



**Figure 1-figure supplement 2. Parvoalbumin-positive CA1 interneuron stimulation potentiates excitatory synaptic transmission at single CA3-CA1 synapses.** (A) *Left*, confocal image of hippocampus from a Pvalb-cre/Ai9-rl-tdTomato mouse. Scale bar, 800  $\mu\text{m}$ . *Right*, immunostaining for GAD-67 expressing interneurons in CA1 hippocampal region. Note the colocalization of GAD-67 labeling (green) and PV<sup>+</sup>-tomato cells (red), indicating the GABAergic nature of PV<sup>+</sup> neurons. Scale bar, 30  $\mu\text{m}$ . (B) Scheme depicting paired recordings from PV<sup>+</sup>-interneuron (red) and CA1 pyramidal cells (gray), Schaffer collateral stimulating electrode (stim), and surrounding astrocytes (pink). (C) *Top*, synaptic responses evoked by minimal stimulation showing EPSC amplitudes and transmission failures (12 consecutive stimuli; light gray), and averaged EPSCs (40 consecutive stimuli; black) before and after PV<sup>+</sup>-cell APs bursting. *Bottom*, time course of the success rate of neurotransmitter release before and after APs bursting of PV<sup>+</sup>-cell ( $n = 9$ ; bin width, 30 s). Zero time indicates the onset of PV<sup>+</sup>-cell stimulation. (D) Relative changes of synaptic parameters from basal (white) elicited by pairing SC stimuli with bursts of PV<sup>+</sup>-cell APs (black), in control ( $n = 9$ ) and in presence of CGP55845 ( $n = 5$ ).  $**P < 0.01$ ; paired  $t$ -test. Error bars indicate SEM.