

Background

- In a Pavlovian lever autoshaping task, **sign-tracking (ST)** and **goal-tracking (GT)** rats are characterized by their cue (i.e. lever) or reward (i.e. food cup) directed behaviors, respectively.
- GT**, but not **ST**, show sensitivity to reward devaluation by decreasing conditioned responding.
- Communication between the basolateral amygdala (BLA) and anterior insular cortex (aIC) is necessary for PLA autoshaping behaviors.

Goal-tracking



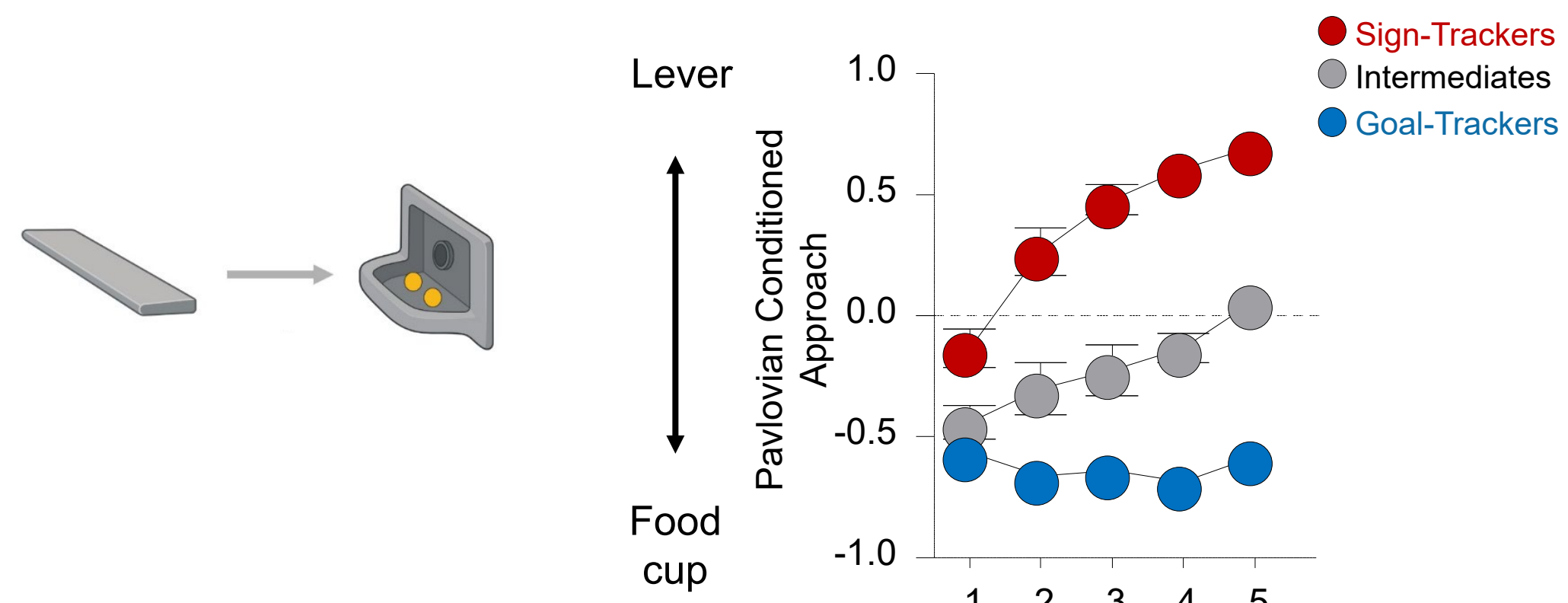
Sign-tracking



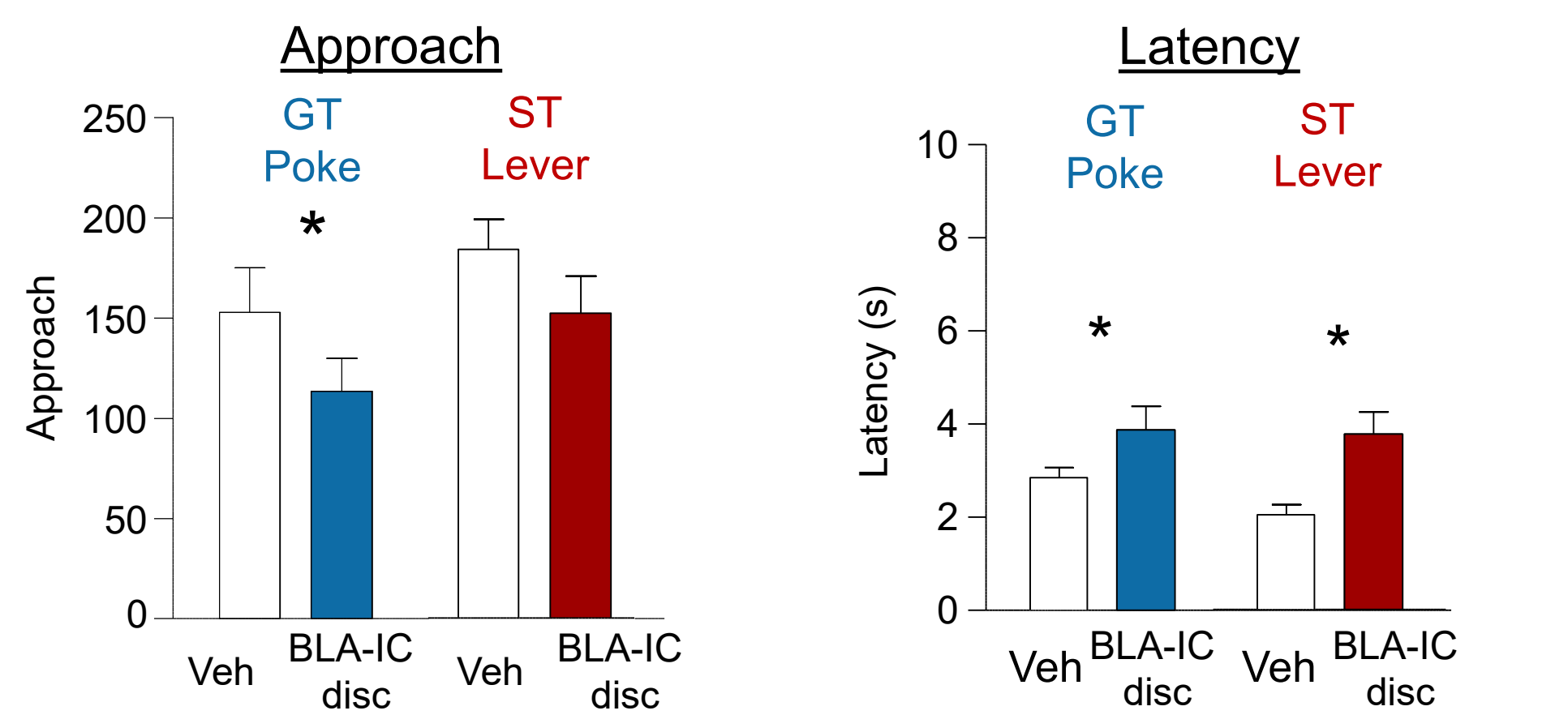
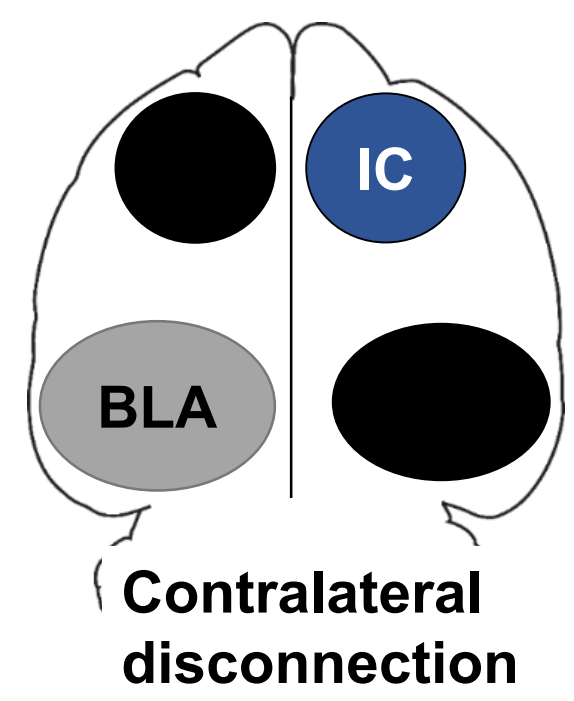
10s Lever → 2 food pellets

