Supplementary Materials
(Suppl. Tables 1-3)

Supplementary Table 1. Citations for justification of ratings for each high-risk autism gene.

Aut Gene	Rating	Refs for Rating	Refs for Rating	Function in Neurite or Synapse
ACSL4	3	Cho (2012)	Zhang et al. (2009)	Meloni et al., (2009)
ADNP	3	Helsmoortel et al. (2014)		Pacual & Guerri (2007)
ADSL	2	Leivo et al. (2005)	Ng et al. (2009)	
AFF2	3	Wittwer et al. (2001)		Gu & Nelson (2003)
AGTR2	3	Li et al. (2007)	Park & Zambidis (2009)	Maul et al. (2008)
AHI1	3	Weng et al. (2013)		Doering et al. (2008)
ALDH5A1	3	Tozuka et al. (2005)		Vardya et al. (2010)
ALDH7A1	2	Moreb (2008)	Mills et al. (2010)	
AP1S2	2	Montpetit et al. (2008)	Kametaka et al. (2012)	Boehm & Bonifacino (2002)
ARHGEF6	2	Förster (2014)		Nodé-Langlois et al. (2006)
ARID1B	3	GeneCards (2014a)		Vogel-Ciernia et al. (2013)
ARX	3	Friocourt et al. (2008)		Yoshihara et al. (2005)
ASMT	2	Baka et al. (2010)		Melke et al. (2008)
ATP13A4	2	Vallipuram et al. (2010)		
ATRX	3	Bérubé et al. (2005)	Bérubé et al. (2002)	Shioda et al. (2011)
AUTS2	3	Oksenberg et al. (2013)		
AVPR1A	1	GeneCards (2014b)		Pagani et al. (2014)
BCL2	3	Zhang et al. (1996)		Rolland & Conradt (2010)
BDNF	3	Ahmed et al. (1995)		An et al. (2008)
BRAF	3	Raabe et al. (2011)	Maddodi et al. (2010)	Pfeiffer et al. (2013)
BTD	2	Valenciano et al. (2002)		Pindolia et al. (2012)
C4B	2	Shinjyo et al. (2009)		
CACNA1C	3	Paşca et al. (2011)		Moosmang et al. (2005)
CACNA1E	2	Gu & Spitzer (1997)		
CACNA1F	2	Gu & Spitzer (1997)		Thibault et al. (2001)
CACNA1H	2	Gu & Spitzer (1997)		Chemin et al. (2002)
CADM1	2	Ito et al. (2011)	Pietri et al. (2008)	Hagiyama et al. (2009)
CASK	2	Najm et al. (2008)	Pietri et al. (2008)	Wang et al. (2008)
CDH10	1	Takeichi (1991)		Barber et al. (2011)
CDH9	1	Takeichi (1991)		Williams et al. (2011)
CDKL5	3	Valli et al. (2012)		Zhu et al. (2013b)

CEP290	2	Senocak et al. (2010)		Coppieters et al. (2010)
CHD7	3	Layman et al. (2009)		Melicharek et al. (2010)
CHD8	3	Nishiyama et al. (2012)	Otero et al. (2004)	
CHRNA4	2	Mohapel et al. (2005)		Didier et al. (1995)
CHRNB2	2	Mohapel et al. (2005)		Sun et al. (2008)
CNTN4	2	Hansford et al. (2003)		Mercati et al. (2013)
CNTNAP2	3	Peñagarikano et al. (2011)	Strauss et al. (2006)	Fujita et al. (2012)
COMT	2	Rowe et al. (1993)	Laifenfeld et al. (2002)	Forero et al. (2006)
CREBBP	3	Sharma et al. (2010)		Sharma et al. (2010)
CYFIP1	3	Napoli et al. (2008)	Castrén et al. (2005)	Napoli et al. (2008)
DBH	2	Rowe et al. (1993)	Laifenfeld et al. (2002)	Gustafson & Moore (1987)
DCX	3	Brown et al. (2003)	Jin et al. (2010)	Shmueli et al. (2001)
DHCR7	3	Yu & Patel (2005)	Whitehead & Cobo (2008)	Yu et al. (2005)
DISC1	3	Mao et al. (2009)		Kamiya et al. (2006)
DMD	3	Deng et al. (2009)		Montañez et al. (2004)
DMPK	1	Marteyn et al. (2011)	Tang et al. (2012)	Schulz et al. (2003)
DNAH5	1	Olbrich et al. (2002)		
DRD3	2	Rowe et al. (1993)		Andersen & Sonntag (2014)
DRD4	2	Rowe et al. (1993)		Kwon et al. (2008)
DYRK1A	3	Yabut et al. (2010)		Martinez de Lagran et al. (2012)
EHMT1	2	GeneCards (2014c)	Thambirajah et al. (2012)	Kramer et al. (2011)
EIF4E	3	GeneCards (2014d)		Hashimoto & Ishima (2010)
EN2	2	Sarnat et al. (2002)	Cosgaya et al. (1998)	Brunet et al. (2005)
FBXO33	1	Guo et al. (2014)		
FEZF1	3	Shimizu et al. (2010)		Watanabe et al. (2009)
FEZF2	3	Shimizu et al. (2010)		Rouaux & Arlotta (2010)
FGD1	3	Pasteris & Gorski (1999)	Cappello et al. (2006)	
FGFR2	3	Maric et al. (2007)		Schüller et al. (2008)
FHIT	2	Huber & Weiske (2008)		
FMR1	3	Castrén et al. (2005)	Moro et al. (2006)	Tucker et al. (2006)
FOXG1	3	Hanashima et al. (2004)		Polleux et al. (2007)
FOXP1	2	Rousso et al. (2012)		Palmesino et al. (2010)
FOXP2	3	Rousso et al. (2012)		Vernes et al. (2011)
FTSJ1	2	Freude et al. (2004)	Luo et al. (2010)	
GABRA4	3	Tozuka et al. (2005)		Duveau et al. (2011)
GABRA5	3	Tozuka et al. (2005)		Duveau et al. (2011)
GABRB1	3	Tozuka et al. (2005)		Duveau et al. (2011)
GABRB3	3	Tozuka et al. (2005)		Duveau et al. (2011)

