

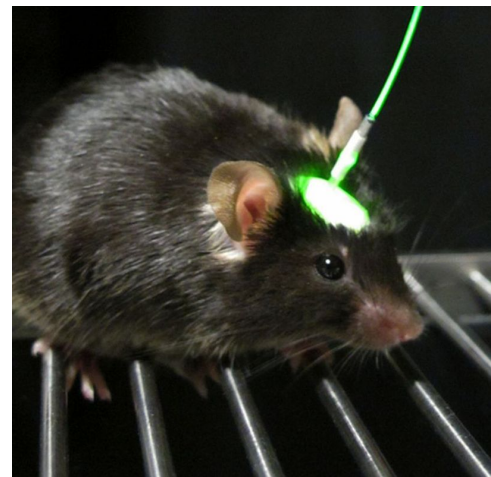
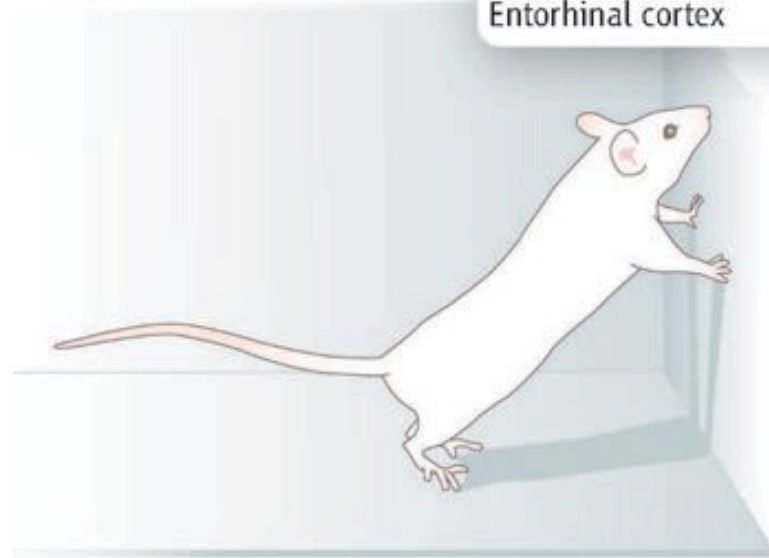
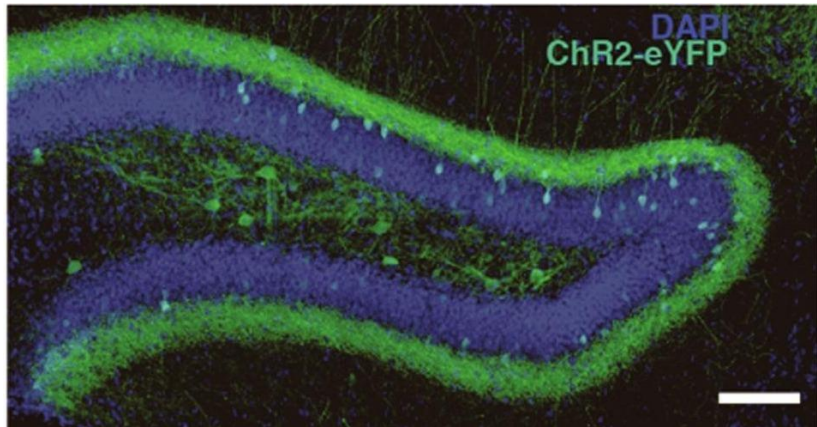
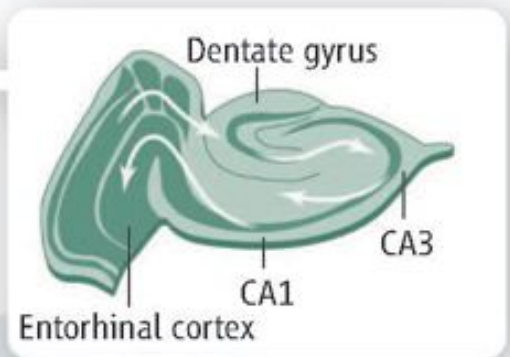
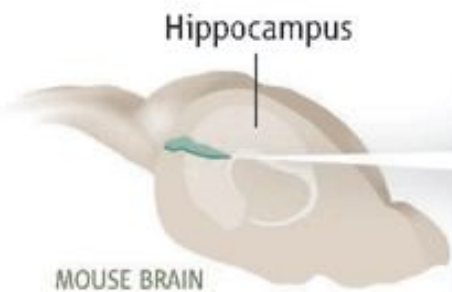
BraiNY Journal Club Presents:

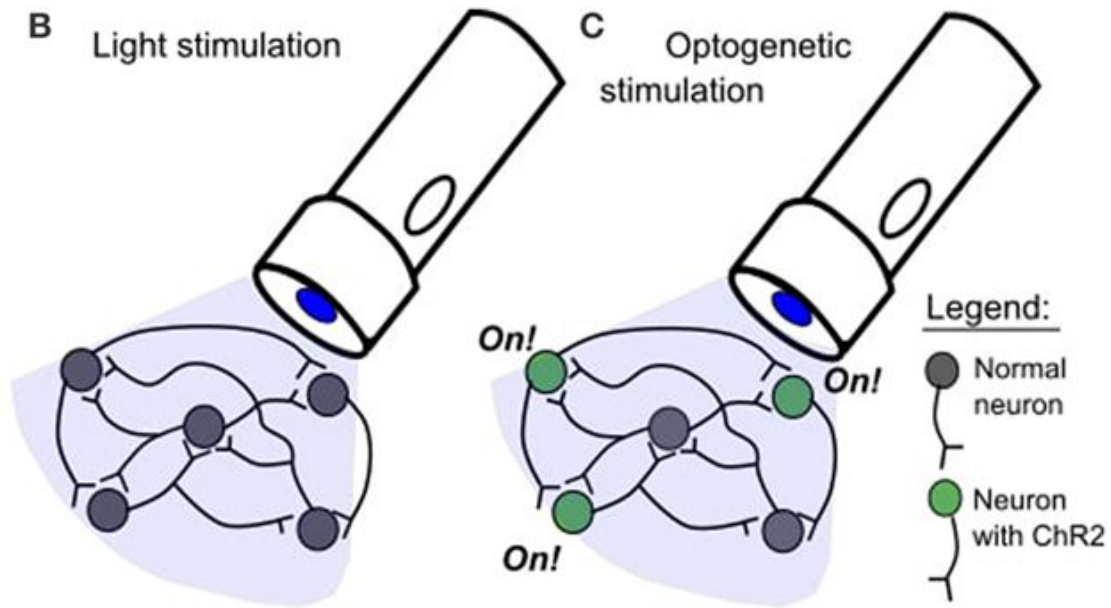
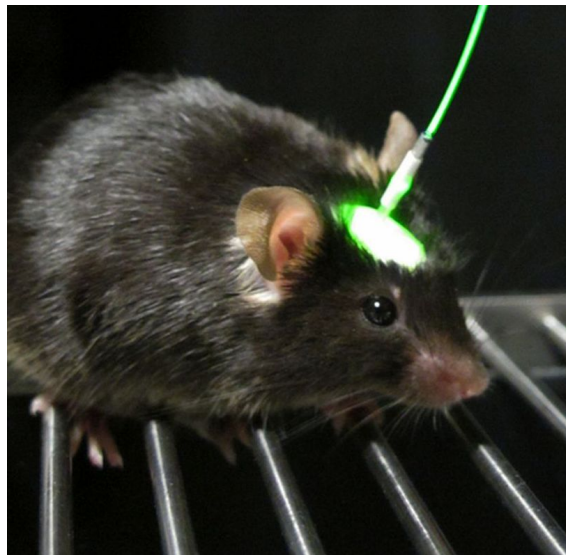


Social behavior in mice following chronic optogenetic simulation of hippocampal engrams

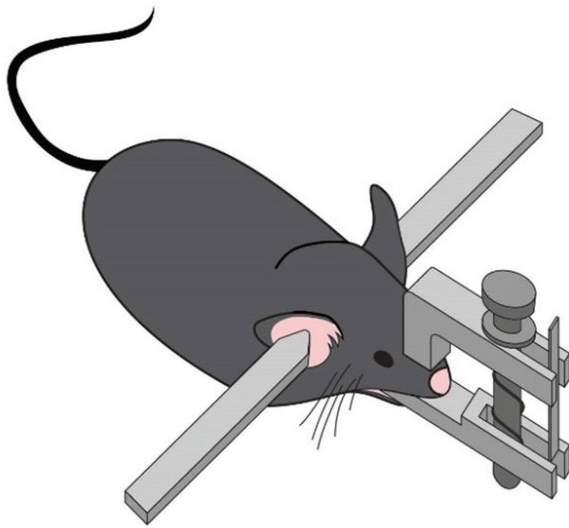
Emily Doucette, Emily Merfeld, Heloise Leblanc, Amy Monasterio, Christine Cincotta, Stephanie L. Grella, Jesse Logan, & Steve Ramirez.

