

A

Heatmap A displays gene expression profiles across five clusters. The y-axis lists 50 genes, and the x-axis represents samples grouped into five clusters. The color scale ranges from 0 (blue) to 100 (red). The clusters are labeled at the top: Cluster 1 (blue), Cluster 2 (orange), Cluster 3 (green), Cluster 4 (red), and Cluster 5 (purple). The genes listed on the y-axis are: Vio, Sorcs3, Prox1, Edar, Sorcs1, Sema4, Penk, Ccl, Vav, Pvalb, Cemip, Slit, Cntnap, mem132c, Tac, Trac, Tll, Iltrap, Scl, Grn3a, Cxcl, Trhd, Lama4, Pde1a, Ank, Unc13c, Calb1, Lag3, Caonazd, Igst1, Ntr, Klf, Pdg, Hs3st4, Cxcl14, Ccl, Rgs12, Frrm1, Col25a2, Nrgab1, Trpm3, and Fam63b.

Cluster 1

GO Term	$-\log_{10}(\text{adjusted } p \text{ value})$
upstroke-downstroke-ratio-long-square	~190
upstroke-downstroke-ratio-ramp	~180
vm-for-sag	~45
peak-v-short-square	~30

Electrophysiological features

GO Term	$-\log_{10}(\text{adjusted } p \text{ value})$
synaptic membrane	~190
neurotransmitter receptor complex	~190
ion channel complex	~190
postsynaptic membrane	~175
Neuroactive ligand-receptor interaction	~1.6
cell adhesion molecule binding	~1.5

[illegible]