALCAM(214), BOC(91653), SST(6750), CCR2(729230), GNAT1(2779), GRK4(2868), UCHL1(7345), EPHA5(2044), CPLX1(10815), ANXA3(306), BMPR1B(658), APC(324), SNCAIP(9627), PSD2(84249), PURA(5813), SLC6A3(6531), GRIA1(2890), CCNG1(900), MYO10(4651), KCNIP1(30820), DRD1(1812), CPLX2(10814), CANX(821), GNB2L1(10399), SLC1A3(6507), GHR(2690), SRD5A1(6715), PCSK1(5122), FABP7(2173), PTPRK(5796), ARG1(383), KATNA1(11104), NRSN1(140767), GABBR1(2550), AGER(177), ITPR3(3710), CPNE5(57699), EFHC1(114327), EPHA7(2045), VGF(7425), MET(4233), KCND2(3751), GRM8(2918), SMO(6608), EXOC4(60412), CALD1(800), CHRM2(1129), CNTNAP2(26047), CDK5(1020), DDC(1644), CALCR(799), TAC1(6863), SMURF1(57154), NOV(4856), DPYSL2(1808), FZD3(7976), RAB2A(5862), NCOA2(10499), KCNB2(9312), IMPA1(3612), CALB1(793), SDC2(6383), GRIN3A(116443), DFNB31(25861), DENND1A(57706), DBH(1621), CACNA1B(774), NTRK2(4915), CYP17A1(1586), VTI1A(143187), SLC18A2(6571), KNDC1(85442), NRP1(8829), CHAT(1103), BMPR1A(657), SNCG(6623), GRIA4(2893), DIXDC1(85458), HTR3B(9177), HSPA8(3312), CALCA(796), CHRM4(1132), P2RX3(5024), DRD4(1815), ILK(3611), SHANK2(22941), OMP(4975), DLG2(1740), ASCL1(429), PEBP1(5037), CABP1(9478), P2RX4(5025), LRP6(4040), ULK1(8408), PRPH(5630), ACVRL1(94), PDE1B(5153), LRP1(4035), LAMP1(3916), ANG(283), STRN3(29966),

AKAP5(9495), SLC8A3(6547), PSEN1(5663), TGFB3(7043), CHRNA7(1139), HDC(3067), CYP19A1(1588), GRINL1A(81488), LBXCOR1(390598), CHRNA5(1138), CHRNA3(1136), HOMER2(9455), TSC2(7249), AMFR(267), KATNB1(10300), CYBA(1535), PMM2(5373), SRR(63826), PAFAH1B1(5048), CDK5R1(8851), ACCN1(40), TRPV1(7442), PLXDC1(57125), RARA(5914), CRHR1(1394), TBX21(30009), GIP(2695), CYGB(114757), HRNBP3(146713), RAC3(5881), MYH10(4628), MYO5B(4645), MBP(4155), MAP1S(55201), TGFB1(7040), APOE(348), PPP5C(5536), SLC8A2(6543), HCN2(610), TUBB4(10382), SNAP25(6616), CST3(1471), VPS16(64601), NRSN2(80023), MYLK2(85366), ADA(100), ADNP(23394), CHRNA4(1137), EEF1A2(1917), GRIK1(2897), SOD1(6647), S100B(6285), P2RX6(9127), ADORA2A(135), KCNJ4(3761), PMM1(5372), ATXN10(25814),

GO:0043524 (70 genes) CITED1(4435), NGF(4803), AGT(183), TP73(7161), PPT1(5538), JUN(3725), GCLM(2730), NR4A2(4929), DLX1(1745), MSH2(4436), TGFA(7039), RHOA(387), C4orf31(79625), PPARGC1A(10891), WFS1(7466), SNCA(6622), SNCB(6620), GDNF(2668), ISL1(3670), F2R(2149), XRCC4(7518), RASA1(5921), MEF2C(4208), GRIK2(2898), SOD2(6648), GCLC(2729), HIPK2(28996), BRAF(673), XRCC2(7516), NRBP2(340371), UBE2V2(7336), NR4A3(8013), SET(6418), BARHL1(56751), GRIN1(2902), CNTFR(1271), PRDX3(10935), ADAM8(101), BDNF(627), HRAS(3265), CNTF(1270), VEGFB(7423), ILK(3611), CLCF1(23529), NTF3(4908), ERBB3(2065), LIG4(3981), POU4F1(5457), SIX1(6495), SIX4(51804), PSEN1(5663), TGFB3(7043), LGMN(5641), TYRO3(7301), FOXB1(27023), CLN3(1201), TOX3(27324), AARS(16), ROCK1(6093), BCL2(596), CACNA1A(773), CRLF1(9244), GPI(2821), AXL(558), BCL2L1(598), ADNP(23394), SOD1(6647), ITSN1(6453), ADORA2A(135), HMOX1(3162),

GO:0043525 (33 genes) RHOC(389), FASLG(356), NCF2(4688), TGFB2(7042), PTPRF(5792), PCSK9(255738), JUN(3725), AGRN(375790), BCL2L11(10018), CASP6(839), NR3C1(2908), ITGA1(3672), TNF(7124), EPHA7(2045), SRPK2(6733), CASP2(835), CDK5(1020), MUSK(4593), CASP7(840), ATM(472), IL18(3606), RAPSN(5913), MAP3K11(4296), ASCL1(429), HRK(8739), NQO1(1728), NF1(4763), CDK5R1(8851), TP53(7157), PMAIP1(5366), BAX(581), UBE2M(9040), MAP2K7(5609),

GO:0044306 (7 genes) DMD(1756), SYP(6855), TMEM57(55219), MME(4311), DLG4(1742), FSTL3(10272), SLC32A1(140679),

GO:0045664 (16 genes) NGF(4803), NLGN1(22871), C5orf13(9315), YWHAG(7532), DPYSL2(1808), CDK5RAP2(55755), CCND2(894), ATN1(1822), SIX1(6495), NUMB(8650), CDK5R1(8851), CDK5RAP3(80279), NOG(9241), TIMP2(7077), CDK5RAP1(51654), YWHAH(7533),

GO:0045665 (44 genes) SOX3(6658), RHOC(389), LMX1A(4009), ASPM(259266), CNTN2(6900), HES5(388585), TP73(7161), CTDSP1(58190), RTN4(57142), ID2(3398), SOX2(6657), CNTN4(152330), PHOX2B(8929), REST(5978), TLX3(30012), ISL1(3670), NR2E1(7101), ID4(3400), HOXA2(3199), GLI3(2737), ZHX2(22882), NBN(4683), LBX1(10660), ITGB1(3688), DIXDC1(85458), PAX6(5080), PRPF19(27339), ASCL1(429), DTX1(1840), GDF11(10220), SOX21(11166), FOXG1(2290), IRX3(79191), SLC6A4(6532), MIB1(57534), CALR(811), NOTCH3(4854), ZNF536(9745), NKX2-2(4821), FOXA2(3170), BMP7(655), APP(351), OLIG2(10215), TTC3(7267),

