

Neuronal and Glial Cell Marker Atlas

Cell Type Markers

*Proliferating Cells

Neural Stem Cell Markers

- Musashi
- Notch1
- SSEA1

Neuroepithelial Cells*

- E-Cadherin
- HES1
- Nestin
- Notch1
- Sox2
- Sox10

Schwann Cells

- EAAT1 (GLAST-1)
- EAAT2 (GLT-1)
- GAP43
- GFAP
- Myelin Basic Protein
- NCAM
- p75NTR
- S100B

Radial Glia*

- BLP (FABP7)
- N-Cadherin
- GFAP
- EAAT1 (GLAST-1)
- Nestin
- Sox2
- Tenascin C
- Vimentin

Microglia



- ASC
- CD11b (ITGAM)
- CD40
- CD45
- CD68
- F4/80
- Iba1
- PU.1
- TMEM119

Homeostatic:

- C1qA/B
- CX3CR1
- Cystatin 3 (CST3)
- P2RY12

Functional Markers:

- Arg3.1 (Arc)
- CaMKII
- CREB
- Erk
- c-Fos
- PKA

Proliferating Cell Markers:

- BrdU
- Ki-67
- PCNA



Oligodendrocytes

- A2B5
- CNPase
- MAG
- MOG
- Myelin Basic Protein
- NG2
- Olig2
- SOX10

Astrocytes

- A2B5
- ALDH1L1
- EAAT1 (GLAST-1)
- EAAT2 (GLT-1)
- GFAP
- Notch
- S100B

Intermediate Progenitors*

- EOMES (Tbr2)
- Neurogenin 2
- Pax6

Immature Neurons

- Doublecortin
- NeuroD1
- TBR1
- β -3-Tubulin

Mature Neurons

- MAP2
- NeuN
- Neurofilament-H
- Neurofilament-L
- Neurofilament-M
- Neuron Specific Enolase (NSE)
- Tau
- Thy1
- β -3-Tubulin
- UCHL1

Neurotransmitters

Glutamatergic Neurons

- VGLUT1/2

GABAergic Neurons

- ADORA2A
- DARPP-32
- GAD1/2
- Neuropeptide Y
- Penk

Dopaminergic Neurons

- ALDH1A1
- FoxA2
- GIRK2
- Lmx1B
- Tyrosine Hydroxylase

Serotonergic Neurons

- FEV
- SERT
- TPH2
- Tryptophan Hydroxylase

Cholinergic Neurons

- ChAT

Neuronal Subtypes

Interneurons

- Calbindin
- Calretinin
- 5-HT3A Receptor
- Parvalbumin
- Somatostatin
- VIP

Motor Neurons

- ChAT
- HB9
- Islet-1/2
- Neurogenin 2
- Olig2

Neurodegenerative Disease-Associated Markers

Alzheimer's Disease

- β -Amyloid (A β)
- ApoE
- CD33
- Presenilin 1/2 (PSEN1/2)
- Tau
- TREM2

Parkinson's Disease

- DJ-1
- GBA
- LRRK2
- Parkin
- PINK1
- α -Synuclein
- UCHL1
- VPS35

ALS

- C9orf72
- FUS
- SOD1
- SQSTM1
- TDP43

Disease-Associated Microglia (DAM)



Stage 1

- Upregulated: ApoE, DAP12 (TYROBP), TREM2
- Downregulated: P2RY12, CX3CR1, TMEM119, CD33

Stage 2 (TREM2-Dependent)

- Axl
- Cystatin F (CST7)
- Dectin-1 (CLEC7a)
- CD11c (ITGAX)
- Spp1

Pathway Diagram Key

- Direct Stimulatory Modification
- | Direct Inhibitory Modification

- Multistep Stimulatory Modification
- | Multistep Inhibitory Modification

- - Tentative Stimulatory Modification
- | Tentative Inhibitory Modification

- ⌊ Transcriptional Inhibitory Modification

rev. 06/18