

Reading Questions for Week 12:

- Lai et al. (2018) and Colyn et al. (2019) use two different models of trauma: fear conditioning and chronic social defeat stress (CSDS), respectively. Please briefly discuss the advantages and disadvantages of each model, e.g. which types of human trauma would be more appropriately represented by fear conditioning vs CSDS?

Question for Colyn et al., 2019

1. In Colyn et al., do you find it surprising that the effects of CSDS are delayed and/or long-lasting? Do you think it is adaptive or maladaptive for animals to have such long-lasting changes in their brains after CSDS, i.e. is this a healthy response to danger or a pathological phenotype?
2. In Colyn et al., is there any mention of blinding to treatment condition during image acquisition and/or analysis?
3. In Colyn et al., what was the control group used for comparison to mice experiencing CSDS? Do you think this was an appropriate control?

Question for Lai et al., 2018

1. The authors claim that fear conditioning elicit formation of different new spines with different auditory cues. What is the evidence they provide? Do you agree? If so, what do you think is driving these changes in response?
2. In figure 3 and 4, the data suggests that fear-extinction preferentially eliminates newly formed spines induced by fear conditioning and this elimination is cue specific. Does the data strongly support this conclusion? What could be driving the structural changes to favor elimination? How is this conclusion similar or different to structural changes induced by learning-based paradigms?
3. If fear extinction reverses new spines induced by fear conditioning in a location-and cue-specific manner in the mouse auditory cortex, do you think we could use learned-based conditioning to treat stress or PTSD? If so, how would you attempt to test this idea in mice?

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