Presented by: Gabrielle & Yerram Pooja



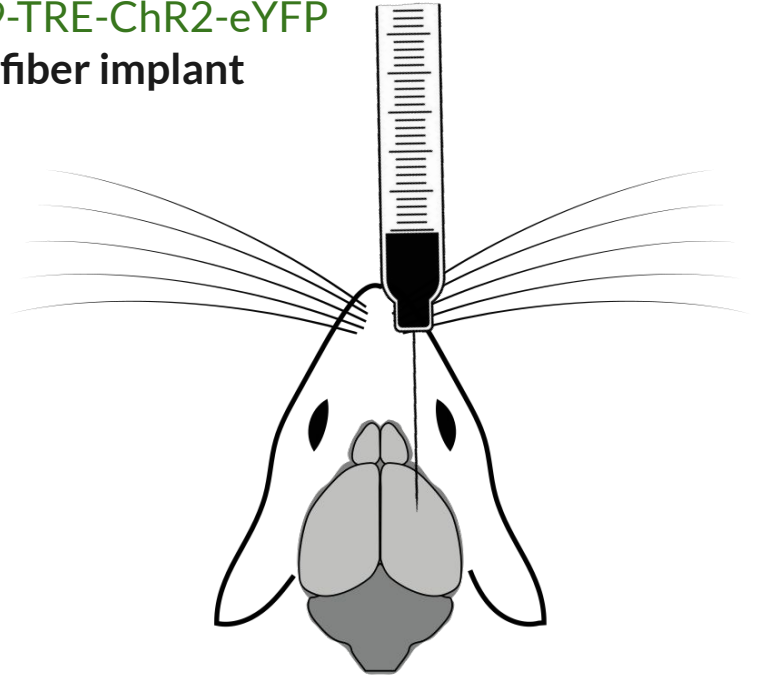


Methods

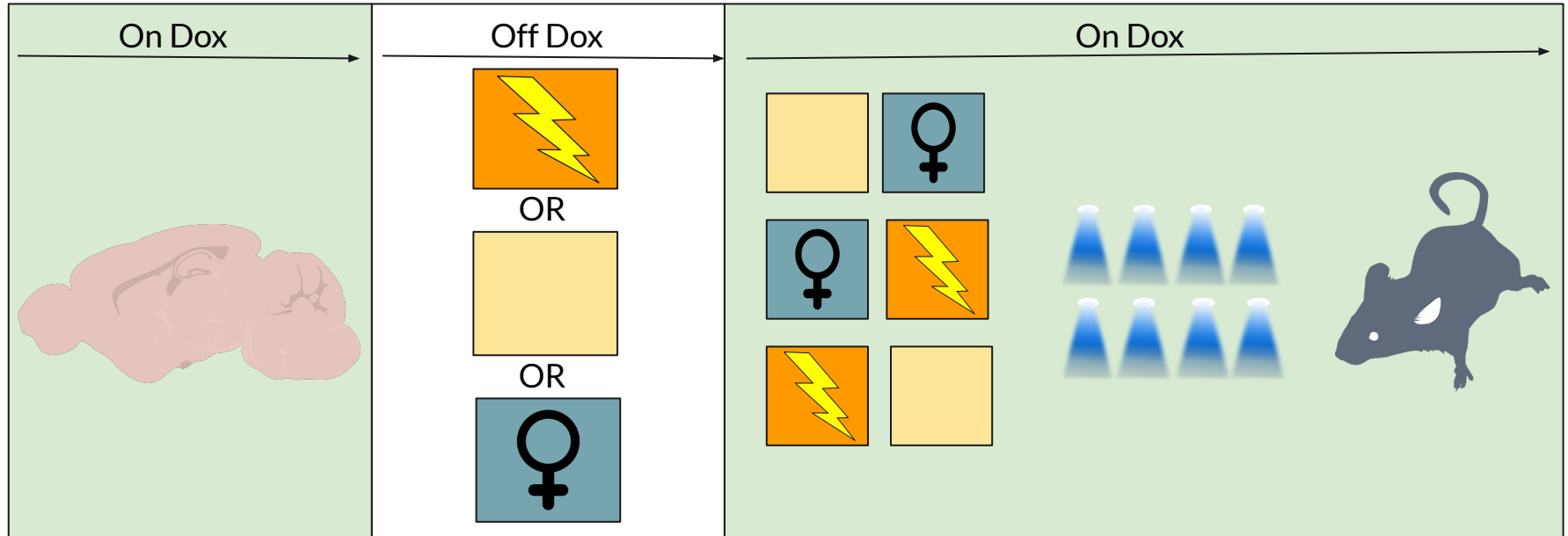


Viral Constructs:

- pAAV9-c-Fos-tTA
 - pAAV9-TRE-ChR2-eYFP
- + Optic fiber implant



Methods, cont.



