

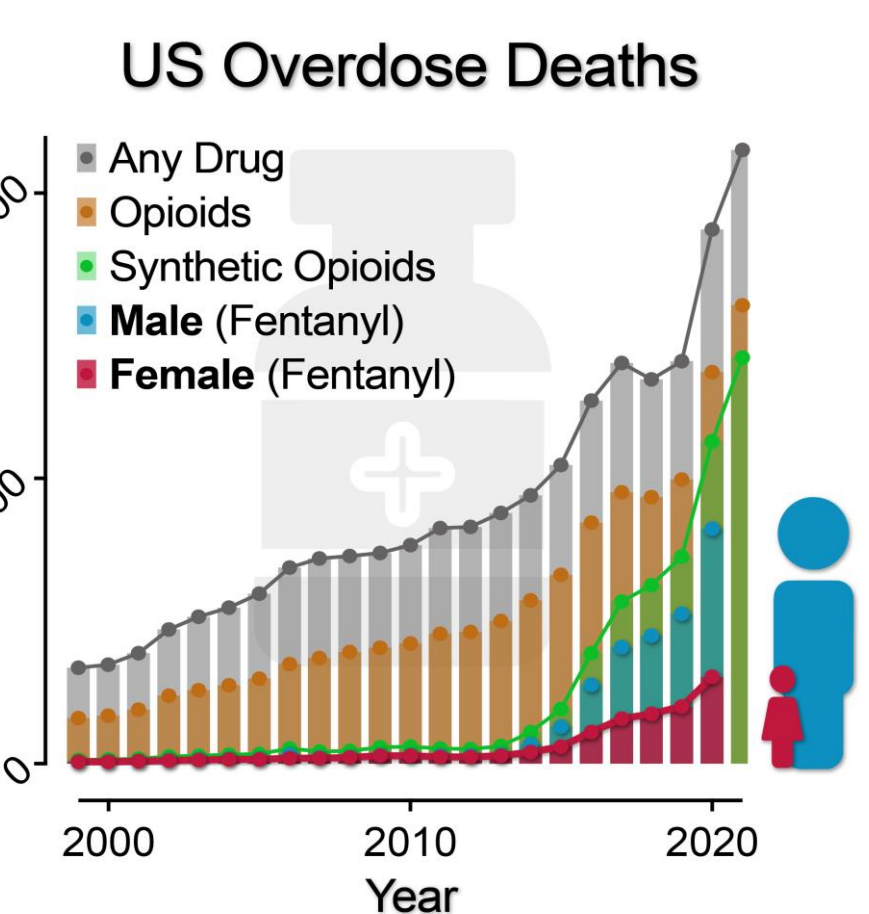


Estradiol protects against pain-facilitated fentanyl use via suppression of opioid-evoked dopamine activity

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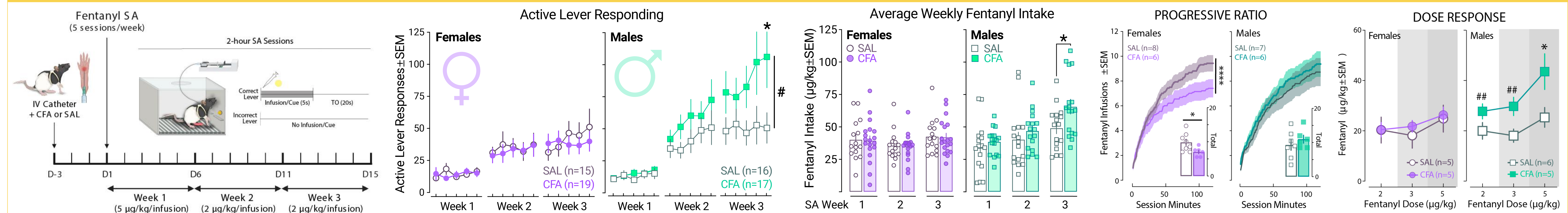
BACKGROUND



