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Supplemental Information

**Genetic Dissection of Presynaptic
and Postsynaptic BDNF-TrkB Signaling
in Synaptic Efficacy of CA3-CA1 Synapses**

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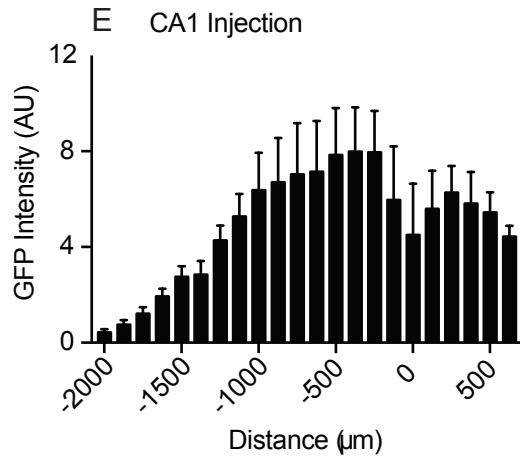
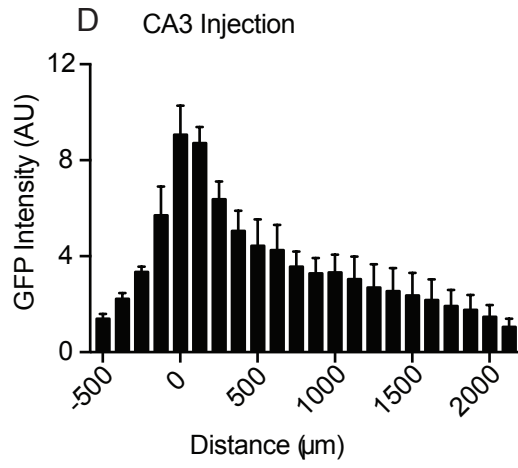
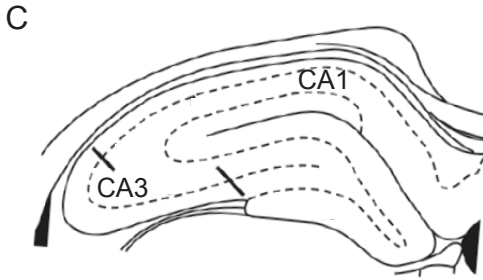
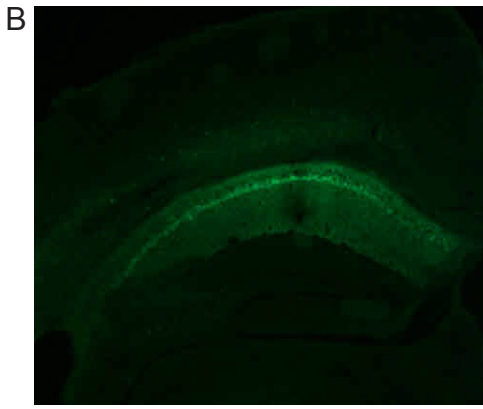
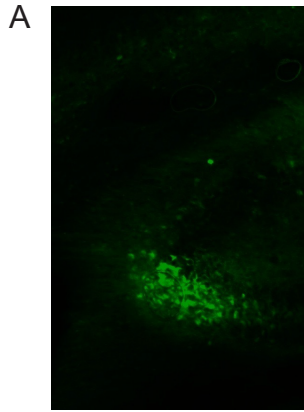


Figure S1. Localized regional specific GFP expression in subregions of the hippocampus three weeks after AAV-GFP virus injection. Related to Figure 1. (A, B) Representative images of GFP expressing neurons at the injection site in hippocampal CA3 (presynaptic area of Schaffer collateral pathway) or CA1 (postsynaptic terminal of Schaffer collateral pathway) region. (C) Schematic diagram of the approximate injection site in CA1 and CA3 regions of the hippocampus. (D, E) Representative GFP intensity in entire hippocampus, 0 in x-axis indicated as injection site.

