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Supplemental information

Synaptotagmin-1 is a Ca^{2+} sensor for somatodendritic dopamine release

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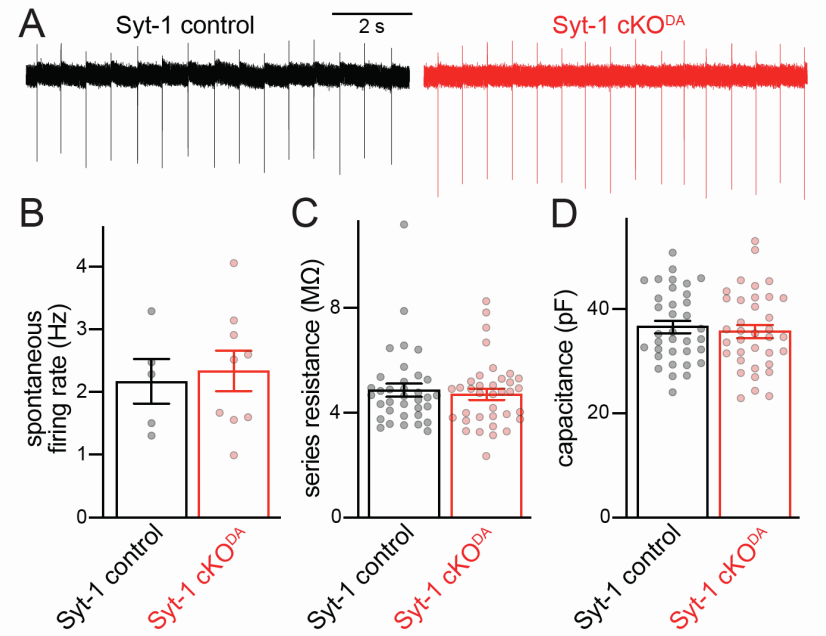

Figure S1. Basal electrical properties are unchanged in Syt-1 cKO^{DA} mice, related to Fig. 1.

A, B. Example traces (A) and quantification of spontaneous firing rate (B) recorded in cell-attached mode prior to break-in, measured over a one-minute period, Syt-1 control 5 cells/3 mice, Syt-1 cKO^{DA} 9 cells/3 mice.

C, D. Quantification of series resistance (C) and capacitance (D) measured following break-in, Syt-1 control 35 cells/8 mice, Syt-1 cKO^{DA} 36 cells/8 mice.

Data are mean ± SEM; no significant differences were observed as determined by unpaired Student's t-tests (B, D) or a Mann Whitney rank sum test (C).

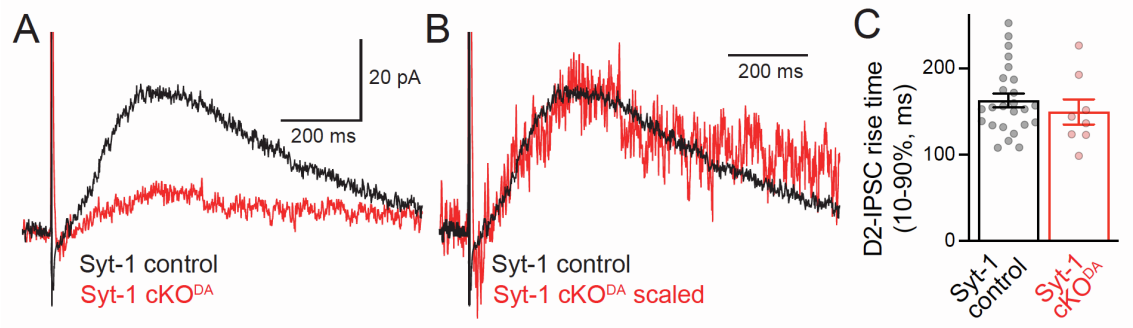

Figure S2. Assessment of D2-IPSC rise times in Syt-1 cKO^{DA} mice, related to Fig. 1.