GO:0045666 (49 genes) HEYL(26508), ACTR3(10096), HOXD3(3232), NEUROD1(4760), GDF7(151449), SOX11(6664), ADRA2B(151), RHOA(387), NEUROG2(63973), ADRA2C(152), PHOX2B(8929), NKX6-1(4825), ATOH1(474), NEUROG1(4762), NKX2-5(1482), MAP1B(4131), MEF2C(4208), BMP6(654), EPO(2056), NRCAM(4897), FEZF1(389549), IL6(3569), VWC2(375567), GDF6(392255), TRIM32(22954), ZEB1(6935), ITGB1(3688), NEUROG3(50674), FEZ1(9638), CDON(50937), BDNF(627), ASCL1(429), IFNG(3458), FOXA1(3169), BMP4(652), RGS6(9628), SALL1(6299), IRX3(79191), CCL5(6352), NEUROD2(4761), SPAG9(9043), TGIF1(7050), TCF4(6925), TCF3(6929), NKX2-2(4821), FOXA2(3170), DNMT3B(1789), TGIF2(60436), BMP7(655),

GO:0048168 (13 genes) BCAN(63827), CNTN2(6900), NCDN(23154), CAMK2A(815), DBN1(1627), VGF(7425), ARC(23237), EGR2(1959), PMCH(5367), RASGRF1(5923), APOE(348), MYLK2(85366), S100B(6285),

GO:0048169 (22 genes) SYP(6855), NRAS(4893), KCNJ10(3766), AGT(183), SNCA(6622), DRD5(1816), EGR1(1958), DRD1(1812), GRIK2(2898), RIMS1(22999), CAMK2B(816), GRIN1(2902), DRD2(1813), HRAS(3265), GRIN2B(2904), KRAS(3845), RAB11A(8766), GRIN2A(2903), NF1(4763), DLG4(1742), NETO1(81832), SYNGR1(9145),

GO:0048172 (7 genes) SYP(6855), GRIK2(2898), UNC13B(10497), UNC13A(23025), PPFIA3(8541), GRIK1(2897), SYNGR1(9145),

GO:0048663 (14 genes) PAX7(5081), ID2(3398), SMO(6608), SHH(6469), GLI3(2737), TGFBR1(7046), NOTCH1(4851), PTF1A(256297), PAX6(5080), GSX1(219409), BMP4(652), SMAD4(4089), NOTCH3(4854), OLIG2(10215),

GO:0048665 (10 genes) GSX2(170825), TLX3(30012), ISL1(3670), ASCL1(429), POU4F1(5457), FOXA1(3169), NTRK3(4916), FOXA3(3171), NKX2-2(4821), FOXA2(3170),

GO:0048666 (26 genes) TGFB2(7042), TP73(7161), PPT1(5538), EN1(2019), GLI2(2736), IHH(3549), HTRA2(27429), DGKG(1608), EPHA5(2044), GFRA3(2676), MAP1B(4131), MEF2C(4208), FIG4(9896), SOD2(6648), SRF(6722), EN2(2020), PBX3(5090), PITX3(5309), NEUROD4(58158), NTF3(4908), WNK1(65125), PSEN1(5663), NDN(4692), NEUROD2(4761), RUNX1(861), LIF(3976),

GO:0048699 (13 genes) TGFB2(7042), TCF7L1(83439), LEF1(51176), TCF7(6932), DBN1(1627), FGFR1(2260), TCF7L2(6934), PTF1A(256297), CIT(11113), NTF3(4908), SIX1(6495), SIX4(51804), MAPT(4137),

GO:0048812 (24 genes) DMD(1756), ATP7A(538), RHOC(389), ALS2(57679), LIFR(3977), ITGA1(3672), THBS4(7060), GJA1(2697), DTNBP1(84062), DYNLT1(6993), PLXNA4(91584), MNX1(3110), CLU(1191), ILK(3611), PAK1(5058), WEE1(7465), DICER1(23405), MAP2K1(5604), CNTNAP1(8506), GAS7(8522), MAP1S(55201), KLK8(11202), BMP7(655), ADORA2A(135),

GO:0048935 (8 genes) RUNX3(864), HOXD10(3236), HOXD9(3235), ETV1(2115), POU4F1(5457), ISL2(64843), ONECUT2(9480), RUNX1(861),

GO:0051402 (16 genes) AIFM1(9131), POU4F3(5459), GRIK2(2898), TNFRSF21(27242), BNIP3(664), ERBB3(2065), GAPDH(2597), ATN1(1822), LIG4(3981), MAX(4149), SIAH1(6477), NLRP1(22861), BCL2(596), PIGT(51604), APP(351), BID(637),

GO:0070997 (5 genes) PPARGC1A(10891), PARK2(5071), ZNF746(155061), LRRK2(120892), BAG5(9529),

GO:0071542 (5 genes) NR4A2(4929), WNT5A(7474), FGF8(2253), PITX3(5309), LRP6(4040),

Keyword: GABA

GO:0004890 (18 genes) GABRE(2564), GABRA3(2556), GABRQ(55879), GABRD(2563), GABRR3(200959), GABRG1(2565), GABRA2(2555), GABRA4(2557), GABRB1(2560), GABRB2(2561), GABRA6(2559), GABRA1(2554), GABRG2(2566), GABRP(2568), GABRR1(2569), GABRR2(2570), GABRB3(2562), GABRG3(2567),

GO:0021853 (5 genes) ARX(170302), CNTN2(6900), DRD1(1812), LHX6(26468), DRD2(1813),

GO:0032228 (8 genes) NRAS(4893), NISCH(11188), USP46(64854), CNR1(1268), DRD2(1813), HRAS(3265), KRAS(3845), NF1(4763),

GO:0032229 (8 genes) ADORA1(134), CNR2(1269), SLC6A1(6529), NPY5R(4889), HTR1B(3351), ADRA1A(148), STXBP1(6812), GRIK1(2897),

GO:0032230 (9 genes) ERBB4(2066), PRKCE(5581), TACR1(6869), OXTR(5021), TAC1(6863), CCKBR(887), NLGN2(57555), GRIK1(2897), ADORA2A(135),

GO:0050811 (8 genes) TRAK2(66008), TRAK1(22906), JAKMIP1(152789), GABARAPL1(23710), AKAP5(9495), GABARAPL2(11345), GABARAP(11337), ARFGEF2(10564),

Keyword: adrenergic

GO:0004935 (7 genes) ADRA2B(151), ADRA2C(152), ADRB2(154), ADRA1B(147), ADRA1A(148), ADRA2A(150), ADRA1D(146),

GO:0031694 (5 genes) ADRA2C(152), UCHL1(7345), ADRB1(153), ADRBK1(156), APLP1(333),

Keyword: agonist

GO:0048018 (5 genes) WNT3A(89780), WNT7A(7476), SFRP2(6423), CXCL13(10563), GAS6(2621),

GO:0048019 (6 genes) AGTR2(186), ADH7(131), LRPAP1(4043), DKK1(22943), IL18BP(10068), ESR2(2100),

Keyword: cGMP

GO:0006182 (15 genes) GUCY2F(2986), HTR2C(3358), NPPA(4878), NPPB(4879), NPR1(4881), GUCA2B(2981), HTR2B(3357), NPPC(4880), GUCY1A3(2982), GUCY1B3(2983), AQP1(358), NPR2(4882), GUCY1A2(2977), GUCY2C(2984), GUCY2D(3000),

