

Supplementary Table S1. GENE REGULATION

Refseq	Gene Symbol	Description	Fold Regulation F2	Fold Regulation F3
NM_009599	Ache	Acetylcholinesterase	1.69	1.09
NM_001008533	Adora1	Adenosine A1 receptor	1.15	-1.01
NM_009630	Adora2a	Adenosine A2a receptor	1.08	-3.43
NM_007439	Alk	Anaplastic lymphoma kinase	1.44	-2.61
NM_009685	Apbb1	Amyloid beta (A4) precursor protein-binding, family B, member 1	2.99	1.18
NM_009696	Apoe	Apolipoprotein E	5.61	3.81
NM_007471	App	Amyloid beta (A4) precursor protein	1.50	1.05
NM_009711	Artn	Artemin	-1.30	-1.09
NM_008553	Ascl1	Achaete-scute complex homolog 1 (Drosophila)	-1.26	-1.55
NM_009741	Bcl2	B-cell leukemia/lymphoma 2	1.55	-1.08
NM_007540	Bdnf	Brain derived neurotrophic factor	-4.80	-4.13
NM_007553	Bmp2	Bone morphogenetic protein 2	1.96	2.07
NM_007554	Bmp4	Bone morphogenetic protein 4	2.60	5.91
NM_007559	Bmp8b	Bone morphogenetic protein 8b	-1.02	-1.34
NM_009871	Cdk5r1	Cyclin-dependent kinase 5, regulatory subunit 1 (p35)	-1.04	-1.41
NM_145990	Cdk5rap2	CDK5 regulatory subunit associated protein 2	-1.03	-1.62
NM_203491	Chrm2	Cholinergic receptor, muscarinic 2, cardiac	-1.45	-2.87
NM_133828	Creb1	CAMP responsive element binding protein 1	-1.17	-1.56
NM_008176	Cxcl1	Chemokine (C-X-C motif) ligand 1	2.84	4.43
NM_010025	Dcx	Doublecortin	-1.45	-1.72
NM_007864	Dlg4	Discs, large homolog 4 (Drosophila)	1.51	-1.69
NM_007865	Dll1	Delta-like 1 (Drosophila)	3.73	-1.49
NM_010077	Drd2	Dopamine receptor D2	-1.74	-6.08
NM_007889	Dvl3	Dishevelled 3, dsh homolog (Drosophila)	1.38	1.29
NM_010110	Efnb1	Ephrin B1	2.80	1.39
NM_010113	Egf	Epidermal growth factor	1.04	-1.40
NM_177821	Ep300	E1A binding protein p300	1.06	-1.28
NM_001003817	ErbB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)	1.37	-1.16
NM_008006	Fgf2	Fibroblast growth factor 2	-1.24	1.28
NM_010227	Flna	Filamin, alpha	1.34	-1.27
NM_010275	Gdnf	Glial cell line derived neurotrophic factor	1.63	2.09
NM_008155	Gpi1	Glucose phosphate isomerase 1	1.68	-1.02
NM_008169	Grin1	Glutamate receptor, ionotropic, NMDA1 (zeta 1)	-1.42	-1.43
NM_207225	Hdac4	Histone deacetylase 4	1.40	1.13
NM_008235	Hes1	Hairy and enhancer of split 1 (Drosophila)	-2.45	-3.56
NM_010423	Hey1	Hairy/enhancer-of-split related with YRPW motif 1	2.19	1.11

