

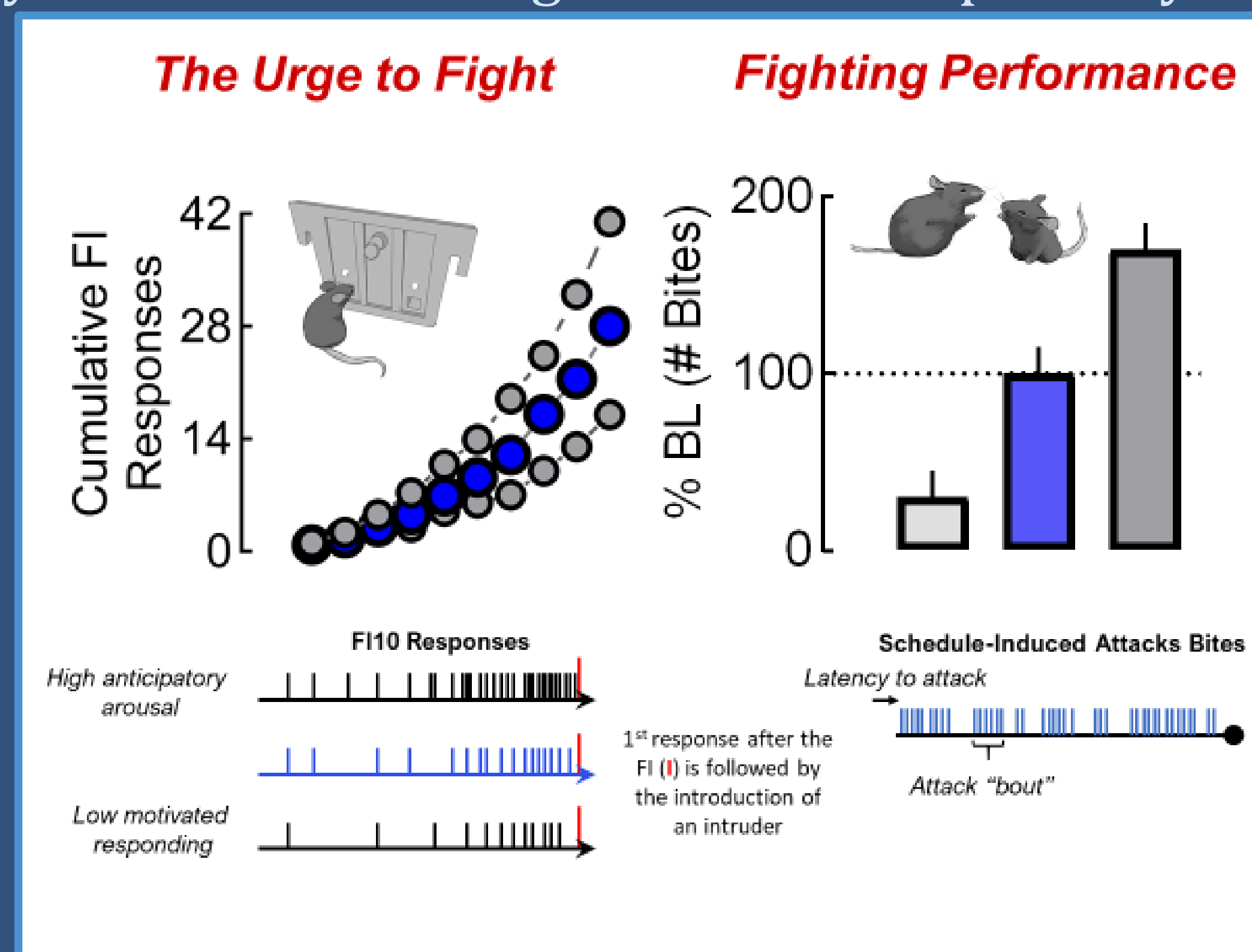
Background

- Fixed-interval (FI) schedules of reinforcement capture patterns of anticipatory responding
- The rate and associated scalloped "pattern" produced during FI schedules reflect the intensity of the motivation to obtain a reward
- The molecule CRF appears to be critical for the arousal associated with the motivation to fight
- Ventral Tegmental Area (VTA) associated with reward and motivation
- How does the activity of CRF-containing cells that terminate in the VTA of the brain modulate the motivation for aggression?

