SUPPLEMENTARY METHODS

qPCR To quantify SST mRNA expression, sorted cells were prepared for qPCR using the Cells-to-C_T 1-Step TaqMan Kit (Ambion). Real-time PCR was performed with FAM-labeled TaqMan primers targeting SST (Mm00436671_m1) and GAPDH (Mm99999915_g1). Detection of FAM-labeled DNA was performed using a CFX384 Real-Time PCR Detection System (Bio-Rad Laboratories).

CTB Injections To label hippocampal pyramidal cells, Cholera Toxin B-AlexaFluor 594 (0.75μL, Molecular Probes) was injected bilaterally into the mPFC (A/P +3.0, M/L +/-0.6, D/V-4.0 from bregma) and NAcc (A/P +1.4, M/L +/-1.3, D/V -6.6 from bregma). Animals were allowed one week to recover from surgery before they were perfused with 4% formaldehyde and immunohistochemistry for GFP was performed as described above. Representative images were acquired using an Olympus IX81 Motorized inverted confocal microscope and FV10-ASW software and enhanced using ImageJ.

SUPPLEMENTARY FIGURE LEGENDS

Supplementary Figure 1. (a) Scatter plots demonstrating the gating strategy used to eliminate dead cells and doublets during FACs sorting. Gates were selected to obtain either mCherry-positive or GFP-positive neuronal populations, which were subsequently used for transplantation. **(b)** GFP+ cells prepared according to the SST-enriching protocol display a significant increase in SST mRNA expression compared to cells that were negative for GFP and mCherry. mCherry+ cells that were prepared according to the PV-enriching protocol did not have a significant increase in SST mRNA expression compared to negative control cells. Scale bar in (a) is 10 microns. * denotes significant different from GFP- and mCherry-negative control cells. n.s. is not significantly different from negative control cells. n = 3 per group.

Supplementary Figure 2. Stem cell derived interneuron transplants appear to synapse on endogenous pyramidal cells in the vHipp. Transplanted interneurons are labeled in green and display varicose fibers in close proximity to endogenous pyramidal cells (labeled red by retrograde transport of Cholera-Toxin B). Arrows indicate endogenous pyramidal cells. Block arrows indicate transplanted interneurons. Arrowheads indicate GFP+ varicose fibers. Scale bars represent 10 microns.

Supplementary Figure 3. Activity of stem cell derived interneuron transplants is required to regulate dopamine population activity. A schematic depicting the experimental set-up is shown.

Supplementary Figure 4. A schematic depicting the latent inhibition paradigm is presented in **(a)**. The SST-positive interneuron transplants produced a significant deficit in latent inhibition in both the Saline and MAM treated rats **(b)**. The PV transplants showed a trend to improve latent inhibition in the MAM-treated rats, although this effect did not reach significance **(c)**. Fear conditioning and extinction curves are shown for each group in **(d)**. * denotes significant difference from Saline/Dead cell controls. n=5-8 per group.