

Supplementary Information

Supplementary Note 1. Characterization of WS cognitive and social profile in five WS participants

Participants were characterized with respect to their WS cognitive (WSCP) and social (WSSP) profiles⁶¹⁻⁶³ to evaluate the degree to which each individual demonstrated the distinct pattern of strengths and weaknesses associated with the WS phenotype. A core characteristic of the WSCP is the dissociation between relative strengths in socially relevant cognition (e.g., face processing and language)⁶² and severely impaired visuospatial cognition⁶⁴. Further, the full-scale IQ profile is characterized by mild-to-moderate intellectual disability (mean of 50-60)⁶⁵, masking relatively superior processing of verbal over non-verbal information (see **Extended Data Fig. 1c** for summary of test battery used in this study).

The WSCPs for the five participants were constructed by calculating log predictive likelihood ratios under assumed normality for age-appropriate TD vs. WS classifications based on VIQ, PIQ, VMI and PPVT standard scores, subject to availability. In the present study (**Extended Data Fig. 1d**), values greater than zero indicate performance more consistent with expectations for TD participants whereas values less than zero indicate performance more consistent with expectation for WS participants. Predictive distributions for the TD participants were based on published normative means and SDs for each of the tests employed, whereas for the WS classification, the predictive distributions²⁶ were determined using data from $n = 81$ (VIQ and PIQ), $n = 56$ (VMI), and $n = 97$ (PPVT) subjects in a broader WS sample (**Extended Data Fig. 1e**). A Tobit model was used to estimate parameters for WS subjects on the VMI due to the presence of floor effects.

Although the scores of the four individuals with typical WS were more consistent with the WSCP than with normative TD performance, WS25, WS77, and pWS88 tested within the normal range on VIQ. However, as indicated by the uniformly poor performance on the VMI in the WS participants, the pronounced and disproportionate visuospatial processing deficits that constitute the defining feature of the WSCP were present even in the WS participants with high VIQ. In contrast, the performance of pWS88 on the VMI was more consistent with normative expectations under the TD classification and was commensurate with his performance on the IQ tests and on the PPVT. To enable comparison with behavior from a broader sample of WS and TD participants, data points from the five participants were reported in relation to those observed in a larger WS population.

Further evaluation of the WS sample focused on the dissociation within the WSCP characterized by visual-spatial perception deficit but with near typical face identification ability^{62, 64}. Consistent with this profile, three typical WS participants fit well in the larger WS sample (WS17 could not complete this portion of testing), demonstrating severely impaired performance on the Judgment of Line Orientation (JLO) task (TD $n = 22$ vs. WS $n = 65$, AUC = 0.994, $p < 0.001$) contrasted with performance on the Benton Facial Recognition task (BFRT) that was indistinguishable from that of TD controls ($t = 1.727$, $df = 82$, $p < 0.088$) (**Fig. 1b** and **Extended Data Fig. 1f**). Participant pWS88 performed comparable to those with WS and TD on the BFRT, but his score on the JLO fell in between those of the WS and TD groups (**Fig. 1b**). The performance of the WS and TD participants on these tasks, along with the data points for the five participants, is displayed in **Figure 1b**.

Cognitive functions with social relevance are relatively spared in the WSCP, as demonstrated above. Consistent with this notion, a hallmark of WS is a hypersocial predisposition^{62, 66}, associated with elevated approach toward strangers, bias toward positive emotion and a reduction in response to fear and anger^{67, 68}, atypically expressive and relatively sophisticated verbal output, and an increased interest in processing faces and eyes^{62, 69}. Empirical work building a WS personality profile (WSPP) has shown that personality features such as a lack of shyness, high empathy, and gregariousness, in addition to the qualities of people-oriented, visible, tense, sensitive/anxious predisposition, discriminate individuals with WS from those without the syndrome⁷⁰.

The WSSPs for the five participants were constructed using measures of social approach behavior, emotionality/empathy, and language use. The Salk Institute Sociability Questionnaire (SISQ), completed by participants' parents, confirmed that this hypersociability was limited to individuals with the typical deletion in the WBSCR^{62, 66}. A larger cohort of participants with WS (n = 101, for Approach Strangers and n = 100, for Social-emotional/empathic Behavior) were previously characterized not only by significantly elevated scores of approachability toward strangers (AUC = 0.916, p < 0.001) but also by increased social-emotional/empathic behaviors (AUC = 0.777, p < 0.001) as compared to TD individuals (n = 80, for Approach Strangers and n = 79, for Social-emotional/empathic behavior) (**Fig. 1c**). The scores of pWS88 on the Approach Strangers and Social-emotional subscales fell in between those of the WS and TD groups. Another prominent feature of the unusual social phenotype of WS is that the characteristic hypersociability penetrates the language use of such individuals. Despite the fact that children with WS commonly show significant delays in acquiring expressive language, they use language excessively for social purposes. Whereas the WS group used significantly more socially evaluative language compared to TD individuals (n=49) (AUC

= 0.866, $p < 0.001$; WS $n=44$), the TD individuals made more frequent use of cognitively evaluative language (AUC = 0.698, $p < 0.001$; WS $n=45$) and complex language structure (AUC = 0.832, $p < 0.001$; WS $n=45$) and made fewer syntactic errors (AUC = 0.883, $p < 0.001$; WS $n=45$) than their counterparts with WS (**Extended Data Fig. 1g**). Thus, despite compromised basic language function in the WS patients, they exhibited an unusually abundant social use of language, conveyed linguistically by attributing emotions or motivations to characters when telling the story, building suspense, and maintaining audience involvement and interest using emphatics, intensifiers, character speech, direct quotes, and sound effects. In sum, the classic WS gene deletion results in a complex, uneven pattern of behaviors across both neurocognitive and social domains, ranging from excessive to normal to maladaptive, thereby offering an appealing model system for linking genes to specific phenotypic features.

Supplementary Table 1. Summary of cell lines used in each experiment (iPSCs, iPSC-derived NPCs and neurons).

Experiments	TD55			TD59			TD63			TD70			WS17			WS25			WS77			WS79			pWS88					
	c5	c6	c15	c1	c2	c4	c1	c3	c6	c2	c4	c5	c1	c2	c4	c1	c3	c4	c1	c4	c5	c2	c3	c5	c0	c1	c2	c15	c18	
iPSC characterization																														
Immunostaining	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Semi-qPCR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Teratoma assay	Y																	Y							Y					
Karyotyping	Y		Y		Y		Y				Y			Y			Y			Y	Y			Y						
Microarray					Y		Y				Y		Y					Y			Y				Y					
Genotyping (SNP array)		Y		Y	Y		Y	Y		Y	Y		Y	Y		Y	Y			Y	Y				Y	Y	Y			
RNA sequencing		Y		Y			Y				Y		Y			Y				Y	Y				Y					
Exogenous retroviral genes		Y		Y			Y				Y		Y			Y				Y	Y				Y				Y	
NPC characterization																														
Immunostaining	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
qPCR	Y			Y	Y		Y				Y		Y			Y		Y		Y	Y			Y						
RNA sequencing		Y		Y			Y				Y		Y			Y				Y			Y			Y	Y			
NPC flow characterization		Y		Y	Y		Y				Y		Y							Y			Y	Y		Y	Y			
NPC proliferation and apoptosis																														
Cell counting (day4/day0) (technical replicates)	2	2	2	2	3		2	2	2	2	2		2	2		3	3	5	2	3	2	2	2		3	5	3	3	2	
Proliferation (BrdU labeling) (technical replicates)		3		3	3		4				3		3			3		3			3				3	3	3			
DNA fragmentation (PI) (technical replicates)		4					3				3		3			2	3				3				3	3	3			
Caspase activity (Caspase3) (technical replicates)		3		4			3				3		3			3	1	3			3				3	3	3			
FZD9 experiment																														
Knockdown & overexpression																														
Western blot	Y			Y			Y				Y		Y		Y					Y		Y			Y	Y				
Cell counting (day4/day0) (technical replicates)	4			3			3				3		5		3					3		5			3	4				
DNA fragmentation (PI) (technical replicates)	4						3				3		3			3					3				3	3	3			
Caspase3 activity (technical replicates)	3			4			3				3		3			3	1	3			3				3	3	3			
Single-cell analysis	Y			Y							Y		Y			Y			Y		Y			Y						
Neuronal characterization																														
Immunostaining	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
qPCR		Y		Y	Y		Y				Y		Y			Y		Y		Y	Y			Y						
RNA sequencing		Y		Y			Y				Y		Y			Y		Y		Y			Y					Y		
Electrophysiology (number of neurons)			1			2	4				3									2	5	10								
MEA				Y							Y	Y		Y	Y								Y							
Morphometric analysis (number of neurons)	5		5	6	4		5		5		5	5		5	5	5	5				5	5			5	5	10	11	5	6
Calcium transient (number of ROI)				351	748		299		764	664	1387		1017	832				436	983	693		485				36	12			
Neurite dynamics	Y			Y			Y				Y		Y		Y					Y			Y			Y	Y			
Puncta	Y	Y		Y	Y		Y			Y	Y		Y	Y	Y					Y	Y	Y	Y	Y	Y	Y				
Single-cell analysis		Y		Y							Y		Y			Y				Y			Y			Y				

c#; clone number. Y; specified clone was used for specified experiments (n=technical replicates). PI; propidium iodide. ROI; region of interest.

Supplementary Table 2. Per sample CNV detected in iPSCs of TD, WS and pWS88.

Sample	Chromosome	Start	End	Total SNPs	CNV length	Zigosity	Type	Start SNP	End SNP	Involved genes
TD70 c4	chr7	1552438	1602673	10	50236	Heterozygous	Deletion	rs6965558	rs2033572	MAFK,TMEM184A
TD70 c4	chr12	31997981	32034552	10	36572	Heterozygous	Duplication	rs2186010	rs1666224	-
TD70 c4	chr13	41383712	41494967	10	111256	Heterozygous	Duplication	newsrs121908535	rs12857052	MIR621,SLC25A15,SUGT1P3,TPTE2P5
TD70 c4	chr21	46840233	46872167	27	31935	Heterozygous	Deletion	kgp23271266	rs2183590	COL18A1,COL18A1-AS1
TD70 c4	chr20	61867454	61910352	10	42899	Heterozygous	Deletion	rs6011691	variant.69149	ARFGAP1,BIRC7,FLJ16779,MIR3196,NKAIN4
TD70 c4	chr17	80693128	80788492	11	95365	Heterozygous	Deletion	rs3859206	rs12948179	FN3K,TBCD,ZNF750
TD70 c4	chr16	89121918	89261482	15	139565	Heterozygous	Deletion	rs12933802	rs2270416	ACSF3,CDH15,LINC00304,LOC400558
TD70 c4	chr16	90079534	90110027	10	30494	Heterozygous	Deletion	rs8059973	rs3743824	DBNDD1,GAS8,GAS8-AS1,URAHP
TD70 c4	chr2	96150959	96580165	14	429207	Heterozygous	Duplication	kgp225262	kgp8598162	LINC00342,TRIM43
TD70 c4	chr14	105752404	105909527	11	157124	Heterozygous	Deletion	rs3825762	rs4983625	BRF1,LOC100507437,MTA1,PACS2,TEX22
TD70 c4	chr12	133751427	133781051	21	29625	Heterozygous	Deletion	rs11147274	indel.28499	ZNF268
TD70 c4	chr9	139401504	139518965	11	117462	Heterozygous	Deletion	rs3124596	rs7863705	LINC01573,MIR4673,MIR4674,NOTCH1
TD70 c5	chr11	763457	899367	19	135911	Heterozygous	Deletion	newsrs151052416	variant.15710	CD151,CEND1,CHID1,CRACR2B,LOC171391,PA NO1,PDCC1,PIDD1,PNPLA2,POLR2L,RPLP2,SLC 25A22,SNORA52,TALDO1,TSPAN4
TD70 c5	chr7	1552438	1606847	12	54410	Heterozygous	Deletion	rs6965558	rs10244477	MAFK,TMEM184A
TD70 c5	chr19	8566880	8651562	11	84683	Heterozygous	Deletion	rs10403336	rs4476282	ADAMTS10,MYO1F,PRAM1,ZNF414
TD70 c5	chr17	20217122	20527718	10	310597	Heterozygous	Deletion	rs7209889	rs1382779	CCDC144CP,CDRT15L2,FAM106B,KRT16P3,LGA LS9B,SPECC1
TD70 c5	chr17	30262169	30454720	12	192552	Heterozygous	Duplication	rs7210970	rs9909295	LRRC37B,SH3GL1P1,SUZ12
TD70 c5	chr12	31997981	32056577	14	58597	Heterozygous	Duplication	rs2186010	rs7298353	-
TD70 c5	chr12	37986081	38361657	15	375577	Heterozygous	Deletion	rs1842599	rs1607882	-
TD70 c5	chr13	41383712	41494967	10	111256	Heterozygous	Duplication	newsrs121908535	rs12857052	MIR621,SLC25A15,SUGT1P3,TPTE2P5
TD70 c5	chr21	46840233	46872167	27	31935	Heterozygous	Deletion	kgp23271266	rs2183590	COL18A1,COL18A1-AS1
TD70 c5	chr20	61867454	61910352	10	42899	Heterozygous	Deletion	rs6011691	variant.69149	ARFGAP1,BIRC7,FLJ16779,MIR3196,NKAIN4
TD70 c5	chr12	78880444	78965788	10	85345	Heterozygous	Deletion	rs12315707	rs10778053	-
TD70 c5	chr17	80693128	80791469	12	98342	Heterozygous	Deletion	rs3859206	rs9906115	FN3K,TBCD,ZNF750
TD70 c5	chr16	89121918	89261482	15	139565	Heterozygous	Deletion	rs12933802	rs2270416	ACSF3,CDH15,LINC00304,LOC400558
TD70 c5	chr16	90079534	90110027	10	30494	Heterozygous	Deletion	rs8059973	rs3743824	DBNDD1,GAS8,GAS8-AS1,URAHP
TD70 c5	chr2	96150959	96580165	14	429207	Heterozygous	Duplication	kgp225262	kgp8598162	LINC00342,TRIM43
TD70 c5	chr12	114524221	114666099	25	141879	Heterozygous	Deletion	rs1458704	rs2555009	-
TD70 c5	chr9	136536633	136599146	11	62514	Heterozygous	Deletion	rs2797840	rs573904	SARDH
TD70 c5	chr9	139401504	139518965	11	117462	Heterozygous	Deletion	rs3124596	rs7863705	LINC01573,MIR4673,MIR4674,NOTCH1
TD59 c2	chr9	512589	557617	10	45029	Heterozygous	Duplication	rs1410968	rs3739592	KANK1
TD59 c2	chr22	19945177	19958811	25	13635	Heterozygous	Deletion	rs740603	kgp9453935	ARVCF,COMT,MIR4761
TD59 c2	chr12	31997981	32056577	14	58597	Heterozygous	Duplication	rs2186010	rs7298353	-

TD59 c2	chr21	46840233	46888469	32	48237	Heterozygous	Deletion	kgp23271266	kgp13089681	COL18A1,COL18A1-AS1
TD59 c2	chr21	46932318	46952094	24	19777	Heterozygous	Deletion	kgp13108713	rs914231	COL18A1,SLC19A1
TD59 c2	chr20	61823158	61910352	13	87195	Heterozygous	Deletion	rs4809501	variant.69149	ARFGAP1,BIRC7,FLJ16779,MIR3196,NKAIN4,YT HDF1
TD59 c2	chr17	80693128	80791469	12	98342	Heterozygous	Deletion	rs3859206	rs9906115	FN3K,TBCD,ZNF750
TD59 c2	chr16	89115822	89261482	16	145661	Heterozygous	Deletion	rs7198060	rs2270416	ACSF3,CDH15,LINC00304,LOC400558
TD59 c2	chr9	137292505	137330242	19	37738	Heterozygous	Deletion	rs6537998	kgp27254482	RXRA
TD59 c1	chr9	512589	557617	10	45029	Heterozygous	Duplication	rs1410968	rs3739592	KANK1
TD59 c1	chr9	843763	877871	15	34109	Heterozygous	Duplication	rs4338164	rs7875857	DMRT1
TD59 c1	chr19	945013	1119019	39	174007	Heterozygous	Deletion	rs2238573	rs2074920	ABCA7,ARID3A,CNN2,GPX4,GRIN3B,HMHA1,NM _001303499,NM_001303501,POLR2E,RNU6- 2,SBNO2,TMEM259,WDR18
TD59 c1	chr22	19945177	19957251	21	12075	Heterozygous	Deletion	rs740603	kgp15052777	COMT,MIR4761
TD59 c1	chr12	31997981	32056577	14	58597	Heterozygous	Duplication	rs2186010	rs7298353	-
TD59 c1	chr21	46840233	46888469	32	48237	Heterozygous	Deletion	kgp23271266	kgp13089681	COL18A1,COL18A1-AS1
TD59 c1	chr7	57621951	57934758	12	312808	Heterozygous	Duplication	rs4556041	kgp10491	-
TD59 c1	chr20	60990075	61027854	13	37780	Heterozygous	Deletion	rs911078	rs4925245	RBBP8NL
TD59 c1	chr20	61823158	61910352	13	87195	Heterozygous	Deletion	rs4809501	variant.69149	ARFGAP1,BIRC7,FLJ16779,MIR3196,NKAIN4,YT HDF1
TD59 c1	chr17	79145891	79218714	11	72824	Heterozygous	Deletion	rs2659046	rs2659005	AATK-AS1,C17orf89,CEP131,ENTHD2,SLC38A10
TD59 c1	chr17	80693128	80791469	12	98342	Heterozygous	Deletion	rs3859206	rs9906115	FN3K,TBCD,ZNF750
TD59 c1	chr16	89115822	89261482	16	145661	Heterozygous	Deletion	rs7198060	rs2270416	ACSF3,CDH15,LINC00304,LOC400558
TD59 c1	chr9	119473765	119531310	13	57546	Heterozygous	Deletion	rs12352766	rs7847485	ASTN2
TD59 c1	chr4	132610422	132849871	10	239450	Heterozygous	Duplication	rs350694	kgp12241657	LOC101927305
TD63 c1	chr16	538565	855717	32	317153	Heterozygous	Deletion	rs754295	rs1005190	C16orf13,CAPN15,CCDC78,CHTF18,FAM173A,FA M195A,FBXL16,GNG13,HAGHL,JMJD8,LINC0023 5,METRN,MIR3176,MIR5587,MIR662,MSLN,NARF L,NHLRC4,NM_001304799,PIGQ,PRR25,PRR35, RAB11FIP3,RAB40C,RHBDL1,RHOT2,RPUSD1,S TUB1,WDR24,WDR90,WFIKKN1
TD63 c1	chr19	3076808	3136845	10	60038	Heterozygous	Deletion	rs307712	rs1465245	GNA11,GNA15
TD63 c1	chr1	3592436	3651409	13	58974	Heterozygous	Deletion	rs3765703	rs10910018	TP73
TD63 c1	chr4	5677101	5826597	30	149497	Heterozygous	Deletion	rs13146518	rs3774883	CRMP1,EVC,EVC2
TD63 c1	chr17	19622643	19663747	25	41105	Heterozygous	Deletion	rs11656096	rs8067794	ALDH3A1
TD63 c1	chr12	38094338	38361657	12	267320	Heterozygous	Deletion	rs2204849	rs1607882	-
TD63 c1	chr13	41383712	41494967	10	111256	Heterozygous	Duplication	newsr121908535	rs12857052	MIR621,SLC25A15,SUGT1P3,TPTE2P5
TD63 c1	chr21	46840233	46915042	48	74810	Heterozygous	Deletion	kgp23271266	rs2236475	COL18A1,COL18A1-AS1,MIR6815
TD63 c1	chr7	57621951	57934758	12	312808	Heterozygous	Duplication	rs4556041	kgp10491	-
TD63 c1	chr6	63518796	63668515	15	149720	Heterozygous	Deletion	rs1155906	rs6931035	-
TD63 c1	chr1	80547435	80644813	10	97379	Heterozygous	Deletion	rs7545328	rs7521092	-
TD63 c1	chr17	80709062	80788492	10	79431	Heterozygous	Deletion	rs2451219	rs12948179	FN3K,TBCD,ZNF750
TD63 c1	chr16	87860674	87879522	37	18849	Heterozygous	Deletion	rs6540091	rs997761	MIR6775,SLC7A5
TD63 c1	chr10	135256762	135353499	32	96738	Heterozygous	Duplication	rs2249421	rs1952467	CYP2E1,SCART1

TD63 c1	chr6	152629586	152896974	51	267389	Heterozygous	Duplication	rs9371581	rs12528046	SYNE1,SYNE1-AS1
TD63 c1	chr6	153173999	154269402	125	1095404	Heterozygous	Duplication	rs9384046	rs654359	FBXO5,MIR7641-2,MTRF1L,RGS17
TD63 c3	chr16	623238	855717	29	232480	Heterozygous	Deletion	rs4984895	rs1005190	C16orf13,CCDC78,CHTF18,FAM173A,FAM195A,FBXL16,GNNG13,HAGHL,JMJD8,METRN,MIR662,MSLN,NARFL,NM_001304799,PIGQ,PRR25,RAB40C,RHBDL1,RHOT2,RPUSD1,STUB1,WDR24,WDR90,WFIKKN1,GNA11,GNA15
TD63 c3	chr19	3076808	3136845	10	60038	Heterozygous	Deletion	rs307712	rs1465245	GNA11,GNA15
TD63 c3	chr1	3592436	3651409	13	58974	Heterozygous	Deletion	rs3765703	rs10910018	TP73
TD63 c3	chr17	19622643	19663747	25	41105	Heterozygous	Deletion	rs11656096	rs8067794	ALDH3A1
TD63 c3	chr12	38094338	38361657	12	267320	Heterozygous	Deletion	rs2204849	rs1607882	-
TD63 c3	chr21	46750190	46806423	12	56234	Heterozygous	Deletion	rs1888534	rs4819085	LINC00316
TD63 c3	chr21	46840233	46888469	32	48237	Heterozygous	Deletion	kgp23271266	kgp13089681	COL18A1,COL18A1-AS1
TD63 c3	chr7	57621951	57934758	12	312808	Heterozygous	Duplication	rs4556041	kgp10491	-
TD63 c3	chr16	77295830	77318571	11	22742	Heterozygous	Deletion	rs9927552	rs1820253	ADAMTS18
TD63 c3	chr17	80709062	80801745	12	92684	Heterozygous	Deletion	rs2451219	rs7219521	FN3K,TBCD,ZNF750
TD63 c3	chr16	87860674	87879522	37	18849	Heterozygous	Deletion	rs6540091	rs997761	MIR6775,SLC7A5
TD63 c3	chr4	132610422	132849871	10	239450	Homozygous	Duplication	rs350694	kgp12241657	LOC101927305
TD63 c3	chr10	135256762	135353499	32	96738	Heterozygous	Duplication	rs2249421	rs1952467	CYP2E1,SCART1
TD55 c6	chr19	1388320	1481481	12	93162	Heterozygous	Deletion	rs7254913	rs1047854	APC2,C19orf25,DAZAP1,GAMT,NDUFS7,PCSK4,RPS15
TD55 c6	chr7	1507011	1602673	13	95663	Heterozygous	Deletion	rs6962610	rs2033572	INTS1,MAFK,TMEM184A
TD55 c6	chr3	4041690	4145581	15	103892	Heterozygous	Duplication	rs317544	rs17039906	-
TD55 c6	chr3	4148058	4230956	13	82899	Heterozygous	Deletion	rs2600151	rs2248840	-
TD55 c6	chr11	17352530	17429922	22	77393	Heterozygous	Deletion	variant.16921	rs2106865	ABCC8,KCNU11,NCR3LG1,NUCB2
TD55 c6	chr22	18892575	18996565	19	103991	Heterozygous	Duplication	rs2080346	rs4431035	DGCR5,DGCR6,PRODH
TD55 c6	chr17	19622643	19663747	25	41105	Heterozygous	Deletion	rs11656096	rs8067794	ALDH3A1
TD55 c6	chr6	31365707	31449022	31	83316	Heterozygous	Deletion	rs2523457	rs2523650	HCG26,HCP5,MICA
TD55 c6	chr14	44279080	44338004	10	58925	Heterozygous	Deletion	rs2182977	rs10148581	-
TD55 c6	chr14	44344532	44844572	54	500041	Heterozygous	Duplication	rs11847608	rs1958500	-
TD55 c6	chr21	46859717	46982335	54	122619	Heterozygous	Deletion	rs9980531	rs944422	COL18A1,MIR6815,SLC19A1
TD55 c6	chr14	47715509	47797402	10	81894	Heterozygous	Deletion	rs8020887	rs1806787	MDGA2
TD55 c6	chr19	53411448	53454298	13	42851	Heterozygous	Duplication	rs7256400	indel.57923	ZNF321P,ZNF816,ZNF816-ZNF321P
TD55 c6	chr7	62172732	62517629	12	344898	Heterozygous	Deletion	rs35557287	rs2582705	-
TD55 c6	chr17	80693128	80791469	12	98342	Heterozygous	Deletion	rs3859206	rs9906115	FN3K,TBCD,ZNF750
TD55 c6	chr16	87860674	87885397	39	24724	Heterozygous	Deletion	rs6540091	kgp16248988	MIR6775,SLC7A5
TD55 c6	chr16	88761282	88812250	10	50969	Heterozygous	Deletion	rs7186861	rs9788969	CTU2,LOC100289580,LOC339059,MIR4722,PIEZ01,RNF166
TD55 c6	chr3	125452841	125620850	10	168010	Heterozygous	Duplication	rs2947630	rs9821905	LOC101927056,MIR54811
TD55 c6	chr8	145603114	145750506	11	147393	Heterozygous	Deletion	rs6599528	rs9071	ADCK5,CPSF1,CYHR1,FOXH1,GPT,KIFC2,LOC100287098,LRRRC14,LRRRC24,MFSD3,MIR6849,MIR6893,MIR939,PPP1R16A,RECQL4,SLC39A4,TONSL,VPS28

TD55 c6	chr1	187912763	188273214	32	360452	Heterozygous	Deletion	rs1572508	rs2067988	-
WS17 c1	chr7	72718035	74211785	118	1493751	Heterozygous	Deletion	indel.95994	indel.96097	ABHD11, ABHD11-AS1, BAZ1B, BCL7B, CLDN3, CLDN4, CLIP2, DNAJ C30, EIF4H, ELN, FKBP6, FZD9, GTF2, GTF2IRD1, GTF2IRD2, LAT2, LIMK1, LOC101926943, MIR4284, MIR590, MLXIPL, NCF1, NSUN5, RFC2, STX1A, TBL2, TRIM50, VPS37D, WBSCR22, WBSCR27, WBSCR28
WS17 c1	chr21	46930163	46952094	25	21932	Heterozygous	Deletion	kgp10864217	rs914231	COL18A1, SLC19A1
WS17 c1	chr8	145618309	145818782	16	200474	Heterozygous	Deletion	rs1052951	rs11988651	ADCK5, ARHGAP39, C8orf82, CPSF1, CYHR1, FOX H1, GPT, KIFC2, LOC100287098, LRRRC14, LRRRC24, MFSD3, MIR6849, MIR6893, MIR939, PPP1R16A, RE CQL4, SLC39A4, TONSL, VPS28
WS17 c1	chr19	31801130	31888399	10	87270	Heterozygous	Deletion	rs1078373	rs2645162	TSHZ3
WS17 c1	chr5	58629497	58862944	30	233448	Heterozygous	Deletion	rs16889615	rs1395336	PDE4D
WS17 c1	chr2	132470837	132678071	10	207235	Heterozygous	Duplication	rs1836809	kgp205168	C2orf27A, C2orf27B
WS17 c1	chr11	17408025	17429922	17	21898	Heterozygous	Deletion	rs2285676	rs2106865	ABCC8, KCNJ11
WS17 c1	chr16	575312	711905	10	136594	Heterozygous	Deletion	rs3760049	rs2301426	C16orf13, CAPN15, FAM195A, LINC00235, MIR3176, MIR5587, NHLRC4, PIGQ, PRR35, RAB40C, WDR90, WFIKKN1
WS17 c1	chr10	134884595	134916045	10	31451	Heterozygous	Deletion	rs4271313	rs7918741	GPR123, GPR123-AS1
WS17 c1	chr10	47109571	47687801	18	578231	Homozygous	Duplication	rs7070073	rs7076022	AGAP9, ANTXRL, ANTXRLP1, ANXA8, BMS1P6, FAM25C, FAM25G, FAM35DP, HNRNPA1P33, LINC00842
WS17 c1	chr9	137220543	137330242	31	109700	Heterozygous	Deletion	rs7855881	kgp27254482	MIR4669, RXRA
WS17 c1	chr10	68027026	68140020	22	112995	Heterozygous	Deletion	rs7906924	rs2007116	CTNNA3
WS17 c1	chr11	48516606	49095165	21	578560	Heterozygous	Duplication	rs7944287	rs12289759	TRIM49B, TRIM64C
WS17 c1	chr21	46740019	46806423	13	66405	Heterozygous	Deletion	rs9977697	rs4819085	LINC00316
WS17 c5	chr7	72718035	73239618	45	521584	Heterozygous	Deletion	indel.95994	rs4255023	ABHD11, ABHD11-AS1, BAZ1B, BCL7B, CLDN3, DNAJC30, FKBP6, FZD9, MIR4284, MLXIPL, NSUN5, STX1A, TBL2, TRIM50, VPS37D, WBSCR22
WS17 c5	chr21	46840233	46975848	78	135616	Heterozygous	Deletion	kgp23271266	rs3827266	COL18A1, COL18A1-AS1, MIR6815, SLC19A1
WS17 c5	chr21	46840233	46975848	78	135616	Heterozygous	Deletion	kgp23271266	rs3827266	COL18A1, COL18A1-AS1, MIR6815, SLC19A1
WS17 c5	chr16	16138313	16162039	10	23727	Heterozygous	Deletion	kgp4584538	rs8187858	ABCC1
WS17 c5	chr17	19622643	19663747	25	41105	Heterozygous	Deletion	rs11656096	rs8067794	ALDH3A1
WS17 c5	chr7	73284148	73489736	12	205589	Heterozygous	Deletion	rs11763011	rs1091813	ELN
WS17 c5	chr9	137246262	137330242	27	83981	Heterozygous	Deletion	rs12348547	kgp27254482	MIR4669, RXRA
WS17 c5	chr7	73568425	74211785	56	643361	Heterozygous	Deletion	rs12539781	indel.96097	CLIP2, EIF4H, GTF2, GTF2IRD1, GTF2IRD2, LAT2, LOC101926943, MIR590, NCF1, RFC2
WS17 c5	chr7	56104388	56206361	13	101974	Heterozygous	Duplication	rs4275190	rs816404	CCT6A, CHCHD2, NUPR1L, PHKG1, PSPH, SNORA15, SUMF2
WS17 c5	chr7	57621951	57934758	12	312808	Heterozygous	Duplication	rs4556041	kgp10491	-
WS17 c5	chr14	103108842	103392249	15	283408	Heterozygous	Duplication	rs942022	rs1190229	AMN, RCOR1, TRAF3
WS17 c5	chr13	41368601	41494967	17	126367	Heterozygous	Duplication	rs9532591	rs12857052	MIR621, SLC25A15, SUGT1P3, TPTE2P5
WS25 c1	chr7	72718035	74211785	118	1493751	Heterozygous	Deletion	indel.95994	indel.96097	ABHD11, ABHD11-AS1, BAZ1B, BCL7B, CLDN3, CLDN4, CLIP2, DNAJ C30, EIF4H, ELN, FKBP6, FZD9, GTF2, GTF2IRD1, GTF2IRD2, LAT2, LIMK1, LOC101926943, MIR4284, M