Phenotype and BLA-aIC Dependent Autoshaping

Pavlovian Lever Autoshaping



BLA-aIC communication necessary for conditioned responding

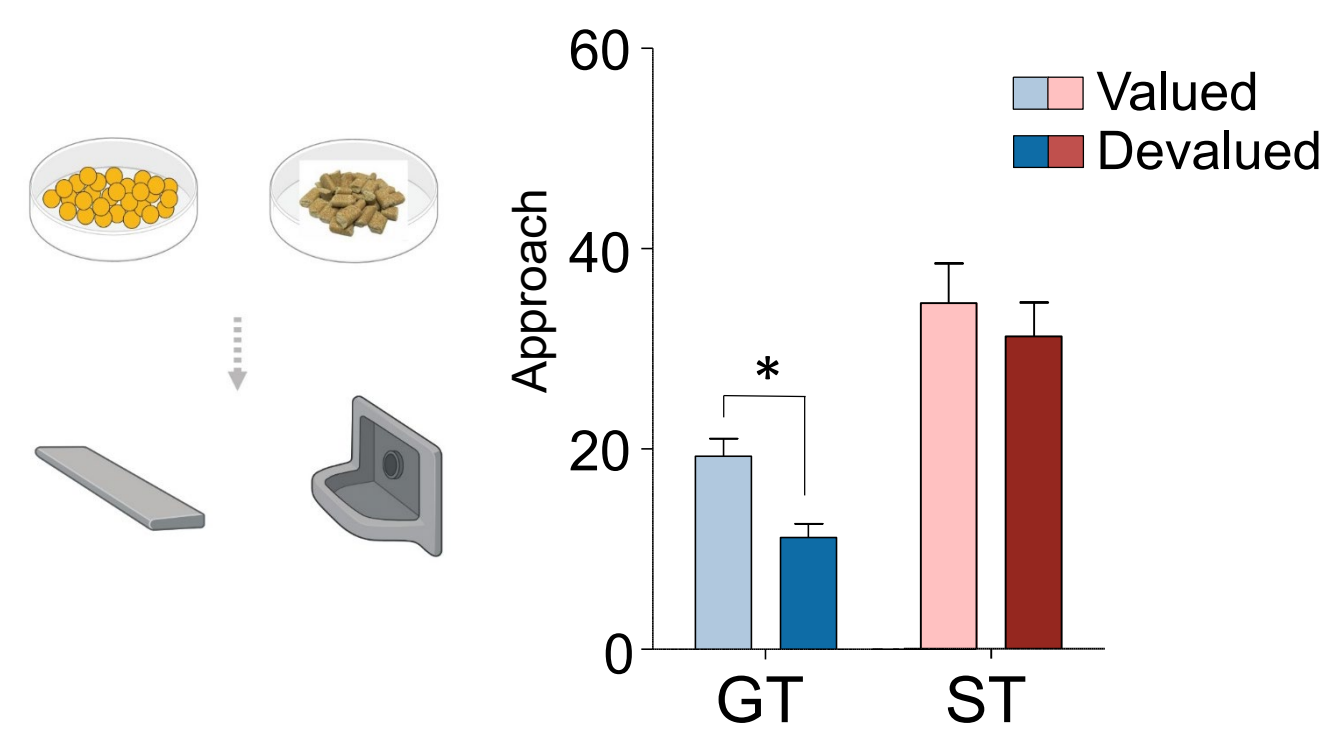


Nasser et al., 2018, *Neurobio Learn Mem*

Phenotype Dependent Outcome Devaluation

