Supplementary Material for:

Adaptive alterations in the mesoaccumbal network following peripheral nerve injury

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Six supplementary figures.

Supplemental Figures

Figure S1 - Ren et al.

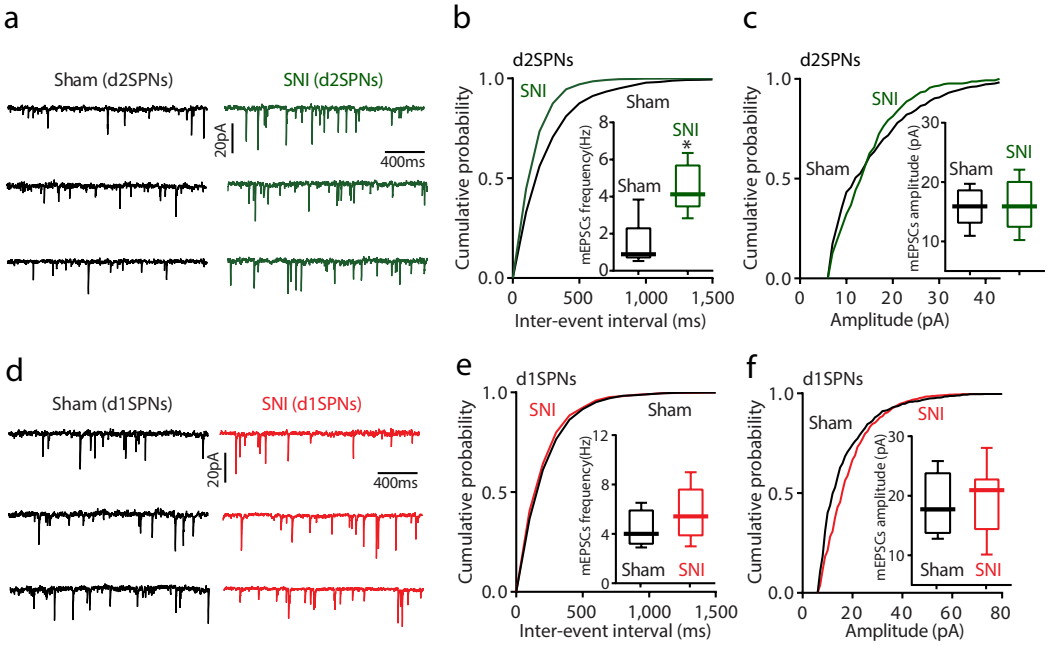

Figure S1. SNI increased synaptic input in cNAc d2SPNs but had no effect on cNAc d1SPNs. ***a-c***, In SNI, the d2SPN mEPSC frequency was augmented without detectable change in the amplitude of d2SPN mEPSC (n= 6 neurons from 6 mice per group; Kolmogorov-Smirnov test for representative cumulative probability plots with D = 0.5000, P = 0.0366 for ***b*** and D = 0.2632, p = 0.1439 for ***c***; Mann-Whitney *U* test for box plots with U = 3, P = 0.0152 for ***b*** and U = 18, p > 0.9999 for ***c***). ***d-f***, there is no difference in mEPSCs frequency or amplitude of d1SPNs between SNI and Sham animals (n = 8 from 6 mice in each group, Kolmogorov-Smirnov test for representative cumulative probability plots with D =0.1462, p = 0.9891 for ***e*** and D =0.1600, p = 0.2923 for ***f***; Mann–Whitney test for box plots with U = 20, p = 0.2317 for ***e*** and U = 29, p =

0.7768 for ***f***). Whisker box plots are displayed as median, lower and upper quartiles, and whiskers representing minimum and maximum of the data.

Figure S2 - Ren et al.