GABRG3	3	Tozuka et al. (2005)		Duveau et al. (2011)
GAD1	3	Tozuka et al. (2005)		Chattopadhyaya et al. (2007)
GAMT	3	Ducray et al. (2007)		Braissant et al. (2001)
GATM	3	Ducray et al. (2007)		Braissant et al. (2001)
GRIA3	3	Suzuki et al. (2006)	Maric et al. (2000)	Sprengel (2006)
GRIK2	3	Joo et al. (2007)		Motazacker et al. (2007)
GRIN2B	3	Joo et al. (2007)		Dimassi et al. (2013)
GRIN3B	3	Joo et al. (2007)		Hensen et al. (2010)
GRIP1	3	Joo et al. (2007)		Hoogenraad et al. (2005)
GRPR	3	Walton et al. (2014)		Walton et al. (2014)
GSE1	0			
GSTM1	2	Richter & Kass (1991)	Salim et al. (2006)	Sobczak et al. (2014)
GUCY2D	0			
HLA-DRB1	0			
HOXA1	3	Martinez-Ceballos & Gudas (2008)		del Toro et al. (2001)
HRAS	3	Paquin et al. (2009)		Fivaz et al. (2008)
IGF2	3	Bracko et al. (2012)		Schmeisser et al. (2012)
IL1RAPL1	2	Gambino et al. (2007)	Deisseroth et al. (2004)	Valnegri et al. (2011)
IMMP2L	2	Xiao et al. (2013)	Maestrini et al. (2010)	Fogel et al. (2012)
IQSEC2	2	GeneCards (2014e)		Shoubridge et al. (2010)
ITGB3	3	Ma et al. (2010)	Azmitia (2001)	Whyte (2014)
KCND2	3	Schaarschmidt et al. (2009)		Kim & Hoffman (2012)
KCNMA1	2	Zhang et al. (2014)		Hebert et al. (2014)
KDM5C	3	Poeta et al. (2013)		Rosenfelder (2009)
KIAA0100	2	Bain et al. (2000)		
KIAA2022	2	Magome et al. (2013)		Van Maldergem et al. (2013)
KRAS	2	Uhrbom et al. (2002)		Stornetter & Zhu (2011)
L1CAM	3	Mikulak et al. (2012)		Schäfer & Frotscher (2012)
L2HGDH	1	Krell et al. (2011)		
LAMP2	1	Yasin et al. (2013)		
LRFN5	2	GeneCards (2014f)		Mah et al. (2010)
LRP1	3	Zilberberg et al. (2004)	Otero et al. (2004)	Yoon et al. (2013)
MACROD2	2	Corda & Di Girolamo (2003)	Sharifi et al. (2013)	
MAOA	2	Rowe et al. (1993)		Lee et al. (2005)
MAP2K1	3	Pang et al. (1995)	Jori et al. (2005)	GeneCards (2014g)
MAPK1	3	Qiu & Green (1992)		Sakai et al. (1999)