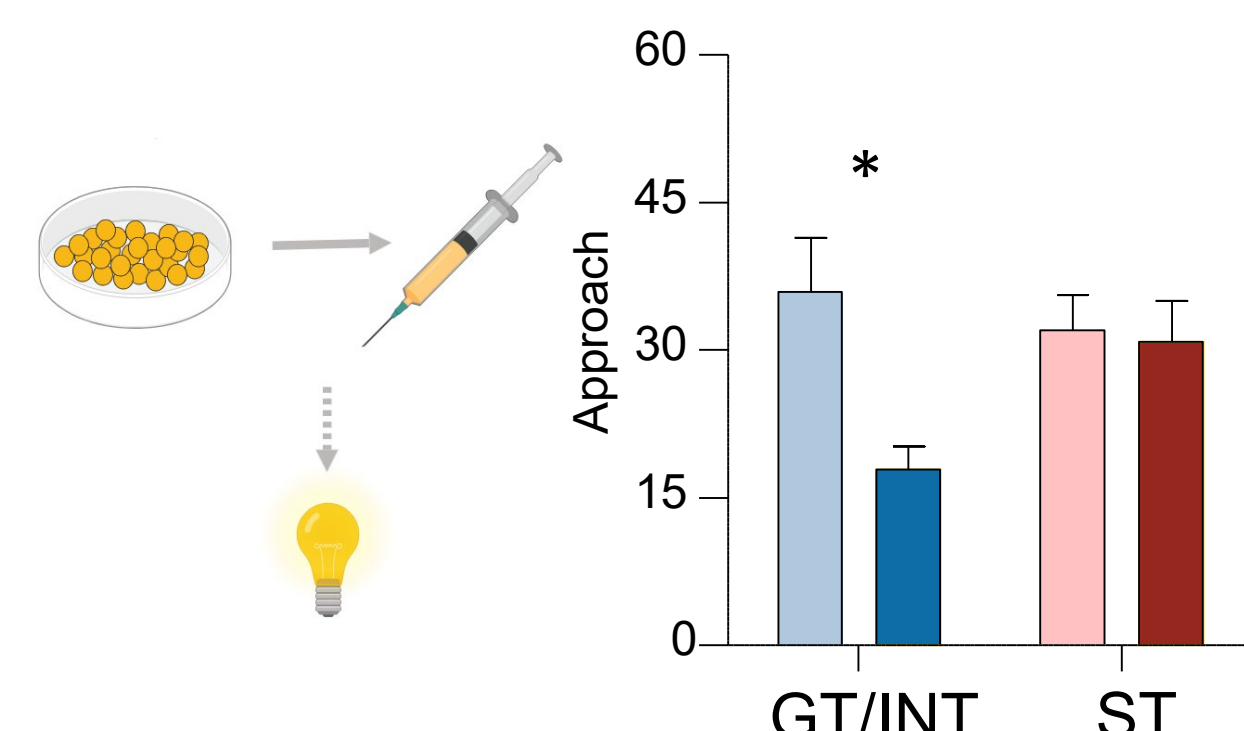
Goal-trackers show behavioral flexibility across devaluation paradigms

Satiety-Induced Devaluation



Keefer et al., 2020, *Front Behav Neurosci*

LiCl-Induced Devaluation



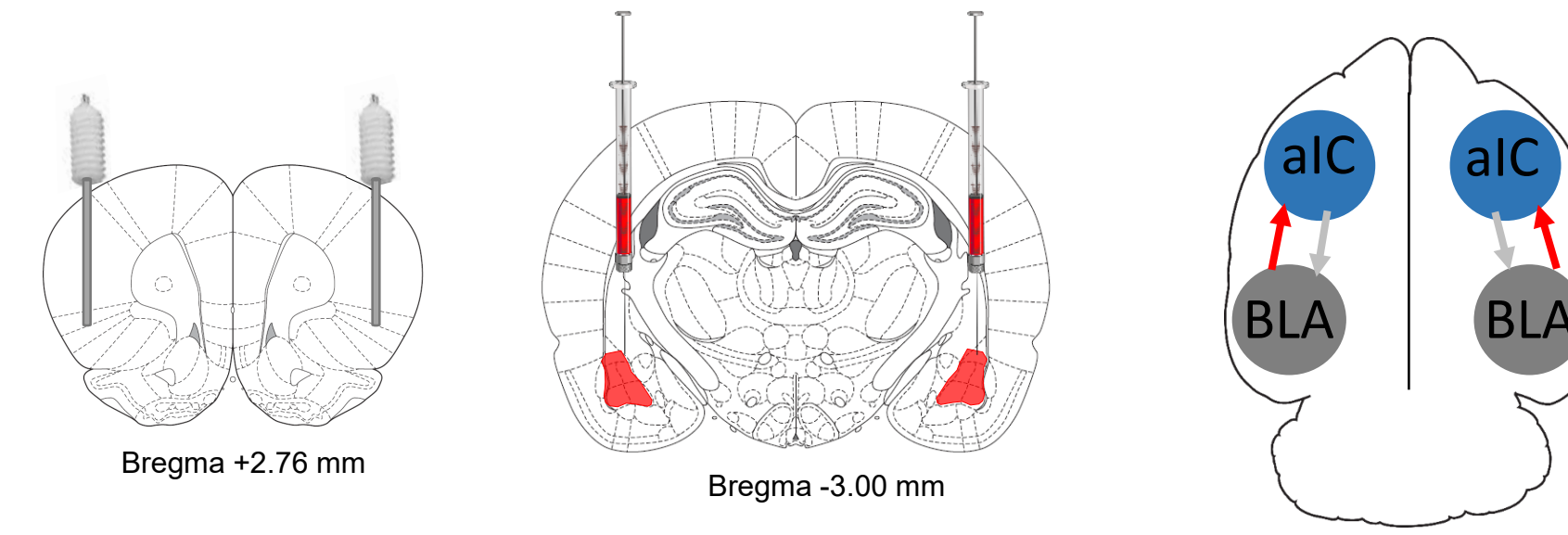
Nasser et al., 2015, *Front Behav Neurosci*

