Fig. S1. Two measures of latDS excitability, the ISI (A and B) and input-output slope (C and D), exhibited a unimodal distributions, apparent in both distributions of the number of cells (A and C) and the cumulative number of cells (B and D). Histograms in (A) and (C) were generated with a bin size of 10 ms (A) and 0.1 # of APs/10 pA (C), so that, e.g., the "10 ms" bin for ISI includes all cells with an ISI value ≥ 10 pA and < 20 pA. Recent studies from BAC-transgenic mice have suggested differential excitability between direct-pathway and indirect-pathway MSNs (Kreitzer & Malenka 2007; Shen *et al.* 2007; Cepeda *et al.* 2008; Gertler *et al.*, 2008), with perhaps as great as a 0.3 difference in input-output slope value between the two populations. Since rat latDS neurons showed a unimodal Gaussian distribution in input-output slope, these results suggest that if there were multiple populations of adult rat latDS MSNs regarding these excitability measures, then average values in the two populations would have to be relatively similar. Differences from previous studies could reflect differences in age, subregion, or especially species (mouse versus rat), as mouse/rat differences have been reported for other limbic regions (Lammel *et al.*, 2008; Margolis *et al.*, 2008). However, our results concur with other *in vitro* studies suggesting that some aspects of intrinsic excitability of DS MSNs, including basal potassium channel function (e.g., Kreitzer & Malenka, 2007; Shen *et al.* 2007; Cepeda *et al.* 2008; but see Gertler *et al.*, 2008) and calcium channel function (e.g., Mermelstein *et al.* 1999), can, on average, be relatively similar in both cell populations.

Cepeda, C., Andre, V.M., Yamazaki, I., Wu, N., Kleiman-Weiner, M. & Levine, M.S. (2008) Differential electrophysiological properties of dopamine D1 and D2 receptor-containing striatal medium-sized spiny neurons. *Europ. J. Neurosci.*, **27**, 671-682.

Gertler, T.S., Chan, C.S. & Surmeier, D.J. (2008) Dichotomous anatomical properties of adult striatal medium spiny neurons. *J. Neurosci*. **28,** 10814-10824.

Kreitzer, A.C. & Malenka, R.C. (2007) Endocannabinoid-mediated rescue of striatal LTD and motor deficits in Parkinson's disease models. *Nature*, **445**, 643-647.

Lammel, S., Hetzel, A., Häckel, O., Jones, I., Liss, B. & Roeper, J. (2008) Unique properties of mesoprefrontal neurons within a dual mesocorticolimbic dopamine system. *Neuron* **57**, 760-773.

Margolis, E.B., Mitchell, J.M., Ishikawa, J., Hjelmstad, G.O. & Fields, H.L. (2008) Midbrain dopamine neurons: projection target determines action potential duration and dopamine D(2) receptor inhibition. *J. Neurosci.* **28**, 8908-8913.

Mermelstein, P.G., Song, W.J., Tkatch, T., Yan, Z. & Surmeier, D.J. (1998) Inwardly rectifying potassium (IRK) currents are correlated with IRK subunit expression in rat nucleus accumbens medium spiny neurons. *J. Neurosci.*, **18**, 6650-6661.

Shen, W., Tian, X., Day, M., Ulrich, S., Tkatch, T., Nathanson, N.M. & Surmeier, D.J. (2007) Cholinergic modulation of Kir2 channels selectively elevates dendritic excitability in striatopallidal neurons. *Nat. Neurosci.*, **10**, 1458-1466.