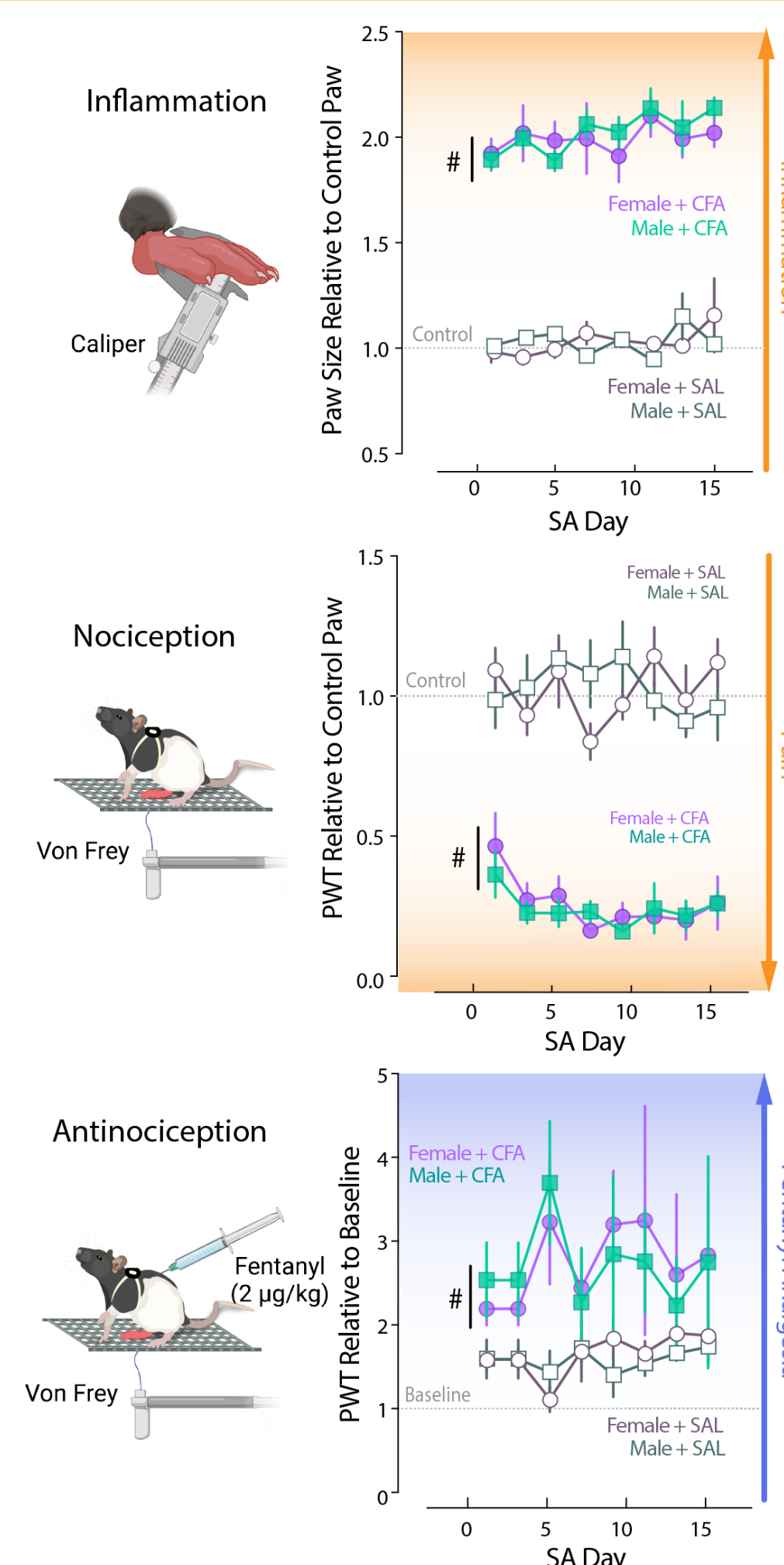
- Men are >2x likely to overdose than women
- Primary motivation for opioid abuse is "pain relief"
- Sex differences in the relationship between pain and opioid abuse are unknown