NM_013904	Hey2	Hairy/enhancer-of-split related with YRPW motif 2	1.55	-1.44
NM_013905	Heyl	Hairy/enhancer-of-split related with YRPW motif-like	-2.68	1.43
NM_010556	Il3	Interleukin 3	-6.93	-5.31
NM_010784	Mdk	Midkine	1.52	-1.23
NM_025282	Mef2c	Myocyte enhancer factor 2C	1.08	-2.16
NM_001081049	Kmt2a	Myeloid/lymphoid or mixed-lineage leukemia 1	1.51	-1.37
NM_001039934	Map2	Microtubule-associated protein 2	-1.37	-1.85
NM_010882	Ndn	Necdin	1.45	-1.03
NM_010883	Ndp	Norrie disease (pseudoglioma) (human)	1.41	1.28
NM_010894	Neurod1	Neurogenic differentiation 1	-2.74	-2.84
NM_010896	Neurog1	Neurogenin 1	1.79	-1.14
NM_009718	Neurog2	Neurogenin 2	4.14	1.44
NM_010897	Nf1	Neurofibromatosis 1	1.10	-1.31
NM_008711	Nog	Noggin	1.59	-1.15
NM_008714	Notch1	Notch gene homolog 1 (Drosophila)	1.58	-1.02
NM_010928	Notch2	Notch gene homolog 2 (Drosophila)	1.88	-1.25
NM_013708	Nr2e3	Nuclear receptor subfamily 2, group E, member 3	1.76	1.27
NM_176930	Nrcam	Neuron-glia-CAM-related cell adhesion molecule	-1.29	-1.63
NM_178591	Nrg1	Neuregulin 1	1.31	-1.23
NM_008737	Nrp1	Neuropilin 1	-1.68	-1.59
NM_010939	Nrp2	Neuropilin 2	1.17	-1.12
NM_008742	Ntf3	Neurotrophin 3	-3.24	-2.04
NM_008744	Ntn1	Netrin 1	1.09	-1.73
NM_011855	Tenm1	Odd Oz/ten-m homolog 1 (Drosophila)	-2.38	-2.08
NM_016967	Olig2	Oligodendrocyte transcription factor 2	1.03	-1.28
NM_013625	Pafah1b1	Platelet-activating factor acetylhydrolase, isoform 1b, subunit 1	-1.48	-1.53
NM_033620	Pard3	Par-3 (partitioning defective 3) homolog (C. elegans)	1.29	-1.00
NM_008781	Pax3	Paired box gene 3	2.90	2.49
NM_008782	Pax5	Paired box gene 5	1.10	1.80
NM_013627	Pax6	Paired box gene 6	1.33	-1.49
NM_008900	Pou3f3	POU domain, class 3, transcription factor 3	1.43	-1.20
NM_011143	Pou4f1	POU domain, class 4, transcription factor 1	1.01	-1.05
NM_008973	Ptn	Pleiotrophin	-1.10	-1.53
NM_009007	Rac1	RAS-related C3 botulinum substrate 1	-1.31	-1.49
NM_019413	Robo1	Roundabout homolog 1 (Drosophila)	-1.52	-2.32
NM_194053	Rtn4	Reticulon 4	1.23	1.10
NM_011313	S100a6	S100 calcium binding protein A6 (calcyclin)	1.38	-1.26
NM_009115	S100b	S100 protein, beta polypeptide, neural	-1.32	1.04
NM_009170	Shh	Sonic hedgehog	-1.25	-1.11
NM_178804	Slit2	Slit homolog 2 (Drosophila)	1.64	-1.17
NM_011434	Sod1	Superoxide dismutase 1, soluble	-1.40	-1.69
NM_011443	Sox2	SRY-box containing gene 2	2.29	1.16
NM_009237	Sox3	SRY-box containing gene 3	-1.07	-1.46

NM_011486	Stat3	Signal transducer and activator of transcription 3	1.33	-1.13
NM_011577	Tgfb1	Transforming growth factor, beta 1	1.63	2.70
NM_009377	Th	Tyrosine hydroxylase	2.55	5.42
NM_022312	Tnr	Tenascin R	2.44	2.96
NM_009505	Vegfa	Vascular endothelial growth factor A	1.11	-1.26