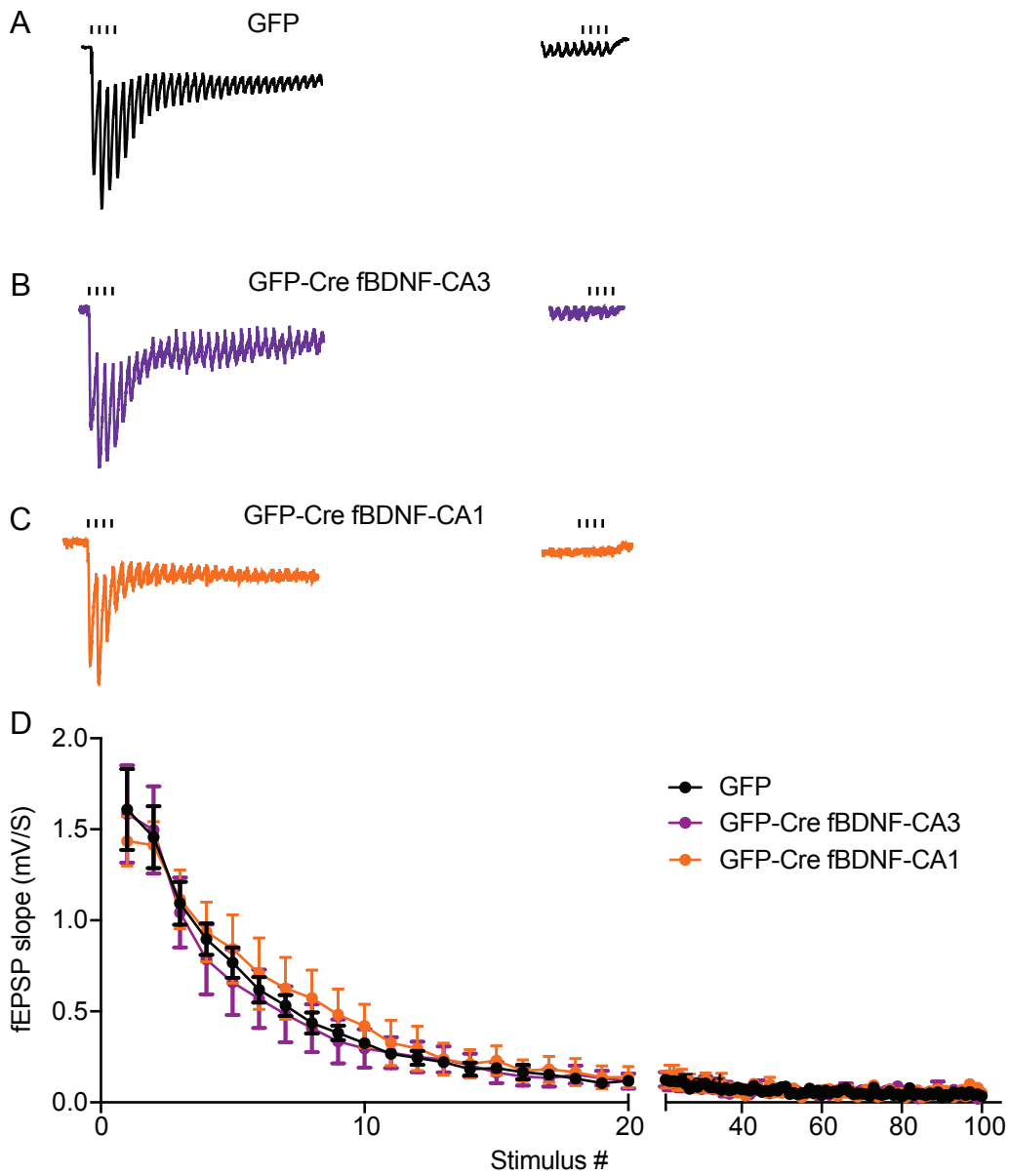


Figure S2. Glutamatergic neurotransmission is intact during HFS in hippocampal slices with deletion of BDNF. Related to Figure 2. (A, B and C) Representative traces of fEPSP during HFS in control hippocampal slice injected with GFP, or the slices with deletion of BDNF from CA3 or CA1. (D) No difference in fEPSP amplitude was found during HFS.