MAPK3	3	Qiu & Green (1992)		Song et al. (2005)
MARK1	2	Moroni et al. (2006)		Wu et al. (2011)
MBD5	2	Talkowski et al. (2011)		Camarena et al. (2014)
MECP2	3	Peddada et al. (2006)		Degano et al. (2009)
MED12	3	Wang et al. (2009)		Wang et al. (2009)
MEF2C	3	Li et al. (2008)		Barbosa et al. (2008)
MEGF11	1	Kay et al. (2012)		
MET	3	Kato et al. (2004)		Maina et al. (1997)
MID1	2	Mnayer et al. (2006)	Dal Zotto et al. (1998)	Lu et al. (2013)
MKKS	2	Kim et al. (2005)		
MSNP1AS	2	Kerin et al. (2012)	Zhu et al. (2013c)	Paglini et al. (1998)
NDP	3	McNeill et al. (2013)		
NF1	3	Nishi et al. (1991)		Patrakitkomjom et al. (2008)
NFIX	3	Heng et al. (2014)		Wang et al. (2010)
NHS	2	Sharma et al. (2009)		
NIPA1	2	Tsang et al. (2009)	Ueberham & Arendt (2013)	Chen & Cheng (2009)
NIPBL	2	Pistocchi et al. (2013)		
NLGN3	1	Shi et al. (2013)		Budreck & Scheiffele (2007)
NLGN4X	3	Shi et al. (2013)		Shi et al. (2013)
NPHP1	2	Jauregui et al. (2008)	Chizhikov et al. (2007)	Eley et al. (2008)
NRXN1	3	Zeng et al. (2013)		Nussbaum et al. (2008)
NRXN2	1	Zeng et al. (2013)		Craig & Kang (2007)
NSD1	3	Berdasco et al. (2009)		
NTF3	3	Fariñas et al. (1996)	Ghosh & Greenberg (1995)	Dijkhuizen et al. (1997)
NTF4	3	Shen et al. (2010)		Cohen et al. (1994)
OCRL	3	Ramirez et al. (2012)		Ramirez et al. (2012)
OPHN1	2	Rocas et al. (2013)		Fauchereau et al. (2003)
OTC	2	Sautin et al. (2007)		Qureshi et al. (1998)
OTX1	3	Frantz et al. (1994)		Weimann et al. (1999)
OXTR	3	Bakos et al. (2013)	Jafarzadeh et al. (2014)	Sala et al. (2011)
PAFAH1B1	3	Pawlisz et al. (2008)		Hirotsune et al. (1998)
PAH	3	Liss & Grümer (1966)	Hörster et al. (2006)	Li et al. (2010)
PCDH19	3	Biswas (2012)	Gao et al. (2001)	Garrett (2009)
PHF6	3	Zhang et al. (2013)	Wang et al. (2013a)	Zhang et al. (2013)
PHF8	3	Qiu et al. (2010)		Asensio-Juan et al. (2012)
PITX1	2	Heldring et al. (2012)		
POGZ	2	GeneCards (2014h)		
POMGNT1	2	Hehr et al. (2007)	Verrotti et al. (2010)	Abbott et al. (2006)
POMT1	2	Beltrán-Valero de Bernabé et al. (2002)	Verrotti et al. (2010)	Judas et al. (2009)

