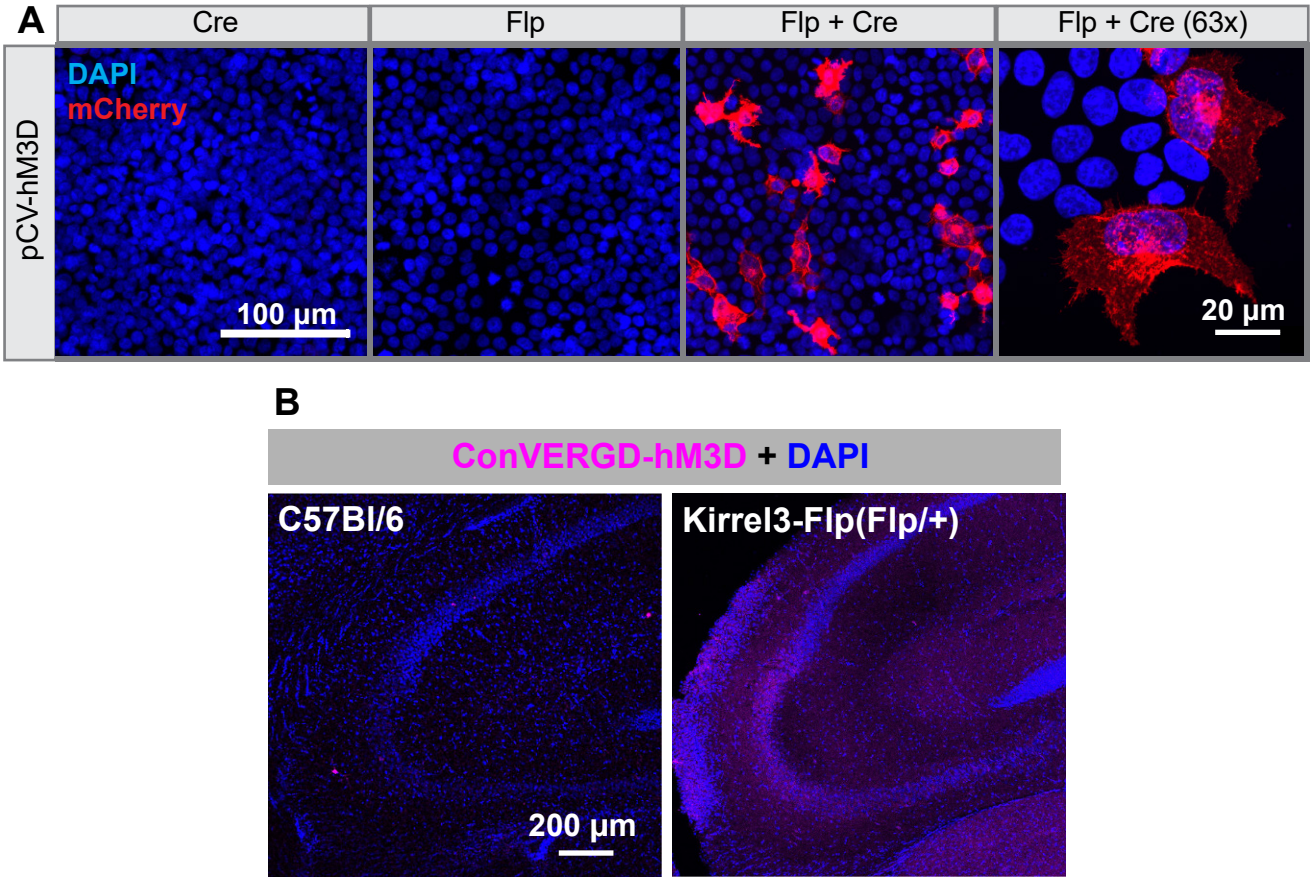
ID	NAME
1	Pvalb.C1ql1
2	Id2.Sfrp2
3	Sst.Atp2b4
4	Slc17a8_Sst.Ncam2
5	Sst.Spon1
6	Pvalb.Tac1
7	Pvalb.Gfra1
8	Sst.Rbp4
9	Sst.Grm1
10	Sst.Pcdh11x
11	Cplx3.Rxfp1
12	Cplx3.Tox
13	Id2.Tac1
14	Id2.Bcl11b
15	Id2.Prlr
16	Htr3a.Nnat
17	Chat_Htr3a.Chat
18	Htr3a.Phlda1
19	Htr3a.Efna5
20	Htr3a.Cpne5
21	Htr3a.Ecel1
22	Htr3a.Ibsp
23	Htr3a.Krt73
24	Slc17a8_Htr3a.Kctd12
25	Htr3a.Chrm2
26	Htr3a.Htr1b
27	Htr3a.Sema3c