Surgery & Recovery

Memory Label

Experience
Counterbalance

Opto
Stimulation

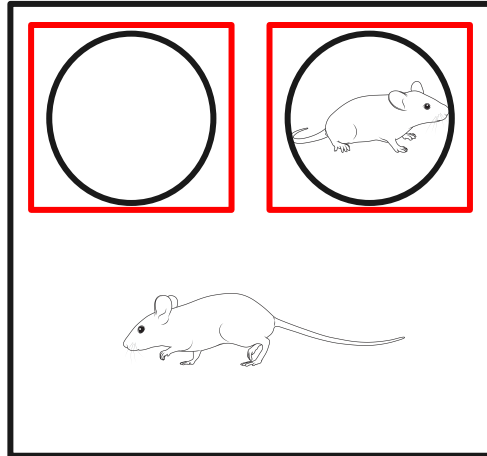
Behavior Test &
Timed Perfusion

Post-stimulation Social Behavior Assays

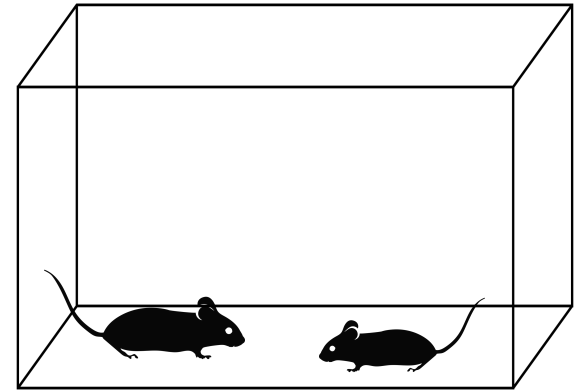