WS25 c1	chr16	16138313	16162039	10	23727	Heterozygous	Deletion	kgp4584538	rs8187858	IR590,MLXIPL,NCF1,NSUN5,RFC2,STX1A,TBL2,TRIM50,VPS37D,WBSCR22,WBSCR27,WBSCR28 ABCC1
WS25 c1	chr10	107587387	107682005	10	94619	Heterozygous	Deletion	rs12249285	rs1496078	-
WS25 c1	chr8	63358921	63428793	11	69873	Heterozygous	Deletion	rs13266120	rs1451859	NKAIN3,NM_001304533,NR_130764
WS25 c1	chr22	48917030	49033984	22	116955	Heterozygous	Deletion	rs16999308	rs7290651	FAM19A5,LOC284933
WS25 c1	chr7	109774271	110192161	47	417891	Heterozygous	Duplication	rs1722047	rs4727740	-
WS25 c1	chr16	27322095	27378249	10	56155	Heterozygous	Deletion	rs2057768	rs4787956	IL4R
WS25 c1	chr9	137302631	137330242	16	27612	Heterozygous	Deletion	rs3132296	kgp27254482	RXRA
WS25 c1	chr4	43394110	43666139	22	272030	Heterozygous	Duplication	rs671254	rs13137462	-
WS25 c1	chr16	89115822	89261482	16	145661	Heterozygous	Deletion	rs7198060	rs2270416	ACSF3,CDH15,LINC00304,LOC400558
WS25 c1	chr17	44187257	44293020	10	105764	Heterozygous	Duplication	rs9303525	rs2668692	KANSL1,KANSL1-AS1
WS25 c3	chr7	72718035	74211785	118	1493751	Heterozygous	Deletion	indel.95994	indel.96097	ABHD11, ABHD11-AS1,BAZ1B,BCL7B,CLDN3,CLDN4,CLIP2,DNAJ C30,EIF4H,ELN,FKBP6,FZD9,GTF2I,GTF2IRD1,GTF2IRD2,LAT2,LIMK1,LOC101926943,MIR4284,MIR590,MLXIPL,NCF1,NSUN5,RFC2,STX1A,TBL2,TRIM50,VPS37D,WBSCR22,WBSCR27,WBSCR28
WS25 c3	chr13	41383712	41494967	10	111256	Heterozygous	Duplication	news121908535	rs12857052	MIR621,SLC25A15,SUGT1P3,TPT2P5
WS25 c3	chr14	32204263	32353250	14	148988	Heterozygous	Deletion	rs11846852	rs2039485	NUBPL
WS25 c3	chr10	107572386	107682005	11	109620	Heterozygous	Deletion	rs12250871	rs1496078	LOC101927549
WS25 c3	chr21	46936423	47049185	14	112763	Heterozygous	Deletion	rs1888530	rs8128681	SLC19A1
WS25 c3	chr16	27322095	27378249	10	56155	Heterozygous	Deletion	rs2057768	rs4787956	IL4R
WS25 c3	chr8	63278209	63428793	15	150585	Heterozygous	Deletion	rs2351667	rs1451859	NKAIN3,NM_001304533,NR_130764
WS25 c3	chr4	43394110	43666139	22	272030	Heterozygous	Duplication	rs671254	rs13137462	-
WS25 c3	chr5	37472247	37591118	10	118872	Heterozygous	Deletion	rs6869205	rs10063001	WDR70
WS25 c3	chr16	89167094	89261482	13	94389	Heterozygous	Deletion	rs7188200	rs2270416	ACSF3,CDH15,LINC00304,LOC400558
WS25 c3	chr17	44187257	44293020	10	105764	Heterozygous	Duplication	rs9303525	rs2668692	KANSL1,KANSL1-AS1
WS77 c5	chr7	72718035	74211785	118	1493751	Heterozygous	Deletion	indel.95994	indel.96097	ABHD11, ABHD11-AS1,BAZ1B,BCL7B,CLDN3,CLDN4,CLIP2,DNAJ C30,EIF4H,ELN,FKBP6,FZD9,GTF2I,GTF2IRD1,GTF2IRD2,LAT2,LIMK1,LOC101926943,MIR4284,MIR590,MLXIPL,NCF1,NSUN5,RFC2,STX1A,TBL2,TRIM50,VPS37D,WBSCR22,WBSCR27,WBSCR28
WS77 c5	chr12	37990350	38361657	14	371308	Heterozygous	Deletion	kgp11472027	rs1607882	-
WS77 c5	chr13	41383712	41494967	10	111256	Heterozygous	Duplication	news121908535	rs12857052	MIR621,SLC25A15,SUGT1P3,TPT2P5
WS77 c5	chr11	50417549	50682188	14	264640	Heterozygous	Deletion	rs490842	kgp12942313	-
WS77 c5	chr14	103222398	103455008	17	232611	Heterozygous	Deletion	rs747164	rs10140685	AMN,CDC42BPB,TRAF3
WS77 c5	chr12	34362752	34801271	19	438520	Heterozygous	Deletion	rs7977995	rs9705446	-
pWS88 c15	chr12	8003758	8130958	21	127201	Heterozygous	Duplication	rs4883452	rs7964540	SLC2A14,SLC2A3
pWS88 c15	chr7	73150511	73653319	34	502809	Heterozygous	Deletion	rs1059779	var_7_73653319	ABHD11,CLDN3,CLDN4,EIF4H,ELN,LAT2,LIMK1,MIR590,RFC2,WBSCR27,WBSCR28

pWS88 c15	chr14	46781200	46920762	16	139563	Heterozygous	Deletion	rs12147827	rs1612831	LINC00871
pWS88 c15	chr7	1507011	1602673	13	95663	Heterozygous	Deletion	rs6962610	rs2033572	INTS1,MAFK,TMEM184A
pWS88 c15	chr7	57621951	57934758	12	312808	Heterozygous	Duplication	rs4556041	kgp10491	-
pWS88 c1	chr12	8003758	8130958	21	127201	Heterozygous	Duplication	rs4883452	rs7964540	SLC2A14,SLC2A3
pWS88 c1	chr7	73150511	73653319	34	502809	Heterozygous	Deletion	rs1059779	var_7_73653319	ABHD11,CLDN3,CLDN4,EIF4H,ELN,LAT2,LIMK1, MIR590,RFC2,WBSCR27,WBSCR28 LINC00871
pWS88 c1	chr14	46781200	46920762	16	139563	Heterozygous	Deletion	rs12147827	rs1612831	LINC00871
pWS88 c1	chr7	1507011	1602673	13	95663	Heterozygous	Deletion	rs6962610	rs2033572	INTS1,MAFK,TMEM184A
pWS88 c2	chr12	8003758	8130958	21	127201	Heterozygous	Duplication	rs4883452	rs7964540	SLC2A14,SLC2A3
pWS88 c2	chr14	32204263	32343671	13	139409	Heterozygous	Deletion	rs11846852	rs2184307	NUBPL
pWS88 c2	chr14	46781200	46920762	16	139563	Heterozygous	Deletion	rs12147827	rs1612831	LINC00871
pWS88 c2	chr7	1507011	1604320	14	97310	Heterozygous	Deletion	rs6962610	rs12702933	INTS1,MAFK,TMEM184A
pWS88 c2	chr7	57621951	57934758	12	312808	Heterozygous	Duplication	rs4556041	kgp10491	-
pWS88 c2	chr7	73182017	73653319	33	471303	Heterozygous	Deletion	rs12536661	var_7_73653319	CLDN3,CLDN4,EIF4H,ELN,LAT2,LIMK1,MIR590, RFC2,WBSCR27,WBSCR28

Supplementary Table 3. Per sample expression of WS-related genes in iPSCs, NPCs and neurons (NE) in TD, WS and pWS88.

ENSEMBL Accession ID	Gene name	iPSC			NPC			NE		
		Expression TD	Expression pWS88	Expression WS	Expression TD	Expression pWS88	Expression WS	Expression TD	Expression pWS88	Expression WS
ENSG00000158517	NCF1	1.291541755	4.28017161	1.384563585	0.10178143	0.313658293	0.160666978	2.475282923	2.170883243	7.901160783
ENSG00000009950	MLXIPL	272.6517748	454.5197027	143.8180197	6.638716725	2.983311822	6.105788756	150.9733365	108.4390019	66.13408404
ENSG00000106089	STX1A	160.7290634	221.728405	88.68956424	247.200747	278.371276	90.59887955	1627.443428	1671.7453	864.603219
ENSG00000077800	FKBP6	2.164766112	2.937905873	2.157084202	2.818707507	1.308095567	3.789990468	17.7779627	11.50793709	18.60697145
ENSG00000176428	VPS37D	189.7940625	354.7092978	66.42469206	282.8060798	526.5388469	118.3596269	1550.792715	1820.924787	1020.035156
ENSG00000229018	PMS2P7	54.60230338	67.30336356	52.3656643	50.09829845	60.62855952	41.83344897	271.9830678	232.240916	230.2972479
ENSG00000146755	TRIM50	1.853696515	9.630136034	1.164769165	1.013603182	0.627316587	1.227135758	5.374180583	6.491617668	4.39505318
ENSG00000165215	CLDN3	576.4932004	442.5418061	322.1131317	0.814249537	0.627316587	0.542963519	4.31526384	1.454266183	2.269057864
ENSG00000196275	GTF2IRD2	35.98404925	34.42135424	25.12229061	200.2630646	238.8255167	138.3904395	680.0846227	634.5858574	694.2252314
ENSG00000174368	PMS2P2	46.42503532	40.35246085	42.2161215	46.78018943	46.23239221	40.28223012	126.3635015	125.6362844	124.5228688
ENSG00000123965	PMS2P5	104.3237263	103.3032601	103.0938109	116.9841525	101.2008703	95.58019325	301.3085225	330.4369584	328.8024581
ENSG00000106665	CLIP2	5785.009222	4619.900899	3065.473982	5554.340604	5766.114961	2836.086922	11186.19603	11866.94115	6526.690272
ENSG00000233369	GTF2IP4	1819.545342	1864.594561	1081.599178	1893.663604	2099.86652	1262.231429	3513.225872	2470.249885	3154.660344
ENSG00000174353	STAG3L3	205.3121677	177.0595762	230.4226157	284.1393772	168.0312513	225.9450889	424.0458742	409.1355888	527.9817973
ENSG00000086730	LAT2	54.42574511	33.78691789	30.59613536	77.70265236	36.76206495	43.58599859	94.87711827	63.1028385	42.60374912
ENSG00000049540	ELN	562.8473587	376.0739595	248.1656541	163.8159153	132.7343866	82.40533624	183.9955415	122.0952632	62.8005506
ENSG00000006704	GTF2IRD1	2401.430609	3356.870304	1542.908503	2453.889488	2523.4238	1560.12189	2732.396365	2774.20255	1744.397638
ENSG00000165171	WBSCR27	173.0802339	199.4437376	209.9301962	31.09500056	20.56240839	40.17227043	22.98498103	29.90710104	14.43977475
ENSG00000176410	DNAJC30	184.8637584	229.3134477	96.03232284	162.298981	221.317397	88.02121469	116.1961333	158.178501	78.78005519
ENSG00000106638	TBL2	1212.977279	1644.289818	572.1228225	1715.973697	1668.339668	833.8821712	1178.698133	1381.851904	606.4164112
ENSG00000130305	NSUN5	2189.449876	2515.638102	1486.294058	1154.464188	1166.524184	692.4937306	723.0827052	791.5670577	383.7788576
ENSG00000106077	ABHD11	435.8875348	251.8192945	209.5679573	288.0290297	139.4741144	147.3770814	153.1729386	117.164599	102.9860823
ENSG00000009954	BAZ1B	9809.651218	8592.754962	4066.182821	14958.56537	13759.29385	7971.287562	7622.322759	7320.174853	3559.214892
ENSG00000188763	FZD9	180.6470581	267.6892064	94.59071882	301.5210402	301.0898784	171.8367807	145.1550327	273.4876976	84.05395531

ENSG00000189143	CLDN4	1107.293588	610.22262	599.0244269	27.65030865	19.17585231	79.79640324	12.38334413	23.81661949	16.25712131
ENSG00000106683	LIMK1	7657.21693	5203.844249	4137.404023	5858.784903	3462.970689	3822.780647	2568.691985	1671.010705	1571.273401
ENSG00000106682	EIF4H	8702.135717	4015.882134	4915.308569	6841.541846	3532.226205	3997.808091	2895.768903	1579.438235	1437.642825
ENSG00000071462	WBSCR22	3015.76683	3345.7985	2051.493136	2502.432339	2469.84096	1298.684615	920.8589712	1213.346315	499.3650937
ENSG00000106635	BCL7B	1358.387859	1557.433611	877.1930429	1844.668945	2218.078279	989.3251936	560.8661307	807.0351303	338.7094951
ENSG00000049541	RFC2	4283.996389	2153.729825	2567.502984	2905.848211	1544.131351	1838.954971	721.787514	398.3442687	387.5855542
ENSG00000263001	GTF2I	0	0	0	0	0	0	0	0	0
ENSG00000175877	WBSCR28	1.390248739	0	0.672773964	0	0	0	4.67816763	0	0

Supplementary Table 4. Expression profile of downstream genes at deleted genomic region of WS (typical).

Gene description		IPSC					NPC					NE				
Ensembl Gene ID	Associated Gene Name	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value
ENSG00000005486	RHBDD2	1643.26	1689.11	1.0279	0.0397	0.9152	4214.65	4099.53	0.9727	-0.0400	1.0000	3554.50	4213.17	1.1853	0.2453	0.6060
ENSG00000006606	CCL26	95.0481	168.341	1.7711	0.8247	0.1898	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA
ENSG00000106178	CCL24	0.0000	0.0000	NA	NA	NA	0.6107	0.0000	0.0000	NA	0.8538	0.0000	0.0000	NA	NA	NA
ENSG00000127946	HIP1	14095.1	13822.8	0.9807	-0.0282	0.8650	10650.7	14159.0	1.3294	0.4108	0.3755	5234.80	5028.63	0.9606	-0.0580	0.8926
ENSG00000127948	POR	5288.53	7069.56	1.3368	0.4188	0.4337	4096.97	4357.64	1.0636	0.0890	0.8239	3325.77	3913.80	1.1768	0.2349	0.6475
ENSG00000127952	STYXL1	1344.28	1516.95	1.1284	0.1743	0.8676	622.793	773.069	1.2413	0.3118	0.5465	429.555	453.508	1.0558	0.0783	0.8661
ENSG00000127957	PMS2P3	143.181	143.136	0.9997	-0.0005	0.9504	206.816	172.488	0.8340	-0.2618	0.5274	432.930	433.425	1.0011	0.0016	0.9990
ENSG00000146701	MDH2	11642.3	15067.4	1.2942	0.3721	0.5426	6740.34	7571.87	1.1234	0.1678	0.7473	2892.23	3887.48	1.3441	0.4267	0.3476
ENSG00000146722	AC006014.8	4.7717	3.2423	0.6795	-0.5575	0.6320	11.7952	8.6600	0.7342	-0.4458	0.5089	37.7930	47.3211	1.2521	0.3244	0.6100
ENSG00000170092	SPDYE5	17.8463	24.8859	1.3945	0.4797	0.4838	72.2981	60.6330	0.8387	-0.2539	0.6112	99.0228	119.715	1.2090	0.2738	0.6221
ENSG00000177679	SRRM3	1090.66	1603.67	1.4704	0.5562	0.3072	218.409	241.579	1.1061	0.1455	0.7425	2260.08	2741.32	1.2129	0.2785	0.5459
ENSG00000178809	TRIM73	7.0498	5.4804	0.7774	-0.3633	0.8168	30.2264	22.7363	0.7522	-0.4108	0.4237	162.746	166.100	1.0206	0.0294	0.9323
ENSG00000189077	TMEM120A	717.904	950.566	1.3241	0.4050	0.4571	966.064	1135.12	1.1750	0.2327	0.5667	628.292	738.672	1.1757	0.2335	0.6127
ENSG00000199870	Y_RNA	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	0.4969	2.0298	4.0849	2.0303	0.7816
ENSG00000200874	Y_RNA	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	1.2520	2.1736	1.7361	0.7958	0.8883
ENSG00000201643	SNORA14A	1.4115	0.9678	0.6856	-0.5445	0.7655	0.5025	0.9419	1.8747	0.9066	0.8047	5.1089	6.6995	1.3113	0.3910	0.8396
ENSG00000205583	STAG3L1	242.096	295.407	1.2202	0.2871	0.5188	321.948	298.475	0.9271	-0.1092	0.6797	582.106	622.290	1.0690	0.0963	0.8603
ENSG00000213549	AC005077.8	2.6547	2.6018	0.9801	-0.0290	0.9990	0.1287	0.0000	0.0000	NA	1.0000	1.9876	3.0777	1.5484	0.6308	0.8683
ENSG00000219039	AC005102.1	9.8319	8.2404	0.8381	-0.2548	0.7998	4.8733	8.9745	1.8415	0.8809	0.5315	0.0000	0.0000	NA	NA	NA
ENSG00000223705	NSUN5P1	1143.65	1175.51	1.0279	0.0396	0.8463	973.001	720.035	0.7400	-0.4344	0.2635	615.933	542.491	0.8808	-0.1832	0.6875
ENSG00000224273	AC005077.7	58.0177	68.8604	1.1869	0.2472	0.6314	41.9880	57.3660	1.3662	0.4502	0.4000	4.2529	3.9549	0.9299	-0.1048	11.0000
ENSG00000227038	GTF2IP7	24.7582	30.5565	1.2342	0.3036	0.7353	2.1811	2.0570	0.9431	-0.0845	0.9200	7.5483	19.0476	2.5234	1.3354	0.1200
ENSG00000228829	AC005077.5	0.5023	0.3455	0.6878	-0.5399	NA	0.3220	0.1486	0.4615	-1.1156	1.0000	3.8911	5.0013	1.2853	0.3621	11.0000

ENSG00000230882	AC005077.14	112.615	78.3775	0.6960	-0.5229	0.2715	1.7842	1.8578	1.0412	0.0583	0.8156	1.4907	0.4756	0.3191	-1.6481	0.7129
ENSG00000235090	RPL7L1P3	0.0000	0.1728	Inf	Inf	0.9462	0.2036	0.1557	0.7647	-0.3871	-	48.5094	44.3403	0.9141	-0.1296	0.8433
ENSG00000241778	AC005077.9	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA
ENSG00000242073	AC006014.7	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA
ENSG00000251798	RNU6-863P	0.2074	0.1545	0.7448	-0.4251	-	0.0000	0.1911	Inf	Inf	1.0000	0.4969	1.0693	2.1519	1.1056	0.9881

Supplementary Table 5. Expression profile of upstream genes at deleted genomic region of WS (typical).

Gene description		IPSC					NPC					NE				
Ensembl Gene ID	Associated Gene Name	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value
ENSG00000225648	SBDSP1	688.060	606.038	0.8808	-0.1831	0.6906	1191.03	1375.45	1.1548	0.2077	0.7368	1363.58	1233.93	0.9049	-0.1441	0.7497
ENSG00000183166	CALN1	1306.93	1132.72	0.8667	-0.2064	0.7305	21.1985	30.3939	1.4338	0.5198	0.2135	1747.11	2045.51	1.1708	0.2275	0.6313
ENSG00000266569	RN7SL377P	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	1.3676	2.7325	1.9981	0.9986	0.8473
ENSG00000228769	ABCF2P2	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	0.8419	4.5145	5.3623	2.4228	0.5450
ENSG00000179994	SPDYE7P	10.3540	13.3021	1.2847	0.3615	0.7921	26.1142	19.9423	0.7637	-0.3890	0.5413	36.2426	24.1711	0.6669	-0.5844	0.4657
ENSG00000266772	AC211469.1	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	1.4180	2.1850	1.5409	0.6238	0.9167
ENSG00000155428	TRIM74	5.5448	2.2218	0.4007	-1.3194	0.1341	21.0952	12.7058	0.6023	-0.7314	0.2874	87.4799	108.185	1.2367	0.3065	0.6402
ENSG00000196313	POM121	4080.96	5051.63	1.2379	0.3078	0.6189	5669.32	5309.26	0.9365	-0.0947	0.8298	1642.62	2104.65	1.2813	0.3576	0.4051
ENSG00000106133	NSUN5P2	81.5119	111.023	1.3621	0.4458	0.3177	86.4611	61.4677	0.7109	-0.4922	0.2530	98.8522	106.080	1.0731	0.1018	0.8243

Supplementary Table 6. Expression analysis of OCT4-related pseudogenes in iPSCs, NPCs and neurons (NE) of TD and WS samples.

Pseudogene Description			iPSC					NPC					NE				
Pseudo gene	ENSEMBL gene ID	Chr band	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value	Express TD	Express WS	Fold-change	Log2 (Fold-change)	P-value
POU5F1P1	00000212993	8q24.21	18622.7	23277.65	1.2500	0.3219	0.635	1070.11	71.8047	0.0671	-3.8975	1.8E-16	135.578	113.260	0.8354	-0.2595	0.4585
POU5F1P2	00000253382	8q22.2	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA
POU5F1P3	00000235602	12p13.31	23049.8	27352.05	1.1866	0.2469	0.757	1191.27	84.6285	0.0710	-3.8152	4.3E-16	140.093	39.4680	0.2817	-1.8276	1.3E-04
POU5F1P4	00000237872	1q22	21157.5	25177.83	1.1900	0.2510	0.750	1180.68	84.3851	0.0715	-3.8065	4.4E-16	135.930	51.2107	0.3767	-1.4084	1.8E-03
POU5F1P5	00000236375	10q21.3	5.6599	3.6691	0.6483	-0.6253	0.657	0.2203	0.0000	0.0000	NA	1.0000	36.5873	30.6088	0.8366	-0.2574	0.8230
POU5F1P6	00000242551	3q21.3	0.5708	1.3865	2.4291	1.2804	0.676	3.4374	1.5496	0.4508	-1.1495	4.6E-01	70.3261	50.7826	0.7221	-0.4697	0.7409
POU5F1P7	00000248365	3q11.2	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA	0.0000	0.0000	NA	NA	NA

Supplementary Table 7. FZD9 normalized expression with statistical significance in iPSCs, NPCs and NE cells of TD and WS samples.

Cell type	TD	WS	log2 (Fold-Change)	p-value
IPSC	180.6470581	94.59071882	-0.933403221	0.065858777
NPC	301.5210402	171.8367807	-0.811219807	0.074936343
NE	145.1550327	84.05395531	-0.788206978	0.103120197

Supplementary Table 8. Differentially expressed genes in WS compared to TD in NPCs.

ENSEMBL ID	Expression TD	Expression WS	Fold-change	Log2(Fold-change)	p-value
ENSG00000212993	1070.111029	71.80473343	0.067100265	-3.89753773	1.84E-16
ENSG00000204531	1323.528711	90.42209467	0.068318952	-3.871570342	2.00E-16
ENSG00000235602	1191.272874	84.62846518	0.07104037	-3.815217103	4.31E-16
ENSG00000237872	1180.687451	84.3850718	0.071471135	-3.806495497	4.48E-16
ENSG00000173698	122.6894464	8.733242334	0.071181692	-3.812349972	1.09E-14
ENSG00000106018	41.59837519	0.964001871	0.023174027	-5.431347422	2.36E-13
ENSG0000013293	85.36489993	5.386276885	0.063097091	-3.986282689	4.57E-13
ENSG00000118160	548.1647229	32.55416913	0.059387567	-4.073695264	1.96E-12
ENSG00000173068	640.0959607	80.36155645	0.125546108	-2.993710793	1.75E-10
ENSG00000162670	42.01907483	1.578013325	0.03755469	-4.734863105	2.27E-10
ENSG00000155886	27.01999639	2.038607859	0.075448117	-3.728371288	2.37E-10
ENSG00000007314	19.58528038	1.642600937	0.083869156	-3.575715851	4.45E-10
ENSG00000166825	61.61493016	2.547306118	0.041342352	-4.59623573	1.42E-09
ENSG00000115194	3.061910651	31.46776784	10.27716724	3.361370755	3.80E-09
ENSG00000107562	135.6770605	18.05696687	0.13308784	-2.909549338	4.33E-09
ENSG00000017483	66.37450737	7.800500499	0.117522537	-3.08899065	7.54E-09
ENSG00000261425	31.96280968	1.363708988	0.042665492	-4.550786519	3.06E-08
ENSG00000135312	37.72171364	3.440418992	0.091205268	-3.454739037	3.06E-08
ENSG00000071909	15.08639433	0.304280796	0.020169219	-5.631700944	3.18E-08
ENSG00000105143	21.34862206	171.5307555	8.034745989	3.006252415	4.97E-08
ENSG00000141013	158.2049126	26.84874896	0.169708693	-2.558867628	6.40E-08
ENSG00000185046	764.470329	132.6041855	0.173458904	-2.527334194	7.47E-08
ENSG00000101311	46.64311676	8.290477318	0.177742782	-2.492137123	7.47E-08
ENSG00000161381	119.0532977	13.91385958	0.116870846	-3.097013013	9.15E-08
ENSG00000084636	372.3144414	4.582941993	0.012309332	-6.344103741	9.24E-08
ENSG00000172995	34.08147975	3.540123387	0.10387235	-3.267116426	9.56E-08
ENSG00000020181	1420.486116	46.57041225	0.032784842	-4.930827267	1.16E-07
ENSG00000264443	17.15111291	1.567557178	0.09139682	-3.451712222	1.46E-07
ENSG00000103316	20.33298705	2.7700323	0.136233417	-2.875847468	1.74E-07
ENSG00000111077	667.0608534	116.1920186	0.174185036	-2.521307408	2.11E-07
ENSG00000205035	30.23273102	2.681719347	0.088702517	-3.494881142	2.24E-07
ENSG00000117602	62.58834074	10.04238727	0.160451406	-2.639791663	2.61E-07
ENSG00000117600	259.0426888	9.786011724	0.037777602	-4.726325044	2.75E-07
ENSG00000219438	0.660798155	60.04956266	90.87428927	6.505800271	2.80E-07
ENSG00000169891	131.0405163	13.86132122	0.105778897	-3.240876264	3.06E-07
ENSG00000087116	94.78990873	15.08850274	0.159178366	-2.651283827	3.93E-07
ENSG00000188674	123.6427002	26.12016868	0.211255243	-2.242940948	4.04E-07
ENSG00000145864	50.55675888	6.857618006	0.135641963	-2.882124529	4.58E-07
ENSG00000204018	82.35460652	11.98081154	0.145478341	-2.781123715	4.66E-07

