

**Cell Reports, Volume 32**

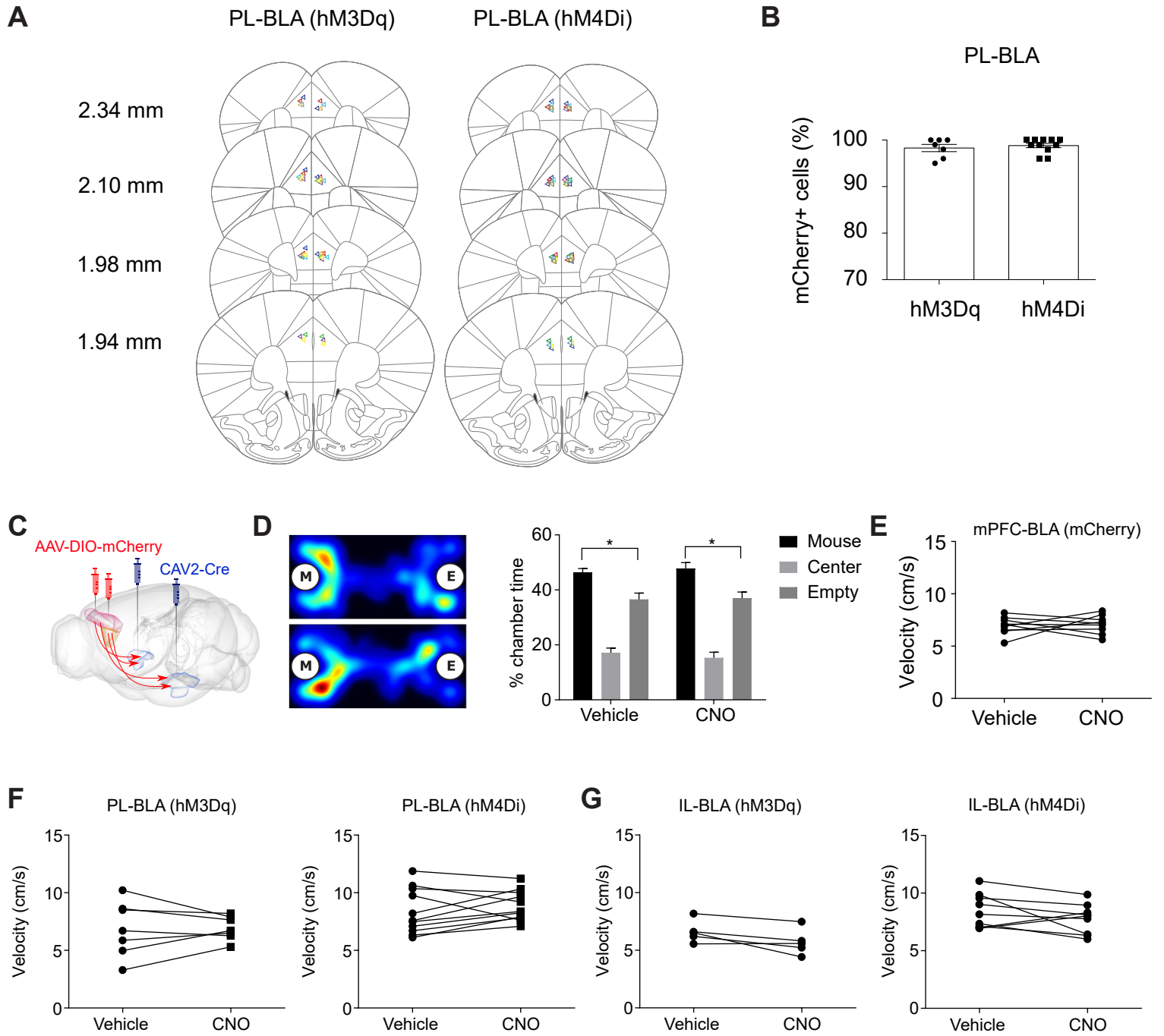
**Supplemental Information**

**Social Behavior Is Modulated  
by Valence-Encoding  
mPFC-Amygdala Sub-circuitry**

**Wen-Chin Huang, Aya Zucca, Jenna Levy, and Damon T. Page**

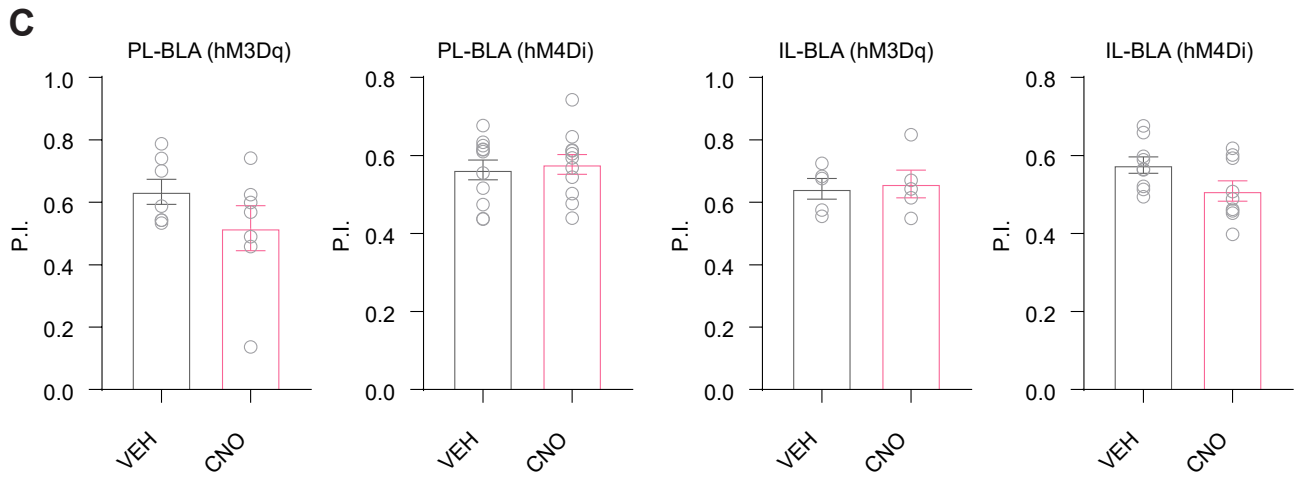
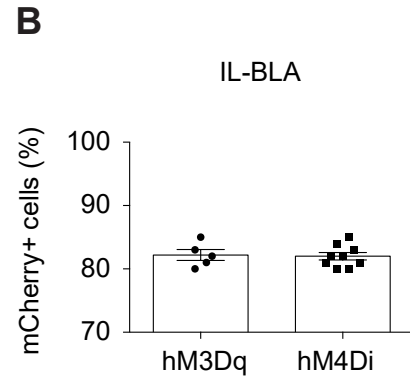