CDC, NIDA

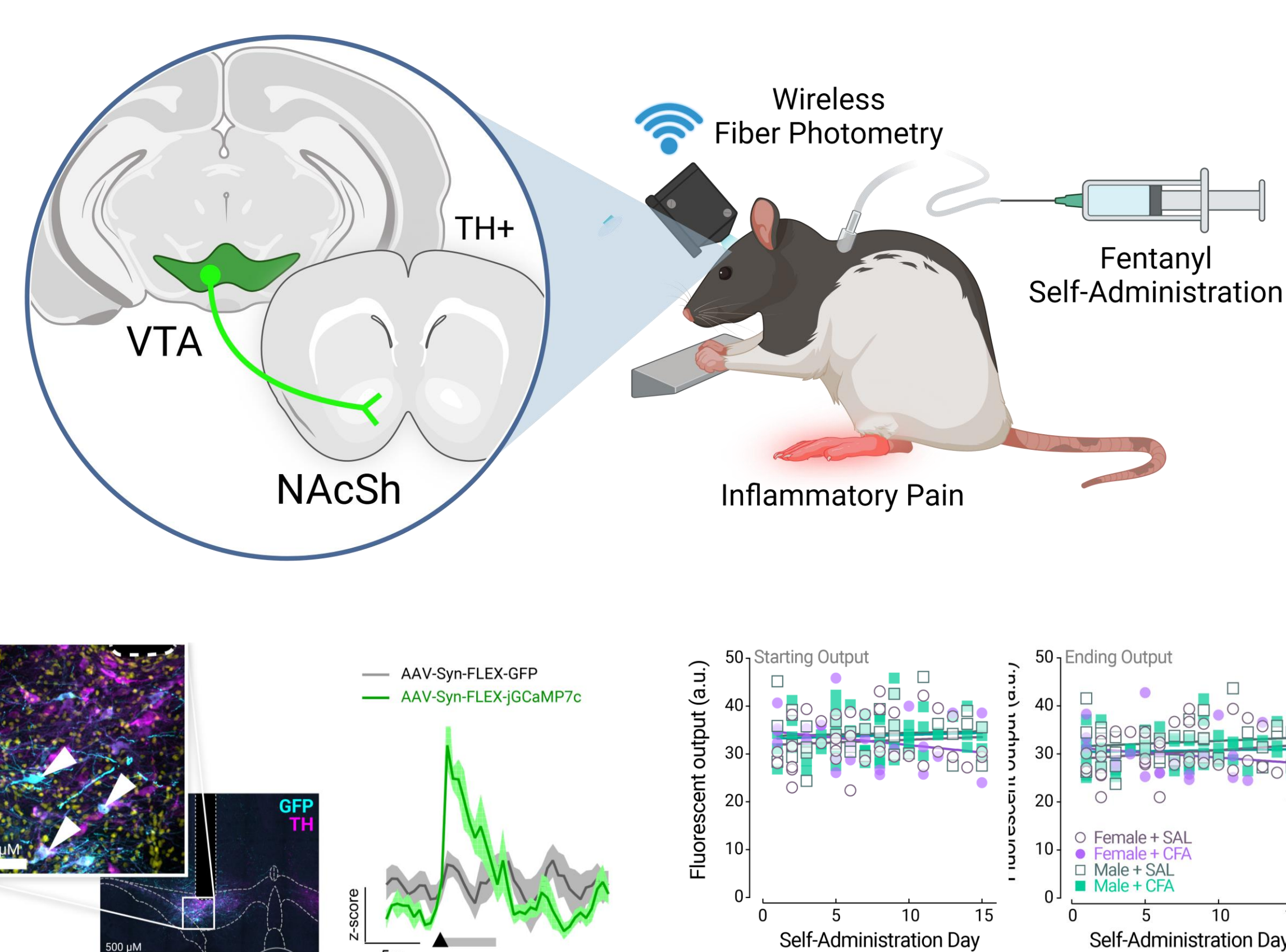
PAIN INCREASES FENTANYL SELF-ADMINISTRATION IN MALES



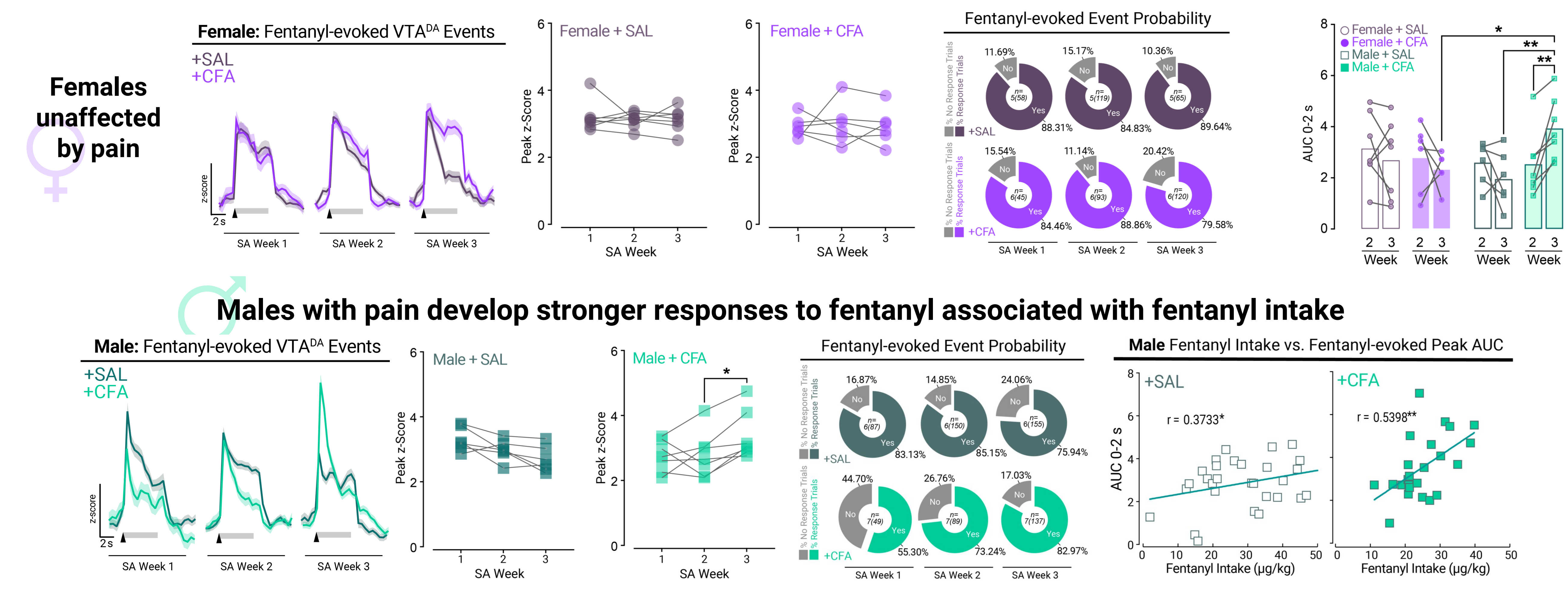