PQBP1	2	Li et al. (2013)	Sheen et al. (2010)	Wang et al. (2013b)
PRKCB	1	NCBI (2014)		
PRKX	3	Blaschke et al. (2000)		Blaschke et al. (2000)
PRSS12	1	Wolfer et al. (2001)		Mitsui et al. (2013)
PTCHD1	3	Ericson et al. (1997)	Schneider et al. (2001)	So et al. (2006)
PTEN	3	Lachyankar et al. (2000)		Lachyankar et al. (2000)
PTPN11	3	Gauthier et al. (2007)		Rosário et al. (2007)
RAB39B	2	Giannandrea et al. (2010)		Giannandrea et al. (2010)
RAI1	2	Seranski et al. (2001)		
RAPGEF4	3	Shi et al. (2006)		Penzes et al. (2011)
RBFOX1	3	Fogel et al. (2012)		Gehman et al. (2011)
RELN	3	Kim et al. (2002)	Tabata & Nakajima (2002)	Nichols & Olson (2010)
RIMS3	0			Kumar et al. (2010)
RNF135	2	Yoshiga et al. (2013)	Douglas et al. (2007)	
RPE65	2	Métrailler et al. (2013)		Koenekoop (2003)
RPGRIP1L	3	Spassky et al. (2008)		
RPL10	2	Dugani et al. (2010)		Chiocchetti et al. (2011)
RPS6KA3	3	Dugani et al. (2010)		Ammar et al. (2013)
SATB2	3	Gyorgy et al. (2008)	Savarese et al. (2009)	Zhang et al. (2012)
SBF1	2	Chaerkady et al. (2011)		Firestein & Cleary (2001)
SCN1A	2	Okamura & Shidara (1990)	Barber et al. (2011)	Reid et al. (2014)
SCN2A	1	Okamura & Shidara (1990)		
SEMA5A	3	Zhu et al. (2013a)		Schwamborn et al. (2004)
SEZ6L2	1	Anderson et al. (2012)		Kumar et al. (2008)
SGSH	3	Nurcombe et al. (1993)	Israsena et al. (2004)	Hantas-Ambroise et al. (1987)
SHANK2	2	Kim et al. (2009)		Grabrucker et al. (2011)
SHANK3	2	Schuetz et al. (2004)	Wang et al. (2014)	Grabrucker et al. (2011)
SLC22A9	1	Volk (2014)		
SLC25A12	2	Richter & Kass (1991)	Legagnol-Bestel et al. (2008)	Legagnol-Bestel et al. (2008)
SLC6A4	3	Page et al. (2009)		Daubert & Condron (2010)
SLC6A8	3	Ducray et al. (2007)		Braissant et al. (2001)
SLC9A6	2	Zhang-James et al. (2011)	Bergmann et al. (1991)	Ouyang et al. (2013)
SLCO1C1	3	Schlosser et al. (2002)	Honegger & Lenoir (1980)	Leonard & Farwell (1997)
SMC1A	2	Horsfield et al. (2007)	Frank & Tsai (2009)	
ST8SIA2	3	Amoureux et al. (2000)	Satin & Kitajima (2013)	Lee et al. (2011)
SUV420H1	3	Völkel & Angrand (2007)	Yu et al. (2009)	
SYN1	2	Horsfield et al. (2007)	Cai et al. (2003)	Paonessa et al. (2013)
TBR1	3	Bedogni et al. (2010)		Huang et al. (2014)
TBX1	3	Raft et al. (2004)		Forstner et al. (2013)

TRIO	2	Seipel et al. (1999)		Estrach et al. (2002)
TSC1	3	Meikle et al. (2007)	Sun et al. (2010)	Floricel et al. (2007)
TSC2	3	Soucek et al. (1998)		Nie et al. (2010)
TTN	1	Qi et al. (2008)		
TUBA1A	3	Fallet-Bianco et al. (2008)	Poirier et al. (2007)	Veldman et al. (2010)
TUBGCP5	2	Fallet-Bianco et al. (2008)		Baas & Joshi (1992)
UBE3A	3	Mardirossian et al. (2009)	Mishra et al. (2009)	Greer et al. (2010)
UPF3B	3	Jolly et al. (2013)		Jolly et al. (2013)
UPP2	2	GeneCards (2014j)	Silei et al. (2000)	Rooslid et al. (2011)
VIP	3	Pincus et al. (1990)		White et al. (2000)
VPS13B	2	Budisteanu et al. (2010)	Baker (2013)	
YWHAE	2	Toyo-oka et al. (2003)		Toyo-oka et al. (2003)
ZNF674	0			
ZNF81	0			

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Supplementary Table 2. Gene indications in epilepsy and schizophrenia for each high-risk autism gene. Available citations for epilepsy indicate a positive "hit" in the literature. "Yes/No" indicates whether a gene is contained within the *SzGene* Database.

Aut Gene	Indicated in Epilepsy	Contained in SzGene Database
ACSL4		Yes
ADNP	Cosgrave et al. (2008)	No
ADSL	Marie et al. (1999)	Yes
AFF2	Coffee et al. (2008)	No
AGTR2	Ylisaukko-oja et al. (2004)	No
AHI1	Dixon-Salazar	Yes
ALDH5A1	Knerr et al. (2007)	Yes
ALDH7A1	Plecko et al. (2007)	No
AP1S2	Tarpey et al. (2006)	No
ARHGEF6		No
ARID1B		No
ARX	Kato et al. (2007)	No
ASMT		No
ATP13A4		No
ATRX	Akahoshi et al. (2005)	No
AUTS2	Mefford et al. (2010)	No
AVPR1A		No
BCL2		No
BDNF	Scharfman et al. (2002)	Yes
BRAF	Adachi et al. (2012)	No
BTD	Salbert et al. (1993)	No
C4B		Yes
CACNA1C		Yes
CACNA1E	Rijkers et al. (2010)	No
CACNA1F		Yes
CACNA1H	Chen et al. (2003)	No
CADM1		No
CASK	Saitsu et al. (2012)	No
CDH10		No
CDH9		No
CDKL5	Archer et al. (2006)	No
CEP290	Şenocak et al. (2010)	No
CHD7	Lalani et al. (2009)	No
CHD8		No
CHRNA4	Hirose et al. (1999)	Yes