BLA→aIC Inactivation in Outcome Devaluation

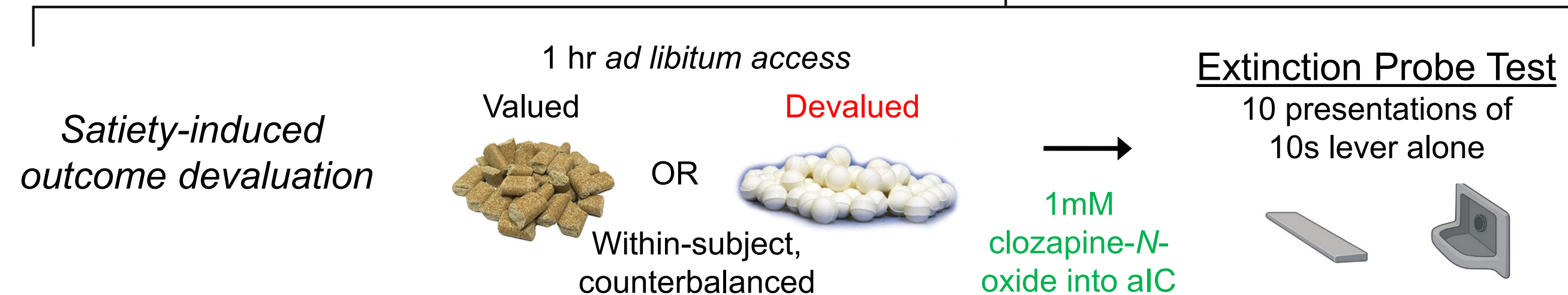
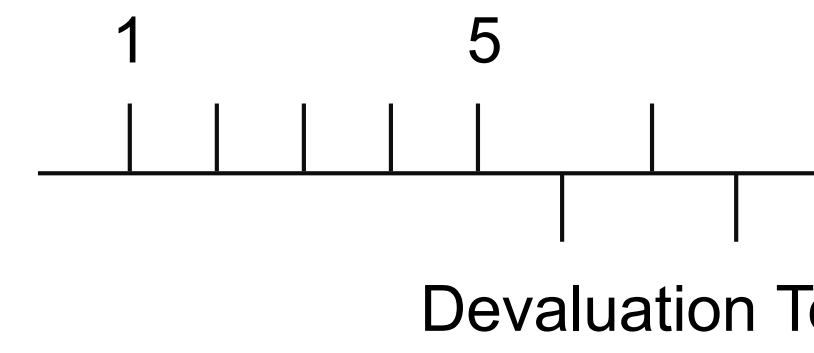
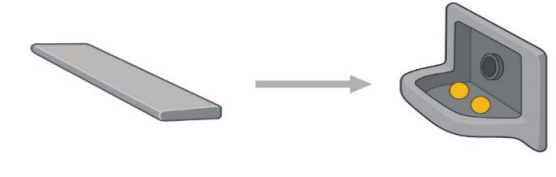
Experimental Methods and Timeline

BLA→aIC disconnection

Bilateral aIC
Intracranial cannulas
Bilateral BLA
AAV8-hSyn-hM4Di-mCherry
or
AAV8-hSyn-mCherry