GO:0007199 (8 genes) AGTR2(186), AGT(183), FZD7(8324), FZD1(8321), FZD6(8323), FZD3(7976), TBL3(10607), FZD2(2535),

GO:0030553 (12 genes) PDE11A(50940), CNGA3(1261), PDE5A(8654), CNGA1(1259), PRKG2(5593), PDE10A(10846), CNGB3(54714), PRKG1(5592), PDE6C(5146), PDE2A(5138), PDE6H(5149), PDE6G(5148),

GO:0030828 (5 genes) NPR1(4881), NPPC(4880), GUCY1A3(2982), APOE(348), ADNP(23394),

Keyword: phosphodiesterase

GO:0004114 (16 genes) PDE4B(5142), PDE11A(50940), PDE1A(5136), PDE6D(5147), PDE5A(8654), PDE6B(5158), PDE4D(5144), PDE8B(8622), PDE7B(27115), PDE10A(10846), PDE1C(5137), PDE3B(5140), PDE2A(5138), PDE8A(5151), PDE4C(5143), PDE9A(5152),

GO:0004115 (10 genes) PDE4B(5142), PDE4D(5144), PDE7B(27115), PDE7A(5150), PDE3B(5140), PDE3A(5139), PDE1B(5153), PDE8A(5151), PDE4A(5141), PDE4C(5143),

GO:0004528 (5 genes) ENPP3(5169), ENPP1(5167), ENPP2(5168), APEX1(328), MTMR15(22909),

GO:0004767 (7 genes) SMPDL3B(27293), SMPD4(55627), SMPD2(6610), SMPDL3A(10924), SMPD1(6609), SMPD3(55512), ENPP7(339221),

GO:0008889 (7 genes) GDPD2(54857), ENPP6(133121), GDPD5(81544), GDPD4(220032), GDE1(51573), GDPD3(79153), GDPD1(284161),

GO:0047555 (9 genes) PDE11A(50940), PDE5A(8654), PDE6B(5158), PDE6A(5145), PDE10A(10846), PDE6C(5146), PDE6H(5149), PDE6G(5148), PDE9A(5152),

Keyword: synaptic

GO:0001963 (10 genes) DRD3(1814), SNCA(6622), DRD5(1816), DRD1(1812), CDK5(1020), DRD2(1813), TH(7054), DRD4(1815), ADORA2A(135), RASD2(23551),

GO:0007270 (5 genes) KIF1B(23095), VDAC1(7416), DLGAP2(9228), DRD2(1813), TMOD2(29767),

GO:0007271 (14 genes) CHRNB2(1141), SLC5A7(60482), CHRNB3(1142), CHRNA10(57053), RAPSN(5913), RIC3(79608), CHRNA3(1136), CHRNB4(1143), NQO1(1728), CHRNE(1145), CHRNB1(1140), APOE(348), CHRNA4(1137), ADORA2A(135),

GO:0007274 (12 genes) KIF1B(23095), SLC5A7(60482), CHRNA1(1134), EGR3(1960), CHAT(1103), P2RX3(5024), CHRM1(1128), NTF3(4908), CHRNB1(1140), DTNA(1837), CACNA1A(773), RAB3A(5864),

GO:0008021 (46 genes) SYTL4(94121), SYPL2(284612), SNAPIN(23557), TPRG1L(127262), PPT1(5538), RAB3B(5865), BIN1(274), SLC40A1(30061), SLC30A3(7781), SYN2(6854), RAB5A(5868), NPY1R(4886), RAB3C(115827), STXBP5(134957), GABBR1(2550), SNAP91(9892), SYPL1(6856), AMPH(273), PCLO(27445), KCNK9(51305), LGI3(203190), GRIN1(2902), APBA1(320), TRAPPC4(51399), TH(7054), SVOP(55530), PEBP1(5037), GRIN2B(2904), LRRK2(120892), SYT1(6857), TRIM9(114088), DMXL2(23312), SYT17(51760), SYNGR3(9143), CLN3(1201), SIAH1(6477), MT3(4504), ATP6V0D1(9114), HCRT(3060), SPHK1(8877), GIPC1(10755), RAB3A(5864), RABAC1(10567), MYLK2(85366), SEPT5(5413), SYN3(8224),

GO:0014069 (78 genes) GRIA3(2892), DNM3(26052), ADORA1(134), CAMK2N1(55450), DLGAP3(58512), KLHL17(339451), TANC1(85461), ALS2(57679), ERBB4(2066), STRN(6801), SEMA4C(54910), NLGN1(22871), DLG1(1739), ITPR1(3708), GRID2(2895), PDLIM5(10611), PJA2(9867), SYNPO(11346), GRIA1(2890), MAP1B(4131), HOMER1(9456), GOPC(57120), IFNGR1(3459), GRM1(2911), DTNBP1(84062), SNAP91(9892), KCND2(3751), EXOC4(60412), CALD1(800), GRM3(2913), YWHAZ(7534), ARC(23237), DLGAP2(9228), PSD3(23362), LZTS1(11178),

PTK2B(2185), GRIN3A(116443), MPDZ(8777), GRIN1(2902), ITGA8(8516), GRIA4(2893), LIN7C(55327), CHRM4(1132), CHRM1(1128), SHANK2(22941), DLG2(1740), CABP1(9478), P2RX4(5025), GRIN2B(2904), EPS8(2059), CACNA1C(775), LIN7A(8825), ANKS1B(56899), AKAP5(9495), SIPA1L1(26037), ADAM10(102), CHRNA3(1136), CPEB1(64506), HOMER2(9455), AXIN1(8312), GRIN2A(2903), AXIN2(8313), DLG4(1742), GRIN2C(2905), DLGAP1(9229), NETO1(81832), DNM2(1785), LPHN1(22859), HOMER3(9454), LRFN1(57622), LIN7B(64130), SHANK1(50944), MYLK2(85366), ProSAPiP1(9762), P2RX6(9127), ADORA2A(135), PICK1(9463), SHANK3(85358),

GO:0016079 (7 genes) RIMS1(22999), PCLO(27445), SPTBN2(6712), P2RX7(5027), CPLX3(594855), DOC2A(8448), RAB3A(5864),

GO:0016081 (5 genes) STX1A(6804), PLDN(26258), STX4(6810), SNAP25(6616), SNPH(9751),

GO:0016188 (5 genes) SYP(6855), ZDHHC15(158866), STXBP1(6812), UNC13A(23025), RAB3A(5864),

GO:0030672 (41 genes) SYN1(6853), SYT6(148281), SV2A(9900), SNAPIN(23557), SYT11(23208), BCAN(63827), SYT2(127833), OTOF(9381), SLC30A3(7781), SEMA4C(54910), SYNPR(132204), SV2C(22987), DTNBP1(84062), AMPH(273), STX1A(6804), ICA1(3382), GAD2(2572), SLC17A6(57084), SYT7(9066), SYT12(91683), SYT9(143425), SVOP(55530), RPH3A(22895), SYT10(341359), VAMP1(6843), SYT1(6857), SLC17A8(246213), DMXL2(23312), SCAMP5(192683), SV2B(9899), DOC2A(8448), C16orf70(80262), ZNRF1(84937), VAMP2(6844), SYT4(6860), SLC17A7(57030), SYT3(84258), SYT5(6861), SLC32A1(140679), SYN3(8224), SYNGR1(9145),

