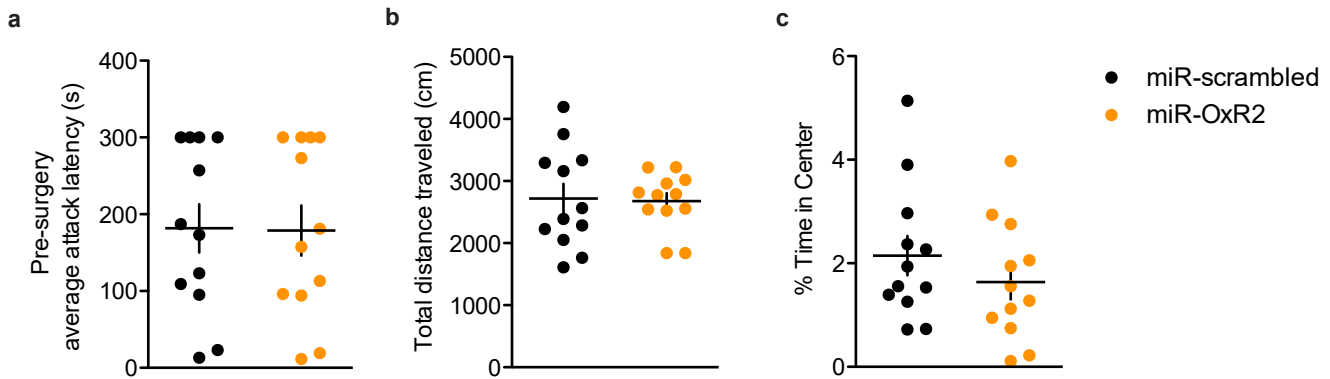


Supplementary Figure 1: Lhb GAD2 neurons are not involved in palatable food reward. **a**, Surgical manipulations and representative viral infection image for Lhb GAD2 neuron palatable food reward photometry experiments, scale bar = 400 μ m. **b**, Peri-event plot of Lhb GAD2 activity 2s before and after biting palatable food in a fasted state in the home cage. Black line denotes mean signal for all animals while pink shading denotes SEM, $n=4$ biologically independent mice. **c**, Average Lhb GAD2 neuron activity was not different before and after the bite (two-tailed paired t-test, $n=4$ biologically independent mice, $t(3)=1.077$, $p=0.3603$). **d**, Representative trace of Lhb GAD2 neuron activity during exposure to palatable food in the home cage. **e**, Surgical manipulations and representative viral infection image for Lhb GAD2 palatable food CPP optogenetics (ChR2) experiments, scale bar = 200 μ m. **f**, ChR2-mediated optogenetic stimulation of Lhb GAD2 neurons during the palatable food CPP test did not alter the amount of time spent in the palatable food-paired context (two-tailed student's t-test, $n=10$ biologically independent YFP mice and $n=9$ biologically independent ChR2 mice, $t(17)=0.3572$, $p=0.7253$). All data are expressed as mean + SEM.



Supplementary Figure 2: Pre-surgery attack latency, locomotor behavior, and anxiety-related behavior for GAD2-cre mice treated with miR-scrambled or miR-OxR2 viruses. **a**, miR-scrambled and miR-OxR2 mice did not display differences in attack latency before surgery (two-tailed student's t-test, $n=12$ biologically independent mice per group, $t(22)=0.0693$, $p=0.946$). **b**, Following surgery, miR-OxR2 mice did not display differences in total distance traveled in the open field compared to miR-scrambled mice (two-tailed student's t-test, $n=12$ biologically independent mice per group, $t(22)=0.1639$, $p=0.8713$). **c**, miR-OxR2 mice did not display any differences in anxiety-related behavior in the open field compared to miR-scrambled mice (two-tailed student's t-test, $n=12$ biologically independent mice per group, $t(22)=1.012$, $p=0.3224$). All data are expressed as mean + SEM.