

### **Discussion questions for Eavri et al., 2018:**

1. In Eavri et al. (2018), the authors claim that the capacity for inhibitory dendritic arbor remodeling decreases as mice age. Which figure provides evidence for this claim?
2. In the abstract of Eavri et al. (2018), the authors state that their results “suggest that declines in inhibitory neuron structural plasticity during aging contribute to reduced functional plasticity.” (see questions below)
  - a. What evidence do the authors provide for reduced functional plasticity with aging?
  - b. Do the authors provide any evidence that the decline in structural plasticity is causally related to the decline in functional plasticity?
    - i. If not, can you think of an experiment that would test whether the decline in structural plasticity is causally related to the decline in functional plasticity?

### **Discussion questions for Mostany et al., 2013**

1. In Mostany et al, the authors sought to investigate synapse dynamics during normal aging. Which brain regions did they choose to focus on? How relevant is this area for age-related sensory decline? Would you have chosen the same area? Justify your answer.
2. The authors claim that dendritic spine turnover increase significantly with age. What evidence do they provide? What do you think is happening here? Does spine size dictate synaptic strength? Is this true to all brain regions?
3. The authors claim that synaptic dynamics are profoundly altered but not lost in old mice. If true, why do most neurodegenerative diseases result in altered synaptic transmission because of synapse loss and subsequent neuronal loss? Can you reconcile this statement?

### **General question:**

1. Later in the semester, we'll discuss neurodegenerative disease. This week, we're focusing on healthy aging. How should we distinguish pathological from healthy changes in the aging brain? Is some degree of functional decline healthy, or should we try to prevent the functional decline associated with aging?

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