GO:0032228 (8 genes) NRAS(4893), NISCH(11188), USP46(64854), CNR1(1268), DRD2(1813), HRAS(3265), KRAS(3845), NF1(4763),

GO:0032229 (8 genes) ADORA1(134), CNR2(1269), SLC6A1(6529), NPY5R(4889), HTR1B(3351), ADRA1A(148), STXBP1(6812), GRIK1(2897),

GO:0032230 (9 genes) ERBB4(2066), PRKCE(5581), TACR1(6869), OXTR(5021), TAC1(6863), CCKBR(887), NLGN2(57555), GRIK1(2897), ADORA2A(135),

GO:0035249 (16 genes) SLC1A4(6509), GRID2(2895), ADRB2(154), PARK2(5071), GRM8(2918), CDK5(1020), PLAT(5327), GRIN1(2902), UNC13B(10497), SHC3(53358), CNIH2(254263), P2RX1(5023), CACNA1A(773), UNC13A(23025), GRIN2D(2906), NAPB(63908),

GO:0042734 (39 genes) L1CAM(3897), SYP(6855), ADORA1(134), FBXO45(200933), GRM2(2912), ERC2(26059), KCTD8(386617), SNCAIP(9627), KCTD16(57528), CAMK2A(815), GABRA6(2559), GRIK2(2898), GRM1(2911), RIMS1(22999), SNAP91(9892), CADPS2(93664), GRM8(2918), ZNRF2(223082), GRM3(2913), RIMS2(9699), SCRIB(23513), DENND1A(57706), GAD2(2572), GRIK4(2900), SLC1A2(6506), FOSL1(8061), PICALM(8301), GRIN2B(2904), SYT1(6857), ERC1(23085), KCTD12(115207), UNC13C(440279), NPTN(27020), GRIN2A(2903), UNC13A(23025), LRFN3(79414), LRRC4B(94030), ADORA2A(135), PICK1(9463),

GO:0045211 (151 genes) GLRA4(441509), GRIA3(2892), GLRA2(2742), GABRE(2564), GABRA3(2556), GABRQ(55879), MAGEE1(57692), CHRNB2(1141), GABRD(2563), ADORA1(134), CAMK2N1(55450), CHRM3(1131), OPRD1(4985), DLGAP3(58512), GRIK3(2899), KLHL17(339451), CLSTN1(22883), TANC1(85461), CHRNA1(1134), CHRND(1144), CHRNG(1146), STRN(6801), CRIPT(9419), SEMA4F(10505), SEMA4C(54910), CLSTN2(64084), NLGN1(22871), HTR3C(170572), HTR3E(285242), FBXO45(200933), DLG1(1739), GRM7(2917), GABRR3(200959), GLRB(2743), GRIA2(2891), GLRA3(8001), CHRNA9(55584), KCTD8(386617), GABRG1(2565), GABRA2(2555), GABRA4(2557), GABRB1(2560), GRID2(2895), PDLIM5(10611), PJA2(9867), KCTD16(57528), SYNPO(11346), GLRA1(2741), GRIA1(2890), GABRB2(2561), GABRA6(2559), GABRA1(2554), GABRG2(2566), GABRP(2568), PRR7(80758), F2R(2149), HOMER1(9456), GRIK2(2898), GOPC(57120), UTRN(7402), SYNE1(23345), DTNBP1(84062), GABBR1(2550), LRFN2(57497), SNAP91(9892), GABRR1(2569), GABRR2(2570), EPHA7(2045), CADPS2(93664), LRRC4(64101), CHRM2(1129), GRM3(2913), ARC(23237), DLGAP2(9228), SCRIB(23513), PSD3(23362), LZTS1(11178), CHRNA2(1135), CHRNB3(1142), CHRNA6(8973), GABBR2(9568), GRIN3A(116443), MPDZ(8777), GRIN1(2902), KCNMA1(3778), GRID1(2894), GRIA4(2893), HTR3B(9177), HTR3A(3359), GRIK4(2900), LIN7C(55327), CHRNA10(57053), CHRM4(1132), RAPSN(5913), CHRM1(1128), SHANK2(22941), DLG2(1740), PICALM(8301), CABP1(9478), GRIN2B(2904), SSPN(8082), FAIM2(23017), GRASP(160622), ERBB3(2065), GRIP1(23426), CLSTN3(9746), LIN7A(8825), ANKS1B(56899), KCTD12(115207), GPHN(10243), SIPA1L1(26037), GABRB3(2562),

GABRA5(2558), GABRG3(2567), CHRFAM7A(89832), CHRNA7(1139), CHRM5(1133), SHC4(399694), CHRNA5(1138), CHRNA3(1136), CHRNB4(1143), CPEB1(64506), HOMER2(9455), GRIN2A(2903), ERBB2(2064), P2RX1(5023), CHRNE(1145), AKAP1(8165), DLG4(1742), GRIN2C(2905), ZACN(353174), NLGN2(57555), CHRNB1(1140), DLGAP1(9229), NETO1(81832), DNM2(1785), HOMER3(9454), LRFN3(79414), LRFN1(57622), GRIK5(2901), GRIN2D(2906), LIN7B(64130), SHANK1(50944), GRIN3B(116444), ProSAPiP1(9762), SNTA1(6640), DLGAP4(22839), CHRNA4(1137), GRIK1(2897), ADORA2A(135), SHANK3(85358),

GO:0048167 (18 genes) ADORA1(134), PSEN2(5664), CNTN4(152330), HTT(3064), CTNND2(1501), MYO6(4646), YWHAG(7532), LZTS1(11178), PLAT(5327), CALB1(793), BDNF(627), P2RX3(5024), GRIN2B(2904), PSEN1(5663), GRIN2A(2903), GIPC1(10755), ADORA2A(135), YWHAH(7533),

GO:0048168 (13 genes) BCAN(63827), CNTN2(6900), NCDN(23154), CAMK2A(815), DBN1(1627), VGF(7425), ARC(23237), EGR2(1959), PMCH(5367), RASGRF1(5923), APOE(348), MYLK2(85366), S100B(6285),

GO:0048169 (22 genes) SYP(6855), NRAS(4893), KCNJ10(3766), AGT(183), SNCA(6622), DRD5(1816), EGR1(1958), DRD1(1812), GRIK2(2898), RIMS1(22999), CAMK2B(816), GRIN1(2902), DRD2(1813), HRAS(3265), GRIN2B(2904), KRAS(3845), RAB11A(8766), GRIN2A(2903), NF1(4763), DLG4(1742), NETO1(81832), SYNGR1(9145),