CHRNB2	Phillips et al. (2001)	Yes
CNTN4	Roohi et al. (2009)	No
CNTNAP2	Mefford et al. (2010)	No
COMT	Doyle & Sellinger (1980)	Yes
CREBBP	Seltzer & Paciorkowski (2014)	No
CYFIP1		No
DBH	Browning et al. (1989)	Yes
DCX	Kerjan et al. (2009)	No
DHCR7	Johnson (1975)	No
DISC1		Yes
DMD	De Sarro et al. (2004)	No
DMPK		No
DNAH5		No
DRD3		Yes
DRD4	Rubenstein et al. (2001)	Yes
DYRK1A	Courcet et al. (2012)	No
EHMT1	Kleefstra et al. (2006)	No
EIF4E		No
EN2	Tripathi et al. (2008)	No
FBXO33	Flood et al. (2004)	No
FEZF1		No
FEZF2	Lodato et al. (2011)	No
FGD1		No
FGFR2		Yes
FHIT		No
FMR1	Musemeci et al. (2007)	No
FOXG1	Brunetti-Pierri et al. (2011)	No
FOXP1	Carr et al. (2010)	No
FOXP2	Turner et al. (2013)	Yes
FTSJ1	Takano et al. (2008)	No
GABRA4	Roberts et al. (2005)	No
GABRA5	Di Rocco et al. (2013)	Yes
GABRB1		No
GABRB3	DeLorey & Olsen (1999)	No
GABRG3	Pelc et al. (2008)	No
GAD1	Darrah et al. (2013)	Yes
GAMT	Mercimek-Mahmutoglu et al. (2006)	No
GATM	Stöckler et al. (2014)	No
GRIA3	Bonnet et al. (2012)	Yes
GRIK2	Mulle et al. (1998)	Yes
GRIN2B	Lemke et al. (2014)	Yes

GRIN3B		No
GRIP1		Yes
GRPR		No
GSE1		No
GSTM1	Liu & Tsai (2002)	Yes
GUCY2D		No
HLA-DRB1	Jain et al. (1999)	No
HOXA1		No
HRAS	Della Marca et al. (2011)	No
IGF2	Dikkes et al. (2007)	Yes
IL1RAPL1	Dinopoulos et al. (2014)	No
IMMP2L		No
IQSEC2	Gandomi et al. (2014)	No
ITGB3		No
KCND2	Lee et al. (2014)	No
KCNMA1	Ermolinsky et al. (2008)	No
KDM5C	Poeta et al. (2013)	No
KIAA0100		No
KIAA2022	Cantagrel et al. (2004)	No
KRAS	Adachi et al. (2012)	No
L1CAM	Maruta et al. (1996)	Yes
L2HGDH	Vilarinho et al. (2010)	No
LAMP2		No
LRFN5	de Bruijn et al. (2010)	No
LRP1		No
MACROD2		No
MAOA	Teskey et al. (2004)	Yes
MAP2K1	Nateri et al. (2007)	No
MAPK1	Nateri et al. (2007)	No
MAPK3		No
MARK1		No
MBD5	Talkowski et al. (2011)	No
MECP2	Jian et al. (2007)	No
MED12	Van Buggenhout & Fryns (2006)	Yes
MEF2C	Nowakowska et al. (2010)	No
MEGF11		No
MET	Bae et al (2010)	Yes
MID1		No
MKKS		No
MSNP1AS		No
NDP	Lev et al. (2007)	No

