**Supplemental Fig. 1.** The presence of MPEP throughout the experiment prevented the induction of TA-LTD and change of PPR after the PP-LFS. Error bars indicate SEM. **A.** PP-LFS of SLM induced long-term change in normalized EPSC amplitude. **B.** Representative EPSCs recorded before the control and the pPP-LFS. **C**: *Left*: 1st TA-EPSCs for the control and the pPP-LFS. *Right:* PPR for the control and the pPP-LFS. For the experiments of Supplemental Fig. 1, 5 mice were used.
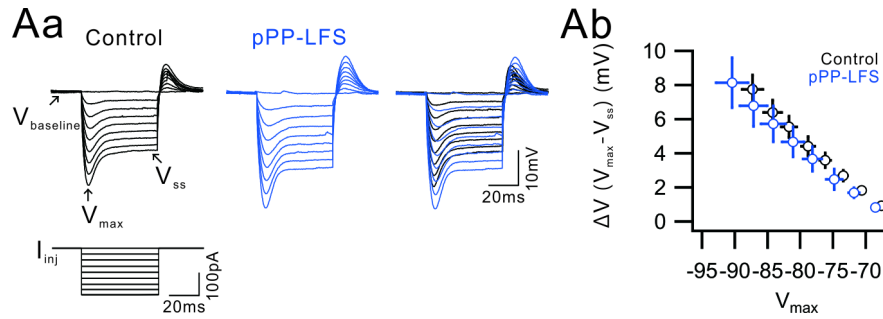
Supplemental Fig. 2. E-S potentiation of TA-CA1 synapses during LTD was not attributable to I_h inhibition. Aa. Representative voltage deflections to current steps before (Control, *left*) and 30 min after PP-LFS (pPP-LFS, *middle*). *Right*: overlapped voltage traces for the control and the pPP-LFS. **Ab.** Voltage sag **(V_{sag}**; defined as the $V_{max}-V_{ss}$) vs. V_{max} for the control and the pPP-LFS are plotted with black and blue colors, respectively. Error bars indicate SEM. For the experiments of Supplemental Fig. 2, 8 mice were used.
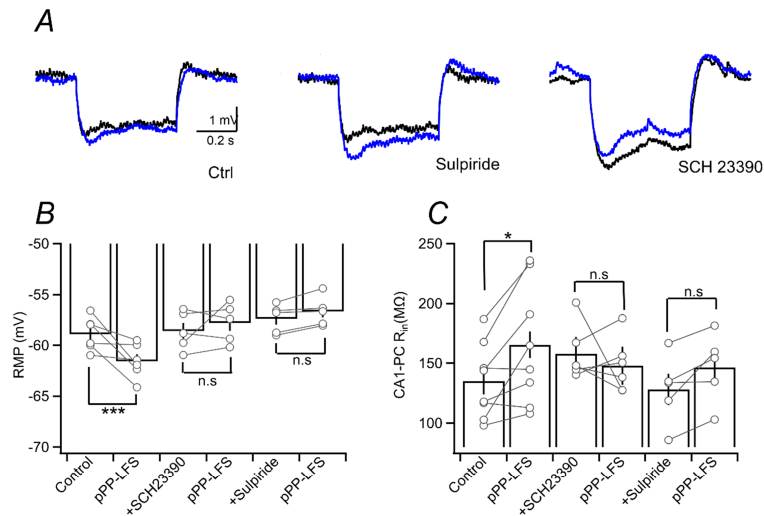
Supplemental Fig. 3. D1-dependent decrease in K^+ current and parameters of intrinsic excitability.
Change of the RMP and R_{in} after the PP-LFS for the control (7 neurons), SCH23390 (5 neurons) and sulpiride (5 neurons). **A.** Representative traces of voltage deflection in response of 25 pA hyperpolarization current for 0.5 sec, before (black traces) and after (blue traces) the PP-LFS (*left*: control, *middle*: sulpride, *right*: SCH23390). **B.** Change of RMP of CA1-PCs were measured before and after the PP-LFS (Time: $F_{(1,13)}=0.72$, p=0.41, Cond: $F_{(2,13)}=7.105$, p=0.008, Time × Cond: $F_{(2,13)}=6.747$, p=0.01; RM-ANOVA and simple main effect analysis) **C.** Change of R_{in} of CA1-PCs were calculated from the traces in Supplemental Fig. 3A (Time: $F_{(1,16)}=3.948$, p=0.064, Cond: $F_{(2,16)}=0.397$, p=0.679, Time×Cond: $F_{(2,16)}=3.683$, p=0.048; RM-ANOVA and simple main effect analysis). Detailed calculation methods were based on the previous study [20]. These measuring of RMP and R_{in} were accompanied with the study of Fig. 3A~3D.