A
Cell adhesion genes
RG
IP
NN
Cadm1
Sfrp1
Rtn4
Calr
Jam3
Pcdh19
Igfbp2
Fn1
Tfrc
Mdk
Gpc4
Emb
Cxcl12
Igf2
Col3a1
Ttyh1
Akt1
Cdk5r1
Sox2
Rgcc
Epha4
Epha5
Ptprz1
Ncam1
Gpm6b
Ctnna2
Plpp3
Cdk6
Cspg5
Itch
Nrxn1
Unc13d
Spon1
Adgrl3
Ntm
Mfge8
Chl1
Tnc
Hepacam
Rtn4
Ctnnb1
Ddr1
Calr
Selenok
Mdk
Igfbp2
Jam3
Fn1
Plxna1
Pcdh19
Dll1
Cxcl12
Igf2
Col3a1
Rpsa
Cdk5r1
Coro1c
Epha4
Sox2
Coro2b
Ncam1
Itch
Nrxn3
Cdk6
Nrxn1
Unc13d
Mfge8
Atp1b1
Adgrl3
Dscaml1
Egfr
Selenok
Ctnnb1
Ddr1
Itgb1
Vcan
Jam3
Igfbp2
Mdk
Shh
Igf2
Col3a1
Cfl1
Cdk5r1
Sox2
Cadm1
Itch
Cadm3
Pcdh17
Sdc3
Adgrl3
Ptn
Unc13d
Spock2
Atp1b1
Nrxn1
Lsamp
Ntm
Chl1
Cadm2
Cspg5
Cdh13
11 14 17
Developmental stage
(embryonic days)
fold change over the mean
2
0
B
Cell-cell signaling genes
RG
IP
NN
Cadm1
Sfrp1
Gjc1
F2r
Sulf2
Slc16a1
Mdk
Gja1
Sdc1
Hmga2
Gpc3
Tubb2b
Nnat
Sox11
Cdk5r1
Sox2
Epha4
Epha5
Ank2
Sox4
Ncam1
Plpp3
Cnih2
Sez6
Als2
Cspg5
Nrxn1
Dbi
Celf4
Thra
Klf7
Gria2
Ntrk2
Mapt
Slc1a3
Prkcb
Ndrg2
Ly6h
Gria1
Kcnj10
Apoe
Tnc
Hnrnpk
Gnai2
Ctnnb1
Atp2a2
Grb10
Mdk
Selenot
Sulf2
Isl1
Ccnd1
F2r
Dll1
Sulf1
Gpc3
Hmga2
Nnat
Sox11
Sox4
Cdk5r1
Epha4
Sox2
Ncam1
Sez6
Nrxn3
Thra
Nrxn1
Mme
Als2
Gria2
Mapt
Draxin
Dgke
Slc1a3
Apoe
Ndrg2
Egfr
Ly6h
Ywhaz
Hnrnpk
Ctnnb1
Nedd4
Sorbs2
Gnai2
Itgb1
Grb10
F2r
Mdk
Ccnd1
Shh
Hmga2
Sox4
Cfl1
Tubb2b
Pfn2
Csnk1e
Cdk5r1
Nnat
Sox11
Dlx5
Sox2
Mapt
Atp6v0c
Cadm1
Mme
Gria2
Als2
Pcdh17
Ptn
Nrxn1
Dgke
Ntrk2
Camk2b
Slc12a5
Gria1
Cspg5
Ly6h
Grin2b
Gabbr2
Gabrb1
Grm5
C
Transcription factors
RG
IP
NN
Hmga2
Meis2
Tcf4
Sox11
Pou3f3
Sox2
Ascl1
Dlx2
Dlx1
Pbx1
Sox4
Ndn
Zbtb20
Bcl11b
Pou3f2
Nfia
Zhx2
Nfib
Thra
Klf7
Nfix
Olig1
Myt1l
Hnrnpk
Ctnnb1
Isl1
Pou3f1
Sox3
Hmga2
Ybx1
Sox11
Sox4
Bcl11b
Insm1
Pou3f3
Dlx2
Hdgf
Tcf4
Sox2
Sox1
Nkx2-1
Dlx1
Ascl1
Lhx6
Nfia
Thra
Meis2
Nfib
Nfix
Hnrnpab
Hnrnpk
Ctnnb1
Pcbp1
Lhx8
Sox3
Lhx2
Hmga2
Sox4
Ybx1
Bcl11a
Pou3f3
Sox11
Dlx5
Arx
Dlx2
Nkx2-1
Tcf4
Sox1
Sox2
Lhx6
Sp9
Ascl1
Dlx1
Bcl11b
Meis2
Nfib
Nfix
11 14 17
Developmental stage
(embryonic days)
D
Intracellular signaling genes
RG
IP
NN
Npm1
Sfrp1
Rtn4
Calr
Tspan6
P4hb
Tgfbr1
F2r
Igfbp5
Igfbp4
Fn1
Col1a2
Cxcl12
Igf2
Col3a1
Tpt1
Calm1
Akt1
Sox11
Sox2
Epha4
Tox3
Epha5
Ank2
Sox4
Pea15a
Ncam1
Rps7
Calm3
Stmn1
Sez6
Dcx
Als2
Itch
Nrxn1
Mllt11
Rab33b
Ntrk2
Adgrl3
Mapt
Prkcb
Ndrg2
Crtc3
Adcyap1r1
Apoe
Mt3
Mmd2
Hnrnpk
Hsp90ab1
Gnai2
Rtn4
P4hb
Ctnnb1
Npm1
Atp2a2
Calr
Selenok
Kpnb1
Tgfbr1
Igfbp4
Fn1
F2r
Igfbp5
Cxcl12
Col1a2
Igf2
Col3a1
Hnt1
Hmgb1
Sox11
Sox4
Tpt1
Lmnb1
Calm1
Epha4
Pbk
Tox3
Dclk2
Sox2
Stmn1
Ezr
Ncam1
Rpl11
Sez6
Itch
Nrxn1
Als2
Rab33b
Garnl3
Mapt
Dgke
Atp1b1
Was
Adgrl3
Apoe
Tiam2
Ndrg2
Rasl12
Egfr
Rpl23
Ddx5
Hmgb1
Rpl5
Hnrnpk
Nono
Selenok
Hsp90ab1
Ctnnb1
Npm1
Kpnb1
Gnai2
Ago1
Itgb1
Tgfbr1
F2r
Shh
Igf2
Col1a2
Col3a1
Calm1
Sox4
Tpt1
Stmn1
Calm3
Pebp1
Sox11
Dclk2
Sox2
Mapt
Itch
Als2
Ntrk2
Rab33b
Adgrl3
Atp1b1
Nrxn1
Dgke
Ntrk2
Lingo1
Ncald
Cdh13
Grin2b
Grm5
11 14 17
Developmental stage
(embryonic days)
E
density of RNAscope puncta
Hes5/Nes
p = 0.2137
p = 0.0497
2.2
2.1
2.0
1.9
1.8
1.7
E12
E14
E12
E14
rostral
caudal
F
density of RNAscope puncta
Ccnd1/Ascl1
p = 0.0125
p = 0.0004
0.60
0.55
0.50
0.45
E12
E14
E12
E14
rostral
caudal
G
density of RNAscope puncta
Nfia/Dcx
p = 0.1492
p = 0.0083
2.0
1.9
1.8
1.7
1.6
1.5
1.4
E12
E14
E12
E14
rostral
caudal