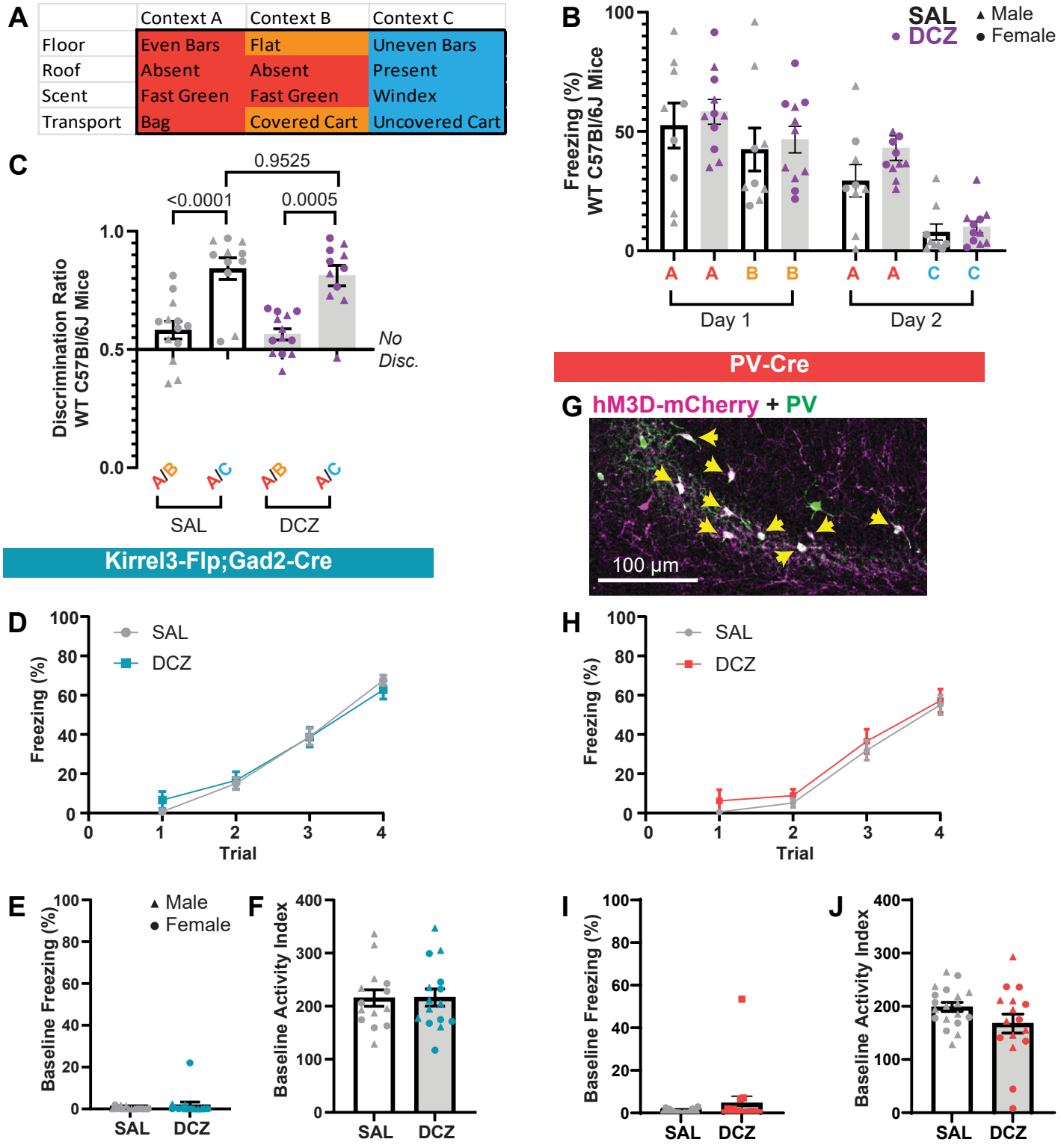
Supplemental Table 1: Key for neuron groups in Figure 1H