Methods

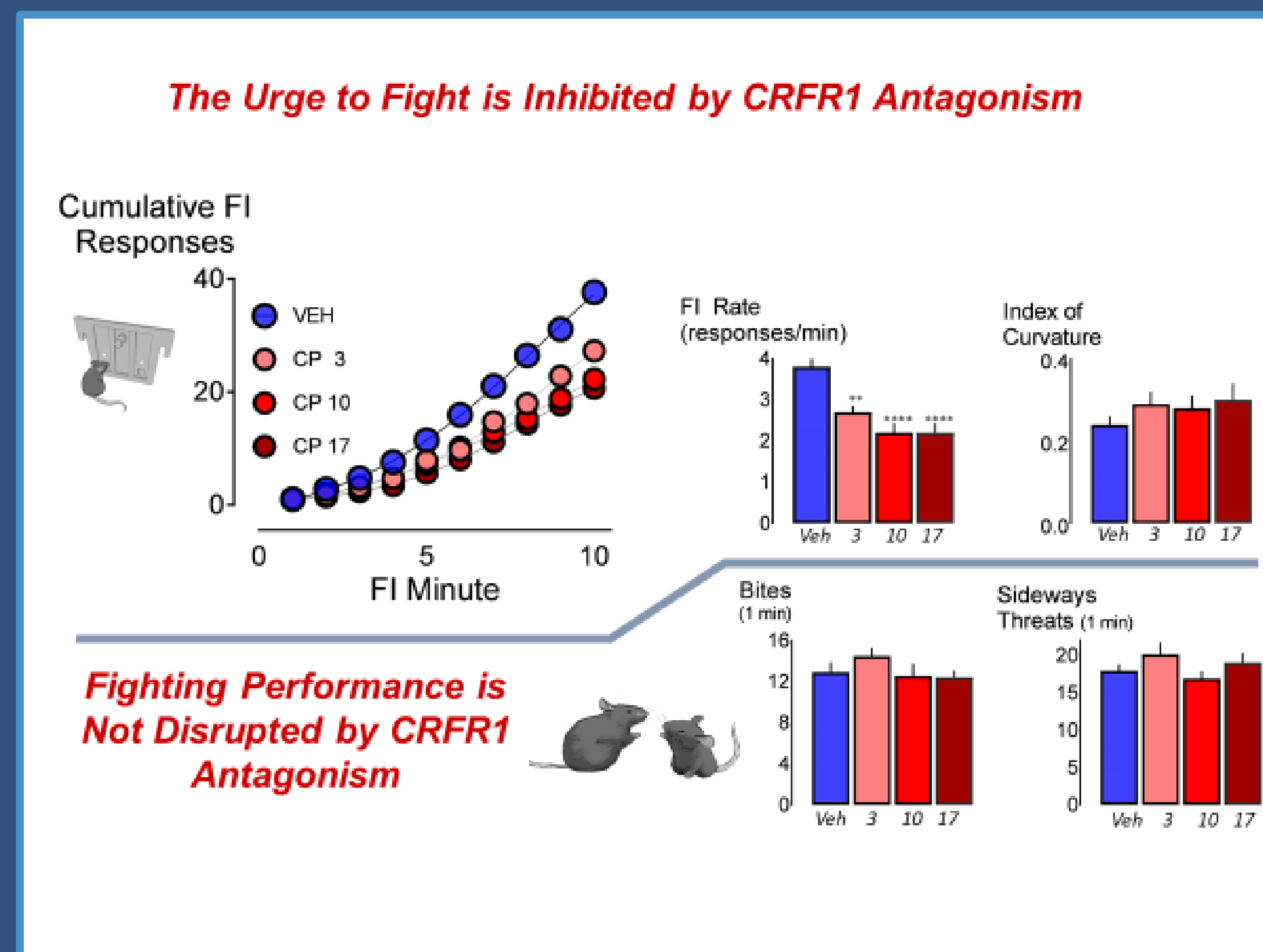
C57/BL6J mice were trained to work under the demands of a FI10 schedule for the opportunity to fight an intruder:

- CRFR1 antagonism was evaluated during the motivation to fight and during fighting performance
- After FI, functional activation of cells in the VTA, LH, and CeA was examined via protein markers of cellular activity
- Using CRF-Cre mice, AAV-DIO-ChR2 or -NpHR was used to control the activity CRF neurons along the LH → VTA pathway



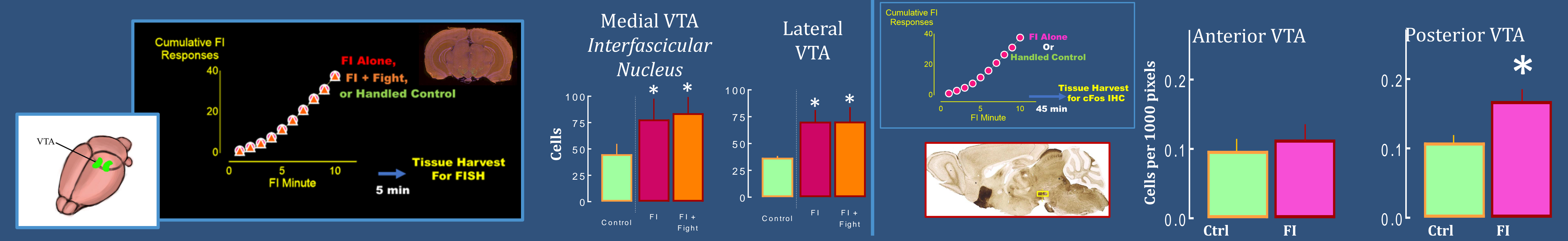
Results

1. Effect of CRFR1 antagonism in C57/BL6J on the anticipation to fight

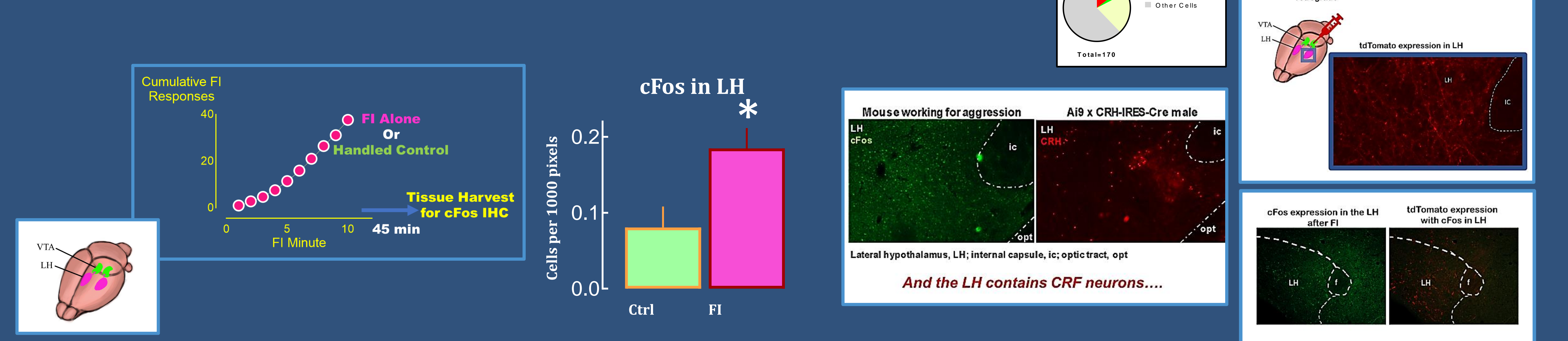


Results, cont.