NF1	Kulkantrakorn & Geller (1998)	No
NFIX	Yoneda et al. (2012)	No
NHS		No
NIPA1	Svenstrup et al. (2011)	No
NIPBL	Pavlidis et al. (2014)	No
NLGN3		No
NLGN4X		No
NPHP1	Bartnik et al. (2012)	No
NRXN1	Harrison et al. (2011)	Yes
NRXN2		No
NSD1	Tatton-Brown & Nazneen (2004)	No
NTF3	Risbud et al. (2011)	Yes
NTF4		No
OCRL	Ramirez et al. (2012)	No
OPHN1	Santos-Rebouças et al. (2014)	No
OTC	Bogdanovic et al. (2000)	No
OTX1	Acampora et al. (1996)	No
OXTR	Sala et al. (2011)	Yes
PAFAH1B1	Greenwood et al. (2009)	Yes
PAH	Martynyuk et al. (2007)	Yes
PCDH19	Depienne et al. (20009)	No
PHF6	Lower et al. (2002)	No
PHF8		No
PITX1		No
POGZ		No
POMGNT1	Teber et al. (2008)	No
POMT1	Mochida (2008)	No
PQBP1	Stevenson et al. (1998)	No
PRKCB	Szepetowski & Monaco (1998)	No
PRKX		No
PRSS12		No
PTCHD1		No
PTEN	Backman et al. (2001)	Yes
PTPN11	de Jong et al. (2011)	No
RAB39B	Giannandrea et al. (2010)	No
RAI1	Goldman (2006)	No
RAPGEF4	Zhao et al. (2013)	No
RBFOX1	Lal et a. (2013)	No
RELN	Gong et al. (2007)	Yes
RIMS3		No
RNF135		No

RPE65		No
RPGRIP1L	Şenocak et al. (2010)	Yes
RPL10		No
RPS6KA3	Matsumoto et al. (2013)	No
SATB2	Leoyklang et al. (2007)	No
SBF1		No
SCN1A	Claes et al. (2001)	No
SCN2A	Herlenius et al. (2007)	No
SEMA5A	Yang et al. (2005)	No
SEZ6L2	Guerra (2011)	No
SGSH	OMIM (2014)	No
SHANK2		No
SHANK3	Han et al. (2013)	Yes
SLC22A9		No
SLC25A12	Falk et al. (2014)	Yes
SLC6A4	Hrvoje et al. (2010)	Yes
SLC6A8	Fons et al. (2009)	No
SLC9A6	Gilfillan et al. (2008)	No
SLCO1C1		No
SMC1A	Baquero-Montoya et al. (2014)	No
ST8SIA2	Kamien et al. (2014)	Yes
SUV420H1		No
SYN1	Fassio et al. (2011)	No
TBR1	Traylor et al. (2012)	No
TBX1		Yes
TRIO		No
TSC1	Meikle et al. (2007)	No
TSC2	Chu-Shore et al. (2009)	Yes
TTN		No
TUBA1A	Sohal et al. (2012)	Yes
TUBGCP5		No
UBE3A	Minassian et al. (1998)	No
UPF3B		No
UPP2		No
VIP	Marksteiner et al. (1989)	No
VPS13B		No
YWHAE		Yes
ZNF674		No
ZNF81		No

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Supplementary Table 3. General gene product function for each high-risk autism gene.

Aut Gene	Function
ACSL4	fatty acid metabolism; lipid metabolism
ADNP	transcription factor; transcription regulation
ADSL	purine biosynthesis
AFF2	mRNA processing; mRNA splicing
AGTR2	cell membrane; membrane; angiotensin II receptor
AHI1	cilium biogenesis/degradation
ALDH5A1	mitochondrion; GABA degradation
ALDH7A1	mitochondrion; detoxification
AP1S2	protein transport; transport
ARHGEF6	GTPase; guanine nucleotide exchange factor
ARID1B	transcription regulation; chromatin remodeling
ARX	transcription factor; transcription regulation
ASMT	melatonin biosynthesis
ATP13A4	membrane; cation-transporting ATPase activity
ATRX	DNA damage; DNA repair; transcription regulation; chromatin remodeling; ATPase
AUTS2	unknown
AVPR1A	vasopressin receptor
BCL2	apoptosis; mitochondrion
BDNF	growth factor
BRAF	kinase; transferase; intracellular signal transduction
BTD	hydrolase; biotin metabolism
C4B	immune regulation; complement pathway
CACNA1C	calcium transport; ion transport
CACNA1E	calcium transport; ion transport
CACNA1F	calcium transport; ion transport
CACNA1H	calcium transport; ion transport
CADM1	cell adhesion
CASK	scaffolding protein; ion channel trafficking; cytoskeleton; cell adhesion; calcium-dependent
CDH10	cell adhesion; calcium-dependent
CDH9	cell adhesion; calcium-dependent
CDKL5	kinase; methylation regulation
CEP290	cilium biogenesis/degradation; protein transport
CHD7	rRNA processing; transcription regulation; chromatin remodeling
CHD8	transcription regulation; chromatin remodeling
CHRNA4	acetylcholine receptor; ion transport
CHRNB2	acetylcholine receptor; ion transport; sodium and potassium transport
CNTN4	cell adhesion
CNTNAP2	cell adhesion