Female Exposure



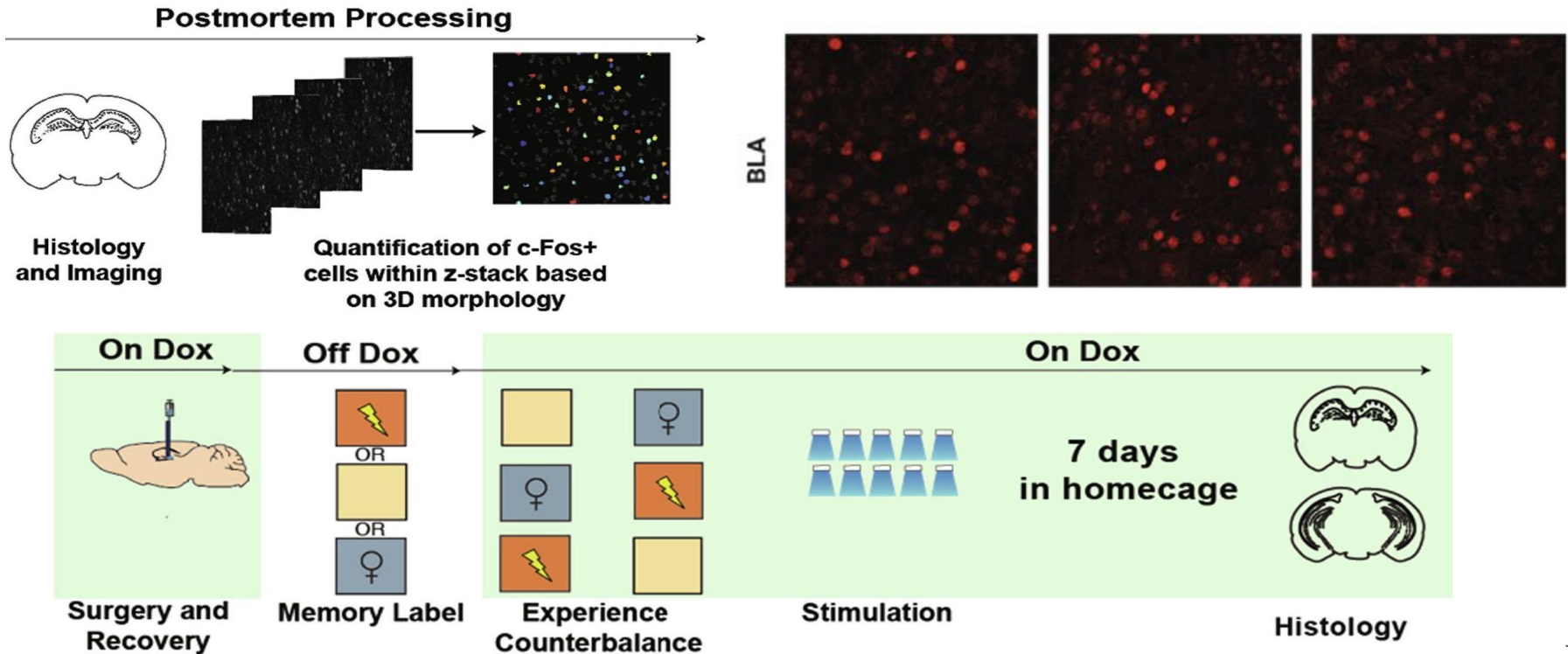
Social Interaction Test



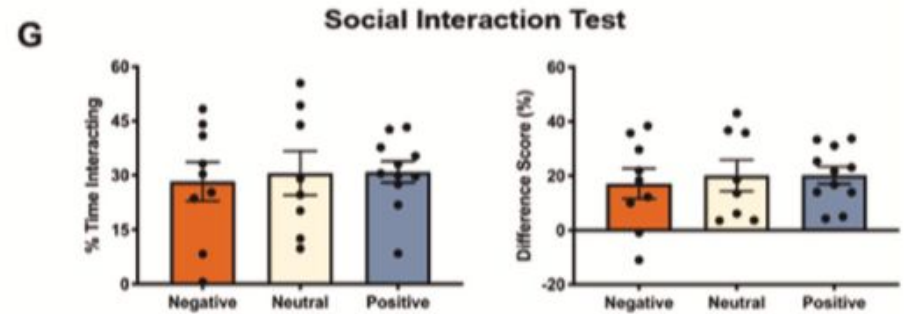
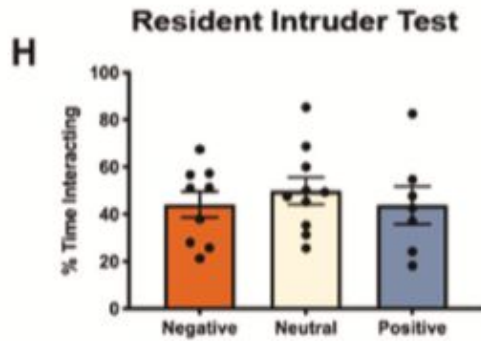
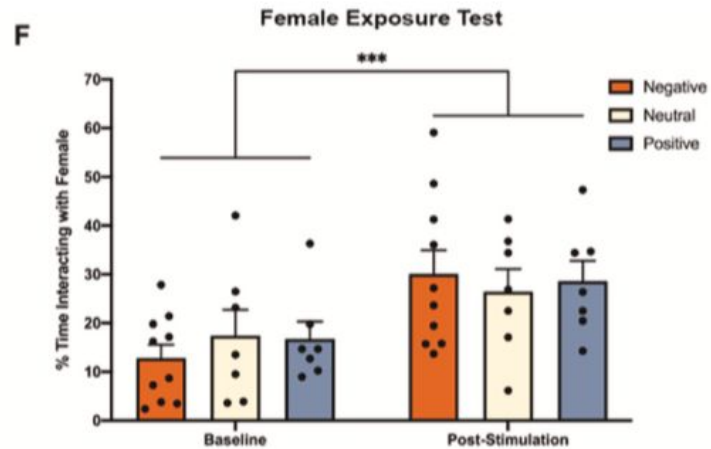
Resident Intruder