GO:0048172 (7 genes) SYP(6855), GRIK2(2898), UNC13B(10497), UNC13A(23025), PPFIA3(8541), GRIK1(2897), SYNGR1(9145),

GO:0048488 (7 genes) BIN1(274), SNCA(6622), CDK5(1020), AMPH(273), DENND1A(57706), SYNJ1(8867), ITSN1(6453),

GO:0048489 (6 genes) CTNNB1(1499), DPYSL2(1808), SH3GL2(6456), LIN7A(8825), DNM2(1785), MYLK2(85366),

GO:0048786 (6 genes) SYN1(6853), ADORA1(134), BSN(8927), GRM7(2917), NUFIP1(26747), ADORA2A(135),

GO:0050804 (9 genes) NLGN3(54413), NLGN1(22871), CSPG5(10675), PXK(54899), PPP3CA(5530), GRIK2(2898), GRM3(2913), GRIA4(2893), NTF3(4908),

GO:0050805 (6 genes) GNAI3(2773), RAPGEF4(11069), BCHE(590), GNAI2(2771), GABBR1(2550), ADNP(23394),

GO:0050806 (9 genes) PRKCZ(5590), NMU(10874), SLC1A3(6507), GRIK2(2898), TNF(7124), LGI1(9211), CCL2(6347), KISS1R(84634), OXT(5020),

GO:0051966 (9 genes) OPHN1(4983), SERPINE2(5270), UCN(7349), GRM1(2911), CNR1(1268), PSEN1(5663), PRKACA(5566), GRIK1(2897), MAPK8IP2(23542),

GO:0051967 (7 genes) ADORA1(134), GRIK3(2899), GRIK2(2898), HTR1B(3351), DRD2(1813), HTR2A(3356), GRIK1(2897),

GO:0051968 (12 genes) TNR(7143), PTGS2(5743), NRXN1(9378), NLGN1(22871), OXTR(5021), DRD1(1812), NTRK2(4915), GRIA4(2893), CCKBR(887), NLGN2(57555), ADORA2A(135), SHANK3(85358),

GO:0060079 (17 genes) ADORA1(134), GHRL(51738), PPP3CA(5530), SNCA(6622), GRID2(2895), GRIK2(2898), OPRM1(4988), ATXN1(6310), CDK5(1020), GRIN1(2902), P2RX4(5025), GRIN2B(2904), CHRNA3(1136), GRIN2A(2903), HCRT(3060), GRIN2C(2905), ADORA2A(135),

GO:0060080 (6 genes) NLGN3(54413), GLRA1(2741), GRIK2(2898), DRD4(1815), CHRNA4(1137), ADORA2A(135),

GO:0060291 (5 genes) SNCA(6622), DRD1(1812), SLC24A2(25769), NPTN(27020), GIP(2695),

S4. Interval-based gene set enrichment tests

To quantify the statistical significance of aggregated MDD association signals for candidate gene sets, we used a GWAS-specific set-based association analysis tool, INRICH[12]. INRICH is a GWAS-specific multi-locus association analysis method that provides conservative type I error rates, while adjusting for multiple genomic confounding factors, such as different gene sizes, SNP numbers, and linkage disequilibrium (LD). The INRICH analysis procedure comprises three major steps: i) linkage disequilibrium (LD)-based interval data generation to identify unique regions of association; ii) empirical enrichment calculation using an interval-based permutation strategy; and iii) second-step permutation for multiple testing correction at the gene set level. For this analysis, a list of 1,477 genomic regions with independent association signals was generated from the meta analysis results of three GWAS datasets using PLINK LD-based clumping (*clump-p1*=0.005; *clump-p2*=0.05; *clump-r2*=0.5; *clump-kb*=250). Recent eQTL studies have shown that 95% of common genetic variation affecting transcript expression resides within 20kb of the transcription start and end sites of genes[13]. To capture such cis-regulatory variants, we defined gene regions as 20kb up/downstream of the RefSeq transcription starting/ending sites for 17,529 genes on autosomal chromosomes based on the Human Genome Browser[14] build hg18. Among 1,477 associated intervals, 539 LD-independent non-overlapping genomic regions overlie genic regions. Next, the enrichment statistics of each target gene set was calculated as a *p*-value that indicates the probability of observing a given number of overlaps between the 539 MDD-associated genomic intervals and the genes mapped to the examined gene set under the null hypothesis of no disease association. An interval-based randomization strategy was used to generate the distribution of the enrichment test statistics under the null hypothesis. Finally, resampling-based second-step permutation was conducted to adjust the pathway-level empirical *p*-values for testing candidate gene sets. The numbers of the first and the second-step permutation processes were 1,00,000 and 10,000, respectively. From this analysis, we identified a list of gene sets with the enrichment *p*-value < 0.05 after correcting for testing of multiple gene sets.

Table S4.1 Gene-set enrichment analysis results of top 30 target gene sets

Gene Set		Gene Number		Enrichment P-value	Annotated Genes
GO Term	Name	All	Sig		
GO:0035249	Synaptic transmission, glutamatergic	16	6	0.00069	ADRB2, CACNA1A, CDK5, CNIH2, GRID2, GRIN1, GRIN2D, GRM8, NAPB, P2RX1, PARK2, PLAT, SHC3, SLC1A4, UNC13A, UNC13B
GO:0021953	Central nervous system neuron differentiation	7	2	0.03656	BCL11B, LMX1A, MET, MNX1, NR4A2, SMO, TULP3
GO:0021522	Spinal cord motor neuron differentiation	6	2	0.057699	ABT1, CACNA1A, GIGYF2, MDGA2, NKX2-2, SOX4
GO:0004115	3',5'-cyclic-AMP phosphodiesterase activity	10	3	0.076999	PDE1B, PDE3A, PDE3B, PDE4A, PDE4B, PDE4C, PDE4D, PDE7A, PDE7B, PDE8A
GO:0035254	Glutamate receptor binding	5	2	0.115559	ATP2B2, C16orf70, CAMK2A, GRIN2A, RASGRF1
GO:0051968	Positive regulation of synaptic transmission, glutamatergic	12	3	0.300927	ADORA2A, CCKBR, DRD1, GRIA4, NLGN1, NLGN2, NRXN1, NTRK2, OXTR, PTGS2, SHANK3, TNR
GO:0005234	Extracellular-glutamate-gated ion channel activity	18	4	0.325667	GRIA1, GRIA2, GRIA3, GRIA4, GRID1, GRID2, GRIK1, GRIK2, GRIK3, GRIK4, GRIK5, GRIN1, GRIN2A, GRIN2B, GRIN2C, GRIN2D, GRIN3A, STX1B
GO:0043525	Positive regulation of neuron apoptosis	33	2	0.326557	AGRN, ASCL1, ATM, BAX, BCL2L11, CASP2, CASP6, CASP7, CDK5, CDK5R1, EPHA7, FASLG, HRK, IL18, ITGA1, JUN, MAP2K7, MAP3K11, MUSK, NCF2, NF1, NQO1, NR3C1, PCSK9, PMAIP1, PTPRF, RAPSN, RHOC, SRPK2, TGFB2, TNF, TP53, UBE2M
GO:0030672	Synaptic vesicle membrane	41	4	0.347357	AMPH, BCAN, C16orf70, DMXL2, DOC2A, DTNBP1, GAD2, ICA1, OTOF, RPH3A, SCAMP5, SEMA4C, SLC17A6, SLC17A7, SLC17A8, SLC30A3, SLC32A1, SNAPIN, STX1A, SV2A, SV2B, SV2C, SVOP, SYN1, SYN3, SYNGR1, SYNPR, SYT1, SYT10, SYT11, SYT12, SYT2, SYT3, SYT4, SYT5, SYT6, SYT7, SYT9, VAMP1, VAMP2, ZNRF1
GO:0004972	N-methyl-D-aspartate selective glutamate receptor activity	6	2	0.380836	GRIN1, GRIN2A, GRIN2B, GRIN2C, GRIN2D, GRIN3A
GO:0017146	N-methyl-D-aspartate selective glutamate receptor complex	7	2	0.385116	EPS8, GRIN1, GRIN2A, GRIN2B, GRIN2C, GRIN2D, GRIN3A

