

Figure S1

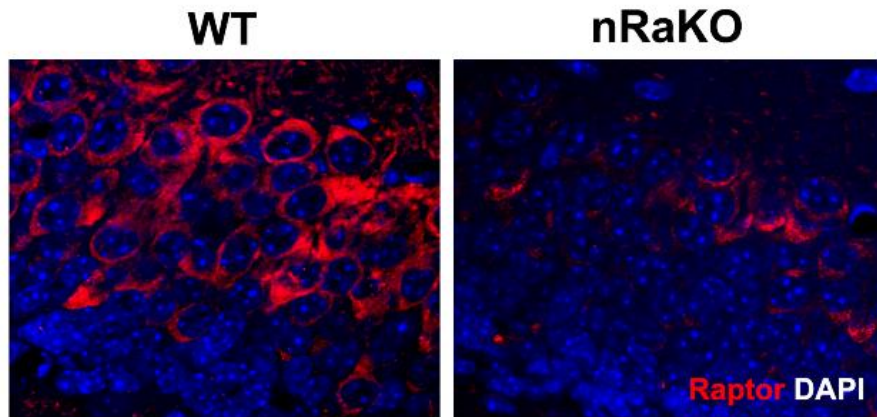


FIGURE S1. Regional expression of Raptor in nRaKO brain. Neurons in the hippocampus (DG) of nRaKO mice (n=6), compared to control (n=6), Raptor expression significant decreased in nRaKO mice. Slices were imaged with 60× objectives.

Figure S2

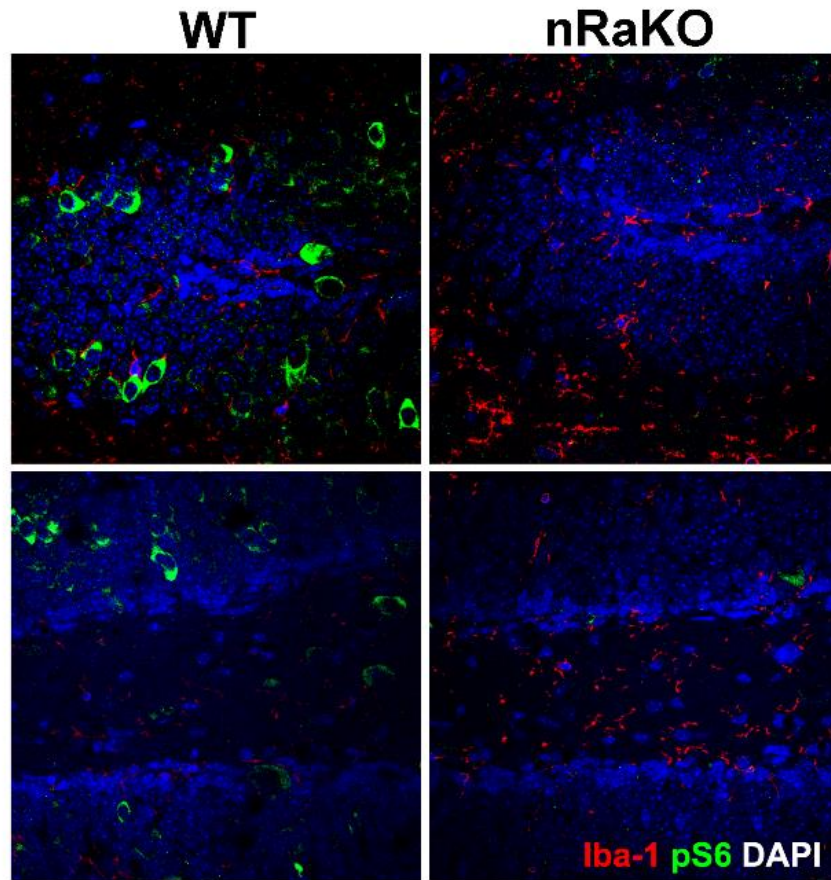


FIGURE S2. Raptor deletion in neurons induce increased microglia population. DG and DG hilus in the hippocampus of nRaKO mice (n=6), compared to control (n=6), pS6 expression significant decreased in nRaKO mice. Iba-1 indicates the spread of microglia. Slices were imaged with 20× objectives.