Refseq	Gene Symbol	Description	p-Value F2	p-Value F3
NM_009599	Ache	Acetylcholinesterase	0.010453	0.594951
NM_001008533	Adora1	Adenosine A1 receptor	0.609714	0.829176
NM_009630	Adora2a	Adenosine A2a receptor	0.593157	0.007375
NM_007439	Alk	Anaplastic lymphoma kinase	0.101612	0.002003
NM_009685	Apbb1	Amyloid beta (A4) precursor protein-binding, family B, member 1	0.000057	0.470665
NM_009696	Apoe	Apolipoprotein E	0.000077	0.017986
NM_007471	App	Amyloid beta (A4) precursor protein	0.003269	0.688932
NM_009711	Artn	Artemin	0.210884	0.870425
NM_008553	Ascl1	Achaete-scute complex homolog 1 (Drosophila)	0.187052	0.061668
NM_009741	Bcl2	B-cell leukemia/lymphoma 2	0.240524	0.903190
NM_007540	Bdnf	Brain derived neurotrophic factor	0.008586	0.009831
NM_007553	Bmp2	Bone morphogenetic protein 2	0.028418	0.183004
NM_007554	Bmp4	Bone morphogenetic protein 4	0.009845	0.000982
NM_007559	Bmp8b	Bone morphogenetic protein 8b	0.837673	0.424797
NM_009871	Cdk5r1	Cyclin-dependent kinase 5, regulatory subunit 1 (p35)	0.504518	0.133792
NM_145990	Cdk5rap2	CDK5 regulatory subunit associated protein 2	0.878202	0.088653
NM_203491	Chrm2	Cholinergic receptor, muscarinic 2, cardiac	0.092246	0.030356
NM_133828	Creb1	CAMP responsive element binding protein 1	0.061695	0.032563
NM_008176	Cxcl1	Chemokine (C-X-C motif) ligand 1	0.030797	0.018344
NM_010025	Dcx	Doublecortin	0.067358	0.342946
NM_007864	Dlg4	Discs, large homolog 4 (Drosophila)	0.002828	0.098017
NM_007865	Dll1	Delta-like 1 (Drosophila)	0.000877	0.259892
NM_010077	Drd2	Dopamine receptor D2	0.205205	0.161424
NM_007889	Dvl3	Dishevelled 3, dsh homolog (Drosophila)	0.043163	0.141284
NM_010110	Efnb1	Ephrin B1	0.038293	0.833732
NM_010113	Egf	Epidermal growth factor	0.846458	0.715483
NM_177821	Ep300	E1A binding protein p300	0.447920	0.233575
NM_001003817	ErbB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)	0.025476	0.619125
NM_008006	Fgf2	Fibroblast growth factor 2	0.230545	0.391488
NM_010227	Flna	Filamin, alpha	0.014368	0.579934
NM_010275	Gdnf	Glial cell line derived neurotrophic factor	0.205894	0.046243
NM_008155	Gpi1	Glucose phosphate isomerase 1	0.000654	0.990410
NM_008169	Grin1	Glutamate receptor, ionotropic, NMDA1 (zeta 1)	0.055200	0.660069
NM_207225	Hdac4	Histone deacetylase 4	0.114299	0.590060
NM_008235	Hes1	Hairy and enhancer of split 1 (Drosophila)	0.002417	0.004578