SIMILAR PAIN



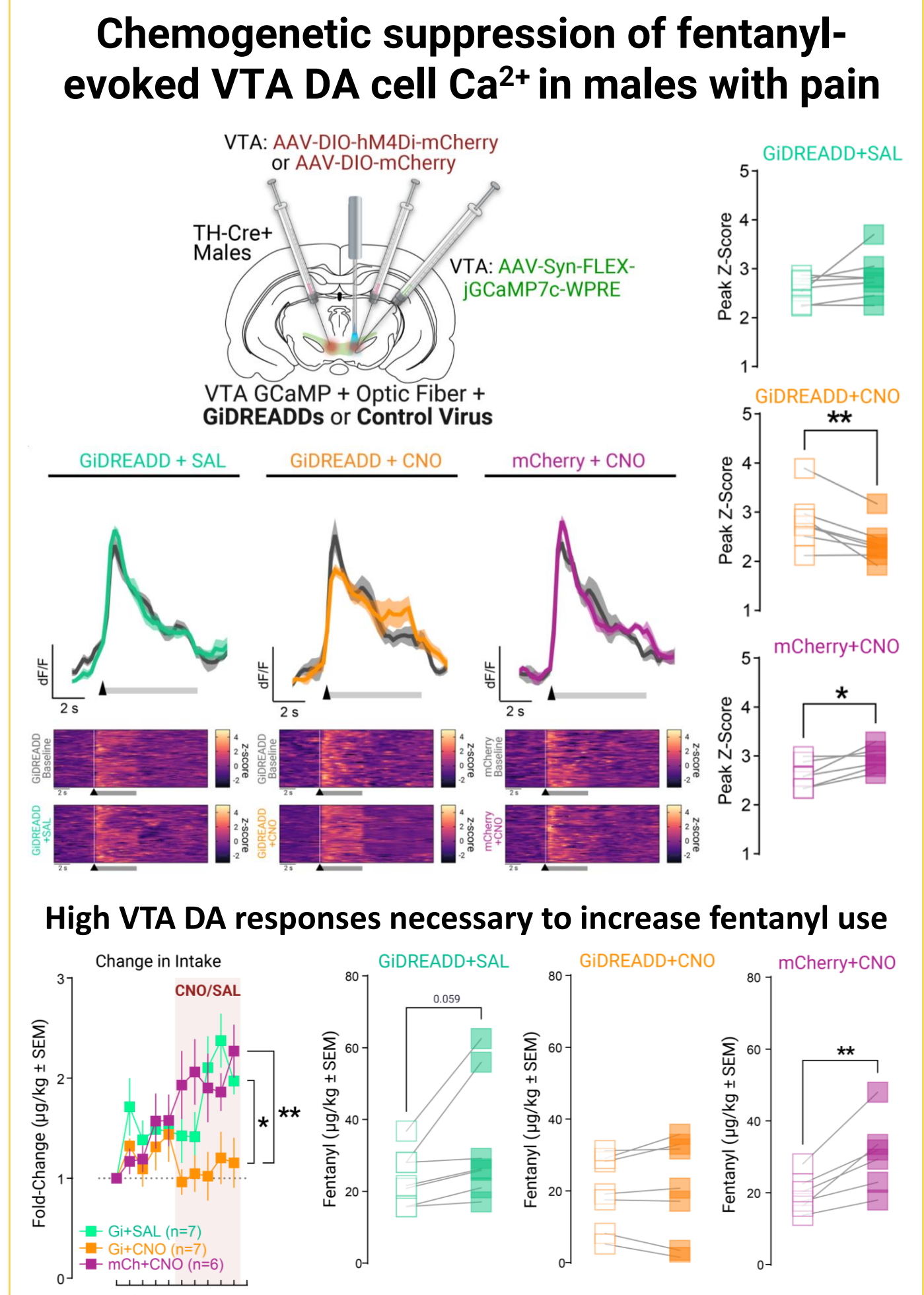
Fentanyl-evoked VTA dopamine neuron activity during self-administration