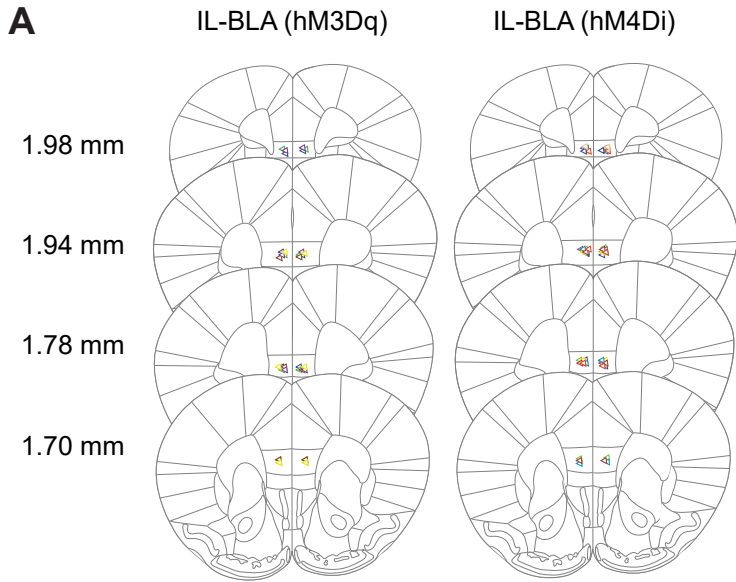
**Figure S1 Post hoc analysis confirming DREADDs expression in prelimbic region of the medial prefrontal cortex and mCherry expression alone does not alter social behavior and DREADDs manipulations did not alter overall locomotion, related to Figure 1.**