Figure S3

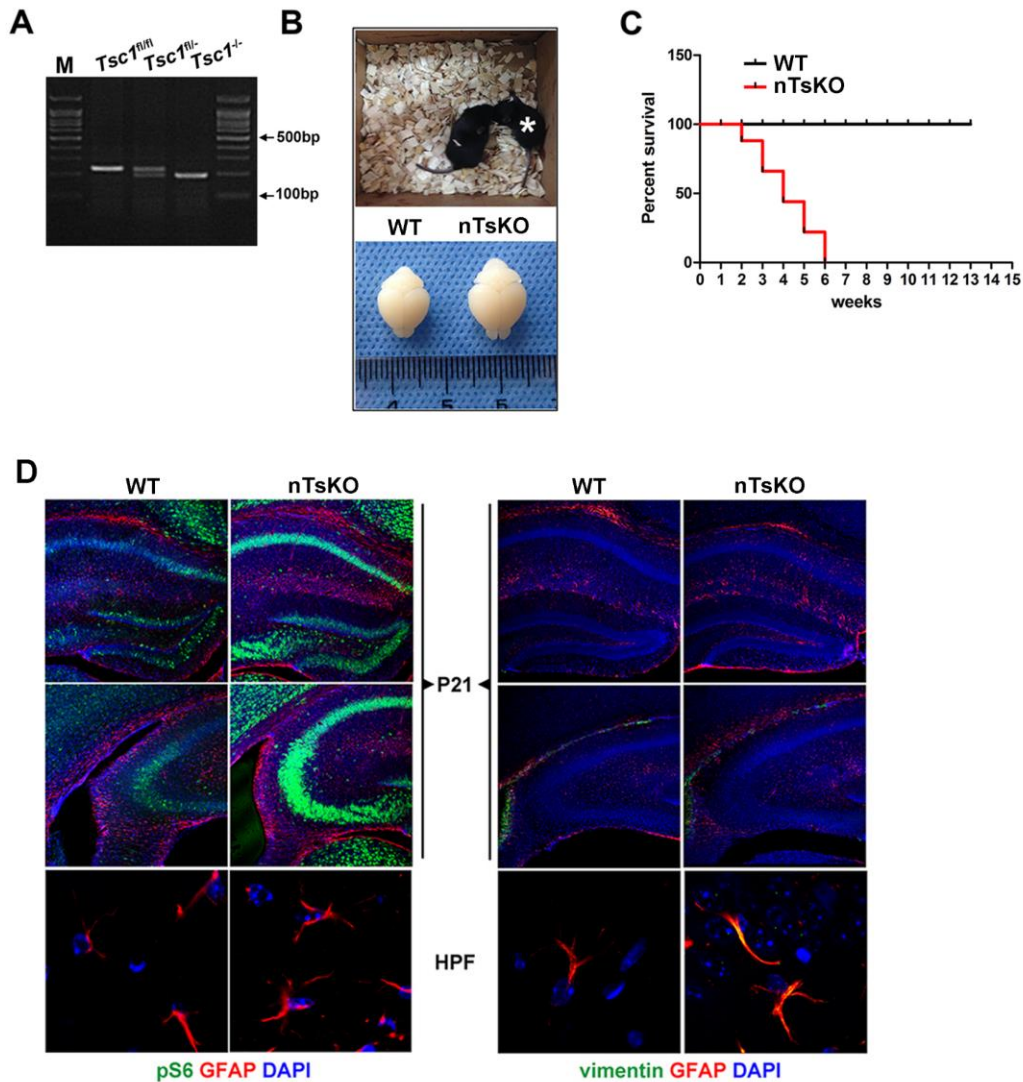


FIGURE S3. *Tsc1* deletion in neurons show milder reactive astrogliosis. (A) Genotyping the offspring after mating transgenic Cre and loxp mice. Expected band of mutant carrying floxed *Tsc1* allele is nearly 230bp, and bands of ~230bp and ~200bp were detected in heterozygote mice. (B) Malformed body figure and brain size in nTsKO mice. P21 control (left) and nTsKO (right) brains. (C) nTsKO mice exhibit premature death (to 3 weeks). (D) In the hippocampus of P21 nTsKO mice (n=6), compared to control (n=6), pS6 expression significantly increased in CA1, CA3, DG regions. There is no obviously increased GFAP and vimentin expression in nTsKO brains. Slices were imaged with 10 \times , 60 \times objectives under high power fields.