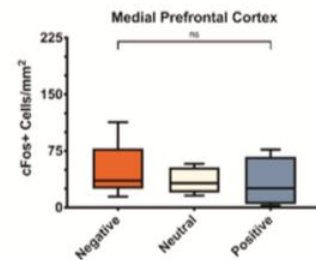
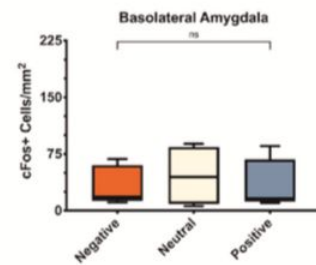
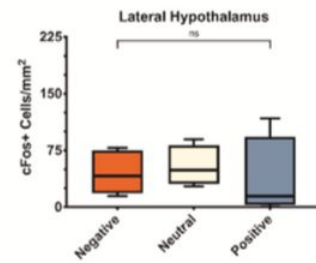
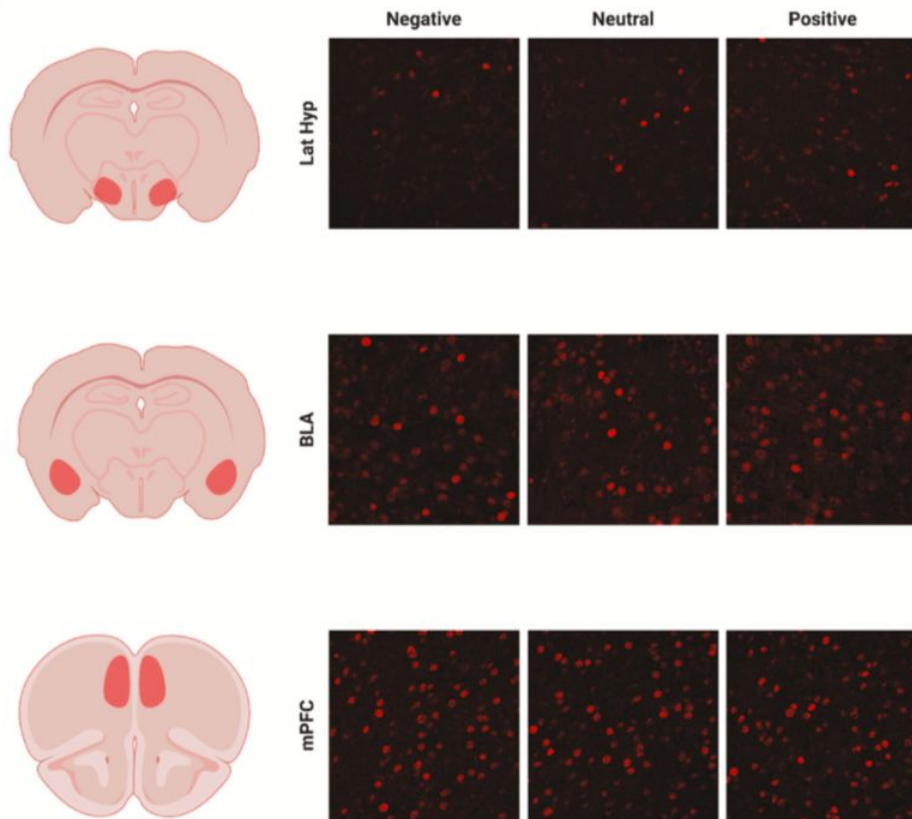