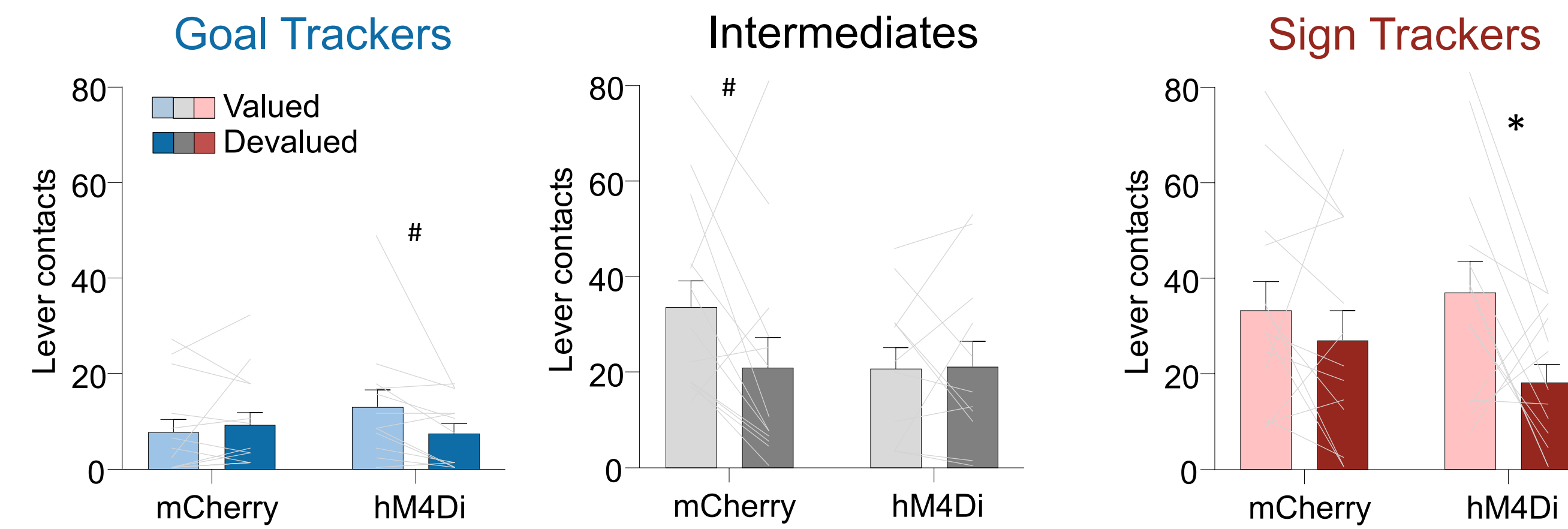


Pavlovian lever autoshaping

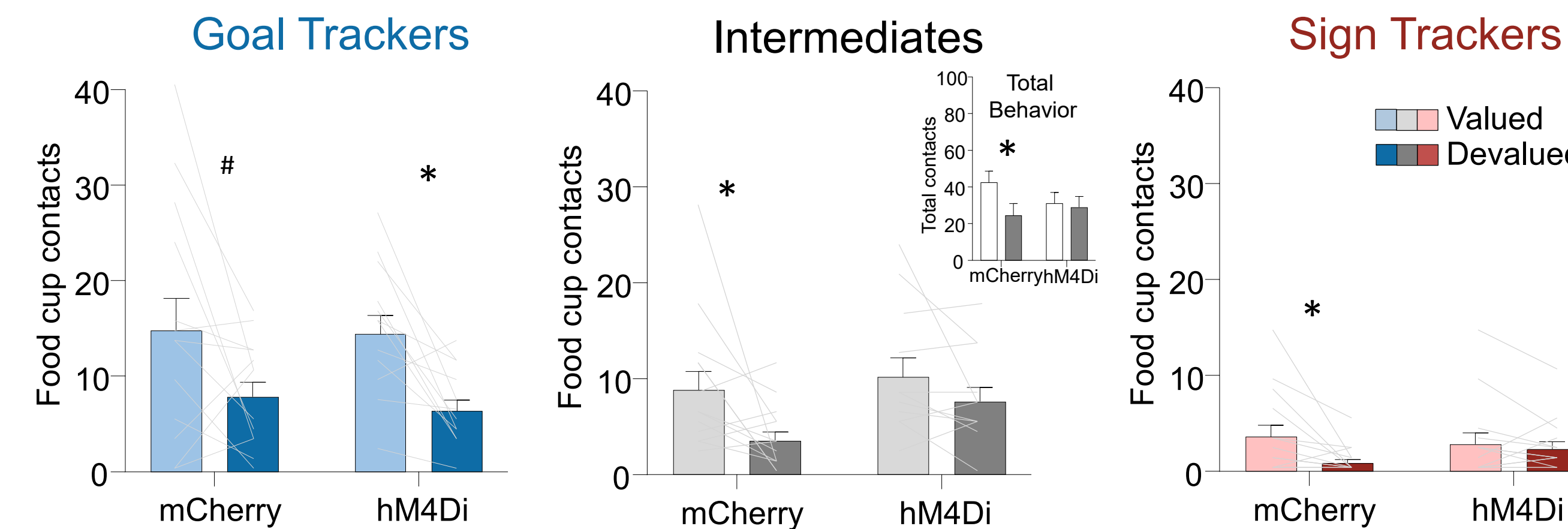


Results

Lever Contacts



Food cup Contacts



*p<0.05
#p=0.06

Keefer et al., (under revision) *eNeuro*

Conclusions

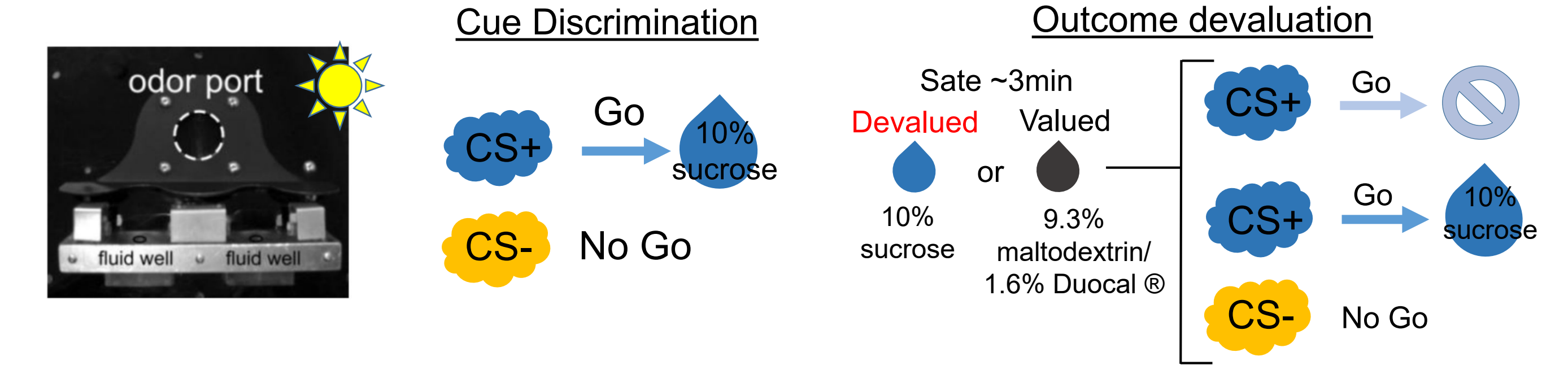
BLA-aIC inactivation:

- No change in devaluation sensitivity of **food cup-directed behaviors** in GT rats.
- Promoted devaluation sensitivity of **lever-directed behaviors** in ST and GT rats.
- Eliminated devaluation sensitivity in both behaviors in INT rats.