COMT	catecholamine metabolism; neurotransmitter degradation
CREBBP	histone acetylation; transcription regulation
CYFIP1	translation regulation; cytoskeleton
DBH	catecholamine biosynthesis
DCX	cytoskeleton
DHCR7	lipid biosynthesis/metabolism
DISC1	intracellular signaling; canonical Wnt pathway
DMD	cytoskeleton; ligand for dystroglycan
DMPK	kinase; transferase
DNAH5	cytoskeleton; maintenance of cilial integrity; ATPase
DRD3	dopamine receptor; G-protein coupled receptor
DRD4	dopamine receptor; G-protein coupled receptor
DYRK1A	kinase; transferase; nuclear signaling
EHMT1	histone methyltransferase; chromatin remodeling
EIF4E	translation regulation
EN2	transcription factor; transcription regulation
FBXO33	ubiquitination regulation; proteasomal degradation
FEZF1	transcription factor; transcription regulation
FEZF2	transcription factor; transcription regulation
FGD1	GTPase; cytoskeletal regulation
FGFR2	growth factor receptor
FHIT	FGF receptor; receptor kinase/transferase
FMR1	translation regulation; mRNA transport
FOXG1	transcription factor; transcription regulation
FOXP1	transcription factor; transcription regulation
FOXP2	transcription factor; transcription regulation
FTSJ1	tRNA processing; translation regulation; methyltransferase
GABRA4	GABA receptor subunit; ion transport; chloride regulation
GABRA5	GABA receptor subunit; ion transport; chloride regulation
GABRB1	GABA receptor subunit; ion transport; chloride regulation
GABRB3	GABA receptor subunit; ion transport; chloride regulation
GABRG3	GABA receptor subunit; ion transport; chloride regulation
GAD1	neurotransmitter biosynthesis
GAMT	creatine metabolism; methyltransferase
GATM	creatine metabolism; methyltransferase
GRIA3	glutamate receptor; ion transport; calcium regulation
GRIK2	glutamate receptor; ion transport
GRIN2B	glutamate receptor; ion transport; calcium regulation
GRIN3B	glutamate receptor; ion transport; calcium regulation
GRIP1	glutamate receptor interacting protein; scaffold protein; intracellular signal transduction
GRPR	gastrin releasing peptide receptor; g-protein coupled receptor

GSE1	unknown
GSTM1	transferase; glutathione conjugation; detoxification
GUCY2D	cGMP biosynthesis
HLA-DRB1	immune regulation
HOXA1	transcription factor; transcription regulation
HRAS	GTPase; intracellular signal transduction
IGF2	growth factor
IL1RAPL1	interleukin receptor; calcium regulation
IMMP2L	hydrolase; protease; mitochondrion
IQSEC2	guanine nucleotide exchange factor; GTPase regulation
ITGB3	cell adhesion; multi-ligand receptor; calcium-dependent
KCND2	voltage-gated potassium channel; ion transport; calcium activated
KCNMA1	voltage-gated potassium channel; ion transport; calcium activated
KDM5C	histone demethylase; chromatin remodeling; transcription regulation
KIAA0100	unknown
KIAA2022	cytoskeletal regulation; cell adhesion regulation
KRAS	GTPase
L1CAM	cell-cell adhesion/cytoskeleton
L2HGDH	L-2-hydroxyglutarate dehydrogenase; mitochondrion
LAMP2	lysosome regulation; extracellular signaling transduction; intracellular signaling transduction; detox
LRFN5	cell adhesion
LRP1	endocytic receptor; endocytosis & phagocytosis regulation; lipid metabolism
MACROD2	glutamate regulation; ADP ribosolation
MAOA	catecholamine metabolism; neurotransmitter degradation; mitochondrion
MAP2K1	kinase; transferase; intracellular signal transduction
MAPK1	kinase; transferase; intracellular signal transduction
MAPK3	kinase; transferase; intracellular signal transduction
MARK1	kinase; cytoskeleton; cell polarity
MBD5	chromatin remodeling
MECP2	methylation; chromatin remodeling; transcription regulation
MED12	transcription regulation
MEF2C	transcription regulation
MEGF11	cell adhesion
MET	hepatocyte growth factor receptor; intracellular signal transduction
MID1	ubiquitination regulation; cytoskeleton
MKKS	chaperone; cilium biogenesis; vesicular transport
MSNP1AS	regulation of moesin; cytoskeletal regulation
NDP	ligand; Wnt activation
NF1	GTPase; intracellular signal transduction
NFIX	transcription factor; transcription regulation
NHS	cytoskeleton