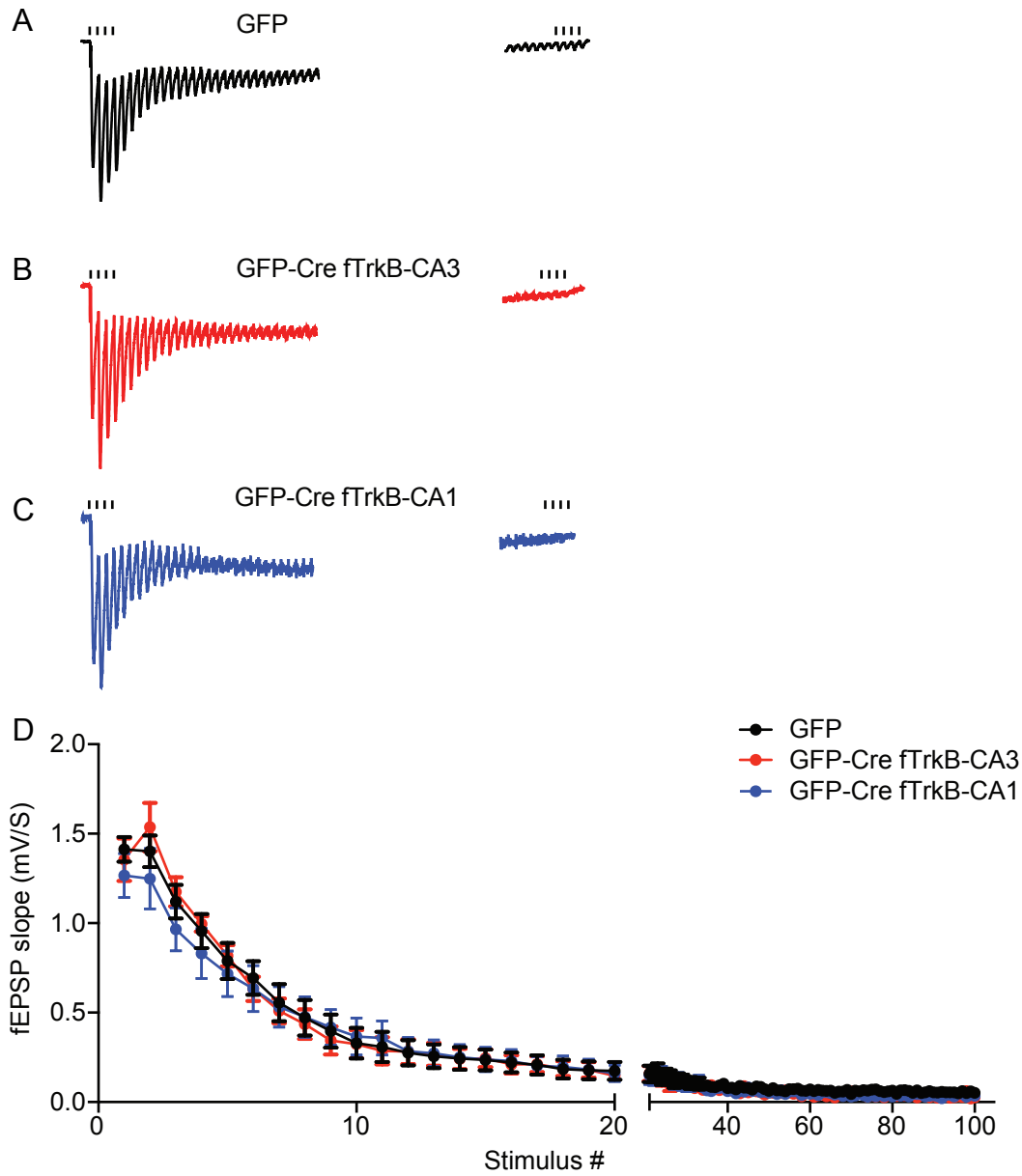
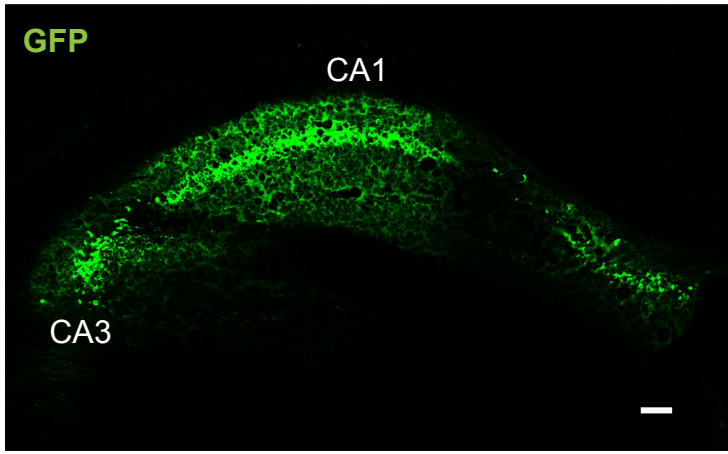
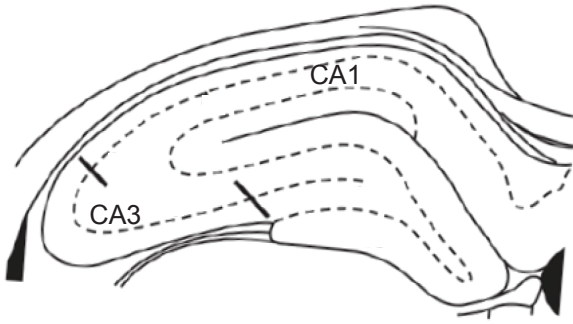