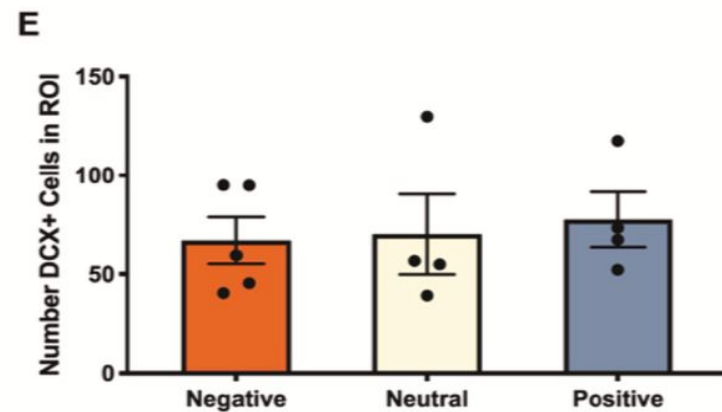
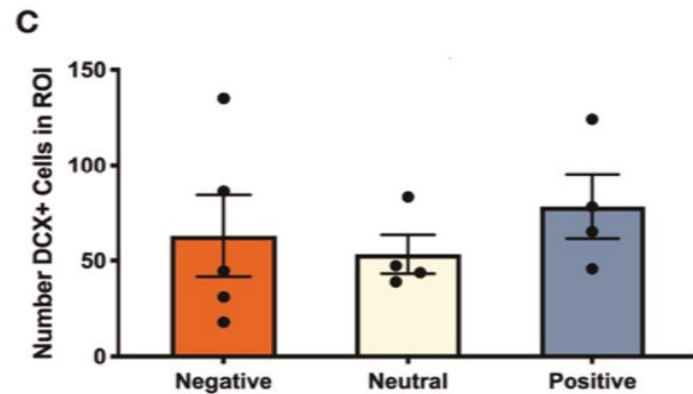
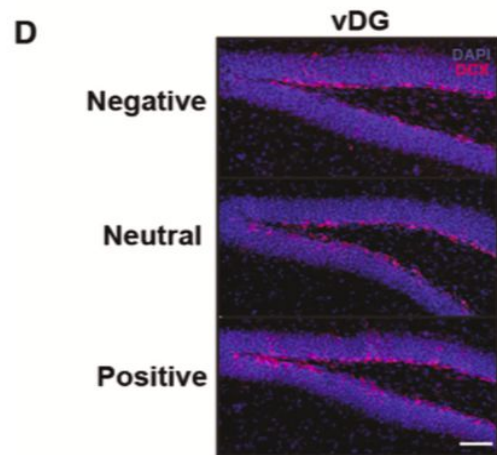
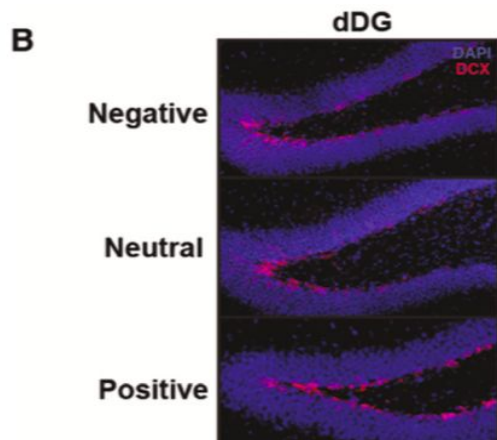
cFOS Quantification & Neurogenesis



Results



B



Discussion



Limitations & Critique



- There is a need for future research aimed at understanding the varying effects of chronic stimulation on different brain areas or specific sets of cells stimulated.
- Group differences in neuronal activity during social behavior across a number of brain regions are also not reported.
- Further studies are needed to characterize the effect of multiple exposures to the female interaction test.
- These data reinforce the importance of considering multiple factors such as the stimulation parameters, the specific behavioral assays used, and measures of neural changes when implementing chronic stimulation protocols.

Q&A Session with Dr. Steve Ramirez

Feel free to ask any questions you may have about this research to either the presenters (Gabrielle & Pooja) or to senior author & BraiNY special guest **Dr. Steve Ramirez!**



Acknowledgements



- Thank you to [BrainNY Journal Club](#), Alexandra Cohen, Heidi Meyer, Steve Ramirez, & Angela Manassis for providing mentorship and discussion opportunities.
- Special thanks to [SciDraw.io](#) for mouse vectors!
- Doucette, E., Merfeld, E., Leblanc, H., Monasterio, A., Cincotta, C., Grella, S., Logan, J. and Ramirez, S., 2020. Social behavior in mice following chronic optogenetic stimulation of hippocampal engrams. *Neurobiology of Learning and Memory*, 176, p.107321.