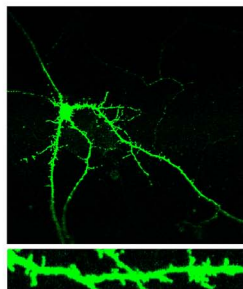


**Suppl. Fig.1. ApoE4 decreases spine density in primary hippocampal culture.** *A*, Cultured hippocampal neurons (DIV 12) were transfected with GFP and treated with control (n=15), 500 nM apoE3 (n=15), or 500 nM apoE4 (n=15) for 48 hrs. Morphologies of dendritic spines were visualized by GFP fluorescence. Magnified examples of representative neuritic segments are shown in lower panels. *B*, Averaged spine density from data in *A*. *C*, The cumulative percentage distribution of dendritic spine length. ApoE4 treatment significantly shifted the distribution towards decreased spine length compared to control.

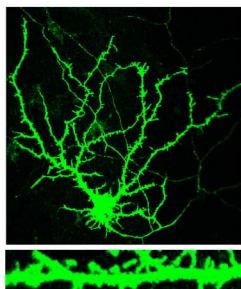
**Suppl. Fig. 2. The effect of APOE4 on spine density demonstrated a trend towards increasing over time in cortical layers II/III.** *A*, Summary of all the averaged spine density for all three APOE TR mice in cortical layer II/III at 4 weeks, 3 months, and 1 year. Spine density in APOE4 TR mice is decreased compared to APOE3 TR mice at 4 weeks ( $27.7 \pm 7.4\%$ ), 3 months ( $24.4 \pm 8.6\%$ ) and at 1 year ( $55.6 \pm 10.5$ ). *B*, Summary of the averaged spine density in APOE2, APOE3, and APOE4 TR mice in the dentate gyrus for all timepoints.

A.

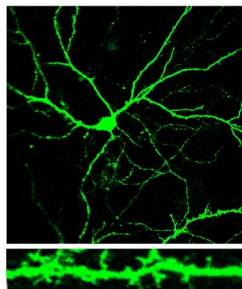
CTRL



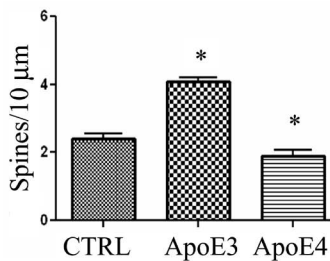
ApoE3



ApoE4

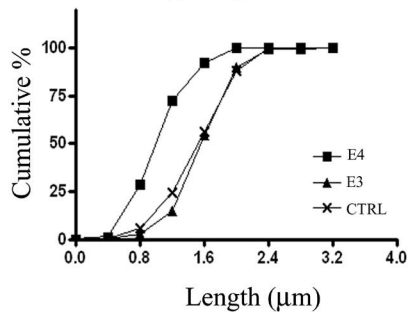


B.

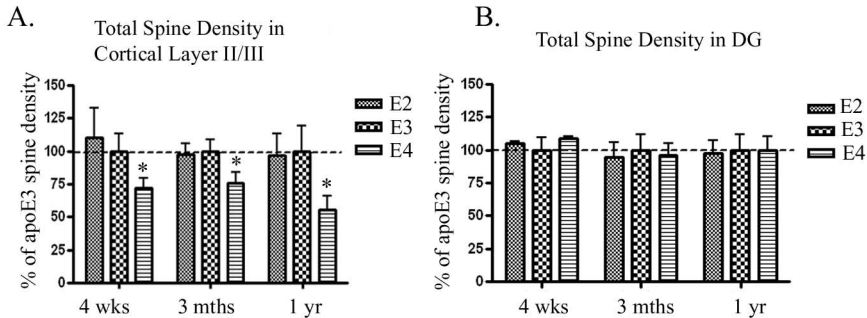


C.

Spine Head Length in primary hippocampal neurons



Supplementary Fig. 1



Supplementary Fig.2