Figure S3. Glutamatergic neurotransmission is intact during HFS in hippocampal slices with deletion of TrkB. Related to Figure 3. (A, B and C) Representative traces of fEPSP during HFS in hippocampal slice from GFP injected mice, or the slices with deletion of TrkB from CA3 or CA1. (D) No difference in fEPSP amplitude was found during HFS.

A



B



C

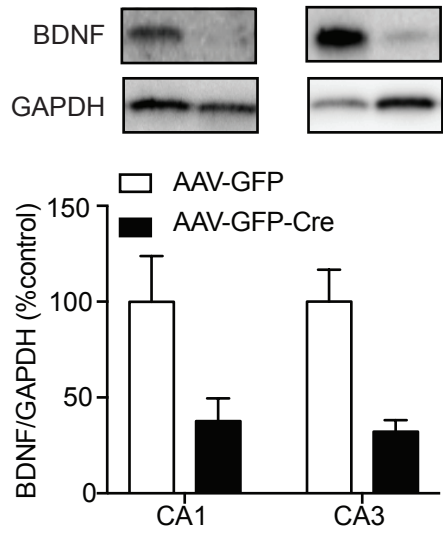


Figure S4. Localized regional specific GFP expression in subregions of the hippocampus three weeks after AAV-GFP virus injection. Related to Figure 4D. (A) Representative images of GFP expressing neurons at the injection site in hippocampal CA3 (presynaptic area of Schaffer collateral pathway) and CA1 (postsynaptic terminal of Schaffer collateral pathway) regions. (B) Schematic diagram of the approximate injection site in CA1 and CA3 regions of the hippocampus. (C) Representative western blot images showing mature BDNF expression in flox BDNF mice injected with AAV-GFP or AAV-GFP-Cre. BDNF protein expression in CA1 or CA3 (n=8) regions of AAV-GFP-Cre-injected flox BDNF mice were $33.66 \pm 10.88\%$ or $28.27 \pm 5.92\%$ of that in CA1 or CA3 (n=8) regions of AAV-GFP-injected *Bdnffl/fl* mice.