NIPA1	magnesium transport; ion transport
NIPBL	enhancer regulation; chromatin remodeling; chromatid cohesion
NLGN3	cell adhesion
NLGN4X	cell adhesion
NPHP1	cytoskeleton; cell polarity; cilium biogenesis/degradation
NRXN1	cell adhesion; calcium regulation
NRXN2	cell adhesion; calcium regulation
NSD1	histone methyltransferase; chromatin remodeling; transcription regulation
NTF3	growth factor
NTF4	growth factor
OCRL	cilium biogenesis/degradation; hydrolase; cytoskeleton; lysosome regulation
OPHN1	GTPase; cytoskeleton; intracellular signal trandsduction
OTC	transferase; mitochondrion; amino acid biosynthesis; arginine biosynthesis; urea cycle
OTX1	transcription factor; transcription regulation
OXTR	oxytocin receptor; g-protein coupled receptor; calcium-dependent
PAFAH1B1	GTPase regulation; cytoskeleton
PAH	phenylalanine catabolism; monooxygenase; oxidoreductase
PCDH19	cell adhesion; calcium-dependent
PHF6	transcription regulation
PHF8	histone regulation; histone lysine demethylase
PITX1	transcription factor; transcription regulation
POGZ	cytoskeleton; cell cycle progression; chromatid adhesion; kinetochore assembly
POMGNT1	O-mannosyl glycosylation; glycosyltransferase
POMT1	O-mannosyltransferase; glycosyltransferase
PQBP1	transcription factor; transcription regulation
PRKCB	kinase; intracellular signal transduction; calcium-dependent
PRKX	kinase; intracellular signal transduction
PRSS12	hydrolase; protease; cytoskeleton
PTCHD1	Shh receptor; intracellular signal transduction
PTEN	phosphatase; hydrolase; intracellular signal transduction; tumor suppressor
PTPN11	phosphatase; hydrolase; intracellular signal transduction
RAB39B	GTPase; vesicular regulation
RAI1	transcription regulation; chromatin remodeling
RAPGEF4	guanine nucleotide exchange factor; GTPase regulation; exocytosis regulation
RBFOX1	mRNA processing; alternative splicing regulation
RELN	cytoskeleton; cell adhesion; calcium-sensitive
RIMS3	cell adhesion; exocytosis regulation
RNF135	ubiquitination regulation; innate immunity
RPE65	hydrolase; isomeras
RPGRIP1L	cytoskeleton; cell adhesion; cilium regulation
RPL10	translation regulation

RPS6KA3	kinase; transferase; intracellular signal transduction
SATB2	transcription regulation; chromatin remodeling
SBF1	pseudophosphatase; guanine nucleotide exchange factor; GTPase
SCN1A	sodium transport; ion transport
SCN2A	sodium transport; ion transport
SEMA5A	cytoskeleton
SEZ6L2	endoplasmic reticulum regulation
SGSH	hydrolase; heparan sulfate degradation; lysosomal regulation
SHANK2	cell adhesion
SHANK3	cell adhesion
SLC22A9	transport
SLC25A12	glutamate-aspartate exchange; mitochondrion; transport; calcium-dependent
SLC6A4	serotonin transport; sodium- and chloride-dependent
SLC6A8	creatine regulation; creatine transport; sodium- & chloride-dependent
SLC9A6	sodium-hydrogen exchange; endosome regulation
SLCO1C1	anion transport; thyroid hormone transport; estradiol transport
SMC1A	cytoskeleton; chromatide cohesion; cell cycle progression; DNA repair
ST8SIA2	sialic acid transfer to oligosaccharides & glycoproteins; polysialic acid production; cell adhesion
SUV420H1	histone methyltransferase; chromatin remodeling; transcription regulation
SYN1	vesicular regulation;cytoskeleton; neurotransmitter release
TBR1	transcription factor; transcription regulation
TBX1	transcription factor; transcription regulation
TRIO	guanine nucleotide exchange factor; GTPase regulation; kinase; transferase; cytoskeleton regulation
TSC1	tumor suppressor; intracellular signal transduction
TSC2	tumor suppressor; intracellular signal transduction; cytoskeletal-mediated transport; GTPase
TTN	cytoskeleton; chromosome condensation; chromosome segregation
TUBA1A	cytoskeleton; chromosome segregation
TUBGCP5	cytoskeleton; centromere formation
UBE3A	ubiquitination regulation
UPF3B	mRNA export; mRNA surveillance; translation regulation
UPP2	glycosyltransferase; production of carbon & energy sources; nucleotide synthesis; detoxification
VIP	ligand; hormone
VPS13B	vesicular regulation
YWHAE	adaptor protein; intracellular signal transduction
ZNF674	transcription factor; transcription regulation
ZNF81	transcription factor; transcription regulation