NM_010423	Hey1	Hairy/enhancer-of-split related with YRPW motif 1	0.000131	0.559948
NM_013904	Hey2	Hairy/enhancer-of-split related with YRPW motif 2	0.026353	0.311251
NM_013905	Heyl	Hairy/enhancer-of-split related with YRPW motif-like	0.034747	0.265319
NM_010556	Il3	Interleukin 3	0.000380	0.000750
NM_010784	Mdk	Midkine	0.042699	0.258520
NM_025282	Mef2c	Myocyte enhancer factor 2C	0.976732	0.432114
NM_001081049	Kmt2a	Myeloid/lymphoid or mixed-lineage leukemia 1	0.009046	0.221820
NM_001039934	Map2	Microtubule-associated protein 2	0.005279	0.002603
NM_010882	Ndn	Necdin	0.065498	0.964958
NM_010883	Ndp	Norrie disease (pseudoglioma) (human)	0.015369	0.376061
NM_010894	Neurod1	Neurogenic differentiation 1	0.026302	0.040129
NM_010896	Neurog1	Neurogenin 1	0.325525	0.585378
NM_009718	Neurog2	Neurogenin 2	0.002448	0.396913
NM_010897	Nf1	Neurofibromatosis 1	0.483597	0.140604
NM_008711	Nog	Noggin	0.226445	0.618572
NM_008714	Notch1	Notch gene homolog 1 (Drosophila)	0.000195	0.880209
NM_010928	Notch2	Notch gene homolog 2 (Drosophila)	0.000446	0.414469
NM_013708	Nr2e3	Nuclear receptor subfamily 2, group E, member 3	0.368136	0.626982
NM_176930	Nrcam	Neuron-glia-CAM-related cell adhesion molecule	0.286506	0.112798
NM_178591	Nrg1	Neuregulin 1	0.221009	0.332660
NM_008737	Nrp1	Neuropilin 1	0.148567	0.215944
NM_010939	Nrp2	Neuropilin 2	0.386646	0.819174
NM_008742	Ntf3	Neurotrophin 3	0.002056	0.811532
NM_008744	Ntn1	Netrin 1	0.073181	0.202567
NM_011855	Tenm1	Odd Oz/ten-m homolog 1 (Drosophila)	0.000780	0.896029
NM_016967	Olig2	Oligodendrocyte transcription factor 2	0.870439	0.614556
NM_013625	Pafah1b1	Platelet-activating factor acetylhydrolase, isoform 1b, subunit 1	0.043168	0.028524
NM_033620	Pard3	Par-3 (partitioning defective 3) homolog (C. elegans)	0.012435	0.878701
NM_008781	Pax3	Paired box gene 3	0.321386	0.358581
NM_008782	Pax5	Paired box gene 5	0.611445	0.074594
NM_013627	Pax6	Paired box gene 6	0.109452	0.113203
NM_008900	Pou3f3	POU domain, class 3, transcription factor 3	0.031213	0.377303
NM_011143	Pou4f1	POU domain, class 4, transcription factor 1	0.800199	0.627075
NM_008973	Ptn	Pleiotrophin	0.312049	0.007995
NM_009007	Rac1	RAS-related C3 botulinum substrate 1	0.053404	0.039678
NM_019413	Robo1	Roundabout homolog 1 (Drosophila)	0.136546	0.042143
NM_194053	Rtn4	Reticulon 4	0.010608	0.560469
NM_011313	S100a6	S100 calcium binding protein A6 (calcyclin)	0.411202	0.367269
NM_009115	S100b	S100 protein, beta polypeptide, neural	0.359924	0.974769
NM_009170	Shh	Sonic hedgehog	0.429492	0.746186
NM_178804	Slit2	Slit homolog 2 (Drosophila)	0.002514	0.962489
NM_011434	Sod1	Superoxide dismutase 1, soluble	0.117487	0.044359
NM_011443	Sox2	SRY-box containing gene 2	0.000052	0.281332

NM_009237	Sox3	SRY-box containing gene 3	0.461867	0.217372
NM_011486	Stat3	Signal transducer and activator of transcription 3	0.002053	0.713467
NM_011577	Tgfb1	Transforming growth factor, beta 1	0.005999	0.006445
NM_009377	Th	Tyrosine hydroxylase	0.383059	0.072158
NM_022312	Tnr	Tenascin R	0.000804	0.034151
NM_009505	Vegfa	Vascular endothelial growth factor A	0.262642	0.224088

Supplementary Table S2. ANTIBODIES

Primary Antibody	Host	Catalogue Reference
Nestin (RAT 401)	Mouse	ABCAM ab11306
DCX	Rabbit	Cell Signaling Technology #4604S
BrdU	Rat	ABCAM ab6326
pERK1/2 ^{Thr202/Tyr204}	Rabbit	Cell Signaling Technology #9101
ERK1/2	Rabbit	Cell Signaling Technology #9102
pTrkB ^{Tyr816}	Rabbit	Antibody against phospho-TrkB Tyr816 was a kind gift of Moses V. Chao
TrkB (80E3)	Rabbit	Cell Signaling Technology #4603
Actin	Rabbit	ABCAM ab8227
pSTAT5 ^{Tyr694}	Mouse	Cell Signaling Technology #9356
STAT5	Rabbit	Cell Signaling Technology #94205
pSTAT3 ^{Tyr705}	Rabbit	Cell Signaling Technology #9145
STAT3	Rabbit	Cell Signaling Technology #9139
pNF-κB ^{Ser536} Clone:EP2294Y	Rabbit	ABCAM ab76302
NF-κB p65	Rabbit	ABCAM ab16502

Supplementary Table S3. PRIMERS USED FOR CHIP ANALYSES

Gene	Primer Sequences
GFAP	FW CAGGCCTTGTCTGTAAGCTGAAGAC
	REV TTATCCCAGGATGCCAGGATGTCAG
HES1	FW AAGTAGTTATATTGCATGCAGC
	REV AGATCCTGTGTGATCCGCAG
NEUROD1	FW TGCCCACAAG TACTCGCACG
	REV AGAACTGGAAGTGGTTGTTTGC
BDNF	FW GAAGCTGAGCTCTCTGTGG
	REV GGTCTCATGAAGAACTTAAGG