ENSG00000198692	630.0153281	1.459430937	0.002316501	-8.753837177	6.22E-07
ENSG00000129354	21.26857078	123.7947524	5.820548718	2.541155166	6.30E-07
ENSG00000152580	127.4902132	3.720519881	0.029182788	-5.098738464	6.71E-07
ENSG00000187479	37.38395018	5.45187496	0.145834641	-2.777594641	8.28E-07
ENSG00000135744	24.7824169	0.651089759	0.026272246	-5.250316636	8.72E-07
ENSG00000101460	108.2035588	5.712036863	0.052789732	-4.24359885	9.46E-07
ENSG00000153246	105.6843883	16.27614888	0.154007126	-2.698930991	9.70E-07
ENSG00000164176	1010.54488	213.1385033	0.210914436	-2.245270253	1.25E-06
ENSG00000089327	73.42700608	16.07055333	0.218864341	-2.191891173	1.26E-06
ENSG00000146038	57.495856	6.308688272	0.109724226	-3.188046007	1.44E-06
ENSG00000077274	29.41862941	6.361094706	0.216226753	-2.209383063	1.56E-06
ENSG00000151468	441.3206632	91.73668165	0.207868539	-2.26625667	1.62E-06
ENSG00000151067	440.7991219	100.1332291	0.22716295	-2.13820054	1.89E-06
ENSG00000087510	72.55535701	14.71307056	0.20278407	-2.301983775	2.46E-06
ENSG00000185742	103.392935	19.71296978	0.190660704	-2.390920567	2.63E-06
ENSG00000234261	4.495086114	0.19114827	0.042523828	-4.555584706	2.85E-06
ENSG00000260244	26.04804552	2.021554698	0.07760869	-3.687637981	3.28E-06
ENSG00000135547	69.6363272	15.29117311	0.219586152	-2.187141022	3.29E-06
ENSG00000151834	54.50613575	14.35855135	0.26343	-1.924508442	3.45E-06
ENSG00000163814	35.3310373	7.946441861	0.224913913	-2.152555185	4.03E-06
ENSG00000159167	306.0785597	65.81915294	0.215040064	-2.217322625	4.25E-06
ENSG00000134533	79.7697288	9.510005601	0.119218227	-3.068323277	4.35E-06
ENSG00000239389	16.34048538	2.642163165	0.161694289	-2.62865937	4.45E-06
ENSG00000145681	16.46096095	1.238529587	0.075240418	-3.732348321	4.74E-06
ENSG00000171992	729.8309356	46.918962	0.064287439	-3.959319302	4.80E-06
ENSG00000172403	142.5945728	9.826556121	0.068912553	-3.859089375	4.80E-06
ENSG00000145242	170.165165	9.167463721	0.053873916	-4.214269267	6.34E-06
ENSG00000102007	29.53424861	5.05066566	0.171010467	-2.547843461	7.69E-06
ENSG00000124749	165.604314	1.640566635	0.009906545	-6.657402252	7.72E-06
ENSG00000042832	20.94487034	1.779544962	0.084963284	-3.557016664	8.01E-06
ENSG00000107317	61.65847089	3.971617886	0.064413175	-3.95650038	8.14E-06
ENSG00000170190	84.16883117	18.52632532	0.220109096	-2.183709331	9.05E-06
ENSG00000126803	1731.004563	77.64920188	0.044857884	-4.478494622	9.67E-06
ENSG00000169851	1625.967822	431.2802046	0.265245227	-1.914601303	1.02E-05
ENSG00000263571	5.215338986	0	0	-Inf	1.06E-05
ENSG00000222019	8.662349443	0.644049171	0.074350403	-3.749515631	1.09E-05
ENSG00000184515	2.64169488	19.06256783	7.216036939	2.851206724	1.28E-05
ENSG00000101336	11.16566216	0.464947775	0.04164086	-4.585856325	1.33E-05
ENSG00000106333	1079.284272	229.9094265	0.21302027	-2.230937381	1.63E-05
ENSG00000163689	89.71579429	16.58230113	0.184831459	-2.435717768	1.65E-05
ENSG00000186642	364.4990659	58.80390913	0.16132801	-2.631931148	1.67E-05
ENSG00000169116	1289.092598	240.0171457	0.186190772	-2.425146525	1.76E-05
ENSG00000197859	48.15930885	2.220965875	0.046117063	-4.438555556	1.79E-05

ENSG00000094755	51.61318418	4.30072303	0.083326055	-3.585088509	2.16E-05
ENSG00000095596	2200.951427	164.5781802	0.074775926	-3.741282326	2.69E-05
ENSG00000221869	88.18665484	9.749195809	0.110551827	-3.177205227	2.84E-05
ENSG00000002745	7.626332309	0	0	-Inf	3.24E-05
ENSG00000081985	17.40846618	3.893481217	0.223654467	-2.160656525	3.32E-05
ENSG00000173918	135.9819946	9.475246235	0.069680153	-3.843108391	3.37E-05
ENSG00000140563	19.96700506	4.017835256	0.201223731	-2.313127638	3.43E-05
ENSG00000110675	642.5832409	124.024488	0.193009217	-2.373258354	4.06E-05
ENSG00000096696	394.8849108	111.7364769	0.282959601	-1.821332004	4.16E-05
ENSG00000176092	32.07593	126.6936605	3.949804745	1.981781337	4.19E-05
ENSG00000170955	24.24068354	3.109145242	0.128261451	-2.962840463	4.29E-05
ENSG00000120820	153.1708587	44.27846288	0.289078897	-1.7904648	4.38E-05
ENSG00000198959	99.00907537	6.126542113	0.061878591	-4.014415836	4.50E-05
ENSG00000078596	10.76329307	2.339757733	0.217383074	-2.201688483	4.56E-05
ENSG00000183873	80.01196823	23.23021764	0.290334286	-1.784213145	4.71E-05
ENSG00000203805	65.16430827	2.826923893	0.043381476	-4.526777041	4.94E-05
ENSG00000058404	33.5775371	6.914364039	0.205922311	-2.279827945	5.10E-05
ENSG00000103710	41.15845112	12.67358271	0.30792176	-1.699364272	5.19E-05
ENSG00000145832	5.057219789	0.155660692	0.030779895	-5.021867896	5.35E-05
ENSG00000165025	17.51157599	3.63868063	0.207787159	-2.266821593	5.61E-05
ENSG00000227533	26.10901273	145.808584	5.584607337	2.481455846	5.82E-05
ENSG00000157227	4648.244624	1432.123349	0.308099824	-1.698530238	6.52E-05
ENSG00000014257	7.409130083	0.321333957	0.043369998	-4.527158813	6.97E-05
ENSG00000164116	138.2384518	15.05994131	0.108941768	-3.198370913	7.32E-05
ENSG00000140459	0.220266052	3.939707192	17.88612981	4.160769347	7.52E-05
ENSG00000155926	12.48763462	0.941289379	0.075377716	-3.729718104	7.85E-05
ENSG00000127824	38.09712197	8.95274018	0.234997809	-2.089280791	7.96E-05
ENSG00000081923	42.91465932	11.10729387	0.258822837	-1.949963177	8.22E-05
ENSG00000183715	565.3978543	99.31345821	0.175652344	-2.509205269	8.54E-05
ENSG00000024422	475.852664	95.05537052	0.199757988	-2.323674903	8.88E-05
ENSG00000231689	20.12283635	140.36035	6.975177233	2.802229875	9.41E-05
ENSG00000120675	76.54860535	15.70023088	0.205101462	-2.285590318	9.48E-05
ENSG00000130720	102.5164638	20.57680535	0.200717081	-2.316764701	9.69E-05
ENSG00000101417	61.10694975	8.806646099	0.144118568	-2.794671872	9.88E-05
ENSG00000185436	10.15366428	1.866831688	0.183857929	-2.443336698	1.02E-04
ENSG00000228592	3.810990905	222.9892862	58.51215387	5.870664421	0.000107755
ENSG00000169129	1036.496755	201.6944584	0.194592465	-2.361472249	0.000117612
ENSG00000179057	48.04175028	8.21140058	0.170922178	-2.548588491	0.000118579
ENSG00000248746	36.37277296	2.433888955	0.066915133	-3.901523664	0.000121682
ENSG00000008516	276.8475657	51.69087029	0.186712389	-2.421110439	0.000123853
ENSG00000175874	2.207337845	11.54567471	5.230587942	2.386973121	0.000131701
ENSG00000079102	552.0130693	132.1285548	0.239357657	-2.062760138	0.000132631
ENSG00000119681	690.1775161	119.3662488	0.172950069	-2.531572508	1.36E-04

ENSG00000136153	364.415901	104.9651444	0.288036675	-1.795675577	0.00013908
ENSG00000160801	70.83558886	8.938374367	0.126184797	-2.986389998	0.000139827
ENSG00000205517	14.47657965	54.77628799	3.783786593	1.919830722	0.000156461
ENSG00000132386	940.8518896	301.9954343	0.320980845	-1.639440891	0.000156889
ENSG00000198502	2.544535751	0	0	-Inf	0.000166835
ENSG00000142273	0.814249537	5.545269365	6.810282487	2.767714642	0.000166932
ENSG00000225548	3.215177141	0	0	-Inf	0.000168557
ENSG00000184254	11.76972185	0.833816184	0.070844171	-3.819207041	0.000177929
ENSG00000204959	3.518138687	0	0	-Inf	0.000197325
ENSG00000074370	74.616738	18.64897392	0.249930169	-2.000403037	0.00019964
ENSG00000198203	20.71242382	3.51573401	0.169740347	-2.558598562	0.00021209
ENSG00000168843	96.87129834	12.96903133	0.133878987	-2.900998551	0.000212845
ENSG00000185652	157.3723772	13.9588784	0.088699673	-3.494927403	0.000220786
ENSG00000249158	300.3810102	86.38553538	0.28758654	-1.797931941	0.000230873
ENSG00000259370	22.09717936	3.534834851	0.159967695	-2.644147507	0.000238689
ENSG00000164418	294.5399029	90.18533668	0.306190556	-1.707498309	0.00024672
ENSG00000223509	59.58994619	16.4963948	0.276831846	-1.852918179	0.000253736
ENSG00000156049	35.34548404	9.888886582	0.279777936	-1.837645901	0.000272781
ENSG00000140470	14.5438488	0.960376841	0.066033198	-3.920664681	0.000288592
ENSG00000135636	576.9475113	176.6694217	0.306214029	-1.707387716	0.000290502
ENSG00000204335	91.68374108	1.70356352	0.018580868	-5.750038266	0.000306155
ENSG00000163827	6.916918513	49.41557141	7.144159833	2.836764358	0.000320263
ENSG00000203685	86.64117296	22.69369391	0.261927362	-1.932761315	0.000325342
ENSG00000013297	71.28691158	11.16225309	0.156582083	-2.675008956	0.000333325
ENSG00000189143	27.65030865	79.79640324	2.885913653	1.529028135	0.000342345
ENSG00000170961	380.2073301	25.87957582	0.068067009	-3.87690047	0.0003455
ENSG00000234779	7.535811305	0.941289379	0.124908831	-3.001052619	0.000361664
ENSG00000166482	411.1743846	43.75917714	0.106424862	-3.232092875	0.000363444
ENSG00000213120	18.69377402	72.16927881	3.860605072	1.948826979	0.000363604
ENSG00000143768	5.57020058	0.622642769	0.111781032	-3.161252695	0.000367124
ENSG00000121898	13.08994361	2.888084954	0.220633873	-2.180273797	0.000376977
ENSG00000131914	4900.496649	17147.13422	3.499060494	1.806967607	0.000379513
ENSG00000180938	41.96838063	143.5249073	3.419834294	1.773926422	0.000381202
ENSG00000127152	34.04001906	1.427358918	0.04193179	-4.575811785	0.000386434
ENSG00000167941	14.8092756	0.620608467	0.04190674	-4.576673882	0.000394297
ENSG00000127083	4.939193766	0.155660692	0.031515405	-4.987798983	0.00039515
ENSG00000163131	13.69413697	2.519512174	0.183984736	-2.442342015	0.000404117
ENSG00000204963	52.17732017	14.09543885	0.270144937	-1.888194453	4.16E-04
ENSG00000164692	22666.63738	75.64050675	0.003337085	-8.227195638	0.000429199
ENSG00000152969	1.085776262	6.687434949	6.159127976	2.622726105	0.000439773
ENSG00000138316	364.1865686	29.5288175	0.081081567	-3.624482227	0.00044642
ENSG00000256043	143.2249963	14.50852244	0.101298815	-3.303310794	0.000449047
ENSG00000064270	43.49871799	10.46459741	0.240572548	-2.055456072	0.000453642

ENSG00000054179	36.14380177	1.236210648	0.034202563	-4.869751761	0.000454066
ENSG00000184599	8.991311908	0.977430002	0.108708274	-3.201466339	4.57E-04
ENSG00000164488	140.3867498	17.86546119	0.127258885	-2.974161714	0.000466373
ENSG00000070886	5.392402834	0.542963519	0.100690459	-3.312001103	0.000472617
ENSG00000130540	176.6121856	53.14383143	0.300906935	-1.732610739	0.000518881
ENSG00000102452	200.2210544	61.50451908	0.307183074	-1.702829368	0.000518932
ENSG00000113209	1615.788913	152.2131504	0.094203611	-3.408073826	0.00052175
ENSG00000120251	269.0256463	109.9669226	0.408759998	-1.290674077	0.000526701
ENSG00000164344	15.10846195	3.452982221	0.228546243	-2.12944199	5.43E-04
ENSG00000184564	61.67831306	4.764276169	0.077243944	-3.694434358	0.000543703
ENSG00000154262	3.352334612	0.316327671	0.094360411	-3.405674492	0.000543785
ENSG00000050555	3233.722533	184.1966531	0.056961181	-4.133877142	0.000567039
ENSG00000006071	28.7003408	4.762129547	0.165925888	-2.591389096	0.000571315
ENSG00000112164	10.83993765	39.93906145	3.684436454	1.881443972	0.000588267
ENSG00000137460	175.7900988	740.0888452	4.210071274	2.073844657	0.000591331
ENSG00000065717	80.46814397	10.94390213	0.136002915	-2.878290523	0.000626265
ENSG00000184584	168.6842147	2.5790935	0.015289477	-6.031317087	0.000640343
ENSG00000006638	13.16521336	1.23714833	0.093971005	-3.411640512	0.00064327
ENSG00000184363	4.992855744	0.512482227	0.102643107	-3.284291347	0.000666168
ENSG00000186369	21.1586994	2.806898748	0.132659323	-2.914202021	0.000667731
ENSG00000170577	81.19572818	5.964569044	0.073459148	-3.766914019	0.000675423
ENSG00000199916	20.91442596	5.067917299	0.242316825	-2.045033514	6.76E-04
ENSG00000146477	104.3567062	4.853202627	0.046505901	-4.426442409	6.80E-04
ENSG00000183117	673.9928511	10.12206891	0.015018066	-6.057157183	0.000697582
ENSG00000182326	146.2934455	47.94950818	0.327762519	-1.60927721	0.000719316
ENSG00000232729	29.56663519	8.031116406	0.271627676	-1.880297612	0.000722906
ENSG00000162496	78.51222654	29.01629343	0.369576749	-1.436054099	0.000728282
ENSG00000147394	265.8258693	687.2531793	2.585351009	1.370360166	0.000742001
ENSG00000228974	24.47925649	4.859269907	0.198505617	-2.332748265	0.000755967
ENSG00000255043	4.50112751	0.537957232	0.119516106	-3.064723046	0.000787051
ENSG00000182674	21.03774429	64.0682074	3.045393389	1.606628601	0.000801973
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ENSG00000129270	12.34168638	0.502469655	0.040713209	-4.618359257	0.000866534
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ENSG00000119866	290.4247095	65.41889818	0.225252522	-2.150384838	0.000926003
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ENSG00000185681	5.01313829	0.160666978	0.032049181	-4.963568682	0.000992999
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ENSG00000228960	1.79023712	0	0	-Inf	0.001043749
ENSG00000020633	8.031486468	1.055445746	0.1314135	-2.927814607	0.001059687
ENSG00000116983	171.2404067	602.5609346	3.518801118	1.815083975	0.001098921
ENSG00000114757	176.5705691	74.36579249	0.421167541	-1.24753384	0.001136442
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ENSG00000099337	31.90146711	7.587217616	0.237832874	-2.071979951	1.22E-03
ENSG00000168016	252.9070292	81.14180023	0.320836477	-1.640089919	1.24E-03
ENSG00000239828	12.6227257	3.59098724	0.284485881	-1.813571042	0.00125658
ENSG00000231672	113.3023166	7.619362414	0.067248073	-3.894363271	0.00129638
ENSG00000158816	2.329622402	10.59762938	4.549076011	2.185573541	0.001339971
ENSG00000138964	2.629612087	33.91353218	12.89678137	3.688939154	0.001342899
ENSG00000260359	3.888195566	0.148620104	0.038223413	-4.709399594	0.001356289
ENSG00000204252	8.361480462	25.75997266	3.080790869	1.623300752	0.001387458
ENSG00000185338	96.24137159	35.68108696	0.370745828	-1.431497638	1.41E-03
ENSG00000112343	94.51353592	25.29440422	0.267627319	-1.901702704	0.001435752
ENSG00000204965	26.36805118	7.389558491	0.280246668	-1.835230874	0.001436086
ENSG00000172986	112.9611439	8.319136164	0.073645998	-3.763249063	0.001453161
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ENSG00000120328	146.8349498	44.28126134	0.301571672	-1.729427178	0.001457597
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ENSG00000076641	795.9592007	280.669271	0.35261766	-1.503823364	0.001486451
ENSG00000255373	12.86116492	1.170612574	0.091019171	-3.457685737	0.001492725
ENSG00000106089	247.200747	90.59887955	0.366499214	-1.44811799	0.001514085
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ENSG00000127951	12.64858724	2.99100643	0.236469605	-2.080273338	0.001564763
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ENSG00000177234	2.896790215	0.155660692	0.053735577	-4.217978625	0.001605234
ENSG00000125851	1761.234936	367.7883596	0.208824134	-2.259639642	0.001605828
ENSG00000187210	35.42937401	116.7057454	3.294039159	1.719857706	0.00161389
ENSG00000156687	249.7499859	111.2082995	0.445278501	-1.167220136	0.001614409
ENSG00000145861	56.69120736	18.39583148	0.324491792	-1.623746108	0.001632384
ENSG00000111321	6.397766459	1.897683774	0.296616606	-1.753328725	0.001692902
ENSG00000167994	216.4653098	75.91470925	0.350701502	-1.511684486	0.001698218
ENSG00000223599	10.7215829	38.64743599	3.604639013	1.849854788	0.001786437
ENSG00000139508	24.78075152	7.870672276	0.317612332	-1.654661166	0.001790238
ENSG00000172782	0	2.385419208	Inf	Inf	1.80E-03
ENSG00000134917	18.23827542	7.088693253	0.388671247	-1.36337771	0.001805828
ENSG00000259153	32.70064296	91.67379967	2.80342499	1.487190469	0.001837678
ENSG00000236670	6.446831184	0.781275446	0.121187514	-3.044687027	0.001885632
ENSG00000065361	63.82041011	163.5899544	2.563285854	1.357994375	0.001897395
ENSG00000237515	17.42103184	136.2339366	7.820084245	2.96718415	0.001903971
ENSG00000268747	3.674382094	0	0	-Inf	0.001904333
ENSG00000132681	16.27089106	3.017617596	0.185461115	-2.430811363	1.92E-03

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ENSG00000146070	17.9833319	5.248754981	0.29186777	-1.776613187	0.00196247
ENSG00000169403	23.30294809	8.112686786	0.348139933	-1.522260789	0.001969734
ENSG00000050628	53.95410357	2.778736395	0.051501855	-4.279231806	0.002018247
ENSG00000170743	16.26011666	50.57222116	3.11020039	1.637007536	0.002036461
ENSG00000207971	3.321160175	0.155660692	0.046869372	-4.41521072	0.00208357
ENSG00000148942	8.945417258	0.304280796	0.034015271	-4.877673587	0.002143586
ENSG00000250846	10.02518812	0.755147395	0.07532501	-3.730727231	0.002156582
ENSG00000253477	68.00375916	26.93721872	0.396113672	-1.336013599	0.002156609
ENSG00000196090	0.322047482	120.3334112	373.6511479	8.545548144	0.002183489
ENSG00000164695	1.543424642	0	0	-Inf	0.002209347
ENSG00000130032	13.09081483	32.05350854	2.448549534	1.291927382	0.002235862
ENSG00000101425	14.91033936	0.297240208	0.019935174	-5.648539998	2.25E-03
ENSG00000135525	101.7453778	314.3434694	3.089511053	1.627378535	0.002278528
ENSG00000147872	1049.495942	3438.586885	3.276417515	1.712119212	0.002302471
ENSG00000171385	565.4557462	161.775298	0.286097186	-1.805422785	0.002312643
ENSG00000163251	851.9446447	363.5400228	0.426717892	-1.228645492	0.002334253
ENSG00000116194	158.4769747	38.22863784	0.241225187	-2.051547545	0.00237651
ENSG00000028116	139.1978084	46.24015273	0.332190235	-1.589918428	0.002452857
ENSG00000254154	5.043081082	0	0	-Inf	0.002516325
ENSG00000133048	2.050360231	9.957348498	4.856389793	2.279884223	0.002533053
ENSG00000163191	1611.850009	488.6778967	0.30317827	-1.721761743	0.002549247
ENSG00000104324	85.66502432	20.20364072	0.235844686	-2.084091003	0.002613611
ENSG00000103196	49.75497592	13.74615201	0.27627693	-1.855812996	0.002659542
ENSG00000165621	0.681303185	5.782275201	8.487080831	3.085268418	0.002664763
ENSG00000133256	24.23793656	65.55274879	2.704551545	1.435389394	0.002710405
ENSG00000203635	1.675961715	0	0	-Inf	0.002715093
ENSG00000171522	84.6348654	4.341375831	0.051295359	-4.285027879	0.002740339
ENSG00000260838	5.247873684	22.55709604	4.2983306	2.10377645	0.002783012
ENSG00000011465	5529.003973	44.8738284	0.008116078	-6.945001526	0.002851433
ENSG00000178860	51.29967102	6.52573612	0.127208148	-2.974737018	0.002932742
ENSG00000187720	518.1816133	190.1258504	0.366909681	-1.446503124	0.002942316
ENSG00000182050	14.52289278	6.111260864	0.420801899	-1.248786879	0.002956637
ENSG00000105048	123.0625876	42.13464843	0.342383898	-1.54631324	0.002975777
ENSG00000198542	7.815559497	1.661035354	0.212529296	-2.234266375	0.002977543
ENSG00000170356	2.27822996	0.148620104	0.0652349	-3.938212187	0.00301568
ENSG00000104689	4.827244827	27.83875651	5.767007373	2.527822867	0.003073506
ENSG00000223503	21.1648527	50.98586516	2.408987479	1.268426895	0.003123669
ENSG00000234165	3.667925709	0.502469655	0.13699014	-2.867856042	0.003143498
ENSG00000183801	101.5560059	2.748824377	0.027067078	-5.207317015	0.003146452
ENSG00000155846	412.7003571	164.2346253	0.397951256	-1.329336367	0.003216518
ENSG00000156076	13.87660318	5.037597332	0.363028132	-1.461846744	0.003231338
ENSG00000185053	7.176368153	1.094631132	0.152532745	-2.71280911	0.003234383

ENSG00000177374	172.1991728	39.13380653	0.227258969	-2.13759086	0.003266387
ENSG00000198842	23.41289489	0.507475941	0.021675062	-5.527820091	0.003271255
ENSG00000007944	631.2702799	262.9566084	0.416551542	-1.263433077	0.00328001
ENSG00000118515	449.2395673	191.4273447	0.426114168	-1.230688072	0.003292414
ENSG00000156925	1496.948617	523.894134	0.349974694	-1.514677488	0.003322458
ENSG00000161243	7.665496868	23.67424299	3.088415976	1.626867081	0.003338592
ENSG00000102349	17.4109168	5.531430898	0.317699002	-1.654267535	0.003370804
ENSG00000197635	38.72630852	104.7650005	2.705266898	1.435770935	0.00342225
ENSG00000250120	50.90670827	17.043374	0.33479623	-1.578644813	0.00342274
ENSG00000254967	9.082167662	1.187012689	0.130697069	-2.935701312	0.003449317
ENSG00000189269	17.6073679	4.89259987	0.277872303	-1.847506053	0.003471012
ENSG00000110786	28.54850482	89.35014099	3.129766043	1.646054817	0.003527402
ENSG00000165568	9.664781319	1.270316969	0.131437735	-2.927548567	0.003549355
ENSG00000177106	24.63282345	9.783092659	0.397156772	-1.33221949	0.003576422
ENSG00000267605	15.78576509	3.579026524	0.226724933	-2.140985045	0.003591578
ENSG00000242639	4.416234164	0.19114827	0.043283092	-4.530052622	0.003595828
ENSG00000140937	6797.031057	2549.211785	0.375047835	-1.41485348	0.003650125
ENSG00000163435	16.23222472	4.261164461	0.262512658	-1.929541104	0.003669757
ENSG00000140519	0.10178143	2.731771217	26.83958376	4.746290393	3.68E-03
ENSG00000261553	3.250553182	0.622642769	0.191549787	-2.384208674	0.003714346
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ENSG00000150556	14.44513721	3.843751138	0.266093086	-1.90999707	0.003743535
ENSG00000224237	10.91949002	119.1484028	10.91153548	3.447782228	0.003782421
ENSG00000213115	12.30909618	175.5051492	14.25816702	3.833716621	0.003823289
ENSG00000224940	49.2182299	19.27903456	0.391705159	-1.352159966	0.003894986
ENSG00000122641	203.4620573	20.26012026	0.099576897	-3.328045135	0.003977683
ENSG00000125878	15.07124581	3.93795514	0.261289292	-1.936280095	0.003996444
ENSG00000168743	16.27299343	2.538599637	0.156000778	-2.68037487	0.003998689
ENSG00000102575	9.051941994	2.205218805	0.243618309	-2.03730553	0.004043056
ENSG00000073350	78.9201297	214.2026038	2.714169434	1.440510785	0.004053053
ENSG00000183379	20.55205063	3.376769061	0.164303267	-2.605566928	0.004110844
ENSG00000169242	125.5041287	39.82903179	0.317352363	-1.655842511	0.004143682
ENSG00000004948	73.11345768	18.76254116	0.256622266	-1.962281745	4.16E-03
ENSG00000182771	195.646346	72.54839227	0.370813939	-1.431232618	4.19E-03
ENSG00000144406	1285.238744	463.2996385	0.360477492	-1.472018915	0.004200807
ENSG00000174482	31.61721535	94.90862593	3.001802179	1.585828905	0.004316825
ENSG00000110090	1275.738795	340.1532968	0.2666324	-1.907075993	0.00432497
ENSG00000143502	44.33464129	17.49451655	0.394601513	-1.341531606	0.004499987
ENSG00000125845	114.9484399	36.17704295	0.314724088	-1.667840491	0.00450446
ENSG00000149451	31.15696649	3.624440515	0.116328415	-3.103724559	0.004545774
ENSG00000259498	152.0901999	56.45475427	0.371192584	-1.429760209	0.004557099
ENSG00000172935	8.516551056	49.0252653	5.756469371	2.525184231	0.004563371
ENSG00000216901	0.66235663	4.746296319	7.165771585	2.841122057	0.004597063

ENSG00000155052	114.7961836	39.24490902	0.341865973	-1.548497261	0.004623737
ENSG00000138379	9.439170177	1.865894006	0.19767564	-2.338792999	0.004629133
ENSG00000197479	204.5984946	79.24530034	0.387321033	-1.368398246	0.004652765
ENSG00000176956	132.7407452	37.85838279	0.285205441	-1.809926589	0.004726531
ENSG00000223814	12.92646697	1.879816244	0.145423823	-2.781664467	4.80E-03
ENSG00000182179	126.7821765	35.4100469	0.279298304	-1.840121281	0.004854866
ENSG00000228956	9.216251482	31.0976305	3.37421679	1.754552668	0.004894709
ENSG00000250522	3.185431313	0.19114827	0.060007029	-4.058724681	0.004970684
ENSG00000186288	0	1.948916036	Inf	Inf	0.004974475
ENSG00000005187	122.8089519	24.31016449	0.197951079	-2.336784167	0.005002867
ENSG00000151617	1772.567228	73.57919091	0.041509958	-4.590398723	0.005018335
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ENSG00000107859	9.525214621	0.972423716	0.102089428	-3.292094616	0.005177929
ENSG00000159403	63.33883039	25.25059996	0.398659082	-1.32677256	0.005193602
ENSG00000179520	175.6341011	20.34089614	0.115814048	-3.11011784	0.005205039
ENSG00000268913	5.213859808	0.668142919	0.128147465	-2.964123151	5.21E-03
ENSG00000111907	115.6722888	54.54802416	0.471573829	-1.084444439	0.005280522
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ENSG00000216775	188.2328205	66.45751421	0.353060184	-1.502013964	0.005307841
ENSG00000150672	110.5503081	341.7008767	3.090908407	1.628030904	0.005318077
ENSG00000103175	90.81723116	2.907468046	0.032014498	-4.965130812	0.005351889
ENSG00000126778	137.7971307	2.088832045	0.015158748	-6.043705542	0.005388591
ENSG00000189120	17.42668043	3.656956109	0.209848119	-2.252582563	0.005402128
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ENSG00000187595	130.491954	58.48330261	0.448175545	-1.157864165	0.005478085
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ENSG00000070601	11.25920054	1.652613509	0.146778939	-2.768283121	0.005627379
ENSG00000182667	890.7863313	340.6064259	0.382366022	-1.386973768	0.005697241
ENSG00000116703	8.367999486	2.149423833	0.256862328	-1.960932775	0.005715657
ENSG00000250284	39.7409926	0.693617925	0.017453463	-5.840342915	0.005730519
ENSG00000118194	64.10659454	17.48506267	0.272749829	-1.874349805	0.005732446
ENSG00000161921	24.09734751	7.057324812	0.292867288	-1.771681036	5.78E-03
ENSG00000123610	35.91636327	1.252610764	0.034875768	-4.84163119	0.005824839
ENSG00000136842	2.775054318	18.40344927	6.631743802	2.729388274	0.005827329
ENSG00000237172	109.5863317	45.28688643	0.413253056	-1.274902608	0.005974256
ENSG00000164438	84.20102969	10.99118671	0.130535063	-2.937490714	0.005998176
ENSG00000222040	10.92759828	21.0688982	1.928044722	0.947138516	0.006010208
ENSG00000091664	157.8879334	58.94935698	0.373362015	-1.421352936	0.006016432
ENSG00000182310	312.9235969	129.5821816	0.414101662	-1.271943101	0.006018328