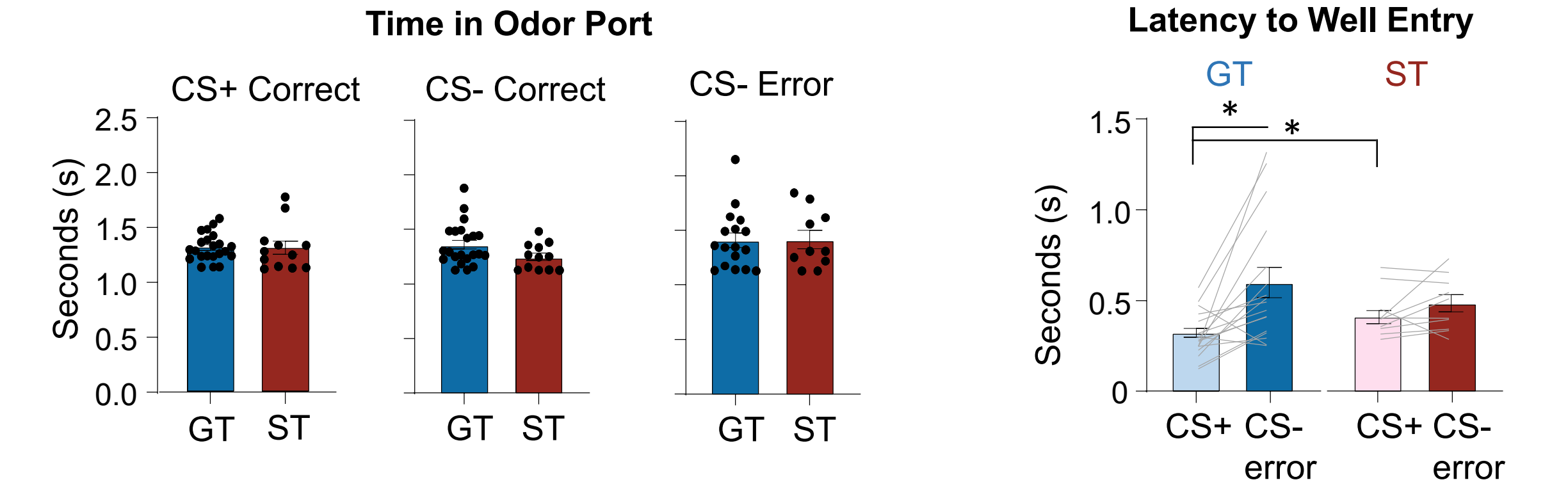
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Modifying Devaluation for Neural Recordings

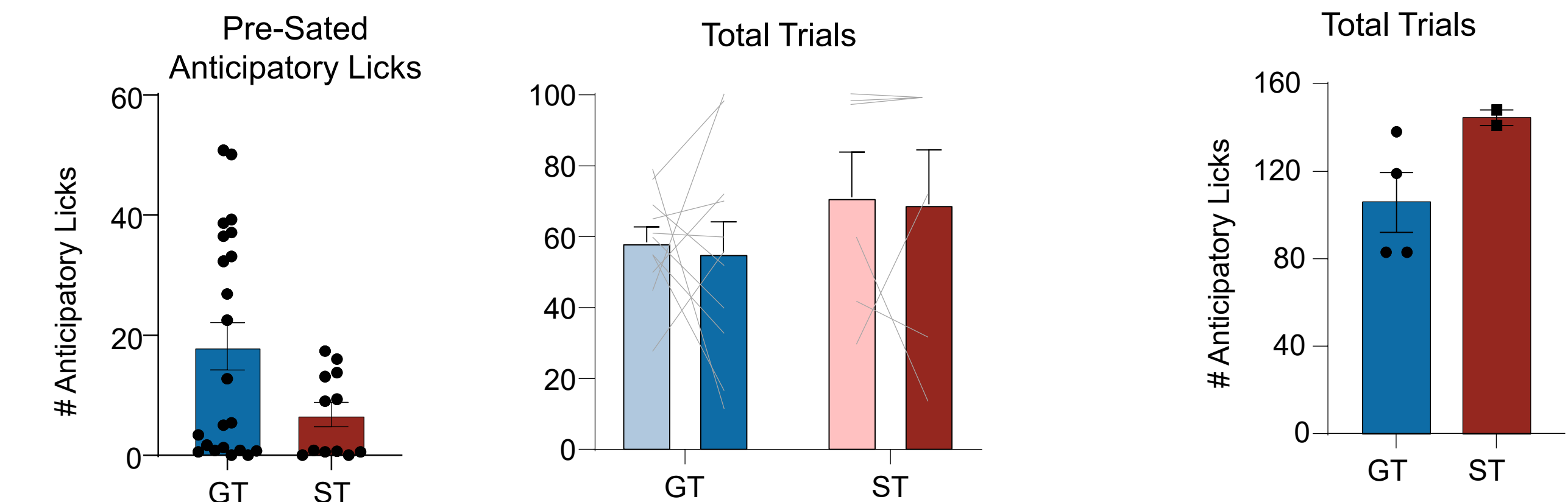
Experimental Methods and Results



