Supplementary Tables

Supp. Table 1 A comparison summary of gene-disorder association references per target disorder.

Target Disorder	#Ref. Gene-Disorder Association	#Ref. from other DBs	#Ref. missed in our result	Example ref. in our result only*
ADHD	847	463	3	[1-5]
Angelman Syndrome	319	11	6	[6-10]
Ankylosing Spondylitis	680	210	1	[11-15]
Autism Spectrum Disorder	1158	279	3	[16-20]
Bipolar Disorder	1480	935	182	[21-25]
Down Syndrome	1402	119	21	[26-30]
Huntington Disorder	1045	108	9	[31-35]
Lynch Syndrome	1264	161	1	[36-40]
Multiple Sclerosis	2774	878	95	[41-45]
Schizophrenia	4419	2691	384	[46-50]

* Up to 5 references are shown, sorted by the score of each document.

Supp. Table 2 References with negative results from our engine and GAD.

Target Disorder	#Ref. with negative result	#Ref. with negative result in GAD	#Ref. missed in our result	Example ref. in our result only*
ADHD	135	15	1	[51-55]
Angelman Syndrome	21	0	0	[56-60]
Ankylosing Spondylitis	114	13	0	[61-65]
Autism Spectrum Disorder	168	31	3	[66-70]
Bipolar Disorder	341	75	6	[11, 71-74]
Down Syndrome	185	3	0	[75-79]
Huntington Disorder	82	3	2	[80-84]
Lynch Syndrome	203	0	0	[85-89]
Multiple Sclerosis	496	73	6	[90-94]
Schizophrenia	1029	104	5	[95-99]

* Up to 5 references are shown, sorted by the score of each document.

Supp. Table 3 Categorization of ASD-specific articles.

Category	#Ref.	Example Ref.*	Category	#Ref.	Example Ref.*
Reviews	232	[100-109]	**Common /GWAS**	272	[110-119]
Case Reports	135	[120-129]	**Rare / CNV**	139	[18, 49, 130-137]
Animal Models	37	[138-147]	**Exome Sequencing**	5	[148-152]
Gene Expression	52	[153-162]	**Blood / Serum**	23	[163-172]

* Up to 10 references are shown, sorted by the score of each document.

Supp. Table 4 Top 10 candidate genes, ordered by collective article score for each gene.

Symbol	Name	Score	#Ref.	Example References*
CNTNAP2	contactin associated protein-like 2	56.23	34	[19, 152, 161, 173-179]
FMR1	fragile X mental retardation 1	50.10	68	[180-189]
SHANK3	SH3 and multiple ankyrin repeat domains 3	48.89	32	[20, 190-198]
MET	met proto-oncogene	47.18	19	[199-208]
SLC6A4	neurotransmitter transporter, serotonin	42.87	36	[209-218]
GABRB3	gamma-aminobutyric acid A receptor, subunit beta 3	40.08	30	[59, 219-227]
MECP2	methyl CpG binding protein 2	39.64	47	[219, 228-236]
PTEN	phosphatase and tensin homolog	38.09	27	[182, 237-245]
NRXN1	neurexin 1	32.52	23	[124, 136, 175, 246-252]
EN2	engrailed 2	31.72	17	[253-262]

* Up to 10 references are shown, sorted by the score of each document.

Supp. Table 5. Top 20 genetics-related keywords, sorted by word frequency.

Word	Frequency	Word	Frequency
gene	1.14e-02	**genotype**	2.07e-03
expression	8.46e-03	**variant**	1.58e-03
protein	4.73e-03	**pathway**	1.34e-03
mutation	4.17e-03	**susceptibility**	1.32e-03
polymorphism	3.63e-03	**chromosome**	1.30e-03
genetic	3.37e-03	**promoter**	1.29e-03
receptor	3.34e-03	**SNP**	1.15e-03
allele	2.53e-03	**kinase**	1.12e-03
DNA	2.47e-03	**binding**	1.02e-03
mRNA	2.29e-03	**regulation**	1.01e-03
association	2.09e-03	**phenotype**	9.94e-04

Supp. Table 6 Gene Symbol Recognition Comparison.

Tools	Precision	Recall	F-Score
GeneHawk	0.988	0.843	0.909
ABNER (NLPBA)	0.159	0.763	0.262
BANNER (BioCreative2)	0.303	0.875	0.451

PubMed Article Search Results

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