ENSG00000204103	55.03880201	24.85932586	0.451669094	-1.146661895	0.006079272
ENSG00000178814	98.1166637	239.1143824	2.437041512	1.285130826	0.006097859
ENSG00000142173	8597.803312	2832.399109	0.32943288	-1.601943539	0.006106122
ENSG00000170382	517.0232327	171.7525498	0.332195033	-1.589897593	0.006186822
ENSG00000151572	355.8673258	128.0763248	0.359899085	-1.474335662	0.006210418
ENSG00000131203	5.443703001	1.42939322	0.262577371	-1.929185507	0.006271358
ENSG00000105976	169.9476643	69.39067313	0.40830613	-1.292276867	0.006290811
ENSG00000170017	4841.127457	2010.320557	0.415258754	-1.267917513	0.006307881
ENSG00000231806	7.88549302	51.11289106	6.481889076	2.696414332	0.006308863
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ENSG00000112619	4.054552107	0.19114827	0.047144115	-4.406778505	0.006821945
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ENSG00000139629	21.73161582	7.767108748	0.357410549	-1.484345877	0.006930653
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ENSG00000132854	193.1032192	14.8870819	0.077093908	-3.697239319	0.00741079
ENSG00000172985	340.5244031	124.3808618	0.365262697	-1.452993672	0.007444068
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ENSG00000214711	4.627259419	0.816763023	0.176511181	-2.502168524	0.009148657
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ENSG00000166265	779.2745975	1767.489165	2.26812111	1.181497678	0.009385259
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ENSG00000228495	23.59217719	5.935837417	0.251601934	-1.990785081	0.009971667

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ENSG00000124313	190.8064344	79.85822385	0.418530036	-1.256596933	0.010057882
ENSG00000011677	8.444653584	24.39567318	2.88888975	1.530515147	0.010060839
ENSG00000166816	12.52717961	3.709212211	0.296093161	-1.755876926	0.010073731
ENSG00000160255	18.35306065	4.817469953	0.262488641	-1.929673101	0.010320814
ENSG00000172497	1.030306373	5.319829674	5.163347342	2.368306652	1.04E-02
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ENSG00000185761	9.122227866	32.64285779	3.578386582	1.839309254	0.010530078
ENSG00000176428	282.8060798	118.3596269	0.418518679	-1.256636082	0.010578066
ENSG00000137474	30.09173125	12.63074315	0.419741325	-1.252427586	0.010608209
ENSG00000174607	132.9228053	276.0557718	2.076812712	1.054371119	0.010676606
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ENSG00000126860	7.440155625	1.738680303	0.233688701	-2.097340114	0.010928678
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ENSG00000134330	240.2916621	52.97789876	0.220473313	-2.18132406	0.011158258
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ENSG00000124772	58.0520157	24.13345541	0.415721231	-1.266311667	0.011222072
ENSG00000111331	35.23970725	2.737726177	0.077688675	-3.686151877	0.011223029
ENSG00000151025	80.20338254	230.7221242	2.876713136	1.524421364	0.011233633
ENSG00000188921	40.82070111	17.68311894	0.433189986	-1.206928203	0.011240575
ENSG00000265293	2.253242009	0.297240208	0.131916681	-2.922301084	0.011338029
ENSG00000186340	1725.03034	691.9764466	0.401138711	-1.317826899	0.011353293
ENSG00000143387	246.1253655	98.50983187	0.400242501	-1.321053722	0.011367086
ENSG00000185862	1.682414294	0.155660692	0.092522212	-3.434056429	0.011389548
ENSG00000170891	31.87115862	3.996649317	0.125400189	-2.995388572	0.011495112
ENSG00000042062	94.89187781	25.64659324	0.270271743	-1.887517408	0.011523416
ENSG00000182601	145.0356029	57.76520788	0.398282951	-1.328134372	0.01158359
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ENSG00000108439	69.44636396	14.68710748	0.211488502	-2.241348864	0.011830226
ENSG00000255248	2174.102739	703.4260715	0.32354776	-1.627949405	0.011857089

ENSG00000130226	403.6326312	54.80112854	0.135769817	-2.880765304	0.011884545
ENSG00000164398	43.93257334	17.38657992	0.39575601	-1.337316837	0.011911354
ENSG00000132359	250.6212254	110.2278604	0.439818536	-1.185019689	0.012014339
ENSG00000248479	6.331214078	0.859291189	0.135722972	-2.881263171	0.012064517
ENSG00000187513	132.1992047	3.069022173	0.023215133	-5.428790618	0.012119122
ENSG00000179564	3.42674725	0.476994649	0.1391975	-2.844794798	0.012136784
ENSG00000164078	13.28943379	4.409290458	0.331789189	-1.591661217	1.22E-02
ENSG00000261292	10.17804979	2.786999302	0.273824491	-1.868676608	0.012188051
ENSG00000250519	0.20356286	2.666256914	13.09795369	3.71126953	0.01222091
ENSG00000147606	31.177426	0.311321385	0.009985474	-6.645953336	0.012251342
ENSG00000254768	8.662992934	2.232728113	0.257731725	-1.956057961	0.012304353
ENSG00000166510	4.476820641	0.642667914	0.143554537	-2.800329169	0.012464468
ENSG00000155761	118.6034159	29.5520449	0.249166895	-2.004815693	0.012504314
ENSG00000172819	412.5812513	167.1848706	0.405216839	-1.303233967	1.25E-02
ENSG00000142303	753.1430949	338.9599161	0.450060445	-1.151809322	0.012544734
ENSG00000148386	3.428716908	0.155660692	0.045399109	-4.461192209	0.012660724
ENSG00000204860	27.85622034	11.32384437	0.406510439	-1.298635693	0.012687404
ENSG00000143318	31.0819193	9.992869052	0.321501029	-1.637104738	0.012694039
ENSG00000256746	7.638135687	1.95188802	0.255545083	-1.968350261	0.012738368
ENSG00000255622	20.13606643	4.813931082	0.239070083	-2.064494489	0.012752482
ENSG00000168032	6.49849733	1.406890199	0.216494695	-2.20759642	0.012833451
ENSG00000261126	52.92531177	16.48320316	0.311442722	-1.682961236	0.012850786
ENSG00000077092	684.21114	170.092119	0.248595951	-2.008125296	0.01285869
ENSG00000254343	5.921356417	26.37885448	4.454866862	2.155382316	0.012874484
ENSG00000240720	9.917593487	2.474826394	0.249539003	-2.002662767	0.012879396
ENSG00000163145	10.22130256	1.089624846	0.106603326	-3.229675648	0.012900584
ENSG00000108821	36841.33148	7519.687707	0.204110096	-2.292580549	0.012900929
ENSG00000144331	208.2370091	44.91179988	0.215676359	-2.21306005	0.012917285
ENSG00000257467	10.17466229	2.970169302	0.29191822	-1.776363837	0.01296975
ENSG00000187957	1147.928157	556.3043246	0.484615976	-1.045086128	0.01305868
ENSG00000169908	22.16913947	5.13115928	0.23145505	-2.111196056	0.013077996
ENSG00000253537	132.9898616	5.932814901	0.044611031	-4.486455685	0.013100164
ENSG00000051523	199.2094629	80.18493492	0.402515693	-1.312883065	0.013118947
ENSG00000182759	0.359255703	5.267041453	14.66098215	3.873909848	1.32E-02
ENSG00000073282	7.958345279	0.79332232	0.09968433	-3.326489448	0.013274208
ENSG00000008323	71.30754158	147.4969722	2.06846245	1.048558768	0.013275807
ENSG00000135917	5.663693444	1.971260119	0.348052051	-1.522625019	0.013342575
ENSG00000100628	9.110262739	2.115526982	0.232213608	-2.106475575	0.013515437
ENSG00000228868	17.23326861	74.47134021	4.321370595	2.11148896	0.013538127
ENSG00000153898	9.068797886	3.779322464	0.416739077	-1.262783708	0.013661297
ENSG00000188580	74.57870841	37.38553848	0.501289702	-0.996283499	0.013683263
ENSG00000248663	1.769730187	0	0	-Inf	0.013692494
ENSG00000137965	102.4503067	3.210158115	0.031333807	-4.996136135	0.013723838

ENSG00000203279	1.593532314	4.421535811	2.774675966	1.472319299	1.38E-02
ENSG00000250682	3.50422752	0.786281732	0.224380902	-2.155978207	0.013873911
ENSG00000169181	3.42633797	0.771262873	0.225098306	-2.151372894	0.013988767
ENSG00000106823	43.57276024	3.419740802	0.078483456	-3.671467622	0.014029028
ENSG00000050327	10.10972721	3.319383361	0.328335601	-1.606756907	0.014062338
ENSG00000167157	15.37323544	5.643396411	0.367092304	-1.445785228	0.014063782
ENSG00000205111	8.884776407	2.229756129	0.250963674	-1.994449541	1.41E-02
ENSG00000178222	2.255894653	0.155660692	0.069001756	-3.857223113	0.014142732
ENSG00000228613	1.28132997	0	0	-Inf	0.014160443
ENSG00000205221	6.479039053	0.321333957	0.049595928	-4.333634503	0.014161808
ENSG00000172348	231.8018562	495.2651423	2.136588336	1.095308966	0.014183604
ENSG00000228656	4.713789884	0.316327671	0.067106867	-3.897395786	0.014271159
ENSG00000233165	1.933847171	0.160666978	0.083081528	-3.589328435	0.01427577
ENSG00000106789	69.74545943	162.9028343	2.335676554	1.223840503	0.014305153
ENSG00000215302	31.52688304	13.03937721	0.413595508	-1.273707578	0.01443291
ENSG00000146166	28.46787859	2.958331898	0.103918242	-3.266479164	0.014487951
ENSG00000173093	3.138789136	12.92754515	4.118640849	2.042168327	0.014517637
ENSG00000254352	13.49413222	5.131564843	0.380281204	-1.394861463	0.01462174
ENSG00000229989	6.637433858	1.712552252	0.25801421	-1.954477572	0.014715313
ENSG00000197822	94.17150013	195.4562392	2.075534944	1.053483221	0.014747097
ENSG00000074416	189.2644456	30.82243848	0.162853823	-2.618350509	0.014777792
ENSG00000204175	38.98437537	70.74715798	1.814756741	0.859776175	0.014937614
ENSG00000159871	2.075948064	0.160666978	0.077394508	-3.691625001	0.014961127
ENSG00000188000	24.74827952	1.126050106	0.045500137	-4.457985304	0.015014445
ENSG00000269793	66.59814352	6.849070462	0.102841763	-3.281501854	0.015033948
ENSG00000264462	3.977256731	0.542963519	0.136517091	-2.872846518	0.01510225
ENSG00000078725	112.1298458	54.68966258	0.487735109	-1.035830268	0.015161845
ENSG00000117598	92.02056276	46.07367285	0.500688884	-0.99801367	0.015185556
ENSG00000231205	197.3510934	83.30231273	0.422102109	-1.244336058	0.015276496
ENSG00000129467	5.387140847	1.107615689	0.205603625	-2.282062391	0.01534371
ENSG00000011347	313.1557015	139.5308268	0.445563744	-1.166296251	0.01543139
ENSG00000100336	48.66883527	1.620541491	0.033297314	-4.908450385	0.015494166
ENSG00000254319	4.939420056	0	0	-Inf	0.015538988
ENSG00000257139	3.528941766	0.464947775	0.131752748	-2.924095043	1.56E-02
ENSG00000088543	225.1800296	488.7437828	2.170457939	1.117999465	0.015647546
ENSG00000180176	54.09827136	3.663268486	0.067715075	-3.884379148	0.015667652
ENSG00000230712	1.503563777	0	0	-Inf	0.015688309
ENSG00000240668	3.976936263	0.946295665	0.237945897	-2.071294519	0.015840413
ENSG00000100985	66.26890531	16.4612141	0.248400272	-2.009261341	0.01603291
ENSG00000104419	448.1198342	235.0207755	0.524459659	-0.931096288	0.016050858
ENSG00000231437	3.877944954	0.622642769	0.160559981	-2.638815741	1.61E-02
ENSG00000198108	195.4411666	96.89881992	0.495795341	-1.012183379	0.016152858
ENSG00000246379	7.76544802	20.33858453	2.619112829	1.389078211	0.016159967

ENSG00000229590	6.505961628	1.541429127	0.236925641	-2.077493756	1.62E-02
ENSG00000134853	409.8555575	26.25224311	0.064052427	-3.964602957	0.016322311
ENSG00000203727	577.8309073	189.3884625	0.327757585	-1.609298928	0.016380227
ENSG00000183087	908.6475004	381.8374003	0.420226105	-1.250762307	0.016400308
ENSG00000253348	17.24781422	3.305140861	0.19162665	-2.38362988	0.016486446
ENSG00000147402	27.65507098	53.0976931	1.919998438	0.941105138	0.01658039
ENSG00000198028	127.3428618	12.53108299	0.098404283	-3.345135083	1.67E-02
ENSG00000157766	4.614029333	20.09457526	4.355103492	2.122707003	0.016654025
ENSG00000171227	30.7089454	72.78642032	2.370202538	1.245010345	0.016692576
ENSG00000029559	2.205783175	0	0	-Inf	0.016693998
ENSG00000066185	3.5706272	15.1205204	4.234695909	2.082258374	0.016717256
ENSG00000164588	341.3680202	78.4964716	0.229946764	-2.1206282	0.016762265
ENSG00000196811	15.02566467	5.224389974	0.347697762	-1.524094315	0.016867554
ENSG00000267909	88.68126591	38.6584171	0.435925409	-1.197846798	0.016956436
ENSG00000100285	224.9542869	103.5333999	0.460241951	-1.119535603	0.016996566
ENSG00000254896	2.166196015	0.148620104	0.068608798	-3.865462605	0.017068662
ENSG00000122121	77.99450172	10.16854628	0.130375168	-2.939258981	0.017150127
ENSG00000129009	384.3811584	10.86145586	0.028256993	-5.145248221	1.72E-02
ENSG00000120937	2.129174589	33.05748185	15.5259611	3.956610673	0.017348284
ENSG00000111424	9.220463254	2.740204054	0.297187243	-1.750555907	0.017686666
ENSG00000165929	5.102707062	1.597100787	0.312990883	-1.675807462	0.01784839
ENSG00000164129	124.9154692	18.51483213	0.14821889	-2.754198773	0.017880137
ENSG00000123146	82.56643843	34.72589169	0.420581199	-1.249543735	0.018136749
ENSG00000152467	16.67793796	4.117515876	0.24688399	-2.018094809	0.018171998
ENSG00000131187	13.41019937	43.41127633	3.237183515	1.694739154	0.018195715
ENSG00000141965	10.88534373	3.642678841	0.334640681	-1.579315255	0.018236342
ENSG00000099994	72.89311652	20.83192142	0.285787224	-1.806986672	0.018254283
ENSG00000168631	0.10178143	2.926063787	28.7485034	4.845414948	0.018294155
ENSG00000171608	241.3122337	465.0032735	1.926977619	0.946339815	0.018309931
ENSG00000221963	42.12886896	4.421546803	0.104952896	-3.252186119	0.018345321
ENSG00000116132	2103.056623	76.69662967	0.036469123	-4.777180702	1.84E-02
ENSG00000185614	103.7109401	38.54561172	0.371663893	-1.427929558	0.018590713
ENSG00000073331	148.037011	50.48284935	0.341015054	-1.552092666	0.0186056
ENSG00000127329	245.9792622	89.07540003	0.362125649	-1.465437729	0.018791491
ENSG00000261770	42.96159563	13.10647423	0.305074196	-1.712767938	0.018800599
ENSG00000174332	4.847204349	0.500435353	0.103242058	-3.27589729	0.018845137
ENSG00000117115	20.23830503	62.03514246	3.065234088	1.615997255	0.018871996
ENSG00000138080	3311.44916	321.2414244	0.097009318	-3.365732862	0.018918845
ENSG00000127903	113.3549122	14.19153569	0.125195595	-2.997744291	1.91E-02
ENSG00000169418	30.54287346	12.83702558	0.420295281	-1.250524837	1.91E-02
ENSG00000054356	136.4678568	355.1742683	2.602622161	1.379965882	0.019097228
ENSG00000265095	6.169938436	17.9448431	2.908431467	1.54024131	0.019156305
ENSG00000127528	21.20720499	3.683454955	0.173688846	-2.525422988	0.019260814

ENSG00000201428	25.20191157	7.115145481	0.282325627	-1.824568006	0.019566975
ENSG00000160180	5.970785562	0.155660692	0.026070387	-5.261444172	0.019609432
ENSG00000102755	21.5547738	10.4198166	0.483411086	-1.048677537	0.01961819
ENSG00000149573	0.322047482	1.993676982	6.190630562	2.630086366	0.019803375
ENSG00000196218	105.1270668	34.82928111	0.331306505	-1.593761563	0.019821928
ENSG00000065534	1940.71527	6043.766466	3.114195349	1.638859445	0.019896525
ENSG00000185924	149.1676533	44.27633858	0.296822653	-1.752326895	0.019995656
ENSG00000237632	12.85320162	2.518206084	0.195920531	-2.351659507	0.020068798
ENSG00000055732	14.27213718	3.029022417	0.212233275	-2.236277227	0.02013981
ENSG00000140323	274.2059519	124.902156	0.455504905	-1.134461506	0.020197646
ENSG00000170703	4.797089066	17.78036293	3.706490057	1.890053641	0.020272853
ENSG00000102048	9.014337813	2.346145276	0.260268178	-1.941929167	0.020586318
ENSG00000213188	2.384220606	0.311321385	0.130575746	-2.937041147	0.020612733
ENSG00000224382	15.82898918	0.798328606	0.050434592	-4.309442612	0.020714559
ENSG00000227467	4.005991494	0.155660692	0.03885697	-4.685682774	2.09E-02
ENSG00000171840	3.513520191	0.321333957	0.091456414	-3.450771839	0.020940291
ENSG00000137727	28.58310055	10.82260172	0.37863638	-1.40111506	0.020970392
ENSG00000101977	20.04338642	5.109223146	0.25490818	-1.971950427	0.021053574
ENSG00000162267	10.83405117	2.309720016	0.213190798	-2.229782926	0.021115219
ENSG00000111181	2.195991161	9.78379385	4.455297463	2.155521758	0.021189355
ENSG00000269349	3.433934036	0.297240208	0.086559673	-3.530161136	0.021198794
ENSG00000177406	3.482628321	12.4228555	3.567091965	1.834748411	0.021217567
ENSG00000180440	30.70371842	92.87134356	3.024758835	1.596820121	0.021331404
ENSG00000233295	1.493313165	0	0	-Inf	2.14E-02
ENSG00000116147	6.054393484	17.56963317	2.901964204	1.537029724	0.02142576
ENSG00000247970	4.474626596	0.955370555	0.213508443	-2.227634977	0.021436373
ENSG00000130045	2.209581208	0.346808962	0.156956875	-2.671559868	2.14E-02
ENSG00000213035	0.128737137	2.423432808	18.82465985	4.234551892	0.021623674
ENSG00000106004	29.22797362	4.202838693	0.143795076	-2.797913819	0.021705825
ENSG00000184160	20.52538338	44.76419401	2.180918777	1.124936041	2.18E-02
ENSG00000137959	214.3032734	28.34034549	0.132244109	-2.918724636	0.021798745
ENSG00000129910	30.04446271	1.466471525	0.048810043	-4.356678159	0.021837105
ENSG00000100652	4.480398093	1.241216934	0.277032734	-1.851871639	0.021912716
ENSG00000208024	3.209135745	0	0	-Inf	2.20E-02
ENSG00000171345	6.430807172	14.35372539	2.232025468	1.158353489	0.022009288
ENSG00000120156	145.907776	523.1992975	3.585821892	1.842303831	0.022025468
ENSG00000172752	6.208030413	0.778303462	0.125370433	-2.995730946	0.022032505
ENSG00000257818	11.08158423	4.130484667	0.372734131	-1.423781163	0.022136254
ENSG00000188393	2.748098611	0	0	-Inf	2.22E-02
ENSG00000204540	4.540900216	0.309287083	0.068111403	-3.875959849	0.022246786
ENSG00000173546	645.7826797	292.2803724	0.452598655	-1.143695797	0.022370578
ENSG00000163631	13.6669063	3.625537136	0.265278554	-1.914420049	0.022457395
ENSG00000233670	20.3244343	1.188960833	0.058499086	-4.095442102	0.022500271

ENSG00000146147	107.166139	5.331986482	0.049754396	-4.3290322	0.02250744
ENSG00000233672	1.577978318	8.50717576	5.391186726	2.430602879	0.022527451
ENSG00000181790	165.4871375	82.07052221	0.495932937	-1.01178305	0.022653722
ENSG00000248050	1.682414294	0.311321385	0.185044424	-2.434056429	0.022721668
ENSG00000198774	6.303996084	0.339768374	0.053897301	-4.213643161	0.022729162
ENSG00000224729	8.8505432	2.181495852	0.246481578	-2.020448273	0.022790648
ENSG00000138639	378.585628	149.0228652	0.39363054	-1.345085938	0.022806667
ENSG00000008394	2213.424086	4357.66316	1.968742993	0.977274789	0.022901285
ENSG00000172137	99.36737782	9.38191574	0.094416457	-3.404817846	0.022933658
ENSG00000243955	4.639015382	0.160666978	0.034633853	-4.851673279	0.02293658
ENSG00000213640	5.485577134	1.23714833	0.22552747	-2.148624928	2.30E-02
ENSG00000010610	373.7398373	135.5110658	0.362581273	-1.463623683	0.022996541
ENSG00000206702	1.766803838	0	0	-Inf	0.023066993
ENSG00000229048	3.099339454	0.311321385	0.100447656	-3.31548419	0.023116098
ENSG00000145247	42.00797396	152.6860566	3.634692232	1.861833209	0.023133938
ENSG00000168490	40.66075968	81.70716277	2.009484412	1.006825386	0.023203568
ENSG00000259715	186.9167956	86.11889474	0.460733849	-1.117994501	0.023308014
ENSG00000120498	2.005882773	0.148620104	0.074092118	-3.754536105	0.023373356
ENSG00000151062	16.32447659	3.451885601	0.211454596	-2.241580177	0.023390928
ENSG00000187773	3.88302841	0.346808962	0.089314042	-3.484969176	0.023391698
ENSG00000213014	1.44699972	0	0	-Inf	0.023403079
ENSG00000235310	8.324295385	1.305804547	0.156866676	-2.672389189	0.023502652
ENSG00000160862	1.119595731	0	0	-Inf	0.023771278
ENSG00000133055	28.95759418	0.849278617	0.029328356	-5.09156001	0.023835064
ENSG00000231307	4.564598938	0.816763023	0.178934236	-2.482498646	0.023887087
ENSG00000136542	19.34602132	4.52679199	0.233990851	-2.095475974	0.023890405
ENSG00000184058	7.55388362	1.13011871	0.149607641	-2.740744232	0.023895725
ENSG00000182578	8.490053948	2.737887501	0.322481756	-1.632710553	0.024005405
ENSG00000142748	9.037631061	1.881197501	0.208151615	-2.264293343	0.024087771
ENSG00000226686	112.3287003	25.36651937	0.225824026	-2.146729107	2.42E-02
ENSG00000259006	0.502454571	4.584038613	9.123289702	3.189554129	0.024286383
ENSG00000261728	2.102218883	0.155660692	0.074045901	-3.755436306	2.44E-02
ENSG00000155897	19.94425542	76.29673637	3.825499361	1.935648082	0.024470612
ENSG00000242086	975.5466444	496.6866172	0.509136718	-0.97387498	0.024539891
ENSG00000163453	74.87233141	2.427219162	0.032418106	-4.947056393	0.024574291
ENSG00000091136	12610.66883	6511.174051	0.516322658	-0.953655184	0.024614662
ENSG00000121310	89.35931995	29.49756615	0.330100611	-1.599022284	0.024623506
ENSG00000170624	175.088625	18.28854483	0.104453072	-3.259073166	0.024687592
ENSG00000256720	1.763281414	0.155660692	0.088278984	-3.501786158	0.024761403
ENSG00000241213	1.044358824	0	0	-Inf	2.48E-02
ENSG00000224677	143.3984777	70.09674767	0.488824908	-1.032610296	0.024827977
ENSG00000214872	84.60891077	35.96240796	0.425042795	-1.234319988	0.024863884
ENSG00000269483	8.19606205	2.597885334	0.316967504	-1.657593152	0.025108742

ENSG00000138650	935.6210921	273.2296737	0.292030263	-1.775810211	0.02514284
ENSG00000162542	9.197720569	4.271991403	0.464461969	-1.106367625	0.025501348
ENSG00000205683	356.5821722	136.7460447	0.383490975	-1.382735471	0.02551763
ENSG00000099984	9.534046139	2.917480618	0.306006555	-1.708365536	0.025571056
ENSG00000237732	149.133593	26.62042258	0.178500511	-2.48599989	0.025639784
ENSG00000158769	1394.399996	2390.068651	1.714048091	0.777407587	0.02571782
ENSG00000254535	123.2815049	39.09152107	0.317091531	-1.657028751	2.57E-02
ENSG00000082497	723.8723567	309.1571774	0.427087973	-1.227394824	0.025740228
ENSG00000139330	11.555586	0	0	-Inf	0.025895889
ENSG00000169122	1062.829293	480.9384984	0.452507756	-1.143985574	0.025904113
ENSG00000196116	144.9166283	81.14462237	0.559940038	-0.836655752	0.025957951
ENSG00000144645	160.4359786	92.21887581	0.574801716	-0.798863726	2.60E-02
ENSG00000188452	268.8976161	68.98036217	0.256530211	-1.962799356	0.026132959
ENSG00000186088	19.10580907	6.299278213	0.329704866	-1.600752917	0.026133983
ENSG00000064763	260.6935818	126.9776168	0.487076114	-1.037780859	2.62E-02
ENSG00000184674	507.4560674	1185.968776	2.337086602	1.224711195	0.026260731
ENSG00000100033	142.9328626	40.13955696	0.280828049	-1.832241056	0.026282019
ENSG00000253830	20.01614909	3.240924043	0.161915463	-2.626687326	0.026517003
ENSG00000233523	3.530087155	0.311321385	0.088190849	-3.503227219	0.026561555
ENSG00000248909	1.603377452	0	0	-Inf	0.02656924
ENSG00000069399	188.7152149	89.0123064	0.471675304	-1.084134028	0.026606085
ENSG00000177839	108.6626163	53.6011398	0.493280409	-1.019520104	0.026751841
ENSG00000230552	2.876835748	0.155660692	0.0541083	-4.208006269	0.026948018
ENSG00000248596	23.71932983	7.540779784	0.317917068	-1.653277625	0.026959037
ENSG00000186867	8.524613985	2.477798378	0.290663997	-1.782575709	2.70E-02
ENSG00000188522	66.8804076	145.5788738	2.176704345	1.122145464	0.027045637
ENSG00000260799	1.674401336	5.723209966	3.418063425	1.773179167	2.72E-02
ENSG00000106638	1715.973697	833.8821712	0.48595277	-1.04111199	0.02719998
ENSG00000077009	15.02373291	31.03735443	2.065888326	1.04676227	0.02722263
ENSG00000249239	0.271936004	2.54238599	9.349206985	3.224843998	0.027227521
ENSG00000115414	58926.67374	16123.43095	0.273618549	-1.869762061	0.02725803
ENSG00000196542	8.000232733	29.08881441	3.635996024	1.862350622	0.027266013
ENSG00000176399	21.60570069	55.08806846	2.549700621	1.35032786	2.75E-02
ENSG00000120658	447.4263088	209.2730836	0.467726371	-1.096263324	0.027489303
ENSG00000149571	72.55873192	132.4425101	1.825314564	0.868145111	0.027544161
ENSG00000102383	170.3738698	368.9291685	2.165409337	1.11463977	0.027860732
ENSG00000018625	2512.360113	853.5135943	0.339725818	-1.557557233	0.02790665
ENSG00000008196	6101.089774	720.5790466	0.118106613	-3.081838353	0.027925708
ENSG00000158815	29.16814402	9.696440827	0.332432561	-1.588866396	0.027937515
ENSG00000264840	1.100237993	9.74477627	8.856971251	3.146813436	0.028045028
ENSG00000267034	148.9528844	40.86846849	0.274371783	-1.865795975	0.028094489
ENSG00000123609	18.60714492	3.069516281	0.164964388	-2.599773478	0.028096037
ENSG00000021300	309.298145	863.4464738	2.791631595	1.481108565	0.028339834

