Supplementary Figure 1. Differences in GABA tonic currents in D1+ and D2+ MSNs are not the result of differences in GABA uptake. Representative traces from **(A)** aD1+ and **(B)** a D2+ MSN demonstrate the inward current induced by blocking the neuronal GABA transporter GAT-1 with NO711 (5 μM) followed by application of BIC. **(C)**, Summary of tonic current induced by NO711 (5 μM) in D1+ MSNs *(white bar, n=7)* and in D2+ *(black bar, n=6)* as well as the total BIC-sensitive tonic current in D1+ MSNs *(white bar, n=5)* and D2+ MSNs *(black bar, n=5)*.

Supplementary Figure 2. (A) Example of immunostaining with α5 subunit selective antibodies of MSNs in a striatal slice from a P18 BAC-D2-EGFP mouse. Image showing overlapping EGFP expression and DIC photomicrographs *(left)*, Cy3 labeling of the α5 subunit puncta (*middle)* and overlapping EGFP, DIC and Cy3 *(right)*. **(B)** Example of immunostaining with α2 subunit selective antibodies of MSNs in a striatal slice from a P18 BAC-D2-EGFP mouse. Image showing overlapping EGFP expression and DIC photomicrographs *(left)* Cy3 labeling of the α2 subunit puncta (*middle)* and overlapping EGFP, DIC and Cy3 *(right)*. In both **(A &B),** D1+ MSNs are identified with cyan arrows and D2+ MSNs are identified with yellow arrows. Scale bars 10 m.

Supplementary Figure 3. (A) Examples of cell-attached patch recording in D1+ and D2+ MSNs recorded with KCl internal solution in response to voltage ramps as indicated below. Traces are vertically distributed for illustration purpose. Dashed vertical lines indicated the E_K in control condition, in the presence of 5 μM GABA and during wash out. (B) Summary of the changes elicited by 5 μM GABA (12 D1+ and 19 D2+ MSNs), 50 nM L655,708 (3 D1+ and 5 D2+ MSNs) and 10 M Gabazine (3 D1+ and 5 D2+ MSNs). * significantly different from 0.