(A) Injection site mapped on to the mouse brain atlas. Each color represents one mouse. (B) Quantification of cell somas shown as a percentage of cells in PL. (C) Diagrams showing the injection of CAV2-Cre into the basolateral amygdala (BLA) and AAV-DIO-mCherry into the medial prefrontal cortex (mPFC) of WT mice. (D) Heat map and quantification of the time the mice spent in each chamber (n=9). Paired t-tests were used to compare time spent in the chambers containing a mouse in a tube and an empty tube separately for each treatment. (E-G) Average velocity during the 10 minute social approach test following vehicle or CNO treatment in mice expressing mPFC-BLA mCherry (n=9), prelimbic cortex (PL)-BLA hM3Dq (n=7), PL-BLA hM4Di (n=11 mice), infralimbic cortex (IL)-BLA hM3Dq (n=5), or IL-BLA hM4Di (n=9). Paired sample t-tests compared velocity following vehicle or CNO injections within the same mice. Data are represented as mean  $\pm$  SEM. \* $p$ <0.05.



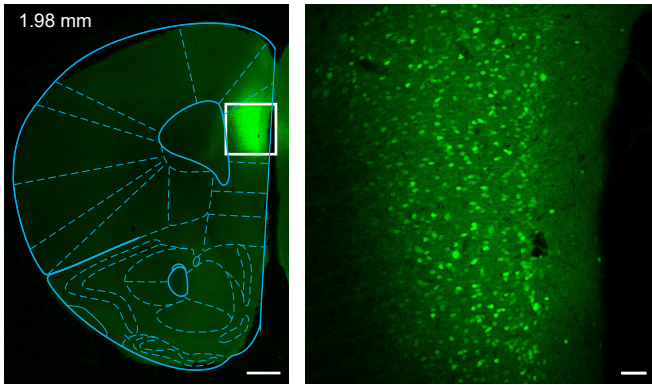
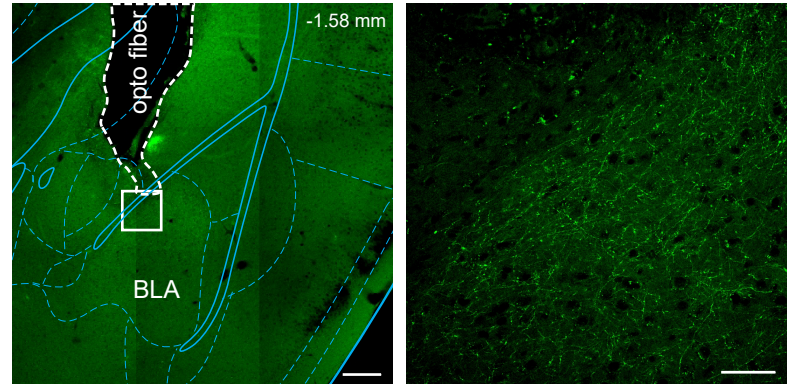
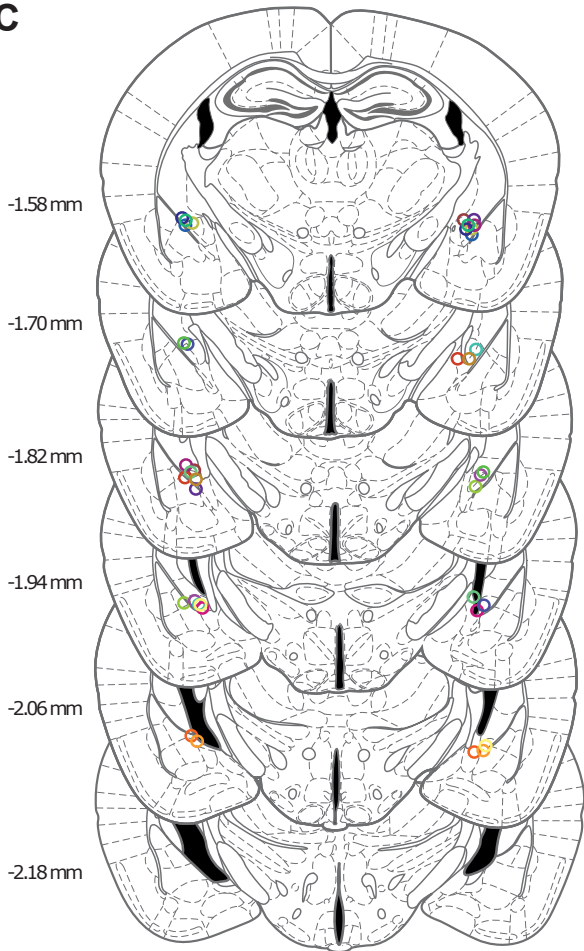
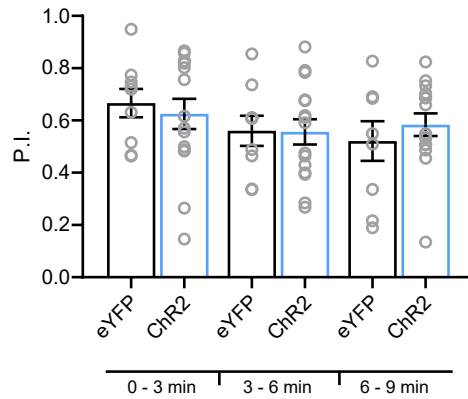
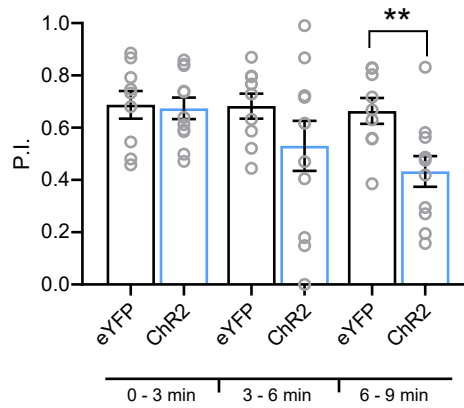
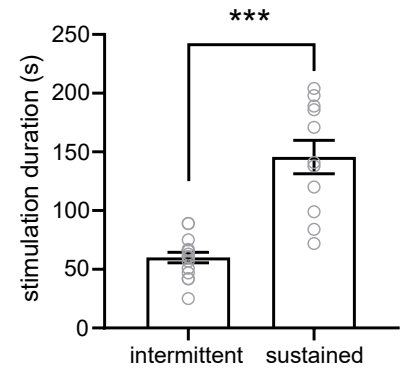
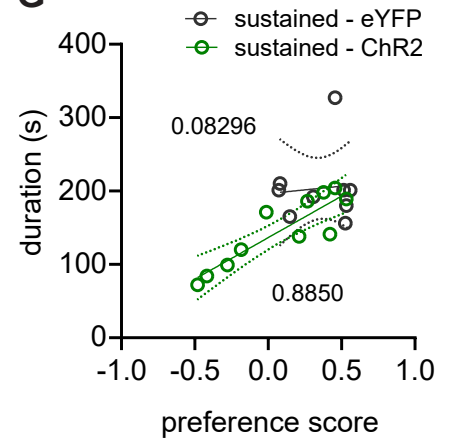
**Figure S2 Post hoc analysis confirming DREADDs expression in infralimbic region of the medial prefrontal cortex and comparison of preference index for all DREADDs experiments, related to Figure 1.**