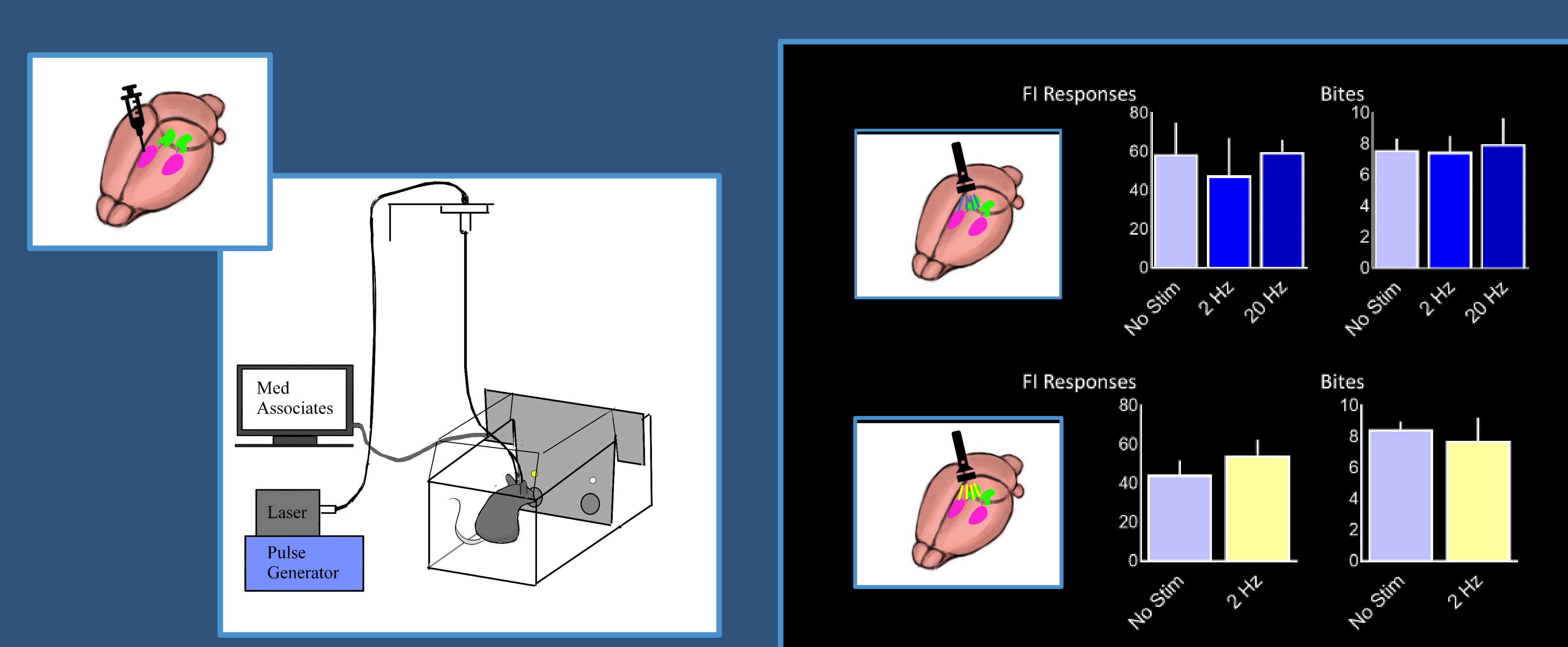
2. Do VTA neurons respond during the anticipation of a fight?