ENSG00000112852	1777.463477	855.7463294	0.481442427	-1.054564812	0.02840508
ENSG00000259520	14.21361139	2.759648933	0.194155367	-2.364716509	2.84E-02
ENSG00000212916	30.90423112	10.79127521	0.349184394	-1.517939013	0.028511351
ENSG00000173210	12.91066859	4.200005786	0.325312803	-1.620100493	0.028512821
ENSG00000241622	5.301315082	0.828809898	0.156340433	-2.677237152	0.028518488
ENSG00000228065	126.6793721	44.16052494	0.348600756	-1.520352395	0.028572927
ENSG00000157388	49.76606789	23.68275423	0.475881564	-1.07132553	0.028592225
ENSG00000112796	8.753918161	16.37001745	1.87002176	0.903055058	0.028625381
ENSG00000183317	2.522932747	6.307415421	2.500033118	1.321947206	0.028671665
ENSG00000186676	46.20415394	103.9173149	2.24909031	1.169341592	0.028722791
ENSG00000251229	9.553308105	3.339690756	0.349584743	-1.516285874	0.028809476
ENSG00000261303	5.749007797	0	0	-Inf	0.028874044
ENSG00000261925	0.91603287	0	0	-Inf	0.028888972
ENSG00000214533	1.86927206	0.304280796	0.162780369	-2.619001367	0.028973458
ENSG00000230310	3.309819201	0.309287083	0.09344531	-3.419733926	0.029047628
ENSG00000267586	33.78869465	6.781279148	0.200696689	-2.316911278	0.029124154
ENSG00000185215	220.9905008	115.6167532	0.523175217	-0.934633893	0.029277365
ENSG00000154485	3.503131449	0.651089759	0.185859357	-2.427716772	0.029408091
ENSG00000180318	9.611163294	74.92738389	7.795870447	2.962710116	2.95E-02
ENSG00000227195	103.0807467	39.72131589	0.385341755	-1.375789571	0.029535827
ENSG00000261211	3.528941766	0.979464304	0.277551847	-1.849170803	0.029634223
ENSG00000135111	42.19142345	1.598409264	0.037884696	-4.722241007	0.02969303
ENSG00000200087	33.61446166	16.62027757	0.494438309	-1.016137569	0.029697038
ENSG00000215018	8.261450012	3.108048622	0.376211031	-1.410385946	0.029727209
ENSG00000229404	12.81700892	0	0	-Inf	0.029749623
ENSG00000143333	240.1887092	40.28357048	0.167716337	-2.575904869	0.029921058
ENSG00000258670	0	1.606831109	Inf	Inf	0.029970997
ENSG00000188730	95.6822872	28.46397489	0.297484265	-1.749114733	0.029989908
ENSG00000241484	11.97169292	4.491868913	0.375207495	-1.414239447	0.030230607
ENSG00000142959	4.127593066	1.102609403	0.267131325	-1.904378935	0.030244187
ENSG00000134463	5.893747704	1.567557178	0.265969508	-1.910667237	0.030260976
ENSG00000254133	8.186590503	2.35021388	0.287080913	-1.800470678	0.030345286
ENSG00000071462	2502.432339	1298.684615	0.518968923	-0.946279946	0.030362836
ENSG00000112379	87.13414732	51.84933254	0.595051815	-0.748912795	0.030456091
ENSG00000176293	35.0495467	17.92770438	0.511496041	-0.967205021	0.030485426
ENSG00000154153	76.30017494	42.81686623	0.561163408	-0.833507156	0.030526783
ENSG00000225889	79.62040512	42.64291702	0.535577745	-0.900832082	0.030622207
ENSG00000228601	9.288613914	0.321333957	0.034594393	-4.853317977	0.030768534
ENSG00000179909	684.767858	267.8884902	0.391210667	-1.353982388	0.030806319
ENSG00000128849	2050.36313	964.3579167	0.470335182	-1.088238841	0.031040523
ENSG00000171954	0.220266052	1.908422172	8.664168437	3.11506129	0.031096961
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ENSG00000249678	1.339861782	0	0	-Inf	0.03137314

ENSG00000203472	6.425865652	18.65046836	2.902405585	1.537249137	3.15E-02
ENSG00000249395	65.34924047	23.14733964	0.354209773	-1.497324076	0.031489227
ENSG00000137225	5.676181711	20.41352593	3.596348208	1.846532713	0.031557831
ENSG00000162620	5.556793523	18.6362648	3.353780328	1.745788196	0.031577496
ENSG00000112319	507.9283713	39.6100531	0.077983541	-3.68068652	0.0315919
ENSG00000196549	335.3452333	115.7071306	0.345038841	-1.53516932	0.031611294
ENSG00000137393	42.45964455	133.8935635	3.153431097	1.656922411	3.18E-02
ENSG00000229108	3.158337476	0.155660692	0.049285643	-4.342688751	0.031770817
ENSG00000165617	962.3293262	417.9290848	0.434289046	-1.203272531	0.031792076
ENSG00000251868	1.769047202	0.148620104	0.084011384	-3.573271352	3.18E-02
ENSG00000160867	276.1923135	166.5197179	0.602912209	-0.72998015	0.031908931
ENSG00000142233	18.97484869	4.793091567	0.25260236	-1.985059975	0.031956764
ENSG00000236166	15.40237443	5.137299341	0.33353944	-1.58407073	0.032045616
ENSG00000251002	50.57436662	12.60901496	0.24931632	-2.003950773	3.21E-02
ENSG00000144671	2.263492621	0.309287083	0.136641525	-2.871532118	0.032138693
ENSG00000213958	3.691087188	0.910808087	0.246758757	-2.01882681	0.032205016
ENSG00000196139	17.28814813	8.352165726	0.483115118	-1.049561095	0.032260738
ENSG00000163219	8.57545646	1.717273902	0.200254518	-2.320093301	0.032311645
ENSG00000175701	191.7145157	84.39911998	0.440233332	-1.183659714	0.032320324
ENSG00000170909	4.646565935	14.11610843	3.037965808	1.603105632	0.032511127
ENSG00000169508	13.27122192	3.329393547	0.250873173	-1.994969892	0.032529981
ENSG00000138135	32.01171817	0.803334892	0.025095026	-5.316454762	0.032541313
ENSG00000268705	4.588034123	0.958342539	0.208878686	-2.259262807	0.032566712
ENSG00000121871	192.7213028	88.12968869	0.457290852	-1.128816037	0.032728473
ENSG00000157111	1.004909142	0	0	-Inf	0.032765015
ENSG00000112561	96.68815386	42.84038106	0.443077868	-1.17436783	0.032777711
ENSG00000229151	4.850536172	0.476994649	0.098338541	-3.346099242	3.28E-02
ENSG00000120279	3.894650048	0.803334892	0.206266258	-2.277420256	0.032832354
ENSG00000128040	0.230518567	2.179249693	9.453684029	3.240876646	0.032941914
ENSG00000120327	436.8759628	225.7158741	0.516658945	-0.952715846	0.033016675
ENSG00000186326	1.135887739	6.445350047	5.674284372	2.504438454	0.033018136
ENSG00000123500	92.39049462	2.572214237	0.02784068	-5.166661718	0.033165882
ENSG00000052850	554.4504486	14.21257436	0.025633624	-5.28581873	0.033168028
ENSG00000134716	2.484849035	6.020957923	2.423067896	1.276834831	0.033284389
ENSG00000225492	20.18435032	0.842238029	0.04172728	-4.582865323	0.033334221
ENSG00000267454	77.25659838	34.49167804	0.44645608	-1.163409839	3.34E-02
ENSG00000201793	3.559469215	0.469954061	0.132029253	-2.921070481	0.033471872
ENSG00000162882	7.21233902	2.817195957	0.390607811	-1.356207296	0.033491983
ENSG00000138134	165.2418961	89.86165585	0.543818837	-0.878801969	0.03370193
ENSG00000124145	997.3256081	1794.570167	1.799382421	0.847501834	0.033714344
ENSG00000201451	3.197785255	0.316327671	0.098920861	-3.337581393	0.033758995
ENSG00000205890	6.996744589	2.596590236	0.371114052	-1.430065466	0.033925884
ENSG00000085741	32.26641535	1.01291758	0.031392318	-4.993444617	0.033952803

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ENSG00000259619	0	1.203042009	Inf	Inf	0.034149765
ENSG00000106077	288.0290297	147.3770814	0.511674402	-0.966702036	0.034287504
ENSG00000115107	130.9654479	76.35981861	0.583053163	-0.778300661	0.034341268
ENSG00000106066	399.6590839	785.6091486	1.965698217	0.97504185	0.034402915
ENSG00000177459	4.443872856	11.97449354	2.694607592	1.430075193	0.034482646
ENSG00000243910	5.005549836	1.879249357	0.375433153	-1.413372041	0.034518257
ENSG00000119943	92.84872787	34.72110613	0.373953493	-1.419069235	0.034539084
ENSG00000164171	644.9711706	314.4764232	0.487582139	-1.036282815	0.034697387
ENSG00000205929	1082.655129	364.5524917	0.336720791	-1.570375289	0.034761403
ENSG00000211445	373.6144263	688.6372018	1.843176155	0.882193958	0.034778429
ENSG00000069667	436.6177494	217.5563607	0.498276493	-1.004981582	0.034940753
ENSG00000118640	48.24488501	24.99019296	0.517986372	-0.949013953	0.035089842
ENSG00000070729	23.68944587	9.045657952	0.381843374	-1.388947104	0.035102982
ENSG00000225490	4.087960393	0.346808962	0.084836674	-3.559168132	3.53E-02
ENSG00000054219	2.249442073	0.649055457	0.288540641	-1.79315356	3.56E-02
ENSG00000152208	63.46015698	202.2245687	3.186638331	1.672035289	0.035591046
ENSG00000248334	67.1702299	30.03245015	0.447109533	-1.161299787	3.56E-02
ENSG00000163359	33086.62516	523.5399959	0.015823312	-5.981804578	0.035614853
ENSG00000076356	5219.678974	2440.913753	0.467636758	-1.09653976	0.035752058
ENSG00000148123	136.0895722	280.7270352	2.06281077	1.044611483	0.035845319
ENSG00000256682	2.490213155	0.466982077	0.18752695	-2.414830153	0.035963508
ENSG00000008441	331.7753171	61.91876091	0.186628594	-2.421758053	0.036001537
ENSG00000133800	18.13377028	0.608561593	0.033559573	-4.897131818	0.036050514
ENSG00000244588	2.562795515	0	0	-Inf	0.036157877
ENSG00000236754	5.562646221	0.920253773	0.165434532	-2.59566769	3.62E-02
ENSG00000103723	860.0995689	469.2176065	0.545538707	-0.874246533	0.036278868
ENSG00000082781	4038.77169	8622.213688	2.134860386	1.094141725	0.03640474
ENSG00000125462	3.502444657	14.67992417	4.19133651	2.067410356	0.036515007
ENSG00000182472	1.98441915	6.652031143	3.35213009	1.745078139	0.036559304
ENSG00000242020	4.095552653	0.495429067	0.120967573	-3.047307724	0.03656703
ENSG00000266918	13.92396874	35.1372778	2.523510247	1.335431945	0.036567809
ENSG00000077713	167.116804	86.33379333	0.516607494	-0.952859523	0.036651496
ENSG00000258323	2.862372114	0.651089759	0.2274651	-2.136282886	0.036852838
ENSG00000100767	155.3991306	41.85124722	0.269314552	-1.892635909	0.036912682
ENSG00000196960	3.508027456	1.160600002	0.330841197	-1.595789203	0.036943602
ENSG00000101333	754.0835828	375.9752502	0.498585646	-1.004086746	3.71E-02
ENSG00000182901	35.02976169	16.40351522	0.468273674	-1.094576161	0.037151665
ENSG00000188783	38.90018514	6.785376301	0.174430437	-2.51927629	0.03717049
ENSG00000234883	5.250394559	1.977363025	0.376612272	-1.408848083	0.037265728
ENSG00000256232	6.517664466	16.89228079	2.591769012	1.373937146	0.037496322
ENSG00000138646	115.9332898	262.6410327	2.265449666	1.179797437	0.037552024
ENSG00000176532	3.624270617	1.590060199	0.438725572	-1.188609296	3.76E-02

ENSG00000106006	8.142514404	1.245285539	0.15293624	-2.708997783	0.03770378
ENSG00000173809	3.859270201	1.403918215	0.363778161	-1.458869162	0.03793488
ENSG00000244642	27.19493361	49.48331592	1.819578479	0.863604276	0.037978572
ENSG00000169894	15.11870418	27.68777527	1.831359021	0.872914646	0.038120265
ENSG00000012171	107.8687582	57.97430982	0.537452278	-0.895791435	0.038194251
ENSG00000102683	104.3830623	40.43911287	0.387410677	-1.368064379	0.038203483
ENSG00000238261	288.8299857	111.2581803	0.385203012	-1.376309112	0.038324818
ENSG00000239268	21.6930678	9.634459176	0.444126173	-1.170958502	0.038515914
ENSG00000177992	8.142514404	0.304280796	0.03736939	-4.741999175	0.038534913
ENSG00000228238	1.655458587	0.148620104	0.089775791	-3.477529731	0.038586999
ENSG00000106991	915.4538497	134.0929215	0.146476987	-2.771254076	0.038745058
ENSG00000104953	45.36604796	13.27510133	0.292621948	-1.772890112	0.038757812
ENSG00000149488	6.637213277	0.799709863	0.1204888	-3.053029048	0.038783494
ENSG00000183196	62.72112819	140.2306125	2.235779499	1.160777911	0.0388144
ENSG00000196104	23.57483287	13.04660998	0.553412618	-0.853572557	3.90E-02
ENSG00000115828	15.72512518	4.260879824	0.270959994	-1.883848234	0.039194154
ENSG00000106665	5554.340604	2836.086922	0.510607311	-0.969713899	0.039229318
ENSG00000145945	7.48150852	1.446002806	0.193276904	-2.371258843	3.93E-02
ENSG00000258405	45.86531749	7.512988226	0.163805434	-2.60994488	0.039294788
ENSG00000237440	326.4593148	158.0742147	0.484208009	-1.046301154	0.039308612
ENSG00000237697	28.03025462	7.962930521	0.284083417	-1.815613475	0.03935149
ENSG00000269396	4.425479421	0.889772481	0.201056744	-2.314325369	0.039572661
ENSG00000160179	648.2465618	214.3720186	0.330695188	-1.596426042	0.039627443
ENSG00000266965	0	0.919882978	Inf	Inf	0.039744733
ENSG00000158859	79.32701217	40.97942578	0.516588545	-0.952912442	0.039783912
ENSG00000260661	6.992531567	1.765746036	0.252518851	-1.985537004	3.98E-02
ENSG00000141934	32.01888373	132.4096695	4.135361827	2.048013565	0.039863638
ENSG00000214402	1.755268456	0	0	-Inf	3.99E-02
ENSG00000069535	6.587952242	2.51625794	0.381948418	-1.388550277	0.039909208
ENSG00000124205	45.61858379	1.245285539	0.027297768	-5.19507317	0.040157324
ENSG00000167701	54.52221731	27.21884617	0.499224857	-1.002238324	0.040184373
ENSG00000109625	2.617578612	0.649055457	0.247960254	-2.01181921	0.040411669
ENSG00000255150	4.536962149	1.501959103	0.331049511	-1.594881093	0.04046963
ENSG00000264433	16.66951144	1.225101456	0.073493543	-3.766238687	0.040486297
ENSG00000160932	457.3909448	202.1525305	0.441968808	-1.177983541	0.040570343
ENSG00000249487	1.725388304	0.148620104	0.086137192	-3.537219891	4.06E-02
ENSG00000165996	335.5346397	615.1608933	1.833375219	0.874502078	0.040729636
ENSG00000198585	2633.10384	1302.23541	0.494562877	-1.015774143	0.040836004
ENSG00000269225	5.078642016	0.466982077	0.091950186	-3.4430037	0.040872707
ENSG00000106635	1844.668945	989.3251936	0.53631585	-0.898845204	0.040900695
ENSG00000244731	89.96553009	46.3689569	0.515408033	-0.956213072	4.11E-02
ENSG00000163132	146.3132224	15.51330546	0.106028049	-3.237482129	4.14E-02
ENSG00000133321	1.310253432	0.160666978	0.122622826	-3.027700537	0.041485718

ENSG00000225649	53.68668467	29.31118146	0.545967434	-0.873113196	0.041497219
ENSG00000257831	2.491767824	0.309287083	0.124123556	-3.010151163	0.041512734
ENSG00000166743	30.59405888	4.962749664	0.162212856	-2.624039933	0.041561375
ENSG00000179603	24.16524683	57.76096509	2.390249332	1.257161117	0.041589023
ENSG00000186815	982.5671405	541.7747799	0.551387033	-0.858862756	4.16E-02
ENSG00000249669	13.00226014	0	0	-Inf	0.041710948
ENSG00000230126	0.610686677	2.402754618	3.934512914	1.976185044	0.041763968
ENSG00000101638	9.876506685	28.48314657	2.883929255	1.528035775	0.041821354
ENSG00000265174	3.723673108	0.148620104	0.039912232	-4.647025238	0.041849003
ENSG00000183049	1982.464334	1053.905801	0.531614003	-0.911548988	0.041958593
ENSG00000144771	25.22702034	1.677064675	0.066478904	-3.910959583	0.041968091
ENSG00000136235	555.60499	1.991728838	0.003584793	-8.123894499	4.20E-02
ENSG00000164128	196.5246615	98.40728216	0.500737574	-0.99787338	0.042139213
ENSG00000115594	293.1141209	41.27626593	0.14081978	-2.828078104	4.22E-02
ENSG00000124557	0.230518567	2.14091583	9.287389993	3.215273217	4.22E-02
ENSG00000263603	11.72546432	5.080319203	0.433272326	-1.206654002	0.042178536
ENSG00000159212	56.04911931	127.175915	2.269008265	1.182061864	0.04223409
ENSG00000188916	142.6671688	65.02049392	0.455749522	-1.133686953	0.04227369
ENSG00000227321	1.979060738	0.160666978	0.08118345	-3.622670539	0.042317558
ENSG00000243193	0	0.955370555	Inf	Inf	0.042599906
ENSG00000155754	6.877250152	2.565455899	0.373035129	-1.422616598	0.042767832
ENSG00000104415	102.1323025	0.627649055	0.006145451	-7.346265406	0.042955981
ENSG00000172209	14.28018994	5.468804808	0.38296443	-1.384717694	0.042957206
ENSG00000176435	2.64860796	0.148620104	0.056112534	-4.155533125	0.04305758
ENSG00000229373	5.286093624	0.778303462	0.147236034	-2.763797298	0.043115049
ENSG00000171951	952.2988709	475.6116136	0.499435238	-1.001630478	0.043204457
ENSG00000133466	2009.431438	1031.822831	0.513489941	-0.961592079	0.043221591
ENSG00000149527	47.87300431	22.57708191	0.471603615	-1.084353317	0.04329377
ENSG00000111262	15.10150557	2.4423108	0.161726312	-2.628373679	0.04334448
ENSG00000064225	124.0266794	240.4692431	1.938850934	0.955201888	0.043376792
ENSG00000010704	44.91114432	17.88006741	0.398120949	-1.328721307	0.043440942
ENSG00000268442	21.39596847	9.973289869	0.466129396	-1.101197596	0.043471862
ENSG00000075035	685.7789927	289.2440664	0.421774463	-1.245456347	4.35E-02
ENSG00000064201	12.12662794	3.560296478	0.293593281	-1.768109145	0.043539089
ENSG00000218757	1.498943378	0.160666978	0.107186823	-3.221800537	0.043575952
ENSG00000161281	4.063293563	0.96741743	0.238087014	-2.070439164	0.043581356
ENSG00000254238	18.65678382	4.042950458	0.216701362	-2.206219876	0.043607221
ENSG00000126759	38.53360264	15.76072552	0.40901251	-1.289783126	0.043837115
ENSG00000113721	4529.154587	1687.242576	0.372529253	-1.424574376	0.043846554
ENSG00000256913	38.92104635	71.77923636	1.84422679	0.883016079	0.043967893
ENSG00000145476	635.1011293	278.2946191	0.438189457	-1.190373321	0.044021879
ENSG00000188987	1.901584274	6.009561708	3.160292073	1.660057898	0.044264726
ENSG00000232564	1.359680021	0.148620104	0.109305206	-3.193565986	0.04431313

ENSG00000204049	1.391531735	0.155660692	0.11186284	-3.160197227	0.044349741
ENSG00000258930	1.132087803	5.022132512	4.43616873	2.149314239	4.44E-02
ENSG00000248979	0.128737137	1.96763509	15.28412967	3.933962497	4.44E-02
ENSG00000172889	718.8704731	1275.157444	1.773834776	0.826871636	0.044410961
ENSG00000168056	1659.769625	867.2994902	0.522542091	-0.936380843	0.044561769
ENSG00000196867	813.9585926	348.6609312	0.428352172	-1.223130691	0.044562029
ENSG00000227486	7.910482874	2.767344953	0.34983262	-1.515263274	0.044582438
ENSG00000255406	1.140098858	8.709958182	7.639651704	2.933506866	0.044649069
ENSG00000224596	3.626970675	9.096007837	2.507880171	1.326468416	0.044724509
ENSG00000259964	3.399976436	0.615602181	0.18106072	-2.465454499	0.044775201
ENSG00000167105	17.20520922	33.72842231	1.960361068	0.971119401	0.04485237
ENSG00000163293	8.197152412	22.3751285	2.729622115	1.44870124	0.044941619
ENSG00000261970	9.592259695	2.729538436	0.284556353	-1.813213705	0.044944185
ENSG00000143127	92.13974291	14.94904395	0.16224317	-2.623770351	0.044991854
ENSG00000106153	2225.483592	750.6944676	0.337317458	-1.567821109	0.045009504
ENSG00000242602	3.367475522	0.703630497	0.208948957	-2.25877754	0.045071213
ENSG00000171219	164.6406504	300.0277577	1.822318832	0.865775394	0.045078804
ENSG00000009954	14958.56537	7971.287562	0.532891181	-0.908087138	0.045135761
ENSG00000187258	2.951661471	0.155660692	0.052736635	-4.245050683	0.045213548
ENSG00000140092	336.7622203	78.74162445	0.23381965	-2.096531917	0.045284384
ENSG00000189129	22.96126221	11.25522352	0.490183136	-1.028607243	0.045494478
ENSG00000041982	23740.18744	2982.356326	0.125624801	-2.992806782	0.045515842
ENSG00000184956	11.47452763	3.393328115	0.295727042	-1.757661922	0.045615033
ENSG00000204789	42.10306953	104.3315267	2.478002859	1.309177852	0.045670966
ENSG00000166888	1665.304198	849.2113162	0.509943659	-0.971590235	0.045688821
ENSG00000159289	1.937645204	0.160666978	0.082918678	-3.592159077	0.045725289
ENSG00000268392	11.88694912	4.393828025	0.369634629	-1.435828175	0.045725725
ENSG00000228809	4.352343941	0.750141109	0.172353362	-2.536558658	0.045848994
ENSG00000236016	0.271936004	1.702096105	6.25917892	2.645973417	0.04586884
ENSG00000081189	408.2316195	224.065583	0.54886876	-0.865466866	0.045902505
ENSG00000267296	1.266592631	5.443985234	4.298134302	2.103710563	0.045935549
ENSG00000180875	242.2302156	59.83647296	0.247023159	-2.017281793	4.61E-02
ENSG00000196963	164.3719203	61.90620705	0.376622765	-1.40880789	0.046193253
ENSG00000267838	6.745532293	2.20566238	0.32698122	-1.612720316	0.046203876
ENSG00000111012	80.92371134	42.28334627	0.522508738	-0.936472932	0.046254598
ENSG00000213949	2566.41632	437.8296249	0.170599611	-2.551313741	4.64E-02
ENSG00000239911	14.95627631	3.800728865	0.25412267	-1.976403014	4.64E-02
ENSG00000153802	4.135415421	0.778303462	0.18820442	-2.409627583	0.04656363
ENSG00000247317	0.91603287	0	0	-Inf	0.046591418
ENSG00000198467	5780.899561	3048.885154	0.527406699	-0.923012199	4.68E-02
ENSG00000007402	1093.557851	538.3315519	0.49227533	-1.022462653	0.04695076
ENSG00000248131	3.158141165	11.55597558	3.659106725	1.871491495	0.047099058
ENSG00000232524	3.845866951	14.38957489	3.741568566	1.903643214	4.72E-02

ENSG00000133433	3.969475772	0.798328606	0.201116886	-2.313893878	0.047237481
ENSG00000258185	0.780843154	0	0	-Inf	0.047254376
ENSG00000198046	686.3442596	281.2709136	0.409810251	-1.286972021	0.047283413
ENSG00000138315	0.99689999	0	0	-Inf	0.047297882
ENSG00000142156	11286.22434	6385.137925	0.565746146	-0.821773243	0.047313664
ENSG00000128709	43.14887376	0.627649055	0.014546128	-6.10322098	4.75E-02
ENSG00000260910	58.68877724	14.42445545	0.245778769	-2.024567795	0.047554038
ENSG00000118777	389.3584751	1173.395015	3.013662448	1.591517834	0.047611944
ENSG00000162552	79.96810484	501.2320672	6.267899786	2.647982114	0.047694929
ENSG00000143669	787.5669905	1318.796828	1.674520192	0.743747773	0.047936843
ENSG00000225015	11.3829099	1.941431873	0.170556728	-2.551676425	0.048043058
ENSG00000212673	13.90898958	5.721976655	0.41138694	-1.281432102	0.048085443
ENSG00000171408	112.1321986	42.30371648	0.37726645	-1.406344287	0.048164843
ENSG00000267621	23.66826453	11.0600265	0.467293514	-1.097599082	0.048295895
ENSG00000113211	39.84562817	12.95217187	0.325058795	-1.621227406	0.048352867
ENSG00000248174	0.89511856	5.031209789	5.620718877	2.49075466	0.048395414
ENSG00000134160	2.347014287	0.148620104	0.06332305	-3.981125434	0.048419744
ENSG00000174527	28.74682903	12.95030367	0.450495032	-1.150416898	0.048560588
ENSG00000154237	110.7417429	58.20991328	0.525636601	-0.927862359	0.048568352
ENSG00000133121	467.6545984	245.1512688	0.524214387	-0.931771145	0.048652679
ENSG00000229776	17.06994401	6.108699216	0.357862874	-1.482521215	0.048707308
ENSG00000152953	693.1615773	298.6610468	0.430867862	-1.214682602	0.048878082
ENSG00000259221	0.71247001	0	0	-Inf	0.048937965
ENSG00000197182	1.987758584	0.311321385	0.156619313	-2.674665966	4.91E-02
ENSG00000263612	2.56082776	0.663136633	0.258954016	-1.949232161	0.049289827
ENSG00000108375	273.1810211	87.48552867	0.320247462	-1.642740958	0.04956678
ENSG00000029153	555.7650396	1121.518671	2.017972689	1.012906649	4.96E-02
ENSG00000255441	7.384736958	1.993392345	0.269934103	-1.88932084	4.96E-02
ENSG00000263146	0.271936004	1.747755193	6.427082718	2.68416404	0.049728423
ENSG00000222069	1.79531802	0	0	-Inf	0.049845175
ENSG00000225581	41.96158374	6.753928778	0.160955049	-2.635270259	0.049919114
ENSG00000182902	155.0371846	77.09828696	0.497289003	-1.007843567	0.049981907

Supplementary Table 9. Differentially expressed genes in WS compared to TD in neurons.