(A) Injection site mapped on to the mouse brain atlas. Each color represents one mouse. (B) Quantification of cell somas shown as a percentage of cells in IL. (C) There are no significant differences in the preference scores between CNO and Vehicle. Data are represented as mean  $\pm$  SEM.



**Figure S3 Post-hoc analysis confirming Channelrhodopsin2-eYFP expression in the prelimbic cortex and fiber placement in the basolateral amygdala, comparison of preference score between groups and analysis for light stimulation duration, related to Figure 2.**

(A) Expression of eYFP in the prelimbic cortex. Scale bar: 500  $\mu\text{m}$  and 50  $\mu\text{m}$ . (B) Expression of eYFP in the BLA. Fibers are visible in magnification. Scale bar: 100  $\mu\text{m}$  and 20  $\mu\text{m}$ . (C) Reconstruction of histological verification of optic fiber placement above the BLA. Each color is a different mouse. (D and E) Bar graph for preference index (PI) between control eYFP-expressing and ChR2-expressing mice. There were no differences in preference index at any point for intermittent light protocol (D) and the last 3-minute bin plotted shows ChR2 mice have a significantly decreased preference score compared to control mice using an independent sample t-test (E). (F) Quantification of the total duration of light stimulation received. Sustained group received significantly more light stimulation than intermittent group. (G) There is a strong correlation within sustained group between duration of light and preference index for ChR2 expressing mice but not in control mice reflected in Pearson  $r$  value. Data are represented as mean  $\pm$  SEM. \*\* $p < 0.01$  and \*\*\* $p < 0.001$ .