A-C. Absolute (A) and scaled (B) example traces and quantification of 10-90% rise time of single-stimulus D2-IPSCs of the recordings shown in Figs. 1D and 1G, Syt-1 control 25 cells/7 mice, Syt-1 cKO^{DA} 8 cells/5 mice. Only D2-IPSCs larger than 10 pA were included. Because of the strong reduction in the D2-IPSC amplitude after Syt-1 ablation, there are fewer observations for Syt-1 cKO^{DA}. The kinetics of the D2-IPSC are dominated by the time course of GPCR signaling and are unlikely to reflect release kinetics.

Data are mean ± SEM; no significant differences were observed as determined by unpaired Student's t-test (C).

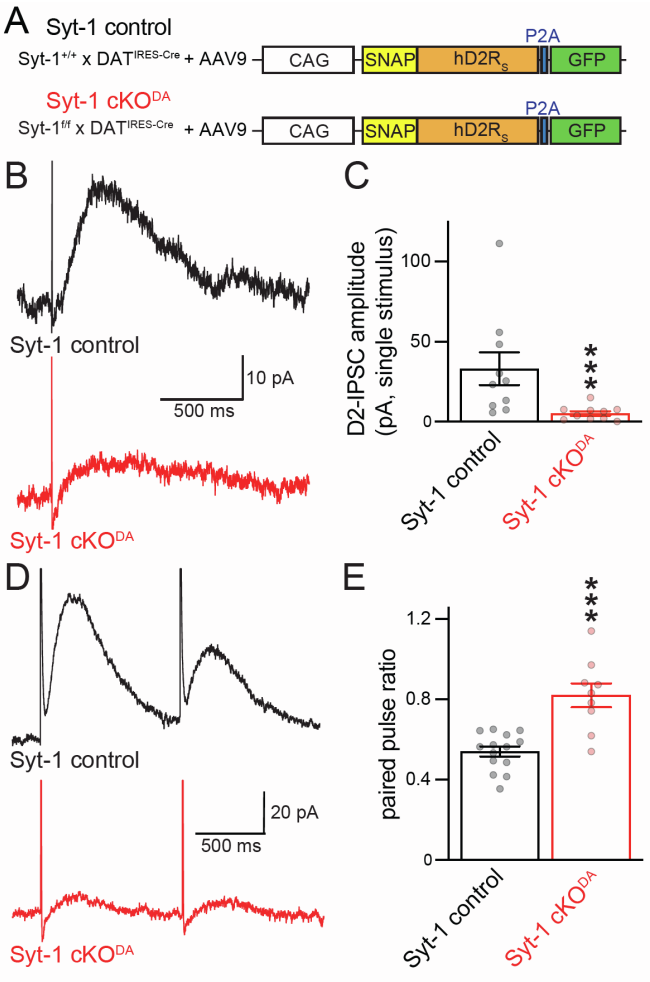

Figure S3. D2 receptor overexpression does not alter evoked D2-IPSCs, related to Fig. 4.

A. Strategy for AAV-mediated overexpression of D2 receptors (human, short version, $hD2R_S$) in the midbrain.

B, C. Example traces (B) and quantification (C) of D2-IPSCs evoked by single stimuli after overexpression of D2 receptors, Syt-1 control 10 cells/3 mice, Syt-1 cKO^{DA} 10 cells/4 mice.

D, E. Example traces (D) and quantification of paired pulse ratios (E) of D2-IPSCs evoked by two stimuli (1-s interval) after D2 receptor overexpression**,** Syt-1 control 14 cells/7 mice, Syt-1 cKO^{DA} 9 cells/5 mice.

Data are mean ± SEM; ***$p < 0.005$, statistical significance determined by a Mann Whitney rank sum test (C) or an unpaired Student's t-test (E). Overall, D2-IPSCs are similar compared to experiments without D2 receptor overexpression (Fig. 1) in both genotypes.