

Supplementary Fig. 1. **Behavioral and Electrophysiological Data Collected from Wild-Type and TH-GFP Mice do not Significantly Differ.** (a) Average EtOH intake per session for wild type (closed circles) and TH-GFP mice (open circles) over 15 drinking sessions. (b) Preference for EtOH over water for wild type (closed circles) and TH-GFP mice (open circles) over 15 drinking sessions. (c) Percentage increase in firing rate for all VTA DA neurons of naïve mice in response to 20 and 50 mM EtOH. 10 mM EtOH was only tested in TH-GFP mice, and is therefore not included in this comparison. (d) Percentage increase in firing rate for all VTA DA neurons of adolescent drinking mice in response to 20 and 50 mM EtOH. (e) Percentage increase in firing rate for medial VTA DA neurons of naïve mice in response to 20 and 50 mM EtOH. (f) Percentage increase in firing rate for medial VTA DA neurons of adolescent drinking mice in response to 20 and 50 mM EtOH. (g) Percentage increase in firing rate for lateral VTA DA neurons of naïve mice in response to 20 and 50 mM EtOH. (h) Percentage increase in firing rate for lateral VTA DA neurons of adolescent drinking mice in response to 20 and 50 mM EtOH. No significant difference was found when comparing these groups in panels c–h. Error bars show SEM.

Supplementary Fig. 2. **Drinking Behavior, BACs, and Quinpirole Response do not Correlate with Neuronal Response to Ethanol.** (a) Total ethanol consumed over five drinking sessions does not significantly correlate with 50 mM EtOH-induced excitation of GFP + neurons ($F(1,32) = 0.087$; $p = 0.8$; $r^2 = 0.003$). (b) Average preference for ethanol over water over five drinking sessions does not significantly correlate with 50 mM EtOH-induced excitation of GFP + neurons ($F(1,32) = 0.012$; $p = 0.9$; $r^2 = 0.0003$). (c) BAC measured at 6 h after EtOH presentation during the 11th drinking session does not significantly correlate with 50 mM EtOH-induced excitation of GFP + neurons ($F(1,10) = 0.048$; $p = 0.8$; $r^2 = 0.004$). (d) No significant difference in the 50 mM EtOH-induced excitation is found when comparing neurons that responded to quinpirole (“Res”) to those that did not (“NR”; $t(80) = 1.4$, $p = 0.2$, two-tailed t -test). Error bars in d show SEM.