GO:0048167	Regulation of synaptic plasticity	18	3	0.385366	ADORA1, ADORA2A, BDNF, CALB1, CNTN4, CTNND2, GIPC1, GRIN2A, GRIN2B, HTT, LZTS1, MYO6, P2RX3, PLAT, PSEN1, PSEN2, YWHAG, YWHAH
GO:0007268	Synaptic transmission	266	20	0.439076	ABAT, ACCN1, ACHE, ACTN2, ADCY1, ADCY3, ADCY8, AKAP5, AKAP9, ALDH2, ALDH5A1, AMPH, AP2A1, AP2A2, AP2B1, AP2M1, AP2S1, APBA1, APBA2, APBA3, ATXN3, BSN, CACNA1A, CACNA1B, CACNA1E, CACNB2, CACNB3, CACNB4, CACNG2, CACNG3, CACNG4, CACNG8, CALM3, CAMK2A, CAMK2B, CAMK2D, CAMK2G, CAMK4, CAMKK1, CARTPT, CAV2, CBLN1, CHAT, CHRNA1, CHRNA2, CHRNA3, CHRNA4, CHRNA5, CHRNA6, CHRNA7, CHRNA9, CHRNB2, CHRNB3, CHRNB4, CHRND, CHRNE, CHRNG, CNP, COMT, CORT, CPLX1, CPNE6, CREB1, CRH, CTNNB1, DBH, DDC, DFNB31, DLG1, DLG3, DLG4, DLGAP1, DNAJC5, DOC2A, DRD5, DTNA, EPB41L1, EXOC4, FGF2, GABARAP, GABBR2, GABRA3, GABRA5, GABRB2, GABRD, GABRG1, GABRG3, GABRR1, GABRR2, GABRR3, GAD1, GAD2, GALR2, GALR3, GIPC1, GJA10, GJC1, GJD2, GLRA1, GLRA3, GLRB, GLS, GLS2, GLUL, GNB1, GNG2, GPR176, GRIA1, GRIA2, GRIA3, GRIA4, GRIK1, GRIK2, GRIK3, GRIK4, GRIK5, GRIN1, GRIN2A, GRIN2B, GRIN2C, GRIN2D, GRIP1, GRIP2, GRM1, GRM2, GRM3, GRM4, GRM5, GRM7, GRM8, HAP1, HCRT, HCRTR1, HCRTR2, HOMER1, HRAS, HRH1, HSPA8, HTR1B, HTR1D, HTR1E, HTR1F, HTR2A, HTR2C, HTR3A, HTR3B, HTR6, HTR7, KCNA1, KCNC4, KCND2, KCNIP1, KCNIP2, KCNK3, KCNMA1, KCNMB1, KCNMB4, KCNN1, KCNQ2, KCNQ3, KCNQ5, KIF5A, LPAR3, MAOA, MAPK1, MBP, MDM2, MPZ, MTNR1B, MYCBPAP, MYO6, NCALD, NEFL, NOVA1, NPBWR1, NPFF, NPTX1, NPTX2, NPY, NPY5R, NRXN2, NRXN3, NSF, NTSR1, OMP, OPRK1, PAFAH1B1, PANX1, PANX2, PCDHB10, PCDHB11, PCDHB13, PCDHB14, PCDHB16, PCDHB2, PCDHB3, PCDHB4, PCDHB5, PCDHB6, PCDHB9, PDE7B, PDPK1, PDYN, PI4KA, PICK1, PLCB1, PLCB2, PLCB3, PLP1, PMCH, PMP22, PNOC, PRKACB, PRKCA, PRKCG, RAB3A, RAF1, RAPSN, RASGRF1, RASGRF2, RIMS1, RIT2, RPS6KA1, RPS6KA2, RPS6KA3, RPS6KA6, SCN1B, SCN2B, SDCBP, SLC12A5, SLC17A7, SLC18A2, SLC18A3, SLC1A1, SLC1A2, SLC1A3, SLC1A6, SLC22A2, SLC32A1, SLC38A1, SLC38A2, SLC5A7, SLC6A1, SLC6A11, SLC6A12, SLC6A13, SLC6A2, SLC6A3, SLC6A5, SNAP25, SNAP91, SST, STX1A, STX1B, STXBP1, SYN1, SYN2, SYPL1, SYT1, SYT5, TAAR5,

