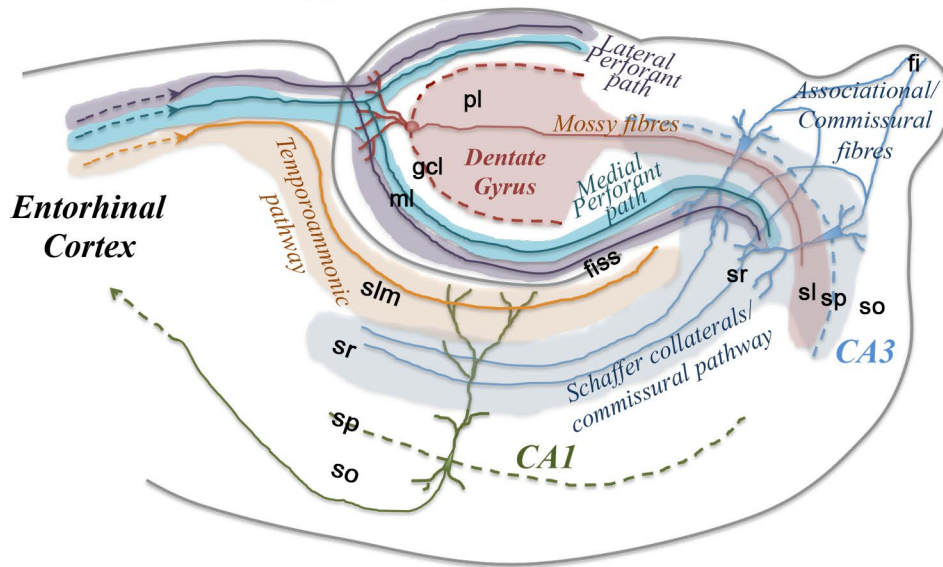
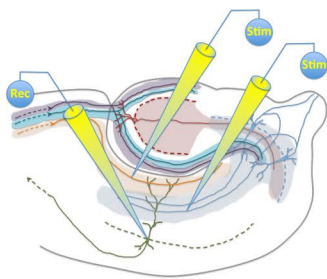


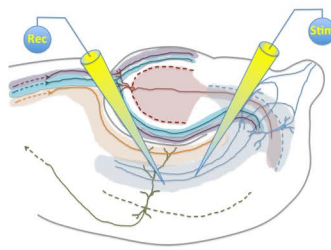
## Hippocampal schematic



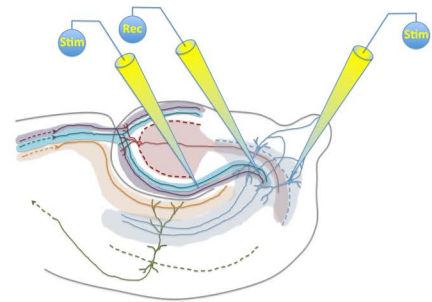
CA1 patch clamp



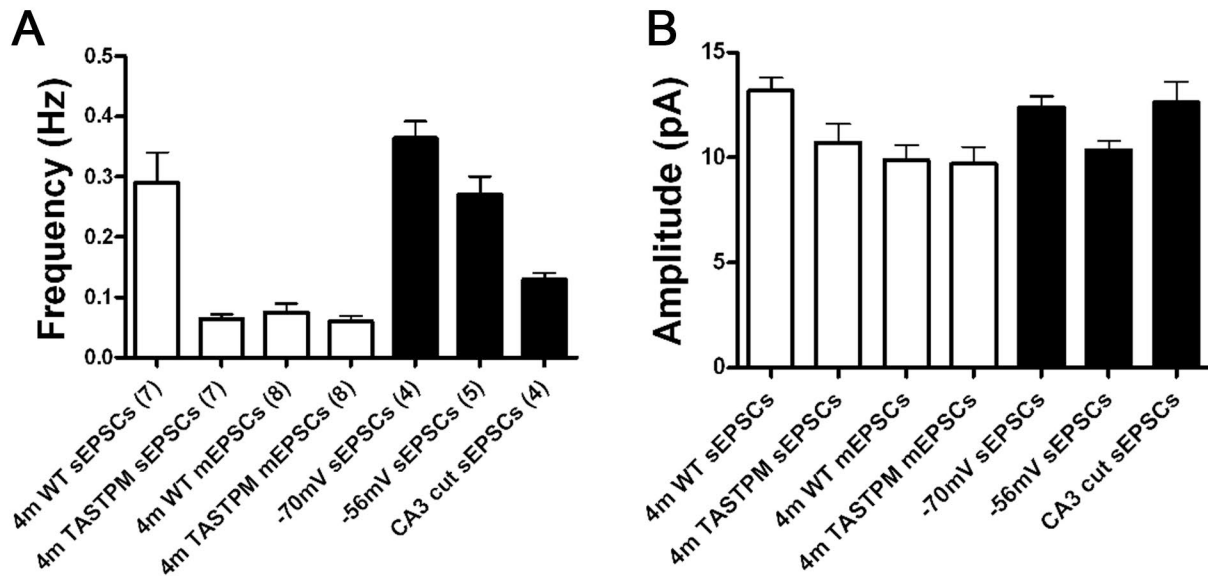
CA1 field potentials



CA3 field potentials



**Supplementary Figure 1. Electrode placements.** *Top:* Hippocampal schematic showing cell layers and axon pathways. *Bottom left:* Patch electrode (Rec) located on pyramidal cell (within stratum pyramidale). Stimulating electrodes (Stim) located in either stratum radiatum (sr) to recruit Schaffer collaterals or stratum lacunosum moleculare (slm) to recruit fibres of the temporoammonic pathway. *Bottom centre:* For recording field potentials, both the recording and stimulating electrodes were located in stratum radiatum. *Bottom right:* For CA3 recordings, a field electrode was positioned within stratum radiatum. To evoke synaptic responses from the perforant pathway, a stimulating electrode was positioned on the border of the hippocampal fissure (fiss) and molecular layer (ml) of the dentate gyrus. To evoke CA3-CA3 association responses, the stimulating electrode was placed with stratum pyramidale. (fi, fimbria/fornix; pl, polymorphic layer; sl, stratum lucidum; so, stratum oriens.)



**Supplementary Figure 2: Spontaneous EPSCs largely arise from Schaffer collaterals and in TASTPM, changes in frequency are not primarily explained by changes in amplitude.** *A*) Frequencies of EPSCs. *B*) Amplitudes of EPSCs. Open bars are reproductions of the data presented in figure 2B. Filled bars show data from an independent population of cells in slices from 4 month old wild-type animals, and from which spontaneous EPSCs were recorded under three conditions: 1) voltage-clamp at -70 mV. NB these data points are not included in the original set from figure 2B; 2) voltage-clamp at -56 mV, which is the holding potential calculated to reduce the driving force for sodium such that there will be approximately 20% reduction in EPSC amplitude (as seen in the open columns); 3) voltage-clamp at -70 mV in slices where the Schaffer collaterals had been cut and thus cell bodies in the CA3 region removed from these axons impinging onto CA1 neurones. Sample sizes (number of animals) are indicated in parentheses.