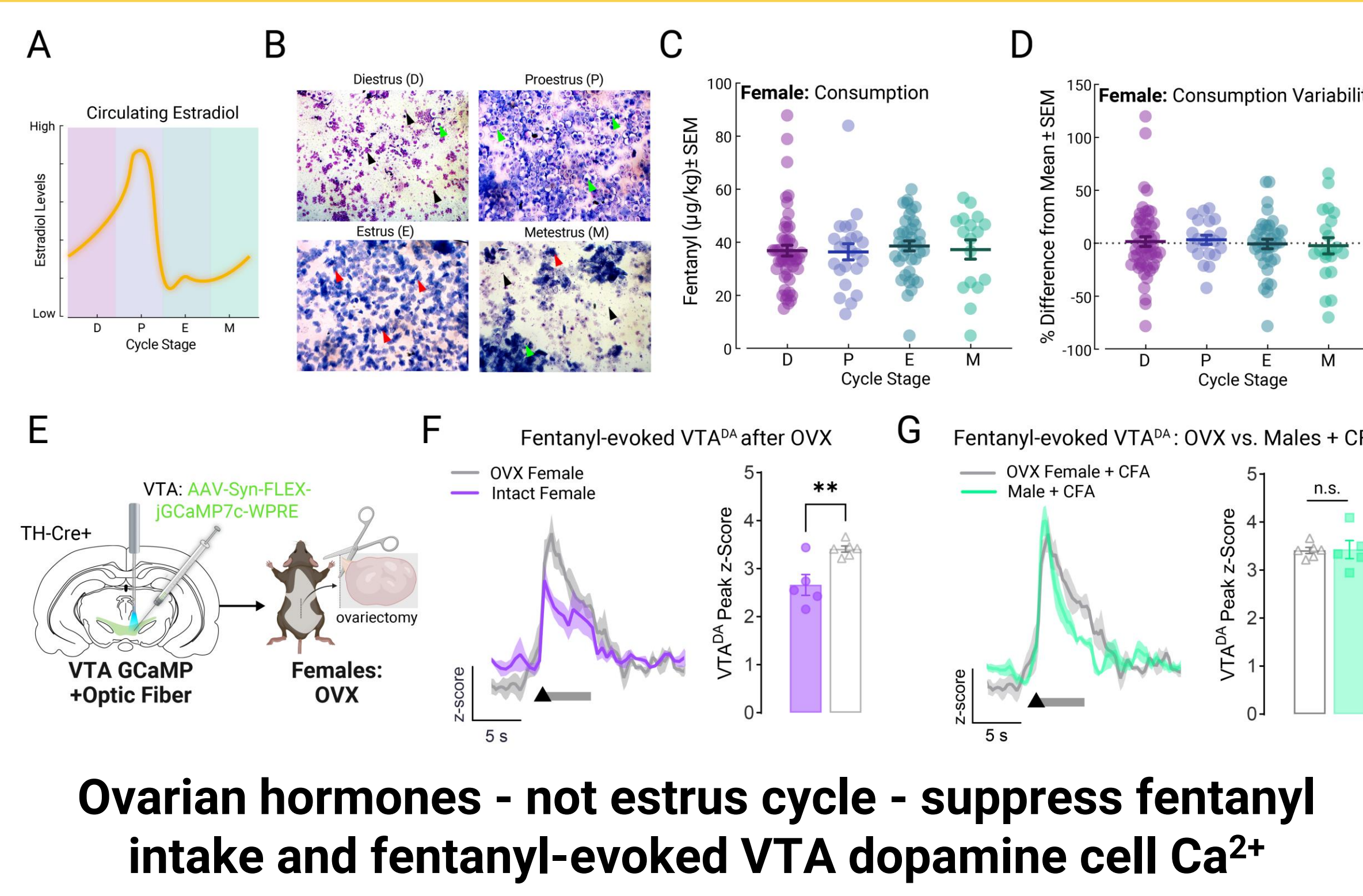
SEX-SPECIFIC EFFECTS OF PAIN ON FENTANYL-EVOKED VTA DOPAMINE CELL Ca²⁺



NECESSITY

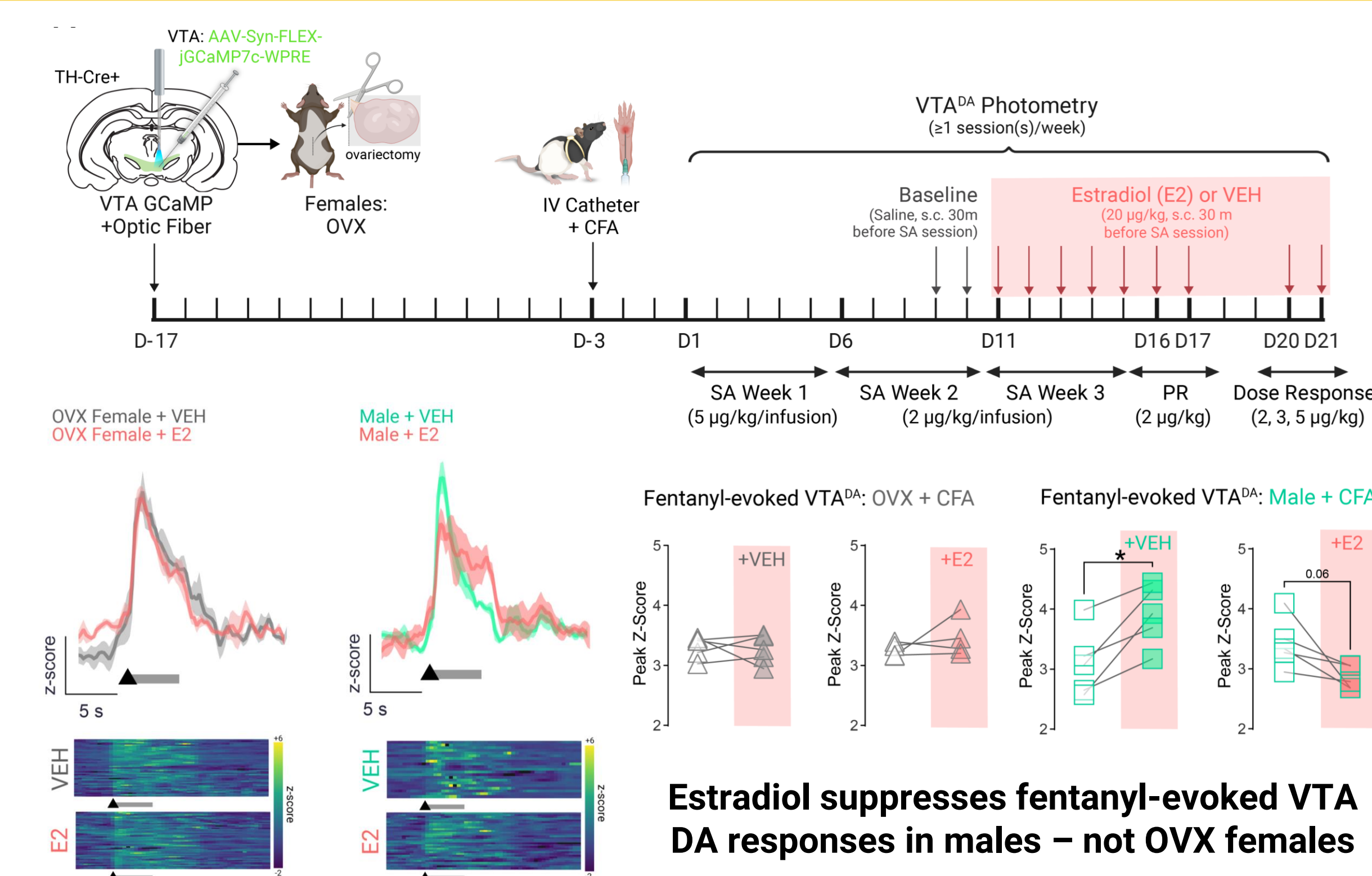


