

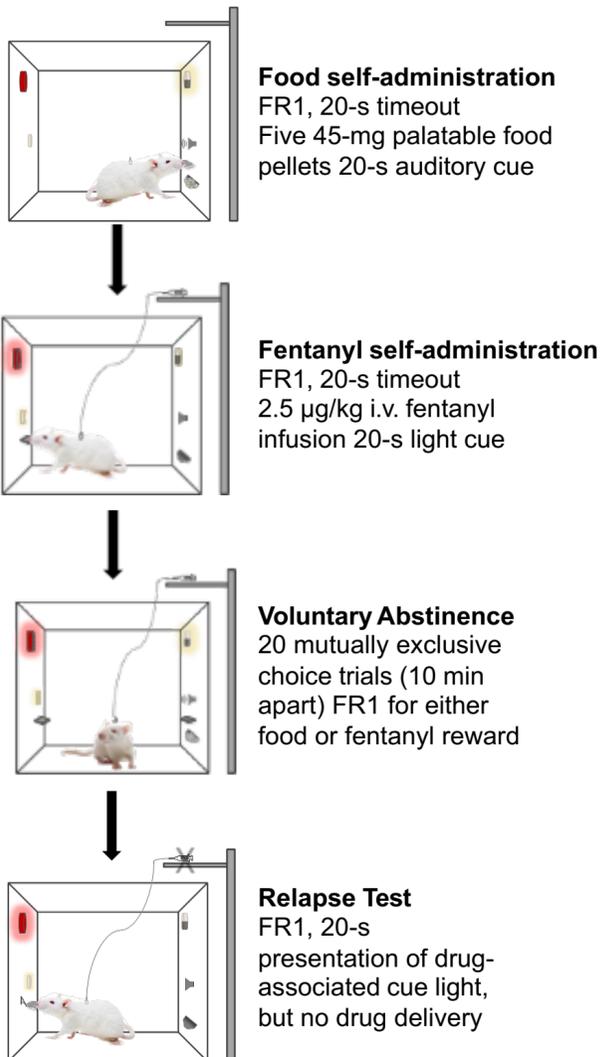
# Role of piriform cortex afferent projections in relapse to fentanyl seeking after food choice-induced voluntary abstinence

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## Background

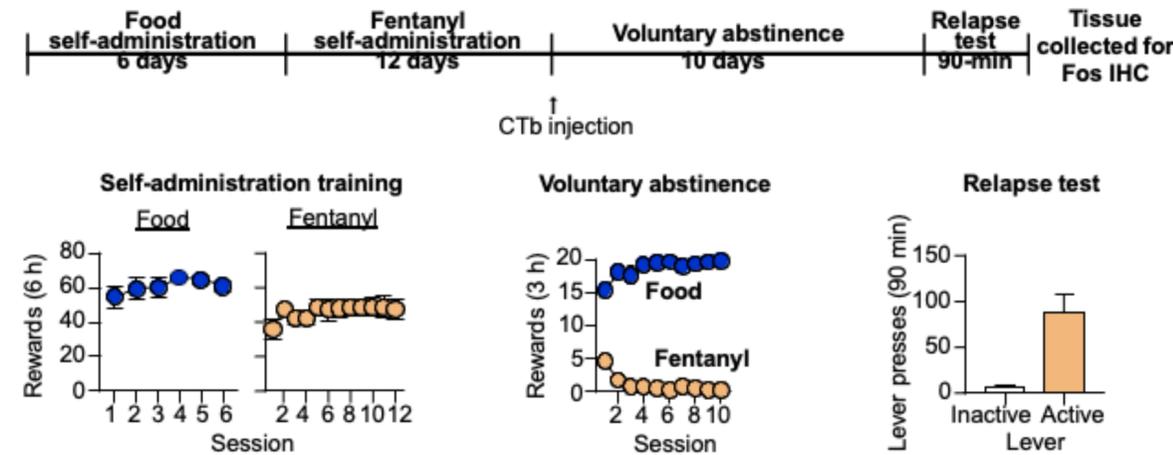
- A high relapse rate is a core feature of addiction to opioids like fentanyl.
- We previously used a choice procedure in which rats choose food over drug (food choice-induced voluntary abstinence) to mimic abstinence in humans due to availability of non-drug rewards (Caprioli et al., 2015).
- We recently showed that the piriform cortex (Pir) plays a critical role in fentanyl relapse after food choice-induced abstinence (Reiner et al., 2020).
- Here we studied the role of afferent projections to Pir in fentanyl relapse.

## Experimental design

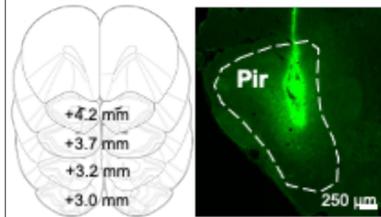


## Results

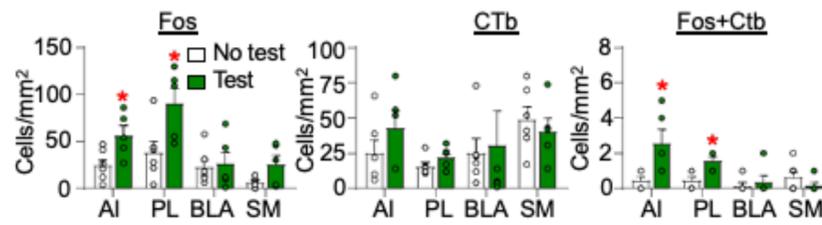
### Projection-specific activation of piriform cortex (Pir) afferents associated with fentanyl relapse



