|  |  |
| --- | --- |
| Sanes & Lichtman Molecules | Related Transcripts |
| GLUTAMATE RECEPTORS | | | |
| GluR1; GluR2 | Gria1; Gria2 |
| mGluR1; mGluR4; mGluR5; mGluR7 | Grm1; Grm4; Grm5; Grm7 |
| NMDA NR2A; NMDA NR2D; NMDA NR1 | Grin1; Grin2a; Grin2d |
| OTHER NEUROTRANSMITTERS | | | |
| norepinephrine and b-adrenergic receptors | Adrb1; Adrb2; Adrb3 |
| adenosine and adenosine 2A receptors | Adra1a; Adra1b; Adra1d; Adra2a; Adra2b; Adra2c |
| dopamine and D1 dopamine receptors | Th; Drd1 |
| mu and delta opioid receptors | Oprm1; Oprd1 |
| acetylcholine receptors | Chrna1; Chrna7; Chrna3; Chrnb1; Chrnb2; Chrnb3 |
| muscarinic receptors | Chrm1; Chrm2; Chrm3; Chrm4; Chrm5 |
| GABA receptors | Gabra1; Gabra2; Gabra3; Gabra5; Gabra6 |
| GABA-B receptors | Gabrb1; Gabrb2; Gabrb3 |
| cannabinoid receptor | Cnr1; Cnr2 |
| orphanin NQ and nocioceptin receptors | Pnoc; Oprl1; |
| serotonin receptors | Htr1a; Htr1b; Htr1f; Htr2a; Htr2c; Htr2b; Htr3a; Htr3b; Htr5a; Htr5b; Htr7; Htr6; Htr4; |
| endothelin-1 | Edn1 |
| gamma-aminobutyric acid (GHB) receptors | Gabrr1; Gabbr1 |
| INTERCELLULAR MESSENGERS, THEIR SYNTHETIC ENZYMES AND THEIR RECEPTORS | | | |
| CO | NA |
| NO | NA |
| EGF | Egf |
| basic FGF | Fgf2 |
| superoxide | NA |
| neuregulin | Nrg1; Nrg2; Nrg3 |
| erbB4 | Erbb4 |
| NGF | Ngf |
| BDNF | Bdnf |
| TrkB | Ntrk2 |
| nNOS; eNOS | Nos1; Nos3 |
| arachidonic acid | NA |
| platelet activating factor | NA |
| interleukin 1 beta | Il1b |
| H2S | NA |
| beta activin | Inhba |
| CALCIUM/CALMODULIN BINDING PROTEINS | | | |
| calmodulin | Calm1; Calm2; Calm3 |
| RC3/neurogranin | Nrgn |
| calretinin | Calb1; Calb2 |
| GAP43/B50/neuromodulin | Gap43 |
| S100 | S100b |
| ION CHANNELS |  |
| L-type calcium channels | Cacna1c; Cacna1d; Cacna1s; Cacna1f; Cacna1b; Cacna1a; Cacna1e |
| olfactory cyclic nucleotide-gated channel | Cnga2 |
| VESICLE- AND SYNAPSE-ASSOCIATED PROTEINS | | | |
| synaptophysin | Syp |
| a-SNAP | Napa |
| VAMP | Vamp1; Vamp2; Vamp3; Vamp4; Vamp5; Vamp8 |
| rab3a | Rab3a |
| syntaxin 1B | Stx1b; |
| Synapsin I | Syn1 |
| SNAP 25 | Snap25 |
| PSD-95 | Dlg4 |
| TRANSCRIPTION FACTORS | | | |
| Retinoic acid receptor beta | Rarb |
| CREB | Creb1 |
| Krox 20; Krox 24 | Egr1; Egr2 |
| ADHESION MOLECULES | | |
| ephA5 | Epha5 |
| ephrinA5 | Efna5 |
| NCAM | Ncam1; Ncam2 |
| E-cadherin; N-cadherin | Cdh1; Cdh2 |
| thy-1 | Thy1 |
| telencephalin | Icam5 |
| L1/NgCAM | L1cam |
| HB-GAM/pleitrophin | Ptn |
| integrins | Itga1; Itga10;Itga11; Itga2; Itga2b;Itga3; Itga4; Itga5; Itga6; Itga7; Itga8; Itga9; Itgad; Itgae; Itgal; Itgam; Itgav; Itgax; Itgb1; Itgb1bp1; Itgb2; Itgb2l; Itgb3; Itgb3bp; Itgb4; Itgb5; Itgb6; Itgb7; Itgb8; Itgbl1 |
| integrin-associated protein | Cd47 |
| tenascin-C | Tnc |
| CARBOHYDRATES | | | |
| Polysialic acid | NA |
| Ganglioside GM1 | NA |
| Ganglioside GQ1B | NA |
| KINASES |  |
| inositol-triphosphate-3-kinase | Itpka; Itpkb; Itpkc |
| MAPK | Mapk1; Mapk10; Mapk11; Mapk12; Mapk14; Mapk3; Mapk4; Mapk6; Mapk7; Mapk8; Mapk9 |
| src | Src |
| fyn | Fyn |
| protein kinase A C beta 1 subunit | Prkacb |
| protein kinase A RI beta subunit | Prkar1b |
| protein kinase C-gamma | Prkcg |
| protein kinase G | Prkg1 |
| protein kinase M-zeta | Prkcz |
| CaM kinase I; II; IV | Camk1; Camk2; Camk4 |
| ecto-protein kinase | NA |
| PROTEASES AND THEIR INHIBITORS | | | |
| calpain | Capn1; Capn10; Capn11; Capn12; Capn13; Capn15; Capn2; Capn3; Capn5; Capn6; Capn7; Capn8; Capn9 |
| calpastatin | Cast |
| protease nexin 1 | Serpine2 |
| tissue plasminogen activator | Plat |
| plasmin | Plg |
| E6-AP ubiquitin ligase | Ube3a |
| OTHER ENZYMES | | |
| phospholipase A2 | Pla2g10; Pla2g12a; Pla2g12b; Pla2g15; Pla2g16; Pla2g1b; Pla2g2a; Pla2g2c; Pla2g2d; Pla2g2e; Pla2g2f; Pla2g3; Pla2g4a; Pla2g4b; Pla2g4e; Pla2g4f; Pla2g5; Pla2g6; Pla2g7 |
| phospholipase C beta | Plcb1; Plcb2; Plcb3; Plcb4 |
| phospholipase C gamma | Plcg1; Plcg2 |
| ADP ribosyl transferase | Parp1 |
| calcineurin | Ppp3ca; Ppp3cb; Ppp3cc |
| protein phosphatase I | Phpt1 |
| acetylcholinesterase | Ache |
| adenylate cyclase | Adcy1; Adcy10; Adcy2; Adcy3; Adcy4; Adcy5; Adcy6; Adcy7; Adcy8; Adcy9 |
| guanylate cyclase | Gucy1a2; Gucy1a3; Gucy1b2; Gucy1b3; Gucy2c; Gucy2d; Gucy2e; Gucy2g |
| MISCELLANEOUS | | |
| Spectrin/fodrin | Sptan1; Sptbn1 |
| GFAP | Gfap |
| Stathmin RB3/XB3 | Stmn4 |
| EBI-1 G protein-coupled receptor | Ccr7 |
| Mas G-protein coupled receptor | Mas1 |
| Vesl | Homer1; Homer2; Homer3 |