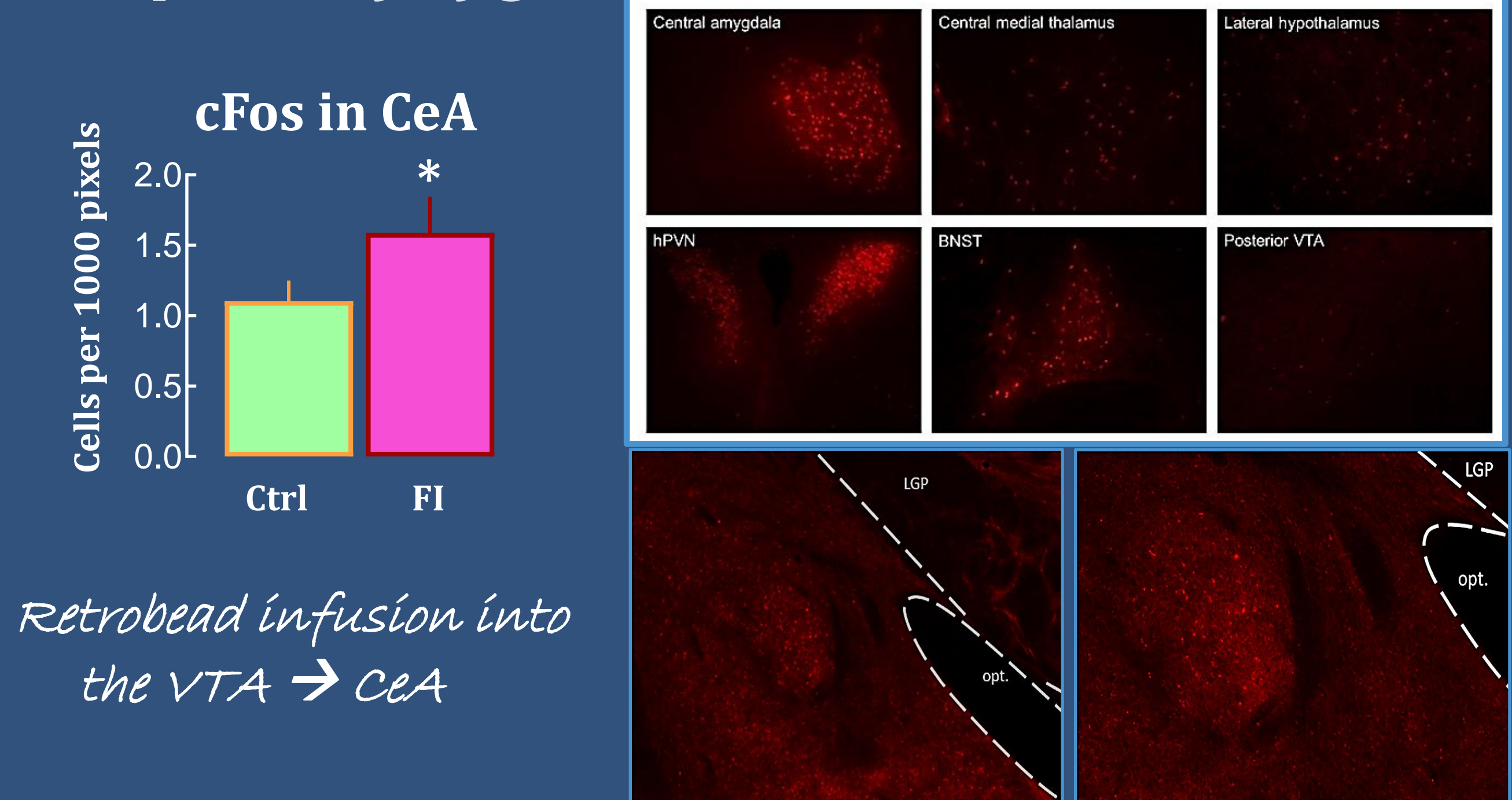
3. Do lateral hypothalamic neurons respond during the anticipation of a fight?



4. Does the LH → VTA CRF circuit control the motivation to fight?



5. The central amygdala is also active during the anticipation of a fight



Summary

- Patterns of FI responding for natural rewards are sensitive to CRF-R1 antagonism
- Manipulation of CRF neurons along LH → VTA pathway did not drive behavioral changes under FI responding. Potential explanations include attrition or that the LH → VTA pathway alone was not sufficient.
- Next steps include manipulation of CeA and characterizing its projections, as the CeA was shown to contain many CRF neurons.