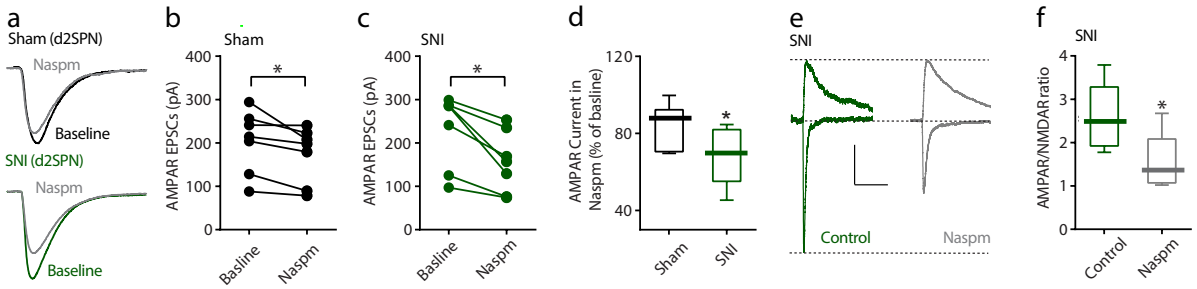

Figure S2. SNI increased the proportion of calcium-permeable AMPARs at PL-cNAc synapses. ***a-c***, Calcium-permeable AMPAR antagonist Naspm decreased AMPAR EPSC amplitudes in sham and SNI mice (n = 7 neurons from 5 mice per group; Wilcoxon test with W = -28, p = 0.0156 for ***b*** W = -28, p = 0.0156 for ***c***). ***d***, Naspm had bigger effect on the d2SPNs from SNI mice than those from sham mice (Mann–Whitney *U* test with U = 7, p = 0.0262). ***e-f***: Naspm reversed enhanced A/N ratio at PL-cNAc d2SPNs synapse in SNI mice (n = 6 neurons from 5 mice per group; Mann–Whitney U test with U = 5, p = 0.0411; calibration: 50 pA, 100 ms). Data are presented as whisker box plots displaying median, lower and upper quartiles, and whiskers representing minimum and maximum of the data.

Figure S3 - Ren et al.

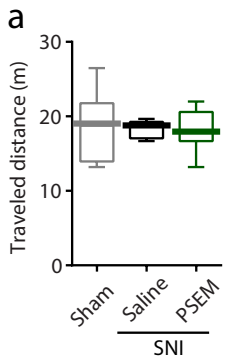

Figure S3. In open field test, chemogenetic activation of cNAc d2SPNs in PSAM-5HT3 expressing SNI mice by PSEM89S treatment unchanged locomotor activities (U = 17, p = 0.9773 for Sham versus Saline-SNI; U = 19, p = 0.9433 for Saline-SNI versus PSEM-SNI). Data are reported as median, first and third quartiles (box plots), and minimum and maximum of data set (whiskers), and are analyzed by Mann–Whitney test.

Figure S4 - Ren et al.

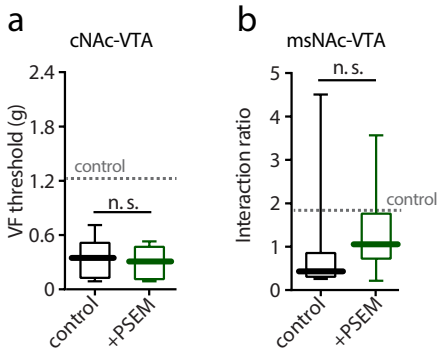

Figure S4. ***a***, The Chemogenetic inhibition of cNAc projection VTA neurons by intraperitoneal injections of PSEM in RV-Cre (in cNAc) and AAV-PSAM-GlyR (VTA) viruses infected mice had no effect on SNI-induced tactile allodynia (n = 6 for each group; U = 15.50, p = 0.7359). ***b***, activation msNAc projecting VTA neurons by the same virus strategy unchanged the social recognition deficits in SNI mice (n = 5 in control and n = 6 in PSEM; U = 20, p = 0.2159). Data are reported as median, first and third quartiles (box plots), and minimum and maximum of data set (whiskers), and are analyzed by Mann–Whitney test.

Figure S5 - Ren et al.