HORMONAL REGULATION OF VTA DA

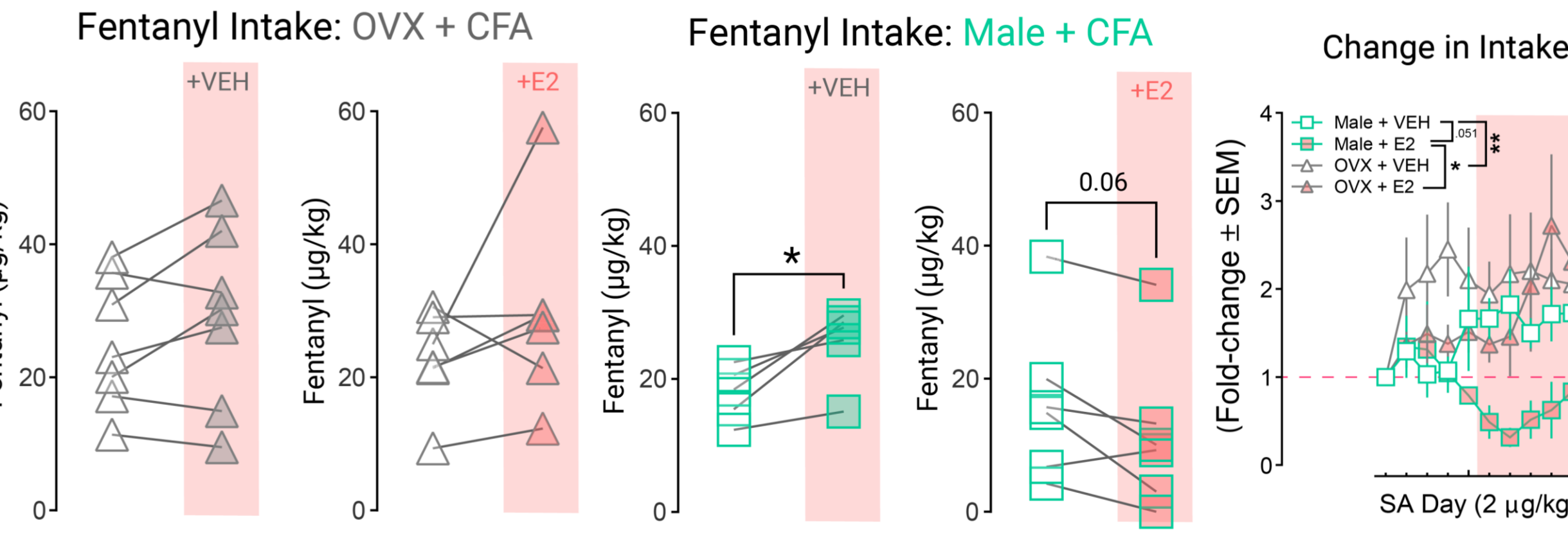


Ovarian hormones - not estrus cycle - suppress fentanyl intake and fentanyl-evoked VTA dopamine cell Ca²⁺