				TAC1, TH, UNC119, UNC13C, UTS2, VAMP2, VIPR1
GO:0043524	Negative regulation of neuron apoptosis	70	3	0.449426	AARS, ADAM8, ADNP, ADORA2A, AGT, AXL, BARHL1, BCL2, BCL2L1, BDNF, BRAF, C4orf31, CACNA1A, CITED1, CLCF1, CLN3, CNTF, CNTFR, CRLF1, DLX1, ERBB3, F2R, FOXB1, GCLC, GCLM, GDNF, GPI, GRIK2, GRIN1, HIPK2, HMOX1, HRAS, ILK, ISL1, ITSN1, JUN, LGMN, LIG4, MEF2C, MSH2, NGF, NR4A2, NR4A3, NRBP2, NTF3, POU4F1, PPARGC1A, PPT1, PRDX3, PSEN1, RASA1, RHOA, ROCK1, SET, SIX1, SIX4, SNCA, SNCB, SOD1, SOD2, TGFA, TGFB3, TOX3, TP73, TYRO3, UBE2V2, VEGFB, WFS1, XRCC2, XRCC4
GO:0042734	Presynaptic membrane	39	6	0.456305	ADORA1, ADORA2A, CADPS2, CAMK2A, DENND1A, ERC1, ERC2, FBXO45, FOSL1, GABRA6, GAD2, GRIK2, GRIK4, GRIN2A, GRIN2B, GRM1, GRM2, GRM3, GRM8, KCTD12, KCTD16, KCTD8, L1CAM, LRFN3, LRRC4B, NPTN, PICALM, PICK1, RIMS1, RIMS2, SCRIB, SLC1A2, SNAP91, SNCAIP, SYP, SYT1, UNC13A, UNC13C, ZNRF2
GO:0045666	Positive regulation of neuron differentiation	49	3	0.542915	ACTR3, ADRA2B, ADRA2C, ASCL1, ATOH1, BDNF, BMP4, BMP6, BMP7, CCL5, CDON, DNMT3B, EPO, FEZ1, FEZF1, FOXA1, FOXA2, GDF6, GDF7, HEYL, HOXD3, IFNG, IL6, IRX3, ITGB1, MAP1B, MEF2C, NEUROD1, NEUROD2, NEUROG1, NEUROG2, NEUROG3, NKX2-2, NKX2-5, NKX6-1, NRCAM, PHOX2B, RGS6, RHOA, SALL1, SOX11, SPAG9, TCF3, TCF4, TGIF1, TGIF2, TRIM32, VWC2, ZEB1
GO:0016595	Glutamate binding	9	2	0.551674	CPS1, GCLC, GRIK1, GRIN1, GRIN2A, GRIN2D, GRM7, SLC1A1, SLC1A3
GO:0043005	Neuron projection	75	8	0.559274	ACCN1, ACOT7, ADCYAP1R1, ANKS1A, ARG1, ATP1A2, ATP7A, AVIL, BDKRB1, BRS3, CACYBP, CAMK1G, CASP8, CDH13, CLN3, CNKSR2, CPNE5, CTNNB1, CTSL2, CX3CR1, CYGB, DAXX, DCX, DOCK7, DTNBP1, EPHA8, ESR1, FADD, FRMD7, GABBR2, GHRH, GHSR, GRIN2A, GRIN2B, GRIN3A, GRM8, HSPA8, IGF1R, ITGA1, KCND3, KCNQ4, KIF5B, KIF5C, KLC2, KLC3, LIMK1, MARK4, MYO10, MYO5A, NRCAM, NRSN1, PARK2, PPM1A, PPP1CA, PPP5C, PTGS2, PTPN13, RAC3, RTN4, S100A4, SLC18A2, SLC1A3, SLC32A1, SNAP25, STMN3, STX1A, STX3, SYT1, SYT4, TH, TPH1, TPH2, TSGA10, ULK1, VGF
GO:0007158	Neuron cell-cell adhesion	11	3	0.568804	ASTN1, CDK5R1, CNTN4, CTNND2, NCAM2, NINJ2, NLGN1, NLGN2, NLGN3, NRXN1, TNR
GO:0042417	Dopamine metabolic process	10	2	0.584154	ATP7A, DRD1, DRD2, DRD3, DRD4, GRIN2A, NPR1, PARK2, SNCAIP, SNCB
GO:0035235	Ionotropic glutamate receptor signaling	9	2	0.591624	APP, ATP1A3, CDK5R1, CLN3, GRIK1, GRIN1, GRIN2A, GRIN2B, GRIN3A

GO ID	Name				Genes
	pathway				
GO:0045211	Postsynaptic membrane	151	12	0.599644	ADORA1, ADORA2A, AKAP1, ANKS1B, ARC, CABP1, CADPS2, CAMK2N1, CHRFAM7A, CHRM1, CHRM2, CHRM3, CHRM4, CHRM5, CHRNA1, CHRNA10, CHRNA2, CHRNA3, CHRNA4, CHRNA5, CHRNA6, CHRNA7, CHRNA9, CHRNB1, CHRNB2, CHRNB3, CHRNB4, CHRND, CHRNE, CHRNG, CLSTN1, CLSTN2, CLSTN3, CPEB1, CRIPT, DLG1, DLG2, DLG4, DLGAP1, DLGAP2, DLGAP3, DLGAP4, DNM2, DTNBP1, EPHA7, ERBB2, ERBB3, F2R, FAIM2, FBXO45, GABBR1, GABBR2, GABRA1, GABRA2, GABRA3, GABRA4, GABRA5, GABRA6, GABRB1, GABRB2, GABRB3, GABRD, GABRE, GABRG1, GABRG2, GABRG3, GABRP, GABRQ, GABRR1, GABRR2, GABRR3, GLRA1, GLRA2, GLRA3, GLRA4, GLRB, GOPC, GPHN, GRASP, GRIA1, GRIA2, GRIA3, GRIA4, GRID1, GRID2, GRIK1, GRIK2, GRIK3, GRIK4, GRIK5, GRIN1, GRIN2A, GRIN2B, GRIN2C, GRIN2D, GRIN3A, GRIN3B, GRIP1, GRM3, GRM7, HOMER1, HOMER2, HOMER3, HTR3A, HTR3B, HTR3C, HTR3E, KCNMA1, KCTD12, KCTD16, KCTD8, KLHL17, LIN7A, LIN7B, LIN7C, LRFN1, LRFN2, LRFN3, LRRC4, LZTS1, MAGEE1, MPDZ, NETO1, NLGN1, NLGN2, OPRD1, P2RX1, PDLIM5, PICALM, PJA2, ProSAPiP1, PRR7, PSD3, RAPSN, SCRIB, SEMA4C, SEMA4F, SHANK1, SHANK2, SHANK3, SHC4, SIPA1L1, SNAP91, SNTA1, SSPN, STRN, SYNE1, SYNPO, TANC1, UTRN, ZACN
GO:0010976	Positive regulation of neuron projection development	33	2	0.611654	ABL2, ADNP, ATF1, AVIL, BCL11A, C4orf31, CNR1, DCC, EPHA3, FEZ1, FGFR1, FIG4, INPP5E, ITGB1, KATNB1, LIF, LTK, LYN, MARK2, MET, NPTN, P2RY2, PPP2R5B, PTK2B, PTK6, PTK7, RET, SCARF1, SERPINE2, STMN2, TWF2, UBE2V2, WNT5A
GO:0007215	Glutamate signaling pathway	13	3	0.617924	GNAQ, GRIA3, GRIA4, GRID2, GRIK1, GRIK2, GRIK3, GRIK4, GRIN2A, GRIN2B, GRIN2C, PLCB1, SSTR1
GO:0014069	Postsynaptic density	78	8	0.622274	ADAM10, ADORA1, ADORA2A, AKAP5, ALS2, ANKS1B, ARC, AXIN1, AXIN2, CABP1, CACNA1C, CALD1, CAMK2N1, CHRM1, CHRM4, CHRNA3, CPEB1, DLG1, DLG2, DLG4, DLGAP1, DLGAP2, DLGAP3, DNM2, DNM3, DTNBP1, EPS8, ERBB4, EXOC4, GOPC, GRIA1, GRIA3, GRIA4, GRID2, GRIN1, GRIN2A, GRIN2B, GRIN2C, GRIN3A, GRM1, GRM3, HOMER1, HOMER2, HOMER3, IFNGR1, ITGA8, ITPR1, KCND2, KLHL17, LIN7A, LIN7B, LIN7C, LPHN1, LRFN1, LZTS1, MAP1B, MPDZ, MYLK2, NETO1, NLGN1, P2RX4, P2RX6, PDLIM5, PICK1, PJA2, ProSAPiP1, PSD3, PTK2B, SEMA4C, SHANK1, SHANK2, SHANK3, SIPA1L1, SNAP91, STRN, SYNPO, TANC1, YWHAZ