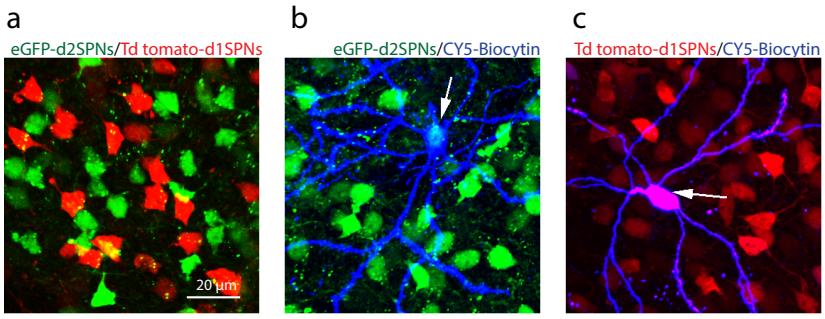

Figure S5. Biocytin visualized the SPNs' dendritic morphology in the cNAc slices from Christmas (Xmas) transgenic mice. ***a***, The d2SPNs (eGFP-positive, green) and d1SPNs (Td tomato-positive, red) are identified in the same cNAc slice taken from BAC transgenic mouse (Calibration: 20 μm). ***b***, The biocytin-filled neuron overlapped with populations of d2SPNs. ***c***, Another biocytin-filled neuron overlapped with populations of d1SPNs.

Figure S6 - Ren et al.

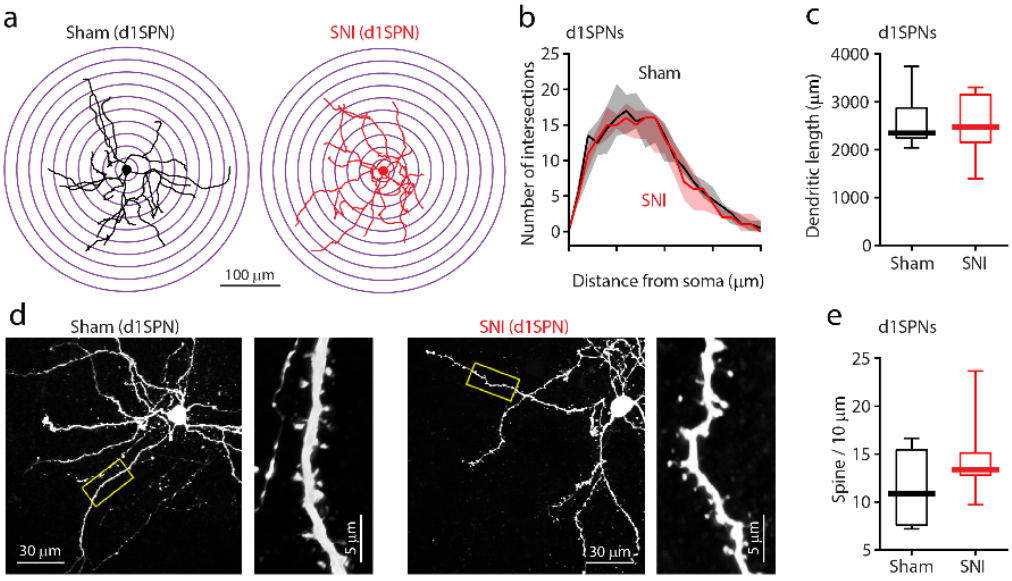

Figure S6. Morphological analysis in reconstructed d1SPNs from SNI and Sham animals. ***a-c***, For d1SPNs, no significant difference in Sholl analysis or total tree length was detected between SNI and Sham (n = 8 from 5 mice in each group, U = 13639 and p = 0.5946 for ***b*** and U = 31 and p = 0.9319 for ***c***, Mann–Whitney test). ***d***: Representative images of d1SPN dendrites/spines from SNI/Sham animals. ***e***, Spine density of d1SPNs were similar between SNI and Sham (n = 8 from 5 mice in each group, Mann–Whitney test with U = 21, p = 0.2747). Data for ***b*** are shown as median with shaded interquartile (quartile 1 to quartile 3); whisker box plots are displayed as median, lower and upper quartiles, and whiskers representing minimum and maximum of the data.