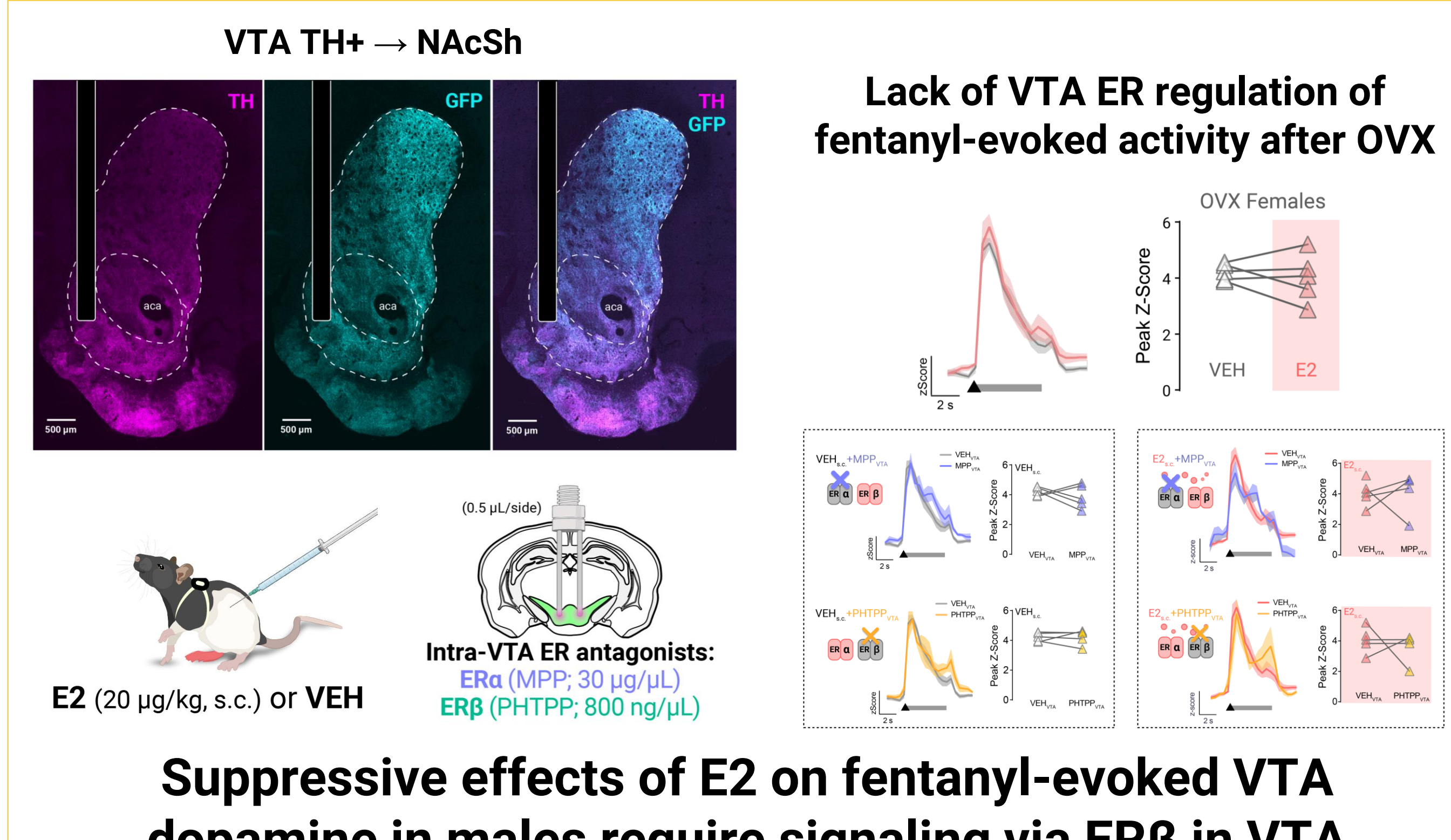
ESTRADIOL IS PROTECTIVE IN MALES



Estradiol prevents pain effects on fentanyl self-administration in males - not OVX females