GO:0030182	Neuron differentiation	81	2	0.686523	ADNP2, ALDH1A2, ATP2B2, BARHL2, BRSK1, BRSK2, BTG2, BTG4, CDK5, CDK5R1, CEBPB, CHAT, CHRDL1, DAPK3, DPYSL5, DRGX, EDN3, EFNA1, EMX1, EPHA2, FZD1, FZD10, FZD2, FZD3, FZD4, FZD5, FZD7, FZD8, GAS7, GATA2, GPC2, HDAC2, HIPK1, HIPK2, HOXC8, ID3, ITM2C, LDB1, LHX2, LMX1B, MAP2K1, MEF2C, MTPN, MYEF2, NGRN, NNAT, NRBP2, PCSK9, PIGT, POU3F2, POU4F2, PRKCQ, PSD, PTPRR, RTN1, RXRG, RYK, S1PR1, SHC1, SMARCA1, SOX11, STMN2, TLX1, TUBB, TUBB2A, TUBB2B, TUBB3, VHL, WNT10B, WNT11, WNT2, WNT2B, WNT3, WNT3A, WNT5A, WNT5B, WNT6, WNT7B, WNT8B, WNT9A, WNT9B
GO:0043025	Neuronal cell body	195	12	0.731183	ACCN1, ACSL4, ACVRL1, ADA, ADNP, ADORA1, ADORA2A, AGER, AKAP5, ALCAM, ALS2, AMFR, ANG, ANXA3, APC, APOE, ARG1, ASCL1, ATP2B2, ATP7A, ATXN10, BMPR1A, BMPR1B, BMPR2, BOC, BRS3, CABP1, CACNA1B, CAD, CALB1, CALCA, CALCR, CALD1, CAMK2N1, CANX, CCNG1, CCR2, CDK5, CDK5R1, CHAT, CHRM2, CHRM4, CHRNA3, CHRNA4, CHRNA5, CHRNA7, CNKSR2, CNTN2, CNTNAP2, CPLX1, CPLX2, CPNE5, CRHR1, CRIPT, CST3, CYBA, CYGB, CYP17A1, CYP19A1, DBH, DDC, DENND1A, DFNB31, DFNB59, DIXDC1, DLG2, DLG3, DLGAP3, DNER, DPYSL2, DPYSL5, DRD1, DRD4, DVL1, EEF1A2, EFHC1, EPHA5, EPHA7, ERMN, EXOC4, FABP7, FRMD7, FZD3, GABBR1, GHR, GIP, GNAT1, GNB2L1, GRIA1, GRIA4, GRIK1, GRIN3A, GRINL1A, GRK4, GRM8, HCN2, HDC, HOMER2, HRNBP3, HSPA8, HTR3B, ILK, IMPA1, INHA, ITPR3, KATNA1, KATNB1, KCNB2, KCND2, KCND3, KCNIP1, KCNJ4, KLHL17, KNDC1, LAMP1, LBXCOR1, LRP1, LRP6, MAP1S, MAP2, MBP, MET, MYH10, MYLK2, MYO10, MYO5B, NCDN, NCOA2, NEGR1, NOV, NRP1, NRSN1, NRSN2, NTRK2, OMP, P2RX3, P2RX4, P2RX6, PAFAH1B1, PCSK1, PDE1B, PEBP1, PLK3, PLXDC1, PMM1, PMM2, PPP5C, PPT1, PRPH, PSD2, PSEN1, PSEN2, PTPRF, PTPRK, PURA, RAB2A, RAC3, RARA, RTN4, S100B, SDC2, SERPINE2, SHANK2, SHROOM2, SLC18A2, SLC1A3, SLC6A3, SLC8A2, SLC8A3, SMO, SMURF1, SNAP25, SNCAIP, SNCG, SOD1, SORT1, SRD5A1, SRR, SST, STRN, STRN3, TAC1, TBX21, TGFB1, TGFB2, TGFB3, TRPV1, TSC2, TUBB4, UCHL1, UCN, ULK1, VGF, VPS16, VTI1A
GO:0008066	Glutamate receptor activity	12	2	0.743513	GRIA1, GRIA2, GRID2, GRIK3, GRM1, GRM2, GRM3, GRM4, GRM5, GRM6, GRM7, GRM8
GO:0004114	3',5'-cyclic-nucleotide	16	2	0.764262	PDE10A, PDE11A, PDE1A, PDE1C, PDE2A, PDE3B, PDE4B, PDE4C, PDE4D, PDE5A, PDE6B, PDE6D,

	phosphodiesterase activity				PDE7B, PDE8A, PDE8B, PDE9A
GO:0031175	Neuron projection development	60	3	0.885191	AGER, ALKBH1, APC, APP, ATG7, ATXN10, BTG2, CCDC64, CDH1, CDK5, CDK5R1, CHL1, CNTN4, CNTNAP2, DOCK7, DTNBP1, EFHD1, EPHA8, GALR2, GDNF, GNAO1, GPRIN1, HMGB1, IGF1R, IL6, L1CAM, LAMB1, LAMB2, LGI1, LINGO1, LYN, MAP2, MYH10, NCDN, NEDD4, NGF, NPY, NRTN, PHGDH, PLD2, PPP1R9A, PRICKLE2, PRMT1, PTK2B, PTPRM, RAB11A, RAC3, RASGRF1, RYK, SEPT2, SHC1, STMN3, STX3, TBC1D24, UBE4B, UCN, UHMK1, ULK1, VAPA, ZFYVE27

GO Term: Gene Ontology identifier;

Name : Gene Ontology name;

Gene Number: i) All: the total number of genes annotated by the corresponding GO gene sets; and ii) Sig: the number of genes that overlap with LD-independent MDD-associated genomic regions at a MDD meta analysis p-value < 5×10^{-3};

Enrichment p-value: statistical significance of aggregated set-based association for gene sets, calculated by INRICH;

Annotated Genes: list of genes associated with each gene set.

S5. Genes previously implicated in major depressive disorder

Table S5.1. Statistics of five MDD candidate gene sets

Gene Set Source	Number of Unique Candidate Genes
Shyn SI et al. [3]	41
Lewis CM et al. [10]	84
Bosker FJ et al. [9]	57
Muglia et al. [11]	15
Wray NR et al. [7]	179
All combined	188

* Shi et al. [15] also examined MDD candidate genes, but the genes were exactly same as the ones studied by Shyn SI et al., and therefore the study was not included additionally.

S6. Web resources

The URLs of the web resources used in this study are as follows:

dbSNP: http://www.ncbi.nlm.nih.gov/projects/SNP/

Human Genome Browser: http://genome.ucsc.edu/cgi-bin/hgGateway

Hapmap: http://www.hapmap.org

OMIM: http://www.ncbi.nlm.nih.gov/omim

GeneCards: http://www.genecards.org/

PLINK: http://pngu.mgh.harvard.edu/~purcell/plink/

INRICH: http://atgu.mgh.harvard.edu/inrich

Gene Ontology: http://www.geneontology.org

KEGG: http://www.genome.jp/kegg/

Genotator: http://genotator.hms.harvard.edu/geno/

NHGRI GWAS Catalog: http://www.genome.gov/gwastudies/

STRING: http://string-db.org/

GRAIL: http://www.broadinstitute.org/mpg/grail/

S7. Supplementary References

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