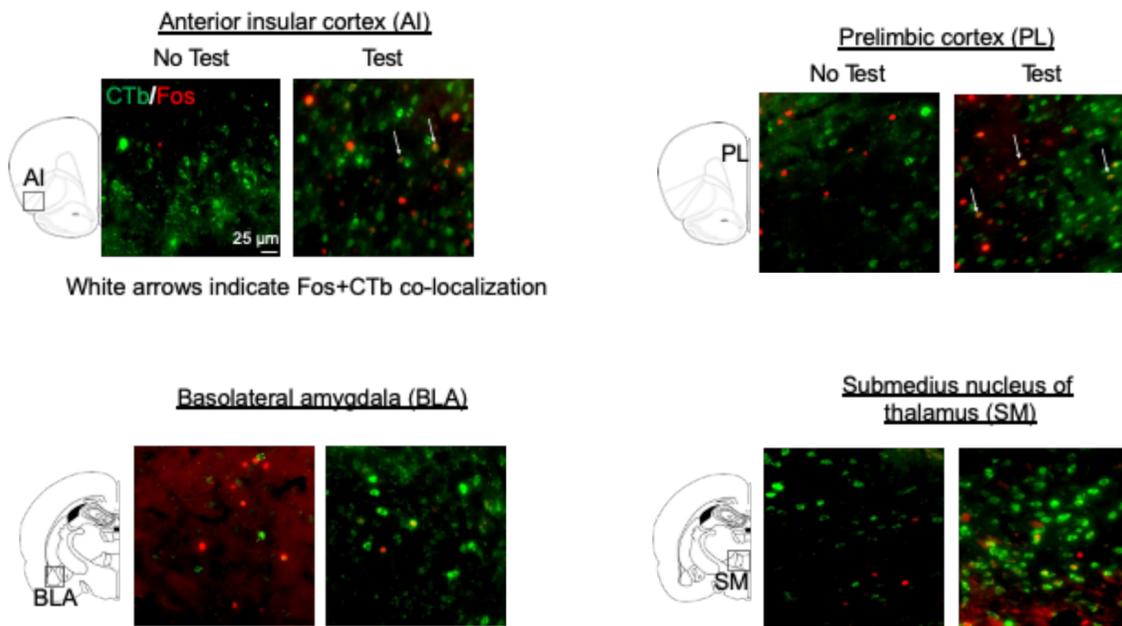
### CTb injection site in Pir



### Fos and CTb quantification

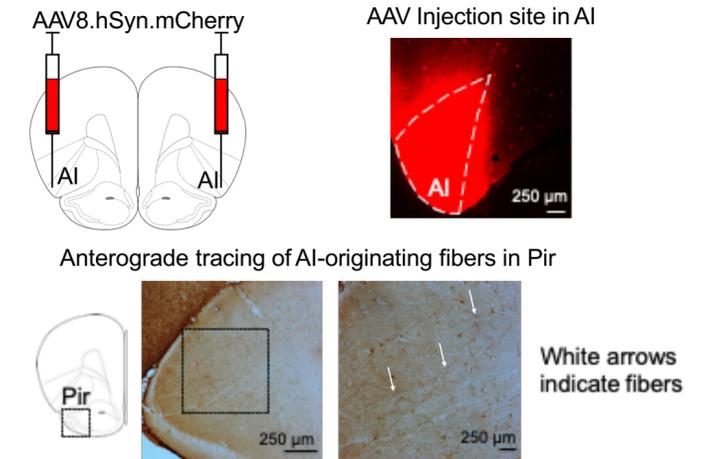


### Fos and CTb representative images



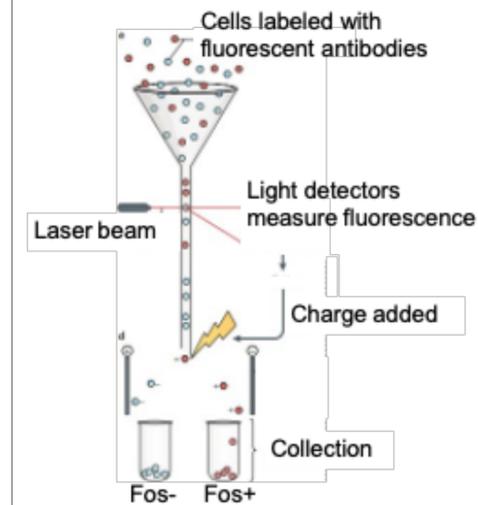
## Future directions

### Determine the causal role of AI→Pir projections in fentanyl relapse with DREADD projection-specific inhibition

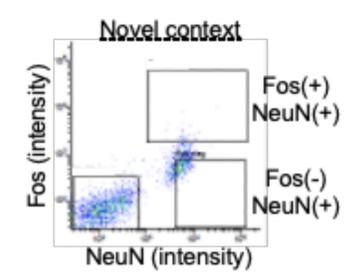


### Transcriptional changes in Pir neurons activated during fentanyl relapse

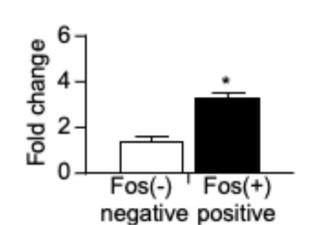
#### Fluorescently activated cell sorting (FACS)



#### FACS purification of Pir Fos-positive neurons



#### Pir Fos expression



Cruz et al. 2013, Nature Rev Neurosci

## Conclusions

- Fentanyl relapse is associated with activation in neurons projecting from AI→Pir and from PL→Pir.
- In future experiments we will test the causal role of AI→Pir and PL→Pir projections in fentanyl relapse. We will also examine transcriptional changes in Pir neurons activated during fentanyl relapse.