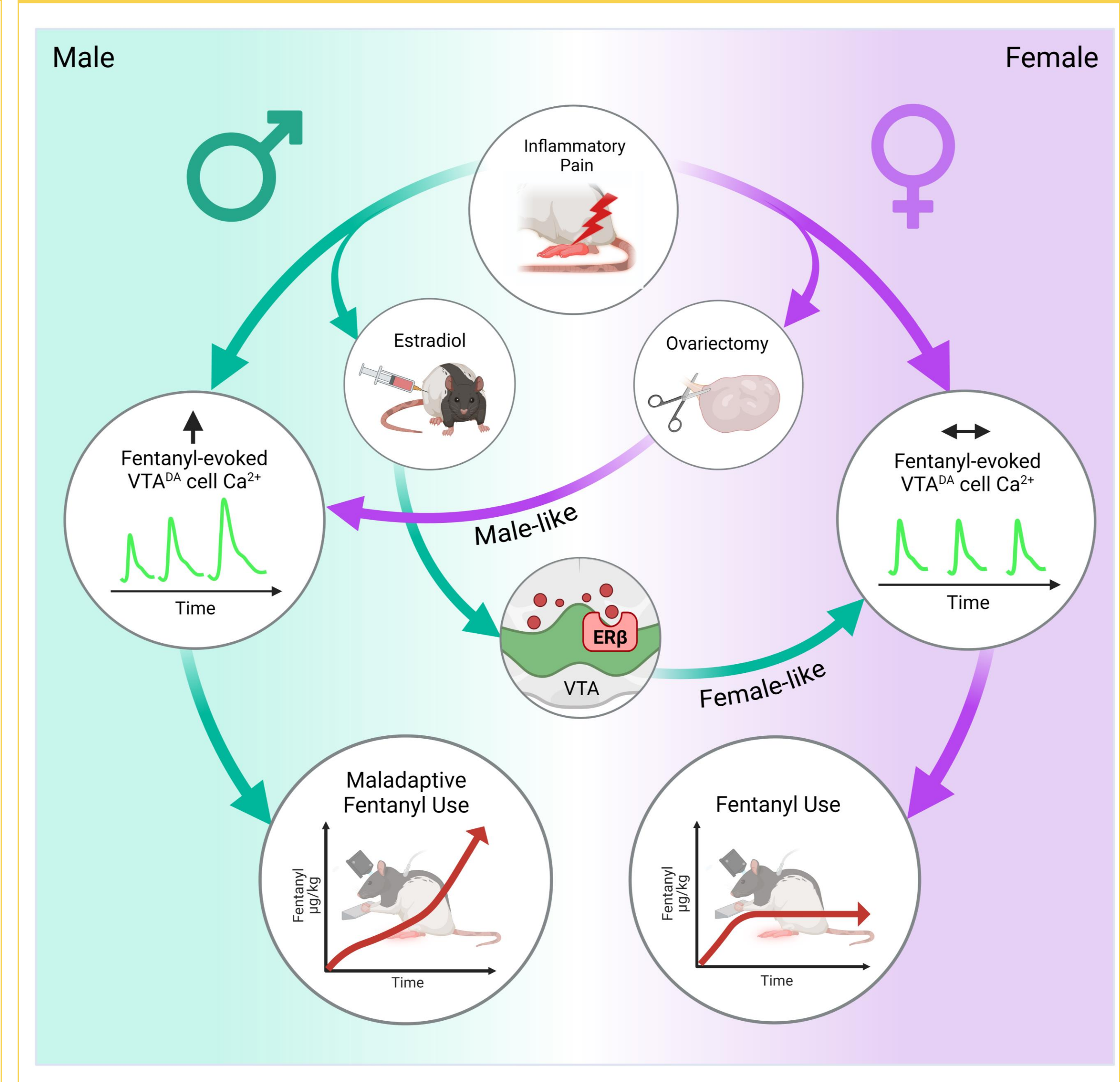


E2 SUPPRESSION IS VIA ERβ IN VTA



Suppressive effects of E2 on fentanyl-evoked VTA dopamine in males require signaling via ERβ in VTA

SUMMARY



ACKNOWLEDGEMENTS

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