

Early genes:	FULL NAME	BRIEF DESCRIPTION OF FUNCTION
Ablim3	Actin binding LIM protein 3.	LIM domain proteins play key roles in embryonic development and cell lineage determination
Adk5	Adenosine kinase 5, isoform 1	Striatopallidal-specific expression
Akap8	A kinase (PRKA) anchor protein 8	AKAPs controls intracellular organization of PKA
AUF1	AU-rich element RNA-binding protein 1	HNRNP, heterogeneous nuclear ribonucleoprotein D. Regulates cell-specific expression of the enkephalin gene.
Brn-4	Brain-4, POU3F4 - POU domain class3	Regulates striatal D1 dopamine receptor gene transcription. Brn4 and Tbx1, the gene responsible for velo-cardio-facial syndrome/DiGeorge syndrome in humans, regulate retinoic acid metabolic genes.
C-myb	transcriptional activator Myb	similar to Myb proto-oncogene protein
CART	Cocaine- and amphetamine-regulated transcript	Colocalization of CART peptide with dopamine D1 receptors
Ccrn4l	Carbon catabolite repression 4-like	(Nocturnin (Noc)) is a circadian deadenylase, maintenance of the undifferentiated state.
Cdh4	cadherin 4	Mus musculus cadherin 4, regional adhesive codes to guide pioneer axons
Ctip2	Chicken ovalbumin upstream promoter transcription factor-interacting protein 2; BCL11B, B-cell CLL/Lymphoma 11B	In the absence of Ctip2, MSNs do not fully differentiate.
Dpysl3	Dihydropyrimidinase-like 3	Phosphoprotein, homology to Unc33 - neuritic outgrowth and guidance in C. elegans
Ebf1	Early B-cell factor 1	Important for development of the striatal matrix neurons
Epha4	Eph receptor A4	EphA4 expression promotes network activity and spine maturation in cortical neuronal cultures.
FoxP1	Forkhead box P1	Promotes midbrain identity in embryonic stem cell-derived dopamine neurons
Gnb4	Guanine nucleotide-binding protein, beta-4	Beta subunit of a G-protein, stimulates phospholipase beta2
Ikaros	IKZF1, Ikaros family zinc finger 1	Critical factor for the correct development of late-born ENK-positive striatal projecting neurons.
NM23B	Non-metastatic cells 2 protein (Nme2, NM23H2)	Eegulation of the cellular content and compartmentalization of G proteins. interacts with PP2A.
Rapgef5	Rap guanine nucleotide exchange factor	Involved in telencephalic neurogenesis; particularly in the development of GABAergic interneurons
RARBV1	retinoic acid receptor beta type, variant 1	Mutant mice show altered levels of D1Rs and D2Rs in the striatum.
RXRg	Retinoid X Receptor, gamma	Modular patterning of structure and function of the striatum.
Trim28	Tripartite motif-containing 28, TIF1-beta, KAP1 - a KRAB binding corepressor	Modifier of epigenetic gene silencing, reduces phenotypic noise, TRIM24 in humans
Tubb2b	Tubulin, beta 2b	Involved in a large spectrum of neuronal migration disorders.
Tubb3	tubulin, beta 3	Mutations associated with various neurological syndromes
Ube2v1	Ubiquitin-conjugating enzyme E2 variant 1	Activator of c-fos expressed from proliferation through to maturation of multiple neuronal cell types
Znf521	Zinc finger protein 521 (/Evi3/ Zfp521)	TF partner of Ebf-1, regulates Ebf1 activity
S01	<i>FoxP1-like expression pattern</i>	a cDNA clone of as yet unclassified gene, very closely parallels FoxP1 expression, in 3'UTR of Celf2 / CUGBP
S02		a cDNA clone of as yet unclassified gene, possibly Nfib (some homology to Mus musculus nuclear factor I/B)
S03		a cDNA clone of as yet unclassified gene, weak match to human DPYSL3, which colocalizes with GAP43
S04		homology to sequence flanking Trim67. Trim67 inhibits LPS-induced phosphorylation of ERK-2
S05		rattus norvegicus similar to RIKEN cDNA 2700081O15 (RGD1560108)
S06	<i>Tubulin-like expression pattern</i>	Rattus norvegicus cDNA clone etnofatP0050B12 5'
S08		AMGNNUC:NRHY5-00469-B11-A W Rat hypothalamus, some homology to human SLIT-ROBO Rho GTPase
Mature genes:		
Adora2a	Adenosine A(2A) receptor	Parallels perfectly the expression pattern of D2Rs
Aqp4	Aquaporin 4	Plays a role in recovery from neuronal activation
CaMKII α	Calcium/calmodulin-dependent protein kinase II, alpha subunit	AMPA, NMDA and DA receptor signaling
CaMKII β	Calcium/calmodulin-dependent protein kinase II, beta subunit	AMPA, NMDA and DA receptor signaling
Clk4	Cdc2-like kinase 4	May be involved in the regulation of alternative splicing
D1R	Dopamine receptor 1	
D2R	Dopamine receptor 2	
DARPP32	Dopamine and cyclic AMP-regulated phosphoprotein	Critical mediator of dopamine function. The most commonly used MSN marker
Dream	Calsenilin, KChIP3	Binds the dynorphin response element and regulates dynorphin (repressing) expression
Dynorphin		Co-expressed with D1Rs, binds kappa opioid receptor, exerts inhibitory actions on glutamatergic neurons.
Enkephalin		Co-expressed with D2Rs, binds delta opioid receptors, provides inhibitory modulation of neurons
Fbxl16	F-box and leucine-rich repeat protein 16	novel gene, very little info, this gene family is involved in cell proliferation
Gpr158	G protein-coupled receptor 158	Member of the metabotropic glutamate family of G-protein coupled receptor 3 family
Grina	Glutamate receptor, ionotropic, NMDA-associated	Glutamate-binding subunit of the NMDA receptor (NMDARA1)
NKB	Neurokinin B	Co-localized with D1Rs in a unique population of striatal projection neurons
NK3R	Neurokinin B receptor (NKB-R)	Activates both phosphatidylinositol hydrolysis and the cAMP signal cascade
SLC1A2	Solute carrier family 1	Solute carrier family 1 glial high affinity glutamate transporter member 2, actively removes the excitatory neurotransmitter glutamate from the extracellular space
Slc35d3	Solute carrier family 35, member D3	One of the most strongly striatonigral-specifically expressed genes, used as MSN marker
S07	<i>D2R/DRRF-like expression pattern</i>	similar to adenylate kinase 5 isoform 1
S09		Rattus norvegicus cDNA clone UI-R-CA1-bli-a-01-0-UI 3'
Myelination		
Mag	myelin-associated glycoprotein	
MBP	Myelin basic protein	Reduced MBP expression in schizophrenia
Mobp	Myelin-associated oligodendrocyte basic protein	the third most abundant protein in CNS myelin
Mog	Myelin oligodendrocyte glycoprotein	Can to induce autoimmune encephalomyelitis
Ppl1	Proteolipid protein 1	Primary constituent of myelin, increase in Ppl gene dosage resulted in hypomyelination, astrocytosis & seizures
Tf	Transferrin	Involved in oligodendroglial cell differentiation
Transitional		
DRRF	Dopamine receptor regulating factor	reduces D1, D2 & D3R expression (Hwang et al. 2001, Lee et al. 2008).
S10 Map1b		match to 3'UTR of microtubule-associated protein 1B
S11		hypothetical protein LOC100233206