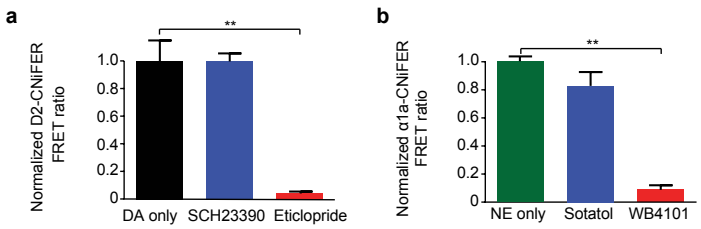

Figure S1 of Muller*, Joseph*, Slesinger & Kleinfeld

Selectivity of D2- and α1a-CNiFERs characterized *in vitro*. (a) D2 CNiFER FRET response to 20 nM DA alone or in the presence of D1-receptor antagonist SCH 23390 (100 nM, blue, n = 5; p = 0.89, t-test) or D2-receptor antagonist eticlopride (50 nM, red, n = 5, p = 0.0003, t-test). **(b)** α1a-CNiFER response to 50 nM NE alone or in the presence of β-adrenergic receptor antagonist sotatol (5 μM, blue, n = 4; p = 0.17, t-test), or α1a receptor antagonist WB4101 (50 nM, red, n = 4, p = 0.0001, t-test). CNiFER response to agonist alone normalized to one, ** p < 0.001.

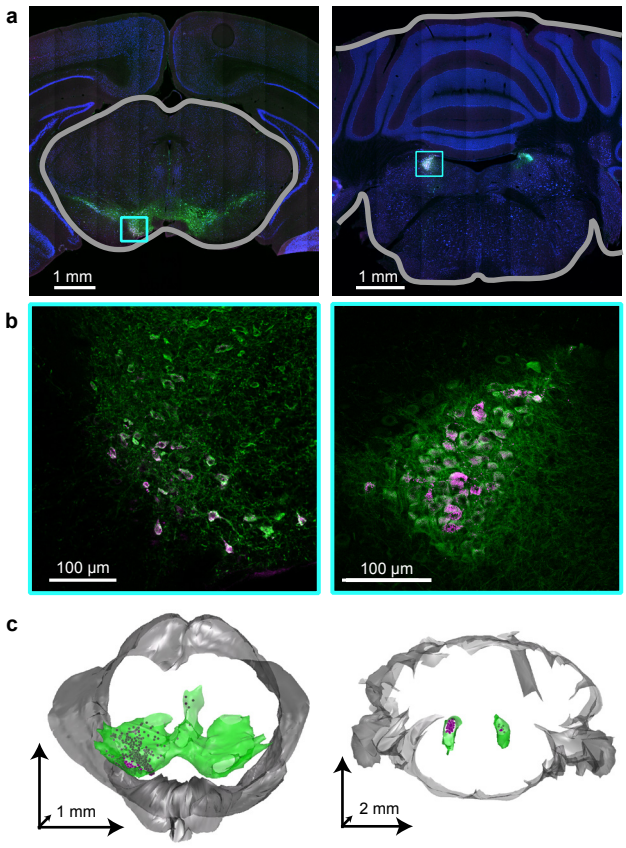

Figure S3 of Muller*, Joseph*, Slesinger & Kleinfeld

Identification of dopaminergic and noradrenergic projections to frontal cortex. (a) Immunostaining for tyrosine hydroxylase (green), Fluorogold ™ tracer (magenta) injected ~ 200 µm deep into frontal cortex (+1.5 mm A/P, +1.5 mm M/L), and NeuroTrace®, a Nissl stain that labels neurons (blue). Coronal sections including substantia nigra (SN) (left, A/P -3.5 mm) or locus coeruleus (LC) (right, A/P -5.6 mm). **(b)** Co-labeling of tyrosine hydroxylase (green) and Fluorogold™ (magenta) in SN (left) or LC (right), magnified from cyan boxes in (a). **(c)** Position of co-labeled cell bodies in SN (left) or LC (right) indicated by magenta dots imposed on three-dimensional reconstructions as outlined by grey in (a).

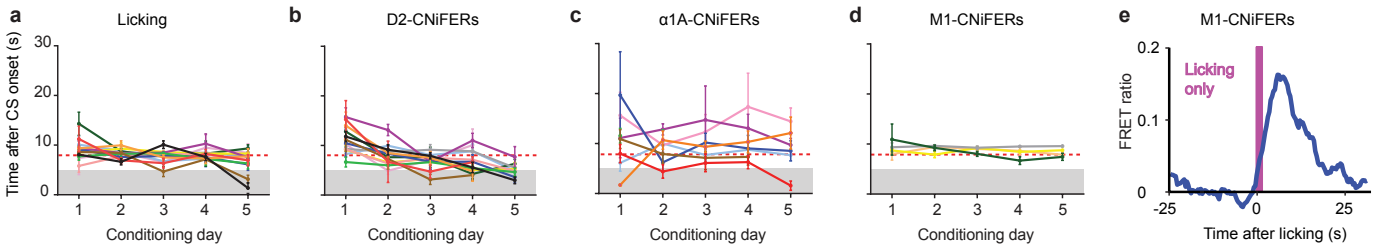

Figure S4 of Muller*, Joseph*, Slesinger & Kleinfeld

Individual mouse FRET onset times plotted as a function of conditioning day. Error bars represent standard error (n = 13). (a) Licking onset times during conditioning trials (CS, grey bar; US, dashed red line) across five days of conditioning. **(b)** D2 CNiFER FRET response onset times during conditioning. FRET onset times are measured relative to CS onset (n = 13). **(c)** α1a CNIFER onset times during conditioning (n = 7). **(d)** M1 CNiFER onset times during conditioning (n = 4). **(e)** Example of M1-CNiFER FRET response in a trial where the animal engaged in high frequency licking but there was no CS or US presentation.