**A****B****C****D****E****F****G**

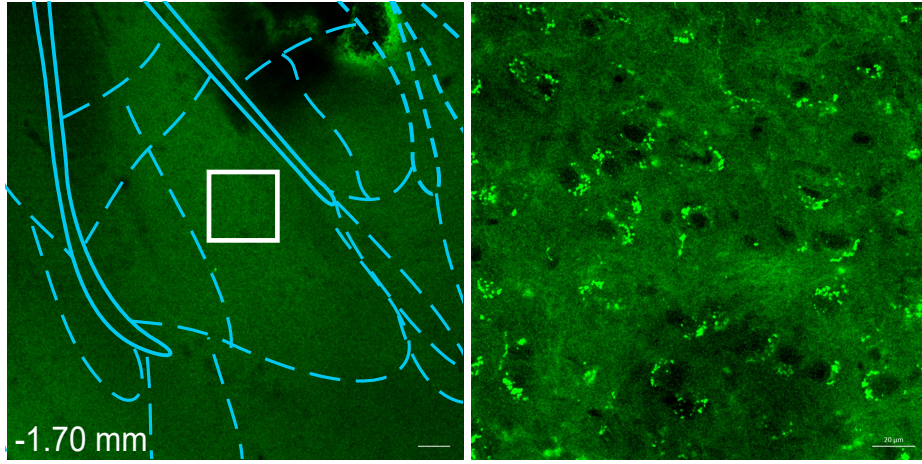
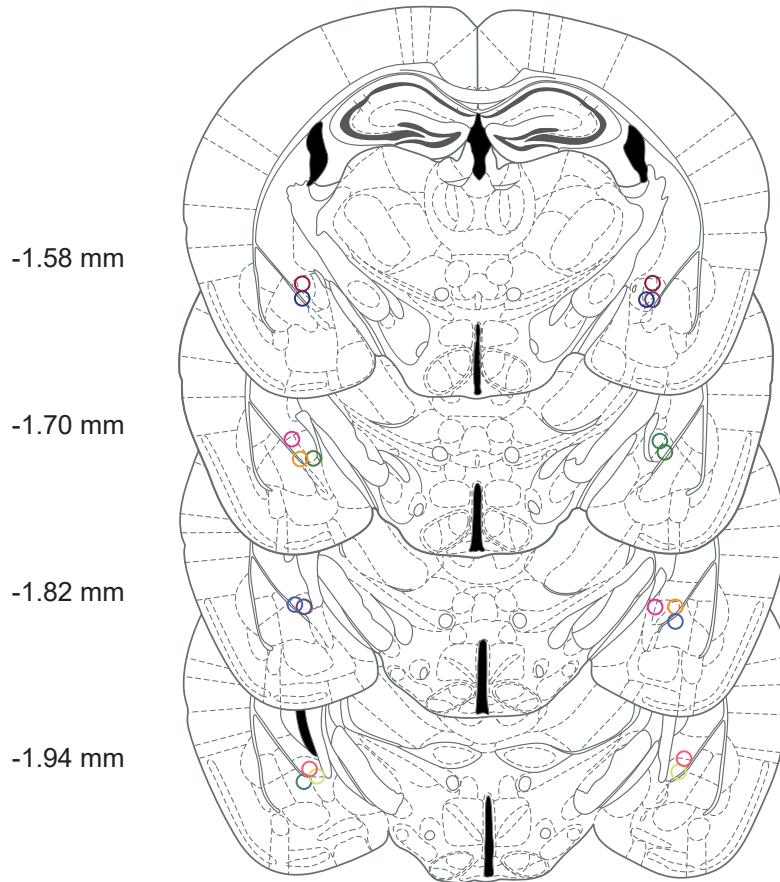
**Figure S4 Post-hoc analysis confirming fiber placement in the basolateral amygdala and comparison of preference scores between groups, related to Figure 4.**

(A) Expression of eYFP in the BLA. Scale bar 100  $\mu\text{m}$  and 20  $\mu\text{m}$ . (B) Reconstruction of histological verification of optic fiber placement above the BLA. Each color is a different mouse.

(C) Bar graph for preference index (PI) between control eYFP expressing and ChR2 expressing mice. The last 3-minute bin plotted shows ChR2 mice have a decreased preference score compared to control mice using a paired sample t-test. Data are represented as mean  $\pm$  SEM.

\* $p < 0.05$ .



**A****B****C**