Figure S4

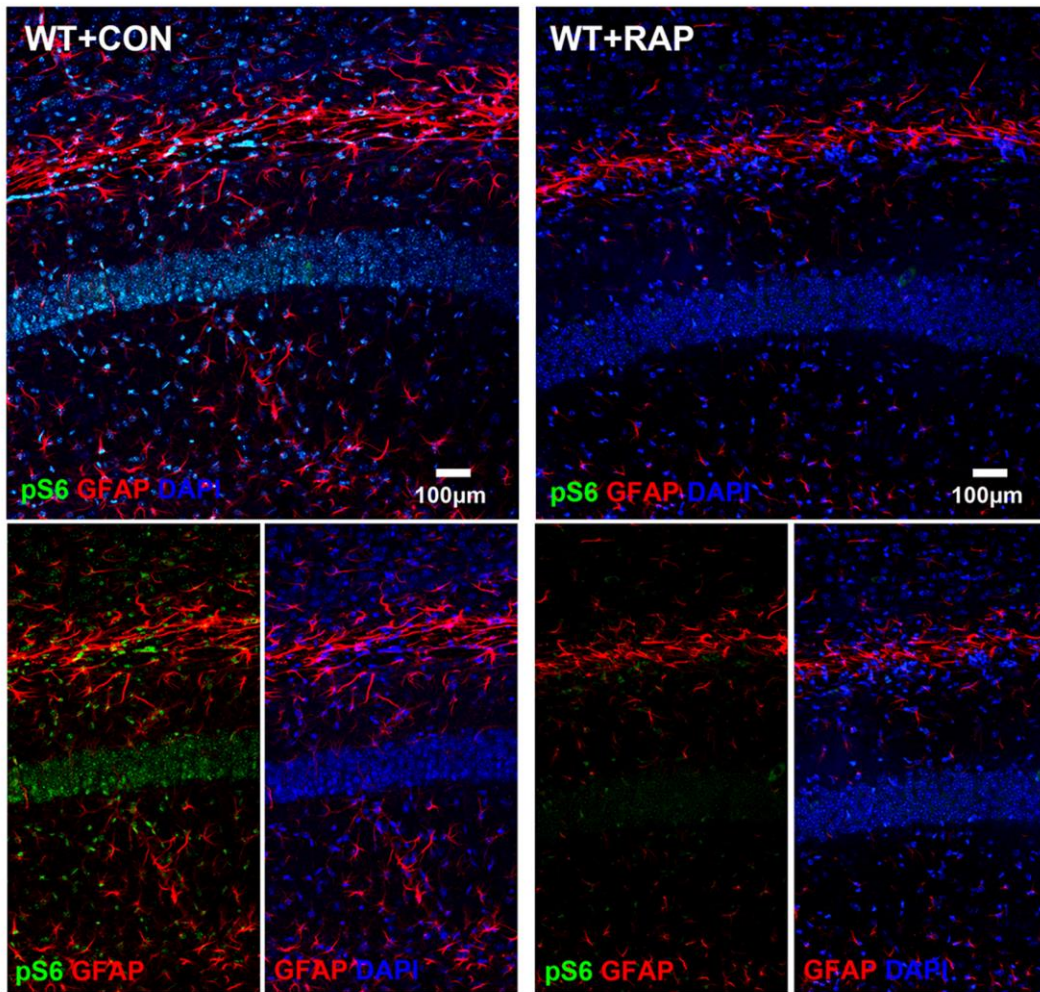


FIGURE S4. Rapamycin does not induce astrogliosis in vivo. Confocal image montage of coronal sections from mice with or without rapamycin (2mg/g/day) treatment (n=12). Sections stained with p-S6 (green) indicate the inhibition of mTORC1 activity. Sections co-stained with GFAP (red) indicate decreased GFAP expression in rapamycin treated mice. Slices were imaged with 20× objectives. The images enlarged and GFAP+ vimentin+ exhibit reduced expression compared with control mice brains.

Figure S5

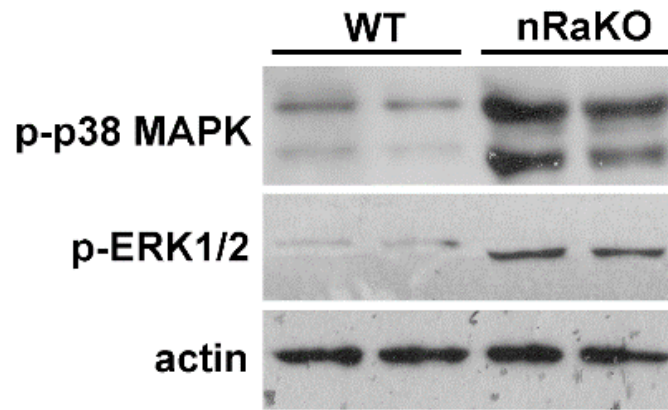


FIGURE S5. MAPK and ERK signaling activated in neuron-induced reactive astrocytes. Western blot analyses of the phosphorylation levels of p38 MAPK and ERK1/2 signals, actin is included as an internal control for protein loading. (n=4).