Supplemental Figure 2



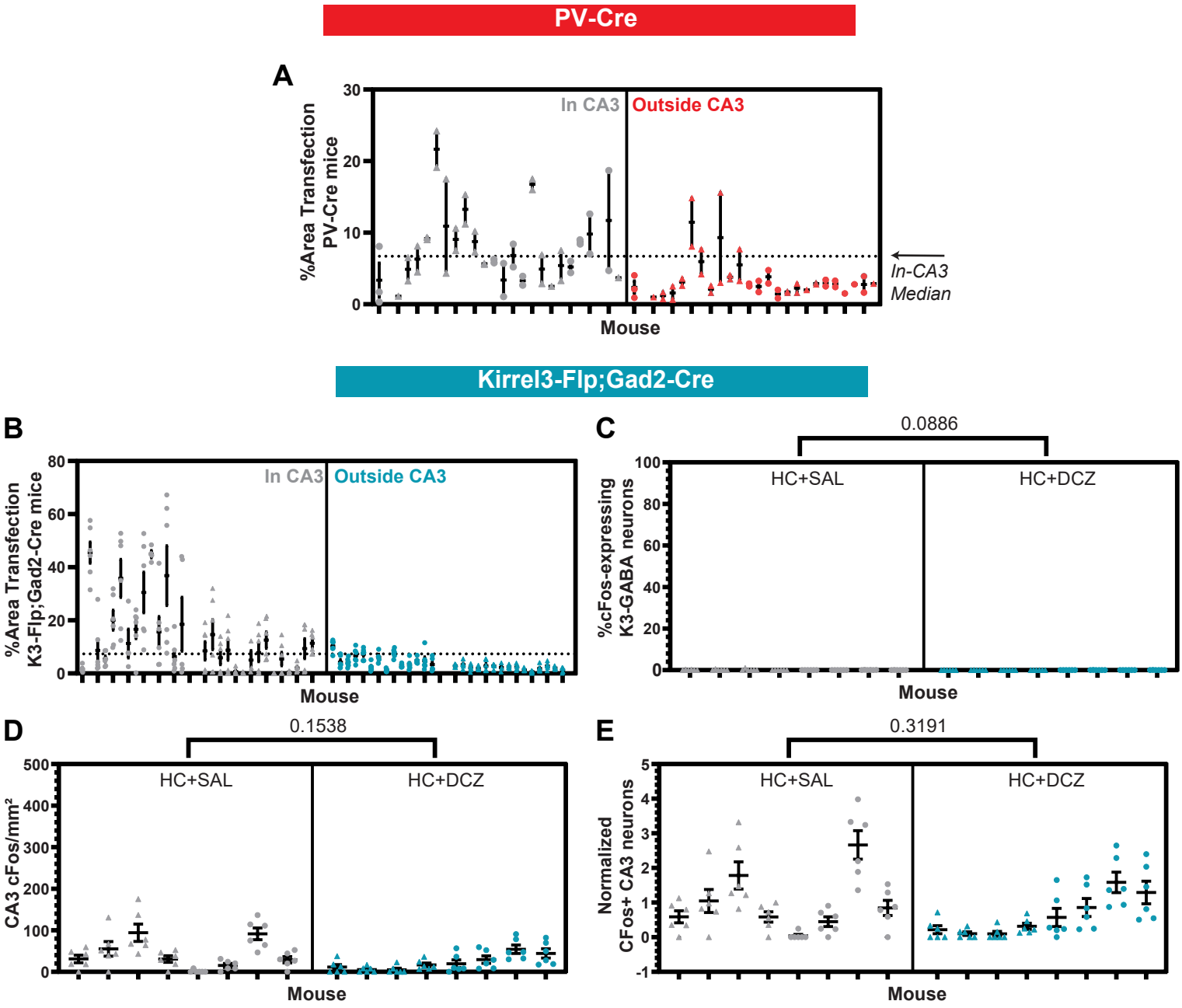
Supplemental Figure 2. A) Representative images of HEK293 cells co-transfected with hSyn-ConVERGD-hM3D-mCherry (pCV-hM3D) and either Cre, Flp, or Flp and Cre plasmids. Far right column: representative image at 63x, all other images taken at 20x. B) Representative hippocampal CA3 images of hSyn-ConVERGD-hM3D-mCherry AAV infection in wildtype C57Bl/6J and Kirrel3-Flp mice show no expression of the DREADD as expected.

Supplemental Figure 3



Supplemental Figure 3. A) Description of contextual cues between conditioning context A, similar context B, and neutral context C. B)Mouse behavior plotted as percent time spent freezing for wild-type (WT) mice when placed in indicated contexts after saline (gray) or DCZ (purple) injection. C) Time spent freezing (%) plotted as a discrimination ratio relative to context A for WT mice. 0.5 equals no discrimination. No differences between saline or DCZ, n = 13 saline, 11 DCZ, ANOVA with multiple comparisons. D-F) Baseline metrics for Kirrel3-Flp;Gad2-Cre mice expressing CV-hM3D in Figure 3. D) % time spent freezing 30 sec before indicated shock trial. E) Baseline freezing and F) activity index prior to foot shock. G-J) Data for PV-Cre mice expressing Cre-dependent hM3D-mCherry Figure 3. G) Representative image of a hippocampal section from a PV-Cre mouse expressing hM3D-mCherry (magenta) and stained with anti-PV antibodies (green). Arrowheads (yellow) point to overlap (white). H) Same as D for PV-Cre mice. I) Activity index and J) activity index prior to foot shock. Error bars represent SEM.

Supplemental Figure 4



Supplemental Figure 4. cFos expression is low in K3-Flp; Gad2-Cre mice taken directly from their homecage. A) Plot indicating the percent area of hM3D-mCherry signal in CA3 versus outside CA3 to measure transfection efficacy for PV-Cre mice. Each dot represents a brain section. The median value for "in CA3" is indicated by the dotted line, n = 24. B-E) Data from brain sections of Kirrel3-Flp; Gad2-Cre mice transfected with CV-hM3D virus. B) Same as A, n = 29. Error bars represent SEM. C) % of K3-GABA neurons that are cFos positive after saline (SAL, grey) and DCZ injection (blue) of mice in homecage (HC). D) Number of cFos-positive CA3 neurons per mm² for saline and DCZ treated mice in HC. E) Number of cFos-positive CA3 neurons per mm² normalized to saline for both saline and DCZ treated mice in homecage. Nested t-test, n = 8 per group.