

**S2 Table. Compound 4f Restores the Expression of Several Genes Changed by Kainic Acid (KA) in Neuroinflammation,  $\gamma$ -Aminobutyric Acid (GABA) Receptor, Glutamate Receptor, and Endocannabinoid Neuronal Synapse Pathways.**

| Pathway                          | - log (p-value)           | Ratio<br>(KA+vehicle/KA+compound 4f) | Genes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------|---------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Neuroinflammation signaling      | 20.500                    | 60/99                                | <b>Cxcl10, Ccl5, Irf7, Cybb, Ccl12, H2-Aa, H2-Q7, H2-Q6, H2-Ab1, H2-Eb1, Tlr2, Birc5, Stat1, Naip2, B2m, H2-T23, Tlr1, Tlr13, Pycard, Tyrobp, Icam1, Trem2, Nefl, Nlrp3, Tlr7, H2-DMb1, Tnfrsf1a, Pla2g4a, H2-Ob, Naip5, Casp8, Pik3r5, Ncf2, Irak4, Tgfb2, Tgfb1, Hmox1, Myd88, Birc3, Pleg2, Cd86, Tlr9, Ikke, Pik3cg, Vcam1, Tlr4, Tlr3, Cx3cr1, Csf1r, Tirap, Nfe2l2, Pik3r6, Nfatc1, Gjb1, Ripk1, Ticam1, Cflar, Tgfb1, P2rx7, Il1r1, H2-Oa, Nfkb2, Ticam2, Jak3, Cd40, Syk, Fos, Tlr6, Tlr12, Pla2g5, Casp1, Nos2, Fas, Acvr1c, Ifngr1, Mapk12, Il12a, Bace2, Irak3, Ager, Il6ra, Casp3, Nfkb1, Rela, Nfatc4, Bcl2, Akt2, Bdnf, Jun, Mapk6, Acvr1, S100b, Nfatc3, Pik3cd, Jak2, Gabrb1, Slc1a3, Irf3, Ide</b> |
| GABA receptor signaling          | 6.730                     | 9/39                                 | <b>Gabra3, Gad2, Gad1, Kcnh2, Dnm1, Slc32a1, Cacng3, Gabra1, Slc6a1, Cacna1a, Ubb, Gabrg2, Cacna2d3, Gabrg1, Cacnb3, Adcy2, Gabrg3, Cacnb1, Cacng2, Cacna1i, Gabbr2, Cacnb4, Gabrb3, Cacnb2, Nsf, Cacna2d1, Cacng7, Cacng8, Cacna1c, Slc6a11, Cacna1b, Cacna1e, Gabrb2, Kcnq3, Abat, Adcy9, Gabra5, Adcy1, Gabrd</b>                                                                                                                                                                                                                                                                                                                                                                                                |
| Glutamate receptor signaling     | 3.810                     | 5/27                                 | <b>Homer2, Grik3, Gria3, Homer1, Gria4, Slc17a7, Grid1, Gng7, Grik4, Slc1a1, Gng2, Glis, Grin2b, Grip1, Grin2d, Dlg4, Grin3a, Homer3, Calm3, Grm1, Gria1, Gria2, Grin1, Camk4, Grm5, Grin2a, Slc17a8</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Endocannabinoid neuronal synapse | < 1.30103 ( <i>n.s.</i> ) | 5/48                                 | <b>Itpr1, Gria3, Cacng3, Rims1, Gria4, Cacna1a, Cacna2d3, Cacnb3, Adcy2, Cacnb1, Cacng2, Plcb1, Cacna1i, Mapk8, Gng7, Cacnb4, Gnaq, Cacnb2, Gng2, Cacna2d1, Cacng7, Cacng8, Kcnj3, Cacna1c, Kcnj6, Cacna1b, Grin2b, Mapk10, Ppp3cb, Faah, Grin2d, Cacna1e, Grin3a, Gnao1, Plch2, Dagla, Grm1, Gria1, Gria2, Grin1, Grm5, Cnr1, Gnai1, Ppp3ca, Adcy9, Ppp3r1, Grin2a, Adcy1</b>                                                                                                                                                                                                                                                                                                                                      |

*p*-value for KA-injected mice treated with compound **4f** compared to KA-injected mice treated with vehicle

Ratio (KA + vehicle/KA + compound **4f**): Number of genes significantly changed by compound 4f among those changed by KA ( $FC \leq -1.2$  or  $\geq 1.2$ )/number of genes changed by KA ( $FC \leq -1.2$  or  $\geq 1.2$ )

**Bold:** genes significantly changed by compound **4f**

*n.s.*: not significant