ENSEMBL ID	Expression TD	Expression WS	Fold-change	Log2(Fold-change)	P-value
ENSG00000219438	0.460544494	495.7274727	1076.39431	10.07199095	2.23E-10
ENSG00000268379	213.999796	20.01062929	0.093507703	-3.418770979	8.93E-10
ENSG00000198467	1045.214468	177.7168664	0.170029091	-2.556146487	2.99E-08
ENSG00000007314	17.9397565	0.391587456	0.021827914	-5.517681949	1.63E-07
ENSG00000117154	28.92426781	237.4575128	8.209629171	3.037317057	2.33E-07
ENSG00000118194	94.43004346	3.161257285	0.033477241	-4.900675573	3.58E-07
ENSG00000231689	21.05412242	425.6454614	20.21672778	4.3374776	1.37E-06
ENSG00000231205	294.0173566	59.17038389	0.201247928	-2.312954164	2.32E-06
ENSG00000226521	18.452828	119.492551	6.47556846	2.695006846	2.41E-06
ENSG00000217027	0	9.673168832	Inf	Inf	2.91E-05
ENSG00000101417	82.71103144	11.18271168	0.135202179	-2.886809692	3.83E-05
ENSG00000235616	0	29.3302623	Inf	Inf	7.83E-05
ENSG00000236330	7.674235725	0	0	-Inf	7.97E-05
ENSG00000213671	0.755107481	14.05083623	18.60773013	4.217830173	8.16E-05
ENSG00000130182	0.381362554	13.59382706	35.64541644	5.155644671	9.74E-05
ENSG00000177791	51.33556034	7.724825111	0.150477078	-2.732384357	0.000119159
ENSG00000162761	0	10.80159677	Inf	Inf	1.23E-04
ENSG00000235602	140.093778	39.46797015	0.281725361	-1.827638655	0.000132126
ENSG00000265790	0.747489854	16.39509189	21.93353099	4.455066179	0.000170187
ENSG00000231806	10.76795675	152.7952521	14.18980923	3.826783289	0.000194114
ENSG00000229231	26.03206879	3.419524049	0.131358137	-2.928422528	0.000199111
ENSG00000259048	1.791739754	13.957648	7.789997386	2.961622844	0.000211907
ENSG00000159166	9.717368105	0.391587456	0.040297687	-4.633159167	0.000213205
ENSG00000233098	103.5320192	3469.956799	33.51578406	5.066768779	0.000222008
ENSG00000251441	9.131947334	0	0	-Inf	0.000265233
ENSG00000173868	0.373744927	12.69167188	33.95811141	5.08568432	0.000266061
ENSG00000228523	9.393723057	0.463468384	0.049338093	-4.341154228	0.000279477
ENSG00000087510	3.93888537	17.33028661	4.399794608	2.137436177	0.000327829
ENSG00000234643	0.957450333	10.3447647	10.80449224	3.433559369	0.000371153
ENSG00000159251	1193.007745	8.932161293	0.007487094	-7.06137839	0.000535444
ENSG00000167383	1583.970687	225.8374441	0.142576783	-2.810189025	0.000653915
ENSG00000188488	12.48721402	0.783174911	0.062718146	-3.994973278	0.000685873
ENSG00000180318	1.951262012	53.36521343	27.34907618	4.773420196	0.000717544
ENSG00000161640	0.496905839	13.85568477	27.88392422	4.801361707	7.32E-04
ENSG00000234627	10.21519212	0.86720393	0.084893551	-3.558201232	0.000748202
ENSG00000239392	2.949335881	17.04221447	5.7783227	2.530650776	0.000833034
ENSG00000230832	7.41443922	28.88613191	3.895929422	1.961967542	0.000916056
ENSG00000130270	56.65641754	12.56973436	0.221858969	-2.17228522	0.000927602
ENSG00000103316	6.199693999	25.68904438	4.143598763	2.050884309	0.000962997

ENSG00000213115	3.813625541	126.0553325	33.05393546	5.046750147	0.001140476
ENSG00000268119	163.1732868	51.07118913	0.312987439	-1.675823336	0.001145319
ENSG00000228649	12.23547162	1.936503937	0.15826966	-2.659543372	0.001173282
ENSG00000204252	3.573664823	15.63131541	4.374029514	2.128962955	0.001194527
ENSG00000159871	48.78706661	9.490165466	0.194522158	-2.361993595	0.001251657
ENSG00000161905	12.7418538	1.461586772	0.114707545	-3.123967803	0.001312344
ENSG00000204860	86.73223796	25.51333071	0.294162025	-1.765317084	0.001536091
ENSG00000229604	2.639067371	16.08519282	6.09502925	2.607633144	0.001573058
ENSG00000266296	6.85229639	0.475616475	0.069409793	-3.848716961	0.00178891
ENSG00000237872	135.9307803	51.21072091	0.376741168	-1.408354405	0.001869188
ENSG00000250927	1.259630948	9.074767234	7.204306349	2.84885953	0.001979671
ENSG00000173040	393.0192343	20.49486335	0.052147227	-4.261265644	0.001988445
ENSG00000184254	77.19715328	12.18463492	0.157837879	-2.663484622	0.002044853
ENSG00000112343	22.46949464	3.5242871	0.156847635	-2.672564316	0.002123808
ENSG00000228648	32.75956179	3.979868853	0.121487243	-3.041123263	0.002294537
ENSG00000174343	47.22927784	9.166682885	0.194088991	-2.365209806	2.30E-03
ENSG00000198300	23570.53012	17.45577715	0.000740576	-10.3990639	0.002353445
ENSG00000244280	0	5.417159443	Inf	Inf	0.002377809
ENSG00000250268	6.010389342	0	0	-Inf	0.002441347
ENSG00000260442	0.921088988	8.076406144	8.768323421	3.132301013	0.002533287
ENSG00000249489	4.576350649	0	0	-Inf	0.00277999
ENSG00000253204	30.57695337	8.206863995	0.268400318	-1.897541716	0.002809412
ENSG00000230450	2.997577044	64.60268285	21.55163384	4.42972534	0.00282004
ENSG00000220685	36.04552959	8.438217021	0.23409885	-2.094810248	0.00282321
ENSG00000227311	11.22414091	1.937203246	0.172592563	-2.534557796	0.002942027
ENSG00000014257	9.093039163	0.463468384	0.05096958	-4.294219734	0.002958788
ENSG00000049540	183.9955415	62.8005506	0.341315611	-1.550821695	0.00305458
ENSG00000204794	140.4294248	38.09327524	0.271262773	-1.882237021	0.003211221
ENSG00000163694	33.63951497	11.53545121	0.34291372	-1.544082468	0.003223687
ENSG00000229106	0	5.234398779	Inf	Inf	0.003232471
ENSG00000214121	9.474063375	1.532768391	0.161785744	-2.627843608	0.00328823
ENSG00000188133	22.44242477	3.456424928	0.154012989	-2.698876063	0.003298641
ENSG00000184719	72.00329042	19.84749806	0.275647098	-1.859105682	0.003577776
ENSG00000262179	5.979918834	0.475616475	0.079535607	-3.652255308	0.004426557
ENSG00000235590	25.32819431	3.132699645	0.123684287	-3.015265869	0.00449189
ENSG00000167637	825.8293074	227.2642174	0.275195147	-1.861473068	0.004578788
ENSG00000105122	10.09911421	41.10809551	4.070465454	2.025193775	0.004615803
ENSG00000260087	7.532145779	0.534650003	0.070982429	-3.816394245	0.004709968
ENSG00000115194	80.59125574	188.9644199	2.344726089	1.229419397	0.004767256
ENSG00000261116	0	5.550480134	Inf	Inf	0.00485875
ENSG00000074370	28.35638472	8.475423625	0.298889429	-1.742316224	0.004872273
ENSG00000170293	15.455709	48.20485394	3.118902792	1.641038588	0.004900137
ENSG00000006611	31.51773479	3.052932085	0.096863944	-3.36789645	0.00490078

ENSG0000036448	531.3471272	185.5690475	0.349242591	-1.517698584	0.005265463
ENSG00000213333	4.907625553	0	0	-Inf	0.005455927
ENSG00000197320	149.9292227	53.29906214	0.355494821	-1.492099554	0.005456998
ENSG00000215572	5.168614221	18.49996217	3.579288641	1.83967289	0.005764863
ENSG00000198028	611.9459188	43.53582918	0.071143263	-3.813129053	0.005797368
ENSG00000196126	8.719294236	0.475616475	0.054547589	-4.19634077	0.005944253
ENSG00000250579	5.267293605	28.69079819	5.446971508	2.445454321	0.005962281
ENSG00000108515	206.498553	89.10506209	0.431504535	-1.212552373	0.006214715
ENSG00000264660	3.16355855	316.5154029	100.050433	6.644583601	0.006443577
ENSG00000010932	14.65709281	3.040783994	0.207461605	-2.269083737	0.006546474
ENSG00000103710	5.100743687	15.52399782	3.043477339	1.605720624	0.006610512
ENSG00000123146	42.78000905	13.69861891	0.320210753	-1.642906339	0.006648876
ENSG00000028116	33.87969434	10.68374104	0.31534349	-1.665003947	0.00686951
ENSG00000171517	0.921088988	7.498889459	8.141330055	3.025264508	0.006944873
ENSG00000226624	1.338812887	8.611056148	6.43185932	2.685235852	0.006951136
ENSG00000196409	261.7811822	101.1697317	0.386466784	-1.371583671	0.007329037
ENSG00000046889	3052.368238	1210.153224	0.396463706	-1.334739294	0.007379421
ENSG00000138050	220.0055526	92.09626324	0.418608813	-1.25632541	0.007410711
ENSG00000224435	0	7.767383486	Inf	Inf	0.007414205
ENSG00000184012	2.87661319	13.36079849	4.644628111	2.215563087	0.007441228
ENSG00000188171	1122.057211	441.8617554	0.393796102	-1.344479266	0.007512191
ENSG00000113196	0.373744927	8.675749754	23.21302344	4.536862537	0.007734338
ENSG00000165140	2.373248102	11.24624937	4.738758396	2.244509108	0.007812606
ENSG00000112499	8.775284953	0.475616475	0.054199548	-4.205575379	0.008039521
ENSG00000262488	2.856645477	14.56579404	5.098915548	2.350190443	0.0081487
ENSG00000144045	9.705718357	37.69727148	3.884026931	1.957553204	0.008186138
ENSG00000266441	8.60121555	0	0	-Inf	0.008437583
ENSG00000250917	14.11852476	1.852474918	0.131208816	-2.930063436	0.008617551
ENSG00000185187	17.19954593	4.951136525	0.287864374	-1.796538842	0.008648365
ENSG00000114854	66.11984619	11.79730892	0.178423115	-2.486625564	0.008870023
ENSG00000251107	1.683814096	8.870264924	5.267959774	2.397244329	0.009004021
ENSG00000230360	6.609330002	0.926237459	0.140140901	-2.835050022	0.009101504
ENSG00000258788	22.17992716	6.601971973	0.297655259	-1.748285708	0.009303327
ENSG00000184811	0.762725108	13.84609121	18.15344882	4.182171754	0.009406128
ENSG00000153179	99.58058457	44.15946355	0.443454552	-1.173141838	0.009477039
ENSG00000143632	232.733734	18.06270821	0.077611045	-3.687594217	0.009548245
ENSG00000243811	2.438921577	11.24122558	4.609096776	2.20448406	0.009743418
ENSG00000179750	0.841907048	6.871930221	8.162338393	3.028982523	0.009895809
ENSG00000249378	2.789813623	88.36419178	31.67386919	4.985221209	0.009910916
ENSG00000248103	35.67488847	184.9845479	5.185287351	2.374423941	0.009994209
ENSG00000170421	6.737223374	33.27442954	4.93889362	2.304187894	0.010152299
ENSG00000261438	0.460544494	7.72768537	16.77945448	4.068623908	0.010358237
ENSG00000227817	5.124635248	19.70598243	3.845343419	1.943112448	0.010365914

ENSG00000189171	213.02953	94.08247349	0.441640525	-1.179055534	0.01047221
ENSG00000264714	1.8281011	11.28028741	6.170494295	2.625386063	0.010560757
ENSG00000100341	1.741301533	8.74367753	5.021346024	2.328074145	0.010575219
ENSG00000222493	0.460544494	7.49819015	16.28114167	4.025129963	1.07E-02
ENSG00000198046	1703.573048	614.641641	0.360795589	-1.470746395	0.01068977
ENSG00000197587	0.834289421	20.75413515	24.87642133	4.636707052	0.010990471
ENSG00000229007	5.427974241	17.38870611	3.20353512	1.679664807	0.011122461
ENSG00000184898	36.05390981	13.59818034	0.377162433	-1.406742111	0.011633506
ENSG00000118777	17.06149953	3.860859784	0.226290765	-2.143750385	0.011657042
ENSG00000236516	0.878268394	32.86655716	37.42199696	5.225814642	0.011791567
ENSG00000168306	33.43482238	11.96466765	0.357850492	-1.48257113	0.011844531
ENSG00000228974	0.460544494	5.082050982	11.03487513	3.463998399	0.011868417
ENSG00000204612	1.494979708	28.11452924	18.80596043	4.233118082	0.011958233
ENSG00000228236	0	3.372638612	Inf	Inf	0.01203505
ENSG00000216522	3.015009356	15.36671151	5.096737588	2.349574076	0.012036823
ENSG00000187094	9.521834269	1.318524224	0.138473763	-2.852315442	0.012173208
ENSG00000227207	4.472152555	16.99115285	3.799323177	1.925742435	0.012195747
ENSG00000101470	180.1854834	17.66439004	0.098034479	-3.350566947	0.012311008
ENSG00000196604	142.4267523	716.7890573	5.032685541	2.331328456	0.01231979
ENSG00000166736	0.373744927	6.110125628	16.34838411	4.03107614	0.012361953
ENSG00000198161	2.339083815	9.410883311	4.023320264	2.008386584	0.012403974
ENSG00000229789	371.6215299	157.1574903	0.422896624	-1.241623053	0.012611838
ENSG00000172794	1.876342263	17.72436558	9.44623267	3.239739071	0.012630579
ENSG00000259803	18.88718573	5.599072497	0.296448215	-1.754147985	0.012779953
ENSG00000250727	0	4.883274353	Inf	Inf	0.012918308
ENSG00000258738	7.860184944	25.32229241	3.221589898	1.687772853	0.013008938
ENSG00000113209	1043.861316	198.8800991	0.190523488	-2.391959227	0.013107267
ENSG00000204099	0.381362554	10.00983592	26.24755842	4.714111323	0.013258724
ENSG00000184674	350.7629795	979.6994201	2.79305251	1.481842697	0.013268974
ENSG00000224956	10.19027411	33.64296458	3.301477882	1.723111981	0.013272911
ENSG00000213774	7.548911539	0.783174911	0.103746733	-3.268862186	0.013385095
ENSG00000187730	4.675970571	24.01315042	5.135436602	2.360486936	0.013542374
ENSG00000228928	13.21139295	2.853698849	0.216002874	-2.210877585	0.013634672
ENSG00000229593	9.240779746	30.96070883	3.350443326	1.744352004	0.013722498
ENSG00000111679	11.6759094	31.67504275	2.712854447	1.439811645	0.013900719
ENSG00000009954	7622.322759	3559.214892	0.466946232	-1.098671659	0.013946599
ENSG00000185201	351.0783389	72.38440937	0.206177372	-2.278042088	0.014533013
ENSG00000163421	1.252013321	7.803585055	6.232829097	2.639887155	0.014538183
ENSG00000233747	4.819787306	16.86505086	3.499127616	1.806995282	0.014658951
ENSG00000254389	2.368985912	9.647017426	4.072213928	2.025813353	0.014690781
ENSG00000196867	2643.058716	1023.392985	0.387200246	-1.368848225	0.014775212
ENSG00000257108	6.044685556	20.21116416	3.3436254	1.741413225	0.014813558
ENSG00000249176	0.841907048	5.953208065	7.071098976	2.821934453	0.014974956

ENSG00000234026	6.097910803	0	0	-Inf	0.015018958
ENSG00000204381	134.9375882	56.06182157	0.415464826	-1.267201755	0.015030709
ENSG00000113396	25.78983363	8.050254738	0.312148378	-1.679696125	0.015048388
ENSG00000256843	0	5.407174884	Inf	Inf	0.015172417
ENSG00000253869	72.06725353	31.14629552	0.432183745	-1.210283283	0.015250164
ENSG00000168062	3.737449271	0	0	-Inf	0.015352615
ENSG00000215808	4.738878577	87.81847174	18.53148805	4.211906827	0.015608297
ENSG00000232729	272.7426154	109.7179492	0.402276516	-1.313740575	0.015620346
ENSG00000232393	0	3.707047764	Inf	Inf	0.016003912
ENSG00000110195	8.222388397	0	0	-Inf	0.016152954
ENSG00000205890	1.712557815	8.458251743	4.938958365	2.304206807	0.016176264
ENSG00000225548	3.911048405	0	0	-Inf	0.016234048
ENSG00000255210	0	5.489739681	Inf	Inf	0.016449489
ENSG00000198888	2761.300464	5800.75695	2.100733704	1.070893293	0.016533313
ENSG00000228143	8.775973062	1.330672314	0.151626755	-2.721403754	0.016629628
ENSG00000188002	150.7889324	346.8748006	2.300399606	1.201884495	0.016637201
ENSG00000267405	13.81496712	1.318524224	0.09544172	-3.389236147	1.67E-02
ENSG00000101335	44.44599586	8.171427338	0.183850697	-2.443393445	0.016891049
ENSG00000266984	5.108361314	0.391587456	0.076656178	-3.705454116	0.016967478
ENSG00000230798	24.8306113	64.48658259	2.597059807	1.376879238	0.01757512
ENSG00000186150	0	11.070062	Inf	Inf	0.017731846
ENSG00000251571	16.48472364	5.406718277	0.327983556	-1.608304611	0.017852441
ENSG00000250131	4.008350766	18.75612842	4.679263247	2.226281395	1.80E-02
ENSG00000228195	3.47555385	12.61026041	3.628273638	1.859283266	0.01856926
ENSG00000215016	2.989959417	0	0	-Inf	0.018716186
ENSG00000233830	2110.436413	1025.198326	0.485775511	-1.041638334	0.018743024
ENSG00000188306	22.02397898	2.602068398	0.118147061	-3.081344348	0.018776718
ENSG00000228868	0.878268394	6.937631443	7.899215654	2.981709409	0.018891802
ENSG00000225462	0.834289421	6.168459848	7.393669022	2.886290463	0.018939372
ENSG00000232203	0	2.884174737	Inf	Inf	0.019002808
ENSG00000228050	1.417994827	7.842127255	5.530434318	2.467392783	0.019032277
ENSG00000153162	32.80659115	101.6684727	3.099025809	1.63181477	0.019123223
ENSG00000156463	14.6718578	3.992016943	0.272086671	-1.877861812	0.019164014
ENSG00000237819	1.517832589	8.184274738	5.392079993	2.430841899	0.019202834
ENSG00000159374	5.655115407	21.08168754	3.72789696	1.898361984	0.019335699
ENSG00000188112	0	3.17239776	Inf	Inf	0.019602661
ENSG00000259500	5.027550727	0	0	-Inf	0.019659179
ENSG00000265417	30.96440224	90.33894761	2.91750982	1.544737512	0.019701456
ENSG00000170955	10.46485796	2.041966297	0.19512604	-2.35752177	0.019834961
ENSG00000173156	6.226240659	0.926237459	0.148763517	-2.748907332	0.019878103
ENSG00000232362	1.252013321	7.081150597	5.655810909	2.499733887	0.019964097
ENSG00000213967	238.5010429	105.8417442	0.443778957	-1.172086834	0.020137612
ENSG00000137691	72.00830927	11.63567329	0.161587925	-2.629608699	0.020284137

ENSG00000129667	8.178792976	20.70262208	2.531256402	1.339853652	0.020421995
ENSG00000127903	446.2901166	75.33306816	0.168798424	-2.566626664	0.020586845
ENSG00000268297	0.373744927	10.61255942	28.39519321	4.827574823	0.020880849
ENSG00000235677	145.8010027	398.4083417	2.732548708	1.450247212	0.020917555
ENSG00000163612	33.78100353	12.48686126	0.369641513	-1.435801305	0.020994661
ENSG00000147596	0	4.083932594	Inf	Inf	0.021023651
ENSG00000162543	148.3257213	42.32212561	0.285332343	-1.809284805	0.021101855
ENSG00000205212	13.60037313	637.0566141	46.84111297	5.54970345	0.021245691
ENSG00000065833	114.6650417	35.57372058	0.310240332	-1.688541844	0.021309727
ENSG00000132749	4.126429452	0.391587456	0.094897407	-3.397487521	0.021338212
ENSG00000166265	41.7765912	91.76253627	2.196506073	1.135210488	0.021373453
ENSG00000143140	5.606173907	1.010266478	0.180206054	-2.472280615	0.021463102
ENSG00000236695	0	14.07412479	Inf	Inf	0.021711437
ENSG00000254629	25.03517486	5.605252204	0.223895069	-2.15910534	0.021974941
ENSG00000128408	25.77023804	7.208046298	0.279704296	-1.838025681	0.022085244
ENSG00000168765	138.1358688	65.44311884	0.473759056	-1.077774573	0.0220993
ENSG00000222036	1.842177975	10.40443193	5.647897256	2.497713844	0.022639865
ENSG00000197496	245.8466133	98.51093755	0.400700812	-1.319402662	0.022971074
ENSG00000240418	3.207537523	17.03018046	5.30942517	2.408555675	0.023066035
ENSG00000216901	18.33975496	62.10794636	3.386519968	1.759803502	0.023134779
ENSG00000127507	8.058603949	1.389705843	0.172449949	-2.53575039	0.023492716
ENSG00000104689	0.373744927	4.307462011	11.5251384	3.52671217	0.02376984
ENSG00000174599	791.3100903	314.4250939	0.39734751	-1.331526792	0.02379723
ENSG00000106682	2895.768903	1437.642825	0.496463245	-1.010241182	0.023946267
ENSG00000162949	9.697981031	1.174762367	0.121134735	-3.045315477	0.024106455
ENSG00000257635	2.25008719	10.69195565	4.751796151	2.248472947	2.42E-02
ENSG00000230580	1.741301533	7.338718052	4.214501574	2.075362022	0.024661399
ENSG00000233577	0.373744927	5.395026793	14.43505022	3.851504222	0.024746299
ENSG00000230787	4.728725549	13.67307241	2.891492066	1.531814143	0.024804416
ENSG00000136826	95.0640814	311.3864539	3.275542659	1.711733938	0.024916024
ENSG00000257171	10.68614127	1.246643295	0.116659818	-3.099620367	0.024987161
ENSG00000246863	8.246061314	0.463468384	0.056204819	-4.153162356	0.024999383
ENSG00000260928	3.050900433	0	0	-Inf	0.025101344
ENSG00000121691	701.2351625	322.2425335	0.459535618	-1.121751409	0.025108343
ENSG00000196754	0	3.288609592	Inf	Inf	0.025162149
ENSG00000178222	10.15205405	1.246643295	0.122797149	-3.025651027	0.025267813
ENSG00000145536	99.42390726	180.0542025	1.81097492	0.856766566	0.025293969
ENSG00000232797	0.921088988	5.989960643	6.503129147	2.701134075	0.025402517
ENSG00000170891	73.6429859	10.28171241	0.139615637	-2.840467558	0.025544448
ENSG00000174059	26.09901825	4.226995142	0.161959929	-2.626291179	0.025902911
ENSG00000267383	55.75986881	20.86713506	0.374232141	-1.417994626	0.026105468
ENSG00000046604	117.2784277	54.33239416	0.463276966	-1.110053141	0.026206361
ENSG00000099958	146.933593	294.2475577	2.002588731	1.001866168	0.026276384

ENSG00000229695	6.427676758	0.534650003	0.083179354	-3.587630701	0.026398976
ENSG00000250403	9.517572079	2.792259086	0.293379347	-1.769160779	0.026714528
ENSG00000176435	0	4.811636127	Inf	Inf	0.026744228
ENSG00000087116	106.0664666	53.23493294	0.501901634	-0.994523451	2.71E-02
ENSG00000226421	5.568905808	16.63531036	2.987177541	1.578782986	0.027243469
ENSG00000224287	48.94665483	113.7733375	2.324435407	1.216880336	0.027281507
ENSG00000214980	17.47750887	5.676433823	0.324785063	-1.62244281	2.73E-02
ENSG00000198502	2.989959417	0	0	-Inf	0.027356106
ENSG00000260401	0	2.909170227	Inf	Inf	2.74E-02
ENSG00000269640	7.184511028	21.21035577	2.952233727	1.561806943	0.027695134
ENSG00000176928	55.16211549	7.81457723	0.141665655	-2.819438056	0.027769933
ENSG00000130208	6.653779244	16.84979465	2.532364545	1.340485102	0.027887957
ENSG00000236557	18.06249235	1.473734862	0.081590892	-3.615448077	0.028758718
ENSG00000231908	12.54897507	38.97128512	3.105535306	1.634841969	0.028846305
ENSG00000234537	0.381362554	12.44786245	32.64049477	5.028591021	0.02892979
ENSG00000213214	0.373744927	6.557184462	17.54454438	4.132950578	0.029009682
ENSG00000214533	7.417072763	23.66077309	3.190041928	1.673575386	0.029164206
ENSG00000241359	9.893984333	2.008384866	0.202990504	-2.300515856	0.029169722
ENSG00000165929	339.4302694	134.626376	0.396624544	-1.334154136	0.029196654
ENSG00000134184	5.442389459	0.391587456	0.071951384	-3.796833746	0.029559489
ENSG00000196653	630.1591672	327.8270546	0.52022897	-0.942781354	0.029862019
ENSG00000187999	21.03974259	54.54344096	2.592400583	1.374288664	0.029866148
ENSG00000218574	6.839258194	0.475616475	0.069542114	-3.84596926	0.030037996
ENSG00000167785	611.6186726	253.8936169	0.415117504	-1.268408327	0.030166815
ENSG00000166091	0.496905839	8.615560309	17.33841631	4.115900223	0.030462241
ENSG00000180535	16.26091636	4.214847051	0.259201078	-1.947856376	0.030708261
ENSG00000248801	64.89022128	24.78506166	0.381953724	-1.388530238	0.031047343
ENSG00000224557	572.5817572	285.3952076	0.498435733	-1.004520597	0.031104951
ENSG00000228670	0	4.155813523	Inf	Inf	0.031222533
ENSG00000006638	10.48771084	2.125995316	0.202712999	-2.302489491	0.031280519
ENSG00000077238	83.71818828	23.60707166	0.281982591	-1.826321997	0.031308138
ENSG00000267217	48.48893034	10.64614343	0.219558224	-2.18732452	0.031510865
ENSG00000106638	1178.698133	606.4164112	0.514479827	-0.958813586	0.031593643
ENSG00000188859	84.03352197	169.8727866	2.021488361	1.015417897	3.18E-02
ENSG00000265579	287.7263578	134.8806069	0.468780851	-1.093014455	0.032257047
ENSG00000241981	13.10531378	0.86720393	0.066171932	-3.917636791	0.032348204
ENSG00000261787	56.37223765	12.34316501	0.218958223	-2.191272461	0.03241315
ENSG00000213438	0.460544494	5.89067799	12.79068161	3.677021242	0.032414603
ENSG00000230711	2.899466071	12.39022754	4.273279024	2.095343521	0.032476421
ENSG00000231565	0	3.420223359	Inf	Inf	0.032563935
ENSG00000133665	119.2032941	55.87703914	0.468754153	-1.093096623	0.032647286
ENSG00000223668	12.59931515	4.325726786	0.343330311	-1.542330864	0.032788139
ENSG00000268654	124.6071572	0	0	-Inf	0.032970398

ENSG00000256940	1.842177975	10.65612799	5.784526864	2.532198961	0.033068329
ENSG00000166770	1134.687679	435.2827078	0.383614554	-1.382270639	0.033286549
ENSG00000262902	8.454295004	22.54720779	2.666953043	1.415192424	0.033327451
ENSG00000268560	15.00996327	0.463468384	0.030877383	-5.017305709	3.35E-02
ENSG00000138496	148.0096287	69.29836813	0.468201757	-1.094797748	0.033791061
ENSG00000226253	9.269655391	2.138600014	0.230709765	-2.115849028	0.033853487
ENSG00000221319	40.78247496	10.89341802	0.267110273	-1.904492632	0.033973609
ENSG00000203635	2.380865729	10.71841536	4.501898292	2.170533464	0.03408057
ENSG00000232341	0	2.875588796	Inf	Inf	0.034295684
ENSG00000204957	24.91329202	66.32011025	2.662037204	1.412530734	0.034427201
ENSG00000235231	27.8311517	93.30204312	3.352431984	1.745208062	0.034462178
ENSG00000229567	2.746993029	9.350142858	3.403773784	1.767135158	0.034541532
ENSG00000176402	1.899195144	9.01594761	4.747246559	2.247090981	0.034680476
ENSG00000218803	1.581779275	7.79600673	4.928631227	2.301187039	0.035180701
ENSG00000117595	60.86015526	117.7978924	1.93555031	0.952743808	0.035194744
ENSG00000196154	38.92120095	15.57699995	0.400218893	-1.321138822	0.03525685
ENSG00000254399	54.76216707	16.12380062	0.29443321	-1.76398769	0.035384946
ENSG00000232274	131.5823292	38.19894238	0.290304501	-1.784361156	0.035417968
ENSG00000225630	1538.457688	2983.51241	1.939287919	0.955527011	0.035436484
ENSG00000161133	3.662191179	13.61683612	3.718220991	1.894612519	0.035467081
ENSG00000232627	3.201646685	22.09844203	6.90221133	2.787058647	0.035468135
ENSG00000248578	8.718485625	2.993655853	0.343368789	-1.542169184	0.035952742
ENSG00000198763	3136.21195	6010.927924	1.916620439	0.938564659	0.036013399
ENSG00000086967	40.16376158	15.4484287	0.384636003	-1.378434287	0.036111807
ENSG00000105707	0	2.67349272	Inf	Inf	0.036205472
ENSG00000266369	0.834289421	94.57578634	113.3608841	6.824779104	0.036434741
ENSG00000183833	607.1151985	247.324258	0.40737616	-1.295566541	0.036725741
ENSG00000258405	346.0066186	66.94611581	0.193482183	-2.369727376	0.036762528
ENSG00000112812	60.73014093	121.7955512	2.005520641	1.003976815	0.036915197
ENSG00000101292	7.166959017	1.401853934	0.195599547	-2.354025069	0.037046943
ENSG00000241313	8.96007499	1.401853934	0.156455603	-2.676174771	0.037073176
ENSG00000130305	723.0827052	383.7788576	0.53075375	-0.913885435	0.037195138
ENSG00000237086	2.985697227	0	0	-Inf	0.037436151
ENSG00000267799	5.23242898	0	0	-Inf	0.037616554
ENSG00000238517	4.934172213	0	0	-Inf	0.037850973
ENSG00000111058	225.3997711	108.796448	0.482682158	-1.050854594	0.03808857
ENSG00000132837	236.8199275	107.1837601	0.452596034	-1.143704151	0.038153406
ENSG00000248498	19.07622654	6.952025761	0.364434012	-1.456270487	0.038200061
ENSG00000269349	34.95063505	8.200198883	0.234622314	-2.091587864	0.038456174
ENSG00000236764	0.460544494	4.382662387	9.516262696	3.250395098	0.038572063
ENSG00000227578	1.367556606	7.663841954	5.604040023	2.486467259	0.038828405
ENSG00000249266	4.276268952	0	0	-Inf	0.038982045
ENSG00000107438	58.54807534	105.2963353	1.79845938	0.846761575	0.03915785

ENSG00000250877	0.762725108	14.29175143	18.73774873	4.227875724	0.039696592
ENSG00000237683	22.59900652	56.22347688	2.487873828	1.314913322	0.040138865
ENSG00000111319	0	2.433553753	Inf	Inf	0.040251732
ENSG00000106089	1627.443428	864.603219	0.531264684	-0.912497282	0.040341621
ENSG00000069011	1.367556606	11.52811301	8.429715418	3.075483927	0.04048214
ENSG00000238230	4.927242695	24.15127187	4.901579518	2.293246728	0.040505792
ENSG00000109107	251.650743	442.589967	1.758746911	0.81454789	4.06E-02
ENSG00000231386	3.371321971	0	0	-Inf	0.040663756
ENSG00000233040	32.24505261	12.40499577	0.384710049	-1.37815658	0.040758747
ENSG00000187870	15.76805487	182.5677922	11.57833314	3.533355667	0.040922125
ENSG00000248131	9.526446226	1.174762367	0.123315908	-3.019569172	0.040957529
ENSG00000251467	4.738878577	13.91014853	2.935324952	1.553520224	0.040989268
ENSG00000225774	1.252013321	9.529164272	7.611072594	2.928099781	0.041026772
ENSG00000259882	4.143861765	0.534650003	0.129022162	-2.954309199	0.041114829
ENSG00000267201	0	3.276461502	Inf	Inf	0.041134105
ENSG00000235098	30.35715665	9.055040819	0.298283562	-1.74524362	0.041692749
ENSG00000259419	9.543092287	3.005803944	0.314971694	-1.666705913	0.042044753
ENSG00000231233	4.579356319	0.391587456	0.085511462	-3.547738371	0.042127387
ENSG00000162390	36.71085419	15.88860852	0.432804108	-1.208213901	0.042138595
ENSG00000263017	0.496905839	4.756164748	9.571561391	3.258754288	0.042206063
ENSG00000253950	0	5.337700189	Inf	Inf	0.042274196
ENSG00000086730	94.87711827	42.60374912	0.449041348	-1.155079798	0.042278549
ENSG00000172123	121.0050498	51.01721594	0.421612288	-1.246011179	0.042365867
ENSG00000251429	112.3759609	56.34486338	0.501396054	-0.995977453	0.042471016
ENSG00000218857	5.82836397	1.258791386	0.215976798	-2.211051762	0.042597883
ENSG00000198886	10874.96676	20106.40144	1.848870152	0.886643906	0.042655572
ENSG00000125414	49.83123622	0.85505584	0.017159033	-5.864887916	0.042661911
ENSG00000142910	3.108858139	0	0	-Inf	0.042702032
ENSG00000142405	4.891351619	15.56765167	3.182689139	1.670246252	0.042846227
ENSG00000225972	437.5001307	897.8196569	2.052158603	1.037142235	0.042984192
ENSG00000234840	21.88155069	3.504252378	0.160146437	-2.642536395	0.043018534
ENSG00000174950	0	3.149109194	Inf	Inf	0.043078206
ENSG00000234491	0	2.76966983	Inf	Inf	0.043082774
ENSG00000237440	1544.020356	833.2771077	0.539680131	-0.889823522	0.043312
ENSG00000119411	14.28899852	29.45055591	2.061065082	1.043390061	0.043461108
ENSG00000253439	7.141438809	20.4877613	2.868856242	1.520475677	0.043614189
ENSG00000089116	364.6850339	946.1121451	2.594326768	1.375360205	0.043639384
ENSG00000213370	2.972188762	9.053333894	3.046015788	1.606923419	0.043950874
ENSG00000217239	7.36353073	1.81843688	0.246951761	-2.017698839	0.044058701
ENSG00000257113	3.144629517	0	0	-Inf	0.044218503
ENSG00000268723	35.76942536	17.2813255	0.483131203	-1.049513063	0.044530747
ENSG00000166289	33.08301216	68.85934681	2.081411042	1.0575619	0.04456787
ENSG00000221539	18.02760617	4.812092733	0.266929102	-1.905471489	0.044822762

ENSG00000267745	8.38997619	1.902465899	0.226754624	-2.140796122	0.045037685
ENSG00000152779	3.733187081	25.55973987	6.846627107	2.77539344	0.045260002
ENSG00000260682	34.50448422	10.67222923	0.309299776	-1.692922307	0.045262016
ENSG00000135744	72.48313094	21.26683218	0.293403885	-1.769040123	0.045564895
ENSG00000159556	0.381362554	6.1465699	16.11739232	4.01054644	0.045899119
ENSG00000242435	0	3.969884294	Inf	Inf	0.045929313
ENSG00000116833	29.21505753	90.29454814	3.090685276	1.627926752	0.046057851
ENSG00000233221	0.373744927	4.929703184	13.19002032	3.721374882	0.046151479
ENSG00000181333	13.66180597	37.26805246	2.727900875	1.447791221	0.046260548
ENSG00000157111	0	2.68564081	Inf	Inf	0.046326855
ENSG00000259098	26.06054705	7.013074522	0.269106957	-1.893748405	0.046375682
ENSG00000225986	5.002162445	0	0	-Inf	0.046660086
ENSG00000049541	721.787514	387.5855542	0.536980131	-0.897059386	0.046703464
ENSG00000189002	75.61183629	35.95102126	0.475468168	-1.072579338	0.046718838
ENSG00000268660	31.78647511	12.76147197	0.401474902	-1.316618295	0.046821041
ENSG00000235635	2.662390521	17.33162479	6.509798114	2.702612802	0.046902544
ENSG00000177910	0.381362554	4.682576895	12.27854398	3.618067588	0.04706171
ENSG00000182698	0	8.970769097	Inf	Inf	0.047799395
ENSG00000254331	27.16312759	55.59974268	2.046882948	1.033428604	0.047805322
ENSG00000257331	6.122238848	1.330672314	0.217350604	-2.201903987	0.048023683
ENSG00000264148	0.460544494	7.818530383	16.97671015	4.085485006	0.048026533
ENSG00000135828	196.2045857	451.8784823	2.303098477	1.2035761	0.04804931
ENSG00000225528	0.381362554	3.731343945	9.784243117	3.290460252	0.048992384
ENSG00000245248	16.33905962	5.616700985	0.343759134	-1.540530047	0.049340971
ENSG00000188825	52.95998888	110.8497453	2.093084754	1.065630731	0.049556345

Supplementary Table 10. Most significant ($p < 0.05$) enriched GO terms in NPCs of WS compared to TD samples (continued from Extended Data Table 2).

Down-regulated genes in WS compared to TD in NPC cells				
GO TERM	GO Description	-Log(p-value)	P-value	Genes
GO:0009790	embryo development	7.199174362	6.32E-08	WNT16,RARB,MEF2C,WNT11,LAMB1,MMP9,FLT1,COBL,ENG,COL1A1,TFEB,FN1,INHBA,BMP2,SIX1,PDGFRA,TRIB3,HEY2,COL6A1,ZIC3,MMP14,ITGB2,MSX1,FZD5,ITGA2,DACT1,SIX2,RARG,TH,GREM2,TBX1,ALDH1A3,POU5F1
GO:0003013	circulatory system process	6.777192519	1.67E-07	ACSM3,ATP1A2,PTGS2,SGCG,ENG,CXCL12,POMC,SGK1,EDN3,HTR1B,AGT,EDNRA,GUCY1A3,COL1A2,ANPEP,NPR1,SGCD,GAS6,SCN5A,SGCZ,PDE2A,MME
GO:0030154	cell differentiation	6.083418677	8.25E-07	WNT16,TFAP2B,CD4,SEMA3B,RUNX3,IBSP,TNC,CAMK2B,RORA,EPHA8,PLXNA2,MEF2C,WNT11,LAMB1,DSP,NEFH,MMP9,HCK,SGCG,FLT1,MET,COBL,ENG,PITX3,CPT1A,PDGFRB,FN1,LPPR4,BCL11A,CAT,INHBA,BMP2,SIX1,CDH15,SERPINF1,PDGFRA,HEY2,WNT10A,MYO7A,MSTN,ARHGAP24,COL6A1,COL6A2,ITGA10,CASQ1,LEFTY2,EPHA5,DCDC2,CACNA1C,IGSF10,UNC5D,ZIC3,MMP14,CACNA1D,NBL1,STC1,ITGB2,BRINP3,FZD5,COL6A3,ELF3,HEYL,PITX2,ITGA2,DACT2,ANPEP,BATF2,EFNA1,GPR183,ALCAM,SIX2,SGCD,HAS2,PTGER4,SSH3,ABLIM3,TDRD12,SPATA31E1,TH,ADGRB1,FES,CSF1R,NTM,CAMK1D,GAS6,OPCML,SCN5A,TBX1,SGCZ,TNFAIP2,NTF3,RTN4RL1,PDE2A,DNER,VWC2,TDRD7,AKR1C3,RYR1,POU5F1,ITGA1,GSTA1
GO:0040011	locomotion	5.638353366	2.30E-06	CD4,SEMA3B,ADGRA2,EPHA8,PLXNA2,MEF2C,LAMB1,MMP9,FERMT1,HCK,PLP2,FLT1,MET,ENG,CXCL12,COL1A1,PDGFRB,FN1,VAMP8,EDN3,SIX1,ADGRE2,ATP1A4,PDGFRA,GAS8,COL6A1,COL6A2,ITGA10,EPHA5,DCDC2,CACNA1C,UNC5D,CACNA1D,ITGB2,FGFR4,CXCL16,COL6A3,PITX2,ITGA2,COL1A2,SYK,EFNA1,PTAFR,ALCAM,SIX2,SGCZ,ABLIM3,CMKLR1,FES,GAS6,SCN5A,TBX1,NTF3,DNER,ITGA1
GO:0007267	cell-cell signaling	5.204158202	6.25E-06	ABCC8,SEMA3B,CAMK2B,TSPAN32,MEF2C,KCNK2,TFAP2C,KCNK6,AP3B2,WISP1,VIPR2,STX1A,KCNA1,PCDHB2,PCDHB5,PCDHB6,POMC,GRIA2,PCDHB14,INHBA,ADGRE5,TNFAIP6,EDN3,BMP2,SIX1,ADCY4,TBX3,AGT,GABRB2,HTR2C,GABRA2,CACNA1D,FGF17,ITGB2,FZD5,GRIK2,HCN1,EFNA1,KCND3,PDE7B,PCDHB9,TH,GRID1,SCN5A,NTF3,CHRNA2,PCDHB11,POU5F1
GO:0005575	Cellular component	4.910992652	1.23E-05	TNMD,WNT16,DBNDD1,CALCR,ACSM3,ABCC8,TBXA2R,SCIN,SCN4A,CACNA2D2,MYLIP,TFAP2B,NFIX,MMP25,BAZ1B,CD4,HFE,SYT7,DCN,SEMA3B,SLC7A14,CLDN11,GPRC5A,ACPP,SLC38A5,ATP1A2,ADGRA2,RUNX3,EHD2,VRK2,IBSP,TNC,FAM65C,TG,LAMC3,PTGER3,CYBA,ALX4,ENTPD2,LY75,MCOLN3,CAMK2B,TSPAN32,ATP2C2,FA2R,TLE2,BCL3,MAOB,RORA,FRMPD1,CNGB1,EPHA8,WBSR22,MYO3B,TP63,PTGS2,ATP2A3,MGLL,WSCD2,PLXNA2,PAG1,RARB,CAPN6,SLC25A43,ITM2A,BRINP1,RUNX1T1,MEF2C,ATP8B1,IL12RB2,KCNK2,SERTAD4,COL16A1,WNT11,ADAMTS2,TFAP2C,FXD5,LAMB1,SLC17A6,GABRP,CYP26A1,DSP,KCNK6,SUSD2,PRODH,NEFH,APOL4,SLC10A1,SLC8A3,PAPLN,MMP9,FERMT1,PLCB4,HCK,PXMP4,BPI,MAP1LC3A,SRPX,MCF2,PLP2,ASB9,KLF8,NALCN,ACP5,SGCG,FLT1,WFDCC1,CRISPLD2,CRYM,RASL12,AP3B2,PDGFR,CPQ,WISP1,NDRG1,TNNT1,MET,HOXA5,HOXA6,VIPR2,ABHD11,COBL,STX1A,CHCHD2,PCOLCE,BCL7B,TBL2,CLIP2,ECM2,ENG,PTGDS,CXCL12,PITX3,RNF43,PNPO,COL1A1,SULT1E1,CPZ,CPT1A,ELMOD1,TCIRG1,CYP27B1,TNS2,KCNA1,L,TBR,OAS3,VDR,ADGR1,TPD52L1,EYA4,TRIM38,ARFGEF3,TFEB,PRPH2,PCDHB2,PCDHB5,PCDHB6,SLC27A6,PDGFRB,PXSL,STEAP3,POMC,EFEMP1,FN1,IL1R1,QPCT,PLCL1,PRRX1,ANGPTL1,PDZ,TFAP2E,LPPR5,LPPR4,SLC8A2,TNNT2,SGK1,VAMP8,PCDH17,LTBP2,GPR68,BCL11A,GRIA2,MYCT1,PCDHB14,PCDHB12,TEX11,ENOX1,DNAJC15,GLT8D2,ECHDC2,CAT,SLITRK3,CPX2,XPNPEP2,INHBA,ADGRE5,COL10A1,NMI,EDN3,PMEPA1,IQSEC2,COL21A1,CPNE5,IRF1,NKX2-4,BMP2,PCSK2,TCF15,CFP,SIX1,HSPA2,EVI2A,ARMCX1,OMD,BCL11B,PTPRB,ADGRE2,KLF2,TUBA4A,ZNF835,FGI2,HOXD9,CGNL1,ISLR,ADCY4,CDH15,DPP6,SULT4A1,FIBCD1,IDO1,RAP1GAP2,SERPINF1,ATP1A4,KANK4,MYBPH,STARD13,RARRES3,GSTT2B,C1QTNF6,LYVE1,TRPM1,IAH1,ECHDC3,RERG,PDGFRA,ADAMTS8,TBX3,HTR1B,HEY2,DYSF,AGT,SLC19A3,WNT10A,LMO7,GPNMB,RAPGEF5,GALNT5,MYO7A,ARHGAP20,IFI44L,IFI44,EMILIN1,STAMBPL1,CH25H,OIT3,ADAMTS14,MSTN,ARHGAP24,PCDH10,RBP5,KERA,SLC46A3,GALNT6,FBLN5,DISP2,ADAMTS17,MCTP2,CDH11,GAS8,FEM1A,COL6A1,COL6A2,NTN5,ADAMTS10,FCN3,BEST4,ITGA10,CASQ1,RGS16,HMCN1,CTSK,SUSD4,LEFTY2,ZNF385B,TMEFF2,UNC80,SLC22A14,LRTM1,EPHA5,CYP4V2,ADAMTS16,HAPLN1,ARHGAP26,SLC25A48,C1QTNF2,GABRB2,FAM50B,DCDC2,PLA2G7,MLIP,SLC22A3,HTR2C,IGSF1,SLC26A7,LCN9,SLC5A12,ADAM33,TMC2,PLCH2,LYPD6B,CACNA2D4,CACNA1C,CCDC3,ANO4,EDNRA,GABRA2,ZSCAN1,IGSF10,PLA2R1,TMPRSS11D,MCOLN2,FAM134B,LRRK1,ABCA6,MMP21,FZD5,CNTNAP5,SPAG17,PPARGC1B,SLC24A2,SLA,GNA14,WIF1,UNC5D,ZIC3,TMEM171,MMP14,CACNA1D,RNF207,NBL1,FGF17,ADAMTS4,STC1,GOLGA6A,C1R,LYPD5,ABCG1,ITGB2,PTH1R,AZGP1,FGFR4,LY6E,COX7A1,PLXDC1,ALOX15,CXCL16,ITH3,DHRS3,TMCO4,BRINP3,SNED1,HAAO,CTSS,MSX1,C1QTNF7,S100A11,ARHGAP25,FZD5,COL6A3,ELF3,IGFBP7,SERPINI1,ALB,CDSCP1,HEYL,MST1R,PITX2,PRSS12,NDST3,GUCY1A3,NPY1R,NPY5R,ITGA2,EDIL3,KLKB1,ACSL6,GRIK2,TLX3,HCN1,COL1A2,CHMP4C,SYK,AKR1E2,DACT1,VWA2,TC2N,MFAP4,ACSM1,LDHD,ANPEP,STAT6,PRRX2,GPT,SOST,ENTPD3,LTBP3,BATF2,NPNT,FSTL5,PARM1,FAM110B,AFAP1L2,GSG1L,EFNA1,PTAFR,NPR1,GPR183,BNC1,PCDH7,REPS2,TM4SF1,ALCAM,SLC16A5,LRRN2,MGMT,SIX2,SGCD,CYTL1,PRKCDPB,HAS2,SOSTDC1,KCND3,PDE7B,PTGER4,NINJ2,SCG2,SYNPO,CALB2,GPR22,SYNPO2,COL6A5,RARG,SSH3,GXYLT2,HPSE2,ARPP21,EVC2,BNC2,ABLIM3,CSPG4,ADGRG2,TDRD12,C1QTNF1,GLIS1,GALNTL6,MYO1H,CMKLR1,LINC00116,ZNF135,VPS37D,CLEC14A,SYNE3,SLCO3A1,LY6H,EPS8L2,HIC1,PCDHB9,SPATA31E1,RNF212,MSC,SLC17A8,LSMEM2,ZNF154,TH,GPR139,MAB21L1,GREM2,PENK,ADGRB1,SLC9A9,MGAT4C,UBA7,C1S,FES,CSF1R,HS3ST4,NTM,GRID1,RGS7,SLC25A18,CAMK1D,GAS6,SYNDIGL,OPCML,OLFML1,SCN5A,TBX1,ALDH1A3,PKP3,SLITRK6,TMEM173,FAM19A3,MUC6,ANKS1B,SGCZ,TNFAIP2,SOC31,IFNLR1,PRKG1,FAM212A,NTF3,C11orf87,EVI2B,RTN4RL1,GSAP,THBS2,CYP4X1,PDE2A,TPCN1,QRFP,NPSR1,GJA4,NHLRC1,THSD4,FAM69C,DNER,OR7D2,CLEC2A,CERKL,NKAIN2,VWC2,PRELP,HACD4,SP6,ANKRD34B,PLAC9,SPOCK3,TDRD7,HLA-DRB1,AKR1C3,RYR1,MME,LAMA2,CHRNA2,CHRNA3,PCDHB11,ADAMTS12,ZNF578
GO:0022857	transmembrane transporter activity	4.411444833	3.88E-05	ABCC8,SCN4A,SLC7A14,SLC38A5,ATP1A2,ATP2C2,CNGB1,ATP2A3,KCNK2,FXD5,SLC17A6,GABRP,KCNK6,SLC10A1,SLC8A3,PLP2,NALCN,TCIRG1,KCNA1,SLC8A2,GRIA2,ATP1A4,TRPM1,ADAMTS8,SLC19A3,BEST4,SLC22A14,GABRB2,SLC22A3,

				SLC26A7, SLC5A12, CACNA2D4, CACNA1C, ANO4, GABRA2, SLC24A2, CACNA1D, ABCG1, AZGP1, COX7A1, GRIK2, HCN1, SLC16A5, KCND3, SLC17A8, SLC9A9, GRID1, SLC25A18, GAS6, SCN5A, PDE2A, TPCN1, RYR1, CHRNG
GO:0048646	anatomical structure formation involved in morphogenesis	4.311235015	4.88E-05	WNT16, TFAP2B, ADGRA2, RORA, MEF2C, LAMB1, MMP9, COBL, ENG, PDGFRB, FN1, INHBA, SIX1, PTPRB, PDGFRA, ARHGAP24, COL6A1, CASQ1, MMP14, ITGB2, PLXDC1, FZD5, HEYL, ITGA2, SYK, ANPEP, EFNA1, SIX2, SCG2, ABLIM3, CSPG4, TBX1, TNFAIP2, POU5F1
GO:0008150	biological_process	3.807145528	0.000155903	WNT16, CALCR, ACSM3, ABCC8, TBXA2R, SCIN, SCN4A, CACNA2D2, MYLIP, TFAP2B, NFIX, MMP25, BAZ1B, CD4, HFE, SYT7, DCN, SEMA3B, SLC7A14, CLDN11, GPRC5A, ACP, SLC38A5, ATP1A2, ADGRA2, RUNX3, EHD2, VRK2, IBSP, TNC, FAM65C, TG, ARHGEF5, LAMC3, PTGER3, CYBA, ALX4, LY75, MCOLN3, CAMK2B, TSPAN32, ATP2C2, FAR2, TLE2, BCL3, MAOB, RORA, CNGB1, EPHA8, WBSR22, MYO3B, TP63, ALPK1, PTGS2, ATP2A3, MGLL, PLXNA2, PAG1, RARB, CAPN6, SLC25A43, BRINP1, RUNX1T1, MEF2C, ATP8B1, IL12RB2, KCNK2, COL16A1, WNT11, ADAMTS2, TFAP2C, FXYD5, LAMB1, SLC17A6, GABRP, CYP26A1, DSP, KCNK6, SUSD2, PRODH, NEFH, APOL4, ASB2, SLC10A1, SLC8A3, PAPLN, MMP9, FERMT1, PLCB4, HCK, PXM4, BPI, MAP1LC3A, SRPX, MCF2, PLP2, ASB9, KLF8, NALCN, ACP5, SGC, FLT1, WDFC1, CRISPLD2, CRYM, RASL12, AP3B2, PDGFRL, CPQ, WISP1, NDRG1, TLE6, TNNT1, MET, HOXA5, HOXA6, VIPR2, ABHD11, COBL, STX1A, PCOLCE, BCL7B, TBL2, CLIP2, ECM2, ENG, PTGDS, CXCL12, PITX3, RNF43, PNPO, COL1A1, SULT1E1, CPZ, CPT1A, ELMOD1, TCIRG1, CYP27B1, TNS2, KCNA1, LTBR, OAS3, VDR, ADGRD1, TPD52L1, EYA4, TRIM38, ARFGEF3, FTEB, PRPH2, PCDHB2, PCDHB5, PCDHB6, SLC27A6, PDGFRB, PEX5L, STEAP3, POMC, EFEMP1, FN1, IL1R1, QPCT, PLCL1, PRRX1, PDC, TFAP2E, LPPR5, LPPR4, RCAN3, SLC8A2, TNNT2, SGK1, VAMP8, PCDH17, LTBP2, GPR68, BCL11A, PYROXD2, GRIA2, PCDHB14, PCDHB12, TEX11, ENOX1, DNAJC15, GLT8D2, ECHDC2, CAT, CPXM2, XPNPEP2, INHBA, ADGRE5, COL10A1, NMI, TNFAIP6, EDN3, PMPA1, IQSEC2, COL21A1, CPNE5, IRF1, NKX2-4, BMP2, PCSK2, TCF15, CFP, SIX1, HSPA2, EVI2A, OMD, BCL11B, PTPRB, ADGRE2, KLF2, TUBA4A, ZNF835, HOXD9, CGNL1, ISLR, ADCY4, CDH15, NXNL2, DPP6, SULT4A1, IDO1, RAP1GAP2, SERPIN1, ATP1A4, MYBPH, STARD13, RARRES3, GSTT2B, LYVE1, TRPM1, IAH1, ECHDC3, RERG, PDGFRA, ADAMTS8, TBX3, HTR1B, HEY2, AGT, SLC19A3, WNT10A, LMO7, GPNMB, RAPGEF5, GALNT5, MYO7A, ARHGAP20, IFI44L, IFI44, EMILIN1, STAMBPL1, CH25H, ADAMTS14, MSTN, ARHGAP24, PCDH10, RBP5, KERA, SLC46A3, GALNT6, FBLN5, DISP2, ADAMTS17, MCTP2, CDH11, GAS8, FEM1A, COL6A1, COL6A2, ADAMTS10, FCN3, BEST4, ITGA10, CASQ1, RGS16, HMCN1, CTSK, SUSD4, LEFTY2, ZNF385B, UNC80, OSBP10, SLC22A14, EPHA5, CYP4V2, ADAMTS16, HAPLN1, ARHGAP26, SLC25A48, GABRB2, DCDC2, PLA2G7, LGSN, SLC22A3, HTR2C, IGSF1, SLC26A7, LCN9, SLC5A12, ADAM33, PLCH2, CACNA2D4, CACNA1C, ANO4, EDNRA, GABRA2, ZSCAN1, IGSF10, STK32B, PLA2R1, TMPRSS11D, MCOLN2, FAM134B, LRRK1, ABCA6, MMP21, FGD5, CNTNAP5, PPARGC1B, SLC24A2, SLA, GNA14, WIF1, UNC5D, ZIC3, MMP14, CACNA1D, NBL1, FGF17, ADAMTS4, STC1, C1R, ABCG1, ITGB2, PTH1R, AZGP1, FGFR4, LY6E, COX7A1, PLXDC1, ALOX15, CXCL16, ITH3, DHRS3, BRINP3, SNED1, HAAO, CTSS, MSX1, S100A11, ARHGAP25, FZD5, COL6A3, ELF3, IGFBP7, SERPINI1, ALB, HEYL, MST1R, PITX2, PRSS12, NDST3, GUCY1A3, NPY1R, NPY5R, ITGA2, EDIL3, KLB1, ACSL6, GRIK2, TLX3, DACT2, HCN1, COL1A2, CHMP4C, SYK, AKR1E2, DACT1, VWA2, TC2N, MFAP4, ACSM1, LDHD, ANPEP, STA16, PRRX2, GPT, SOST, RAB31L1, TRANK1, ENTDP3, LTBP3, BATF2, NPNT, PARM1, AFAP1L2, EFNA1, PTAFR, NPR1, GPR183, BNC2, PCDH7, REPS2, TM4SF1, ALCAM, SLC16A5, LRRN2, MGMT, SIX2, SCDC, CYTL1, PRKCDP, HAS2, SOSTDC1, KCND3, PDE7B, PTGER4, NINJ2, SCG2, SYNPO, GPR22, COL6A5, RARG, SSH3, GXYLT2, HPSE2, ARPP21, EVC2, BNC2, ABLIM3, CSPG4, ADGRG2, TDRD12, C1QTNF1, GLIS1, GALNTL6, MYO1H, CMKLR1, ZNF135, VPS37D, SYNE3, SLC03A1, PRR15, LY6H, EPS8L2, HIC1, PCDHB9, SPATA31E1, RNF212, MSC, SLC17A8, ZNF154, TH, GPR139, MAB21L1, GREM2, PENK, ADGRB1, SLC9A9, MGAT4C, UBA7, C1S, FES, CSF1R, HS3ST4, NTM, GRID1, RGS7, SLC25A18, CAMK1D, GAS6, SYNDIG1L, OPCML, SCN5A, TBX1, ALDH1A3, PKP3, SLITRK6, TMEM173, MUC6, SGCZ, TNFAIP2, SOCS1, IFNLR1, PRKG1, NTF3, RTN4R1, GSPAP, THBS2, CYP4X1, PDE2A, TPCN1, QRFP, NPSR1, GJA4, NHLRC1, THSD4, FAM69C, DNER, OR7D2, CLEC2A, CERKL, VWC2, PRELP, HACD4, SP6, SPOCK3, TDRD7, HLA-DRB1, AKR1C3, RYR1, MME, LAMA2, CHRNG, ZFP28, PCDHB11, ADAMTS2, ZNF560, ZNF667, CHSY3, SULT1C2, TPM2, HLA-DRB5, ITGBL1, NUDT16, PAPSS2, EIF1AY, RASSF9, DUSP27, TGM2, PPAPDC1A, MAFB, POU5F1, PCDHA7, PCDHA5, CDKL4, DPP3, C21orf62, MAP10, POU5F1B, ITGA1, CAPN14, SMTNL1, COL28A1, CEBPD, APOL6, B3GNT9, ZNF737, PCDHA13, PCDHG3, LRRD1, ARHGAP8, GSTA1, RAD21L1, C4A, ACTN3, FMN1, PCDHA11, PCDHA10, PCDHGA7, EID3, CTSO, ZNF578
GO:0000902	cell morphogenesis	3.69951756	0.000199748	SEMA3B, EPHA8, PLXNA2, MEF2C, LAMB1, NEFH, MMP9, MET, COBL, VDR, FN1, LPPR4, BMP2, HSPA2, HEY2, COL6A1, COL6A2, ITGA10, EPHA5, CACNA1C, UNC5D, CACNA1D, NBL1, STC1, MSX1, COL6A3, HEYL, ITGA2, DACT2, EFNA1, ALCAM, SIX2, HAS2, ABLIM3, ADGRB1, FES, SCN5A, NTF3, ITGA1
GO:0007165	signal transduction	3.52781714	0.000296608	WNT16, CALCR, ABCC8, TBXA2R, CD4, GPRC5A, ATP1A2, ADGRA2, VRK2, TG, ARHGEF5, PTGER3, CYBA, CAMK2B, TLE2, BCL3, RORA, CNGB1, EPHA8, TP63, PLXNA2, PAG1, RARB, MEF2C, IL12RB2, COL16A1, WNT11, GABRP, PRODH, ASB2, MMP9, PLCB4, HCK, MCF2, PLP2, ASB9, FLT1, RASL12, PDGFRL, WISP1, NDRG1, MET, VIPR2, ENG, CXCL12, RNF43, CPZ, TCIRG1, TNS2, KCNA1, LTBR, OAS3, VDR, ADGRD1, TRIM38, PDGFRB, POMC, EFEMP1, IL1R1, PLCL1, PDC, RCAN3, LTBP2, GPR68, GRIA2, INHBA, ADGRE5, NMI, TNFAIP6, EDN3, PMPA1, IRF1, BMP2, EVI2A, ADGRE2, ADCY4, STARD13, TRPM1, RERG, PDGFRA, HTR1B, HEY2, AGT, WNT10A, RAPGEF5, ARHGAP20, MSTN, ARHGAP24, FBLN5, DISP2, MCTP2, ITGA10, CASQ1, CTSK, LEFTY2, ZNF385B, EPHA5, ARHGAP26, GABRB2, DCDC2, HTR2C, IGSF1, PLCH2, CACNA1C, EDNRA, GABRA2, LRRK1, PPARGC1B, GNA14, WIF1, UNC5D, CACNA1D, FGF17, ITGB2, PTH1R, FGFR4, LY6E, DHRS3, CTSS, S100A11, ARHGAP25, FZD5, HEYL, MST1R, GUCY1A3, NPY1R, NPY5R, ITGA2, GRIK2, COL1A2, SYK, DACT1, STA16, SOST, EFNA1, PTAFR, NPR1, GPR183, REPS2, ALCAM, LRRN2, CYTL1, SOSTDC1, PDE7B, PTGER4, SCG2, GPR22, RARG, CSPG4, ADGRG2, CMKLR1, EPS8L2, HIC1, GPR139, GREM2, PENK, ADGRB1, UBA7, FES, CSF1R, GRID1, RGS7, GAS6, TBX1, SOCS1, IFNLR1, PRKG1, NTF3, PDE2A, QRFP, NPSR1, DNER, OR7D2, CERKL, SPOCK3, HLA-DRB1, AKR1C3, CHRNG, HLA-DRB5, RASSF9, PPAPDC1A, POU5F1, ITGA1, LRRD1, ARHGAP8
GO:0048870	cell motility	3.466945158	0.000341236	ADGRA2, EPHA8, MEF2C, LAMB1, MMP9, FERMT1, HCK, FLT1, ENG, CXCL12, COL1A1, PDGFRB, FN1, EDN3, SIX1, ADGRE2, ATP1A4, PDGFRA, GAS8, DCDC2, ITGB2, FGFR4, PITX2, ITGA2, COL1A2, SYK, EFNA1, SIX2, SCG2, FES, GAS6, TBX1, DNER
GO:0008233	peptidase activity	2.910578885	0.00122863	MMP25, CAPN6, ADAMTS2, PAPLN, MMP9, CPQ, CPZ, CPXM2, XPNPEP2, PCSK2, DPP6, ADAMTS8, STAMBPL1, ADAMTS14, ADAMTS17, ADAMTS10, CTSK, ADAMTS16, ADAM33, TMPRSS11D, MMP21, MMP14, ADAMTS4, C1R, CTSS, PRSS12, KLB1, ANPEP, C1S, THSD4, MME, ADAMTSL2, NUDT16, CAPN14, CTSO
GO:0043167	ion binding	2.667504984	0.00215028	ACSM3, ABCC8, SCIN, CACNA2D2, MYLIP, MMP25, BAZ1B, CD4, SYT7, ATP1A2, RUNX3, EHD2, VRK2, ARHGEF5, CYBA, ENTDP2, CAMK2B, ATP2C2, MAOB, RORA, CNGB1, EPHA8, MYO3B, TP63, ALPK1, PTGS2, ATP2A3, RARB, RUNX1T1, ATP8B1, ADAMTS2, CYP26A1, PRODH, PAPLN, MMP9, PLCB4, HCK, MAP1LC3A, KLF8, ACP5, FLT1, RASL12, CPQ, WISP1, MET, PCOLCE, PTGDS, RNF43, PNPO, COL1A1, CPZ, CYP27B1, TNS2, OAS3, VDR, EYA4, TRIM38, PCDHB2,

				PCDHB5,PCDHB6,PDGFRB,STEAP3,EFEMP1, FN1, QPCT, PLCL1, SGK1, PCDH17,LTBP2, BCL11A,PCDHB14,PCDHB12, CAT, CPXM2, XPNPEP2, ADGRE5, COL10A1, HSPA2, BCL11B, ADGRE2, KLF2, TUBA4A, ZNF835, ADCY4, CDH15, FIBCD1, IDO1, ATP1A4, RERG, PDGFRA, ADAMTS8, DYSF, LMO7, GALNT5, MYO7A, STAMBPL1, CH25H, OIT3, ADAMTS14, MSTN, PCDH10, GALNT6, FBLN5, ADAMTS17, MCTP2, CDH11, ADAMTS10, ITGA10, CASQ1, HMCN1, ZNF385B, EPHA5, CYP4V2, ADAMTS16, ARHGAP26, PLA2G7, HTR2C, ADAM33, PLCH2, CACNA2D4, CACNA1C, ZSCAN1, STK32B, LRRK1, ABCA6, MMP21, FGD5, GNA14, ZIC3, MMP14, CACNA1D, RNF207, ADAMTS4, C1R, ABCG1, ITGB2, FGFR4, ALOX15, SNEED1, HAAO, SI00A11, ALB, MST1R, GUCY1A3, ITGA2, EDIL3, KLKB1, ACSL6, HCN1, COL1A2, SYK, VWA2, ACSM1, LDHD, ANPEP, GPT, SOST, TRANK1, ENTPD3, LTBP3, NPNT, FSTL5, PTAFR, NPR1, BNC1, PCDH7, REPS2, KCND3, PDE7B, CALB2, RARG, SH3RF3, HPSE2, BNC2, ABLIM3, TDRD12, GLIS1, GALNTL6, MYO1H, ZNF135, HIC1, PCDHB9, RNF212, ZNF154, TH, GREM2, MGAT4C, UBA7, C1S, FES, CSF1R, CAMK1D, GAS6, TMEM173, PRKG1, THBS2, CYP4X1, PDE2A, NHLRC1, ZNF385C, DNER, SP6, SPOCK3, MME, ZFP28, PCDHB11, ADAMTS2, ZNF560, ZNF667, CHSY3, NUDT16, PAPS2, TGM2, SP5, PCDHA7, PCDHA5, CDKL4, DPF3, ITGA1, CAPN14, ZNF737, PCDHA13, PCDHGC3, ACTN3, PCDHA11, PCDHA10, PCDHGA7, ZNF578
GO:0006810	transport	2.359687543	0.0043683	CALCR, ABCC8, SCIN, SCN4A, CACNA2D2, HFE, SYT7, SLC7A14, SLC38A5, ATP1A2, EHD2, VRK2, LY75, MCOLN3, ATP2C2, BCL3, CNGB1, ATP2A3, RARB, SLC25A43, ATP8B1, KCNK2, FXD5, LAMB1, SLC17A6, GABRP, KCNK6, SUSD2, APOL4, SLC10A1, SLC8A3, HCK, PLP2, NALCN, CRYM, RASL12, AP3B2, ABHD11, STX1A, CLIP2, PTGDS, COL1A1, CPT1A, ELMOD1, TCIRG1, CYP27B1, KCNA1, ARFGEF3, SLC27A6, PEX5L, STEAP3, FN1, SLC8A2, SGK1, VAMP8, LTBP2, GRIA2, DNAJC15, INHBA, EDN3, TUBA4A, ADCY4, ATP1A4, LYVE1, TRPM1, RERG, ADAMTS8, TBX3, SLC19A3, RBP5, SLC46A3, FBLN5, FCN3, BEST4, CASQ1, LEFTY2, UNC80, OSBP10, SLC22A14, SLC25A48, GABRB2, SLC22A3, HTR2C, SLC26A7, LCN9, SLC5A12, CACNA2D4, CACNA1C, ANO4, EDNRA, GABRA2, PLA2R1, MCOLN2, ABCA6, SLC24A2, CACNA1D, ABCG1, AZGP1, COX7A1, ALOX15, CXCL16, ALB, PRSS12, GRIK2, HCN1, COL1A2, CHMP4C, SYK, RAB31L1, NPR1, SLC16A5, HAS2, KCND3, SCG2, RARG, VPS37D, SLC30A1, SLC17A8, SLC9A9, FES, GRID1, SLC25A18, GAS6, SCN5A, TNFAIP2, PDE2A, TPCN1, GJA4, DNER, AKR1C3, RYR1, LAMA2, CHRNG, RASSF9, TGM2, PPAPDC1A, APOL6
GO:0006790	sulfur compound metabolic process	2.351317072	0.00445331	DCN, ACPP, FAR2, SULT1E1, OMD, SULT4A1, GSTT2B, SLC19A3, KERA, NDST3, ACSL6, CSPG4, HS3ST4, PRELP, CHSY3, SULT1C2, PAPS2, GSTA1
GO:0008289	lipid binding	1.791437724	0.0161645	SCIN, SYT7, ATP1A2, RORA, CYP26A1, APOL4, BPI, MAP1LC3A, PTGDS, SULT1E1, VDR, SGK1, STARD13, DYSF, RBP5, OSBP10, ARHGAP26, PLA2G7, ABCG1, ALOX15, ALB, PTAFR, GPR183, FES, GAS6, APOL6
GO:0001071	nucleic acid binding transcription factor activity	1.63055963	0.0234121	TFAP2B, NFIX, RUNX3, PTGER3, RORA, TP63, RARB, RUNX1T1, MEF2C, TFAP2C, HOXA5, HOXA6, PITX3, VDR, TFEB, TFAP2E, BCL11A, IRF1, TCF15, SIX1, ZNF835, HOXD9, TBX3, HEY2, ZSCAN1, ZIC3, ELF3, HEYL, PITX2, STAT6, PRRX2, BATF2, BNC1, RARG, ZNF135, HIC1, MSC, ZNF154, TBX1, ZFP28, MAFB, POU5F1, POU5F1B, CEBPD
GO:0042592	homeostatic process	1.566350154	0.0271425	CALCR, ACSM3, TFAP2B, HFE, ATP1A2, RORA, CNGB1, TP63, MEF2C, CXCL12, TCIRG1, CYP27B1, KCNA1, STEAP3, INHBA, ADCY4, NXNL2, ATP1A4, TRPM1, PDGFRA, HTR2C, CACNA1C, EDNRA, STC1, ABCG1, AZGP1, FGFR4, HAAO, ALB, ACSM1, HAS2, C1QTNF1, SLC9A9, GAS6, MUC6, SGCZ, RYR1, TGM2
GO:0004871	signal transducer activity	1.488939236	0.0324385	CALCR, ABCC8, TBXA2R, CD4, GPRC5A, ADGRA2, PTGER3, RORA, EPHA8, PLXNA2, RARB, IL12RB2, GABRP, PLCB4, FLT1, PDGFRL, MET, VIPR2, ENG, RNF43, VDR, ADGRD1, TRIM38, PDGFRB, EFEMP1, IL1R1, PLCL1, GPR68, GRIA2, ADGRE5, EVI2A, PTPRB, ADGRE2, PDGFRA, HTR1B, FBLN5, EPHA5, GABRB2, HTR2C, PLCH2, EDNRA, GABRA2, GNA14, ITGB2, PTH1R, FGFR4, FZD5, MST1R, NPY1R, NPY5R, ITGA2, GRIK2, STAT6, PTAFR, NPR1, GPR183, PTGER4, GPR22, RARG, CSPG4, ADGRG2, CMKLR1, GPR139, ADGRB1, CSF1R, GRID1, RGS7, IFNLR1, QRFPR, NPSR1, DNER, OR7D2, HLA-DRB1, CHRNG
GO:0006950	response to stress	1.366533564	0.0429998	WNT16, TBXA2R, MMP25, BAZ1B, CD4, EHD2, VRK2, TNC, CYBA, LY75, CAMK2B, BCL3, RORA, TP63, PTGS2, ATP2A3, MGLL, MEF2C, PRODH, SLC8A3, HCK, BPI, MAP1LC3A, CPQ, NDRG1, ENG, COL1A1, TCIRG1, CYP27B1, OAS3, EYA4, TRIM38, PDGFRB, FN1, SLC8A2, SGK1, VAMP8, GPR68, CAT, INHBA, ADGRE5, NMI, TNFAIP6, IRF1, BMP2, CFP, HSPA2, ADGRE2, KLF2, TUBA4A, ADCY4, LYVE1, PDGFRA, TBX3, IFI44L, FBLN5, FCN3, ITGA10, CTSK, LEFTY2, DCCDC2, HTR2C, PLA2R1, GNA14, FGF17, C1R, ITGB2, FGFR4, ALOX15, CXCL16, CTSS, ELF3, ALB, MST1R, GUCY1A3, ITGA2, KLKB1, COL1A2, SYK, STAT6, BATF2, AFAP1L2, PTAFR, MGMT, HAS2, PTGER4, NINJ2, SCG2, HIC1, TH, UBA7, C1S, FES, CSF1R, CAMK1D, GAS6, TMEM173, SOCS1, IFNLR1, PRKG1, RTN4RL1, PDE2A, CLEC2A, HLA-DRB1, AKR1C3, RYR1, HLA-DRB5, PPAPDC1A, POU5F1, ITGA1, C4A, EID3

Supplementary Table 11. Probes for quantitative PCR (WS deletion).

Probe name	Forward Primer Seq. (5'-3')	Reverse Primer Seq. (5'-3')	Reporter probe Seq.
CALN1-ANY	GGTTTAAGTCCAGACTCAGGTCAT	CTCAGGGAAACTGCTAGATTTAGGT	CAACGTGCAAAACTG
NSUN5ex2-1-487AF	TCACTCCCCACCCCTACTAC	TGTACTIONCAGCAACTCCAGGTA	TCGCGCCCAGGTCC
NSUN5ex8-5-767A	CAGGTCAAAGGCAAAGATCTTCCTA	GGCCCTTAGCTGCTCCAT	CCCCTGCTTTGCC
TRIM50ex7-ANYR	GTAGAGCTTGCCCTGGAAGTC	CGACCGCCCGATGAC	CCGCTCTACACCTTCC
FKBP6-ANY	GGGTACAGGGAAGTGCTTGAG	GCGGTGGGTGTCGTGT	CCAGCCCTGCCTCGCA
FZD9-ANY	CTGCTGCCCCCTCCTT	GCTGCTAGTCAGCTGTCTCTAG	CCAGCCCTGCC
BAZ1B-3-ANY	TCCTCATCACCAGAGACTGTGT	ATGACAGCATTGACTACCGATTCA	CATCACTGCAAAGACC
BCL7B-ANY	GCCTTCCACATCTCTCTTCTC	ACCTCCAGGCAGCAGTCT	TCCGTCCAGAGATTCT
WBSR22	CCAGGACGGATGATGTCAAGAG	AGGCAACGGAGCAATCCA	CCCCAACCCTTCAAGC
ELN-ANY	GATCCATGCAGAGGAAATGTCAAC	GGAAGTGACAGTTGGTCCTGAAT	CACCTGCAATCCTGC
LIMK1-ANY	GGGAGCAGAGGGAGTTCCT	GCAGCTGTGCAGAGGGA	CCCCAGCCCATCCTG
EIF4H-ANY	TGACCTGGGTGGTTTTGTGT	ACACTACATGTGGCTTCAGATTCTG	TCGGTGGCACTCTTAC
LAT2-ANY	CCAGCCAGTCCAGCTAACC	CCTGTGTGGTTCAAGGTCTCT	CTGCACCCAGGCATC
RFC2-ANY	Hs00945948_m1 (Life Technologies)		
CLIP2-ANY	GGAGGCCAGGACCAG	CGGTACTIONCACGTCCAGTTTT	CAGCTCGGCATCCCG
GTF2IRD1	CAACCTAGCCTGCAGTTCCA	CTGGGCTCTTTAAGGCTGTGA	CTCCCCAGAACTCC
GTF2I-ex7	GGTAACAGATGCTGACAGGTCAAT	CAGCAGTAATGAAATTAGGTTTTAC	CTTCCACCTGGAGATAGT
GTF2I-ex12	ATTCTACTCAACATGTCCCTT	TTCAATAGTCACCTCAACTTCA	CAGAAACAAGTGAGGACCC
GTF2I-ex18	CCAAGGCTGTACCGTACCAAAA	TCTGGCAGTCCTTCCACGTA	CACACCCGAATGATCT
WBSR16-ANY	AAGGTCATCTCTTTAGGCCACAAAA	GTTGAACCCTCAGGCAAAAGG	AAGCACCTGGCATTG

Supplementary Table 12. Primers for quantitative PCR (characterization of iPSCs, NPCs and neurons).

Gene Symbol	Forward Primer	Reverse Primer
<i>GAPDH</i>	CATGAGAAGTATGACAACAGCCT	AGTCCTTCCACGATACCAAAGT
<i>TBP</i>	TGCACAGGAGCCAAGAGTGAA	CACATCACAGCTCCCCACCA
<i>LIN28</i>	AGCGCAGATCAAAAGGA	CCTCTCGAAAGTAGGTTGG
<i>PAX6</i>	TGTCCAACGGATGTGTGAGTA	CAGTCTCGTAATACCTGCCCA
<i>MSX1</i>	CTCCGCAAACACAAGACGAAC	CACATGGGCCGTGTAGAGTC
<i>AFP</i>	CGCGTTTCTGGTTGCTTACAC	ACTTCTTGCTCTTGGCCTTGG
<i>OCT4</i>	GGGAGGGGAGGAGCTAGG	TCCAACCAGTTGCCCCAAC
<i>NESTIN</i>	CTGCTACCCTTGAGACACCTG	GGGCTCTGATCTCTGCATCTAC
<i>MAP2</i>	CTCAGCACCGCTAACAGAGG	CATTGGCGCTTCGGACAAG
<i>NEUN</i>	CCAAGCGGCTACACGTCTC	CGTCCCATTACGCTTCTCCC
<i>CTIP2</i>	GGTGCCCTGCTATGACAAGG	GGCTCGGACACTTTCCTGAG
<i>SATB2</i>	CCTCCTCCGACTGAAGACAG	TGGTCTGGGTACAGGCCTAC
<i>CHAT</i>	CAGCCCTGCCGTGATCTTT	TGTAGCTGAGTACAGCAGAGA
<i>SYNI</i>	AGTTCTTCGGAATGGGGTGAA	CAAACCTGCGGTAGTCTCCGTT
<i>ABAT</i>	AAGAGAGCCGAGGCAATTACC	GCTCGCATTTTGAGGCTGTTG

Supplementary Table 13. DELTAGene Assay. Oligonucleotides are shown 5'-3'.

Target	Forward Primer	Reverse Primer	Design RefSeq
ABAT	GACTACAGCATCCTCTCCTTCA	TTAGAGTGCCTGGTCGCTAA	NM_000663.4
ACHE	CCCAGAGGCCCTCATCAAC	ATACGAGCCCTCATCCTTCAC	NM_015831.2
ADARB1	CTCCAATGCGAGCATCCAAA	GATGCCACCACGTTCC	NM_015833.3
ASCL1	TGGTGCGAATGGACTTTGGAA	CTCCCAACGCCACTGACAA	NM_004316.3
B2M	TTAGCTGTGCTCGCGCTAC	CTCTGCTGGATGACGTGAGTAA	NM_004048.2
B3GAT1	TCGAGAACTTGTACCCTCA	CCCTTCTTGCCCTCATTAC	NM_018644.3
BCL11B	CAACCCGAGCACTTGTCT	CCTCGTCTTCTCGAGGATGG	NM_138576.2
CA2	TGTGCTCAAGGAACCCATCA	TTCACCCTCCCATTGAAGTTA	NM_000067.2
CDH2	GCCAACCTTAAGTGGAGTCA	TGGCCACTGTGCTTACTGAA	NM_001792.3
CHAT	CCGTTTGTCTCTCCACTA	ATTTGGGACCACAGGACCATA	NM_001142929.1
CHRM1	ACCCTACAGACCCTCTTCA	TTCCTCCAGGCAGCTAC	NM_000738.2
COMT	GTCTTCTCGACCACTGGAA	AGTAGCACTGTCCCCTTCC	NM_000754.3
CUX2	TCCATCACCAAGAGGGTGAA	CAGGATGCTTCCCAAACA	NM_015267.3
DBH	GAGTGGGAGATCGTGAACCA	ACCGACACGACCTTCTTCAA	NM_000787.3
DCX	ATCTCTACGCCACCAGTCC	AGCGAGTCCGAGTCATCCAA	NM_000555.3
DLG4	AGCTGGAGCAGGAGTTCAC	ACACGCTTACCTTGTGGTA	NM_001365.3
DRD1	AGTCCACATTCCAAGCTCCA	CTCCTCAGCAGCTCTCCAA	NM_000794.3
DRD2	CCTGAACCTTGTGTCATCA	GAGCTGTAGCGCTATTGTA	NM_000795.3
DRD3	CCTCGGTCTCCAGAAATCAGAA	GCTGGCTCAGAGATGCCATA	NM_000796.3
EFNB1	ATGGGCCTGGAGTTCAAGAA	GGTTTTCCAGCCCCTCCA	NM_004429.4
EOMES	CTGTGGCAAAGCCGACAATA	CTCATCCAGTGGGAACCAGTA	NM_005442.2
ETV1	AGCCGTTCACTCCGCTATTA	AAGGGCTTCTGGATCACACA	NM_001163149.1
FABP7	GCTACCTGGAAGCTGACCAA	CCACCTGCCTAGTGGCAA	NM_001446.3
FOXG1*	GCCAGCAGCACTTTGAGTTA	TGAGTCAACACGGAGCTGTA	NM_005249.3
FOXP1	GCCTACTGCACACCTCTCA	CCCATGGAAGCGGTAGTGATA	NM_032682.4
FOXP2	AGGGACTCATCTCCATTCCA	GCTGAATCTCAGCAGGACTTA	NM_014491.3
GABRR1	GCCTGATGGGAAAGTGCTCTA	TCCAAGGGAAATCGGCTGAA	NM_002042.3
GAD1	ATCCTGGTTGACTGCAGAGAC	CCAGTGGAGAGCTGGTTGAA	NM_000817.2
GAD2	CTGCTCCAAAGTGGATGTCAAC	AAAGTGGGCCTTCTCCATCA	NM_000818.2
GAPDH	GAACGGGAAGCTTGTATCAA	ATCGCCCACTTGATTTTGG	NM_002046.4
GFAP	GCCAGTTGCAGTCCTTGAC	GCGCATCTGCCTCTCCA	NM_002055.3
GRIA1	CGCTCCACGTGATTGAAATGAA	TGGCTGCAGGGACAACTTA	NM_000827.3
GRIA2	TGGAATGGGATGTTGGAGAA	CACCTTCTCTCACAAGGGTA	NM_001083619.1
GRIK1	GGGCGTTAGAGATGGATCAA	TCATGAAAGCCACATCTTCTCA	NM_175611.2
GRIK2	AGGATGATGCCAATGGACAA	GGTAATAGCCAGTGGAGCAA	NM_001166247.1
GRIN1	GGCAACACCAACATCTGGAA	CCATCCGCATACTGGAAGAC	NM_021569.3
GRIN2A	GACCGCCTCAGTGACAA	AGGCACTGTCCAAATCGAA	NM_000833.3
HIST1H1A*	GAGCCTGGTAAGCAAGGGAA	CGCCTTCTTGTGAGCTTGAA	NM_005325.3
HOMER1	CCAGCAAGCATGCAGTTAC	TGTTTTGGGGTGGTACTATTTA	NM_004272.4
HTR1A*	AAGACGCTGGGCATCATCA	TCGAGAAGGGCAGAACA	NM_000524.3
HTR2A	AGCCGCTTCAACTCCAGAA	CCTGTAGCCCAAAGACTGGTA	NM_000621.3
HTR3A	ATGAGAAGAATCAGGTGCTGAC	TCAGGGTTCCTGAGAGAAA	NM_213621.3
KCNA1	GCCAGGGCACTGCAAAGAC	ACCAGGGCGATCGATGCA	NM_000217.2
MAOA	ATGGTCTCGGGAAGGTGAC	GGTATTTCTACCGCTGGAAC	NM_001270458.1
MAP2	CAACGGAGAGCTGACCTCA	CTACAGCCTCAGCAGTACTA	NM_001039538.1
MAPT	AGATTGGGTCCCTGGACAAT	GAAGGTCAGCTTGTGGGTTT	NM_001123066.3
MBP*	GAGCTCCAGACCATCCAAGAA	GGGAGGGTCTTCTGTGAC	NM_001025090.1
MECP2	GGACACGGAAGCTTAAGCAA	AGGGATGTGTCGCCTACC	NM_001110792.1
NEFL	ACGTGAAGATGGCTTTGGATA	TAGGCAGATCGGCCAAAGAC	NM_006158.3
NES	GCTGCGGGCTACTGAAAA	CTGAGCGATCTGGCTCTGTA	NM_006617.1

<i>NEUROG1*</i>	CGACACCAAGCTCACCAAAA	CCAGAGCCCAGATGTAGTTGTA	NM_006161.2
<i>NEUROG2</i>	ACAGGCCAAAGTCACAGCAA	CCAAGGTCTCGGATTTGACGAA	NM_024019.2
<i>NEUROG3</i>	CGCTGCTCATCGCTCTCTA	CTCCGTCTCACGGGTCAC	NM_020999.3
<i>OLIG2</i>	CGGAGCGAGCTCCTCAA	ATGGCCCCAGGGGAAGATA	NM_005806.2
<i>OTX1</i>	GACCTCTGCACCCATCC	CAGCTGTGAACGCGTGAA	NM_014562.2
<i>OTX2</i>	AGGAGGTGGCACTGAAAATCA	CTGTTGTTGGCGGCACCTA	NM_021728.2
<i>P2RX2</i>	TATTACCAGGGGCCCTCCAA	GTGAAATTTGGGGCCATCGTAC	NM_016318.2
<i>P2RX4</i>	CACAACGTATCTCCTGGCTACA	ATGTGCAAGCGGATGCCATA	NM_001256796.1
<i>P2RX6</i>	GGTGACCAACTCCTTGTGAC	CTCGTCGACCCAGCAGTTA	NM_001159554.1
<i>P2RX7</i>	CTTCGGGATCCGTTTTGACA	TTGAGCCGATGTACACAACC	NM_002562.5
<i>P2RY2*</i>	ATCTTCTTGTGCCGCCTCA	CGCATAAGTGCATCAGACAC	NM_002564.2
<i>PAX6</i>	CCCCACATATGCAGACACACA	GAAGTGCACACCAGGGGAAA	NM_001604.5
<i>PAX7</i>	ACAGCATCGACGGCATCC	CAGTTCCGACTCCACATCC	NM_013945.2
<i>PGK1</i>	GTGGAATGGCTTTTACCTTCC	CTTGGCTCCCTCTTCATCAA	NM_000291.3
<i>PHOX2A</i>	GCACCTGGCGCCCTAC	TGGCTCTGGAAGAAGTTGTA	NM_005169.3
<i>POU5F1*</i>	GGTATTCAGCCAAACGACCAT	CCGCAGCTTACACATGTTCT	NM_002701.4
<i>RBFOX3</i>	GAAGACGGGAACCCCTACA	GCATAGAATTCAGGCCGTAGAC	NM_001082575.1
<i>RELN</i>	TCCAGAATTGGAAGCGGATCA	GTTGGCCTGAATCCATCTGAAC	NM_173054.2
<i>RPL13A</i>	GAGGCCCTACCACTTCC	GCCGTCAAACACCTTGAGAC	NM_012423.3
<i>RPL22</i>	TTCGCTCACCTCCCTTCTA	CCCCTTACCACAAGCTTT	NM_000983.3
<i>RPL27</i>	GCAAGTTCATGAAACCTGGGAA	CCACCAGAGCATGGCTGTA	NM_000988.3
<i>S100B</i>	GGAGACAAGCACAAGCTGAA	CCATGACTTTGTCCACAACC	NM_006272.2
<i>SATB2</i>	TTTGCCAAAGTGGCTGCAAA	TTTCTGGGCTTGGGTTCTCC	NM_001172517.1
<i>SCN1A</i>	TCGCTTCTCCATTGAAGGGAAC	AGCCACGGATGCTCAACAAA	NM_006920.4
<i>SCN2A</i>	TGTGGTGGTCATTCTCTCCA	AACAGGGTAGGGGACACAAA	NM_001040142.1
<i>SCN3A</i>	CTTTGTTGGTGGTATTCTCTCC	GGAACAAGGTAGGGGACACA	NM_006922.3
<i>SLC17A6</i>	TGGGGCTACATCATCACTCA	GAAGTATGGCAGCTCCGAAA	NM_020346.2
<i>SLC17A7</i>	GCCATCTCCTTCTGGTCTCA	GGCTATGTCCAGGTGGTTCAC	NM_020309.3
<i>SLC18A3*</i>	GGGTGCTGTTTGCTTCCAA	TAGCTCATGCGGTGATGAA	NM_003055.2
<i>SLC1A1</i>	TGCGGATGCTGAAACTCA	TGGAATCCAGTGCAGCAA	NM_004170.5
<i>SLC1A3*</i>	GGCCAAGAAGAAAGTGCAGAA	CTGTGAGCAGCACAAAAGCA	NM_004172.4
<i>SLC32A1</i>	AGGCTGGAACGTGACCAAC	GAGAAACAACCCAGGTAGCC	NM_080552.2
<i>SLC5A7</i>	GCCATCCAGCCATACTCA	CTTGGGATCTGGAAGCCATA	NM_021815.2
<i>SLC6A1</i>	TCGGGAGCTACAACCTTTCC	GAACATGCTGGTGCACGAA	NM_003042.3
<i>SLC6A3</i>	TTCCCCTACCTGTGCTACAAAA	GAAAAGTGGCATCCAGCAA	NM_001044.4
<i>SLC6A4</i>	TGCTGGCTTTTGCTAGCTAC	GAAGCTCGTCATGCAGTTCA	NM_001045.4
<i>SNAP25</i>	ATCAGTGGCGGCTTCATCC	CACCTGCTCTAGGTTTTATCCA	NM_003081.2
<i>SNAPIN</i>	CGACGCGTTGTCTTGTTAA	CCTTGGCAACACTGTGGTTTA	NM_012437.5
<i>SOX1*</i>	GGGTCAAACGGCCCATGAA	TTGTGCATCTTGGGTTCTCC	NM_005986.2
<i>SOX10</i>	TCGCGGACCAGTACCC	GCGCTTGTCACTTTCGTTCA	NM_006941.3
<i>SOX2*</i>	CATGAAGGAGCACCCGATTA	CGGGCAGCGTGTACTTATCC	NM_003106.2
<i>SYN1</i>	GCAAGGACGGAAGGGATCA	TGTCTTCATCTGGTGGTCAC	NM_133499.2
<i>SYP</i>	ACATGCAAGGAGCTGAGAGAC	CAGAGCACAGGTTCAAGAA	NM_003179.2
<i>TBR1</i>	ACGAACAACAAAGGAGCTTCA	TGGTACTTGTGCAAGGACTGTA	NM_006593.2
<i>TH</i>	GATTGCTGAGATCGCCTTCC	ATCTCCTCGGCGGTGTAC	NM_000360.3
<i>TUBB3</i>	GAGCGGATCAGCGTCTACTA	GGTCCAGGTCCACCAGAA	NM_006086.2

* Primers designed in the same exon.

Supplementary References

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Test battery

	Test	Reference(s)*	Purpose
1. Neurocognitive			
Intelligence	Wechsler Abbreviated Scale of Intelligence (WASI)	71	Verbal, Performance, and Full-Scale IQ (VIQ, PIQ and FSIQ)
Non-verbal ability	Judgment of Line Orientation Test (JLO)	72	Visuospatial perception
	Beery-Buktenica Developmental Test of Visual-Motor Integration (VMI)	73	Visuomotor integration
Verbal ability	Benton Facial Recognition Test (BFRT)	74	Unfamiliar face recognition
	Peabody Picture Vocabulary Test (PPVT-III)	75	Receptive vocabulary
2. Social behavior			
Parental questionnaires of social functioning	Salk Institute Sociability Questionnaire (SISQ)	62, 66, 76, 77	Approachability, social-emotional behavior
Experimental measures	Naturalistic use of language - from narrative tasks	62, 78	Assessment of structural language capacities versus the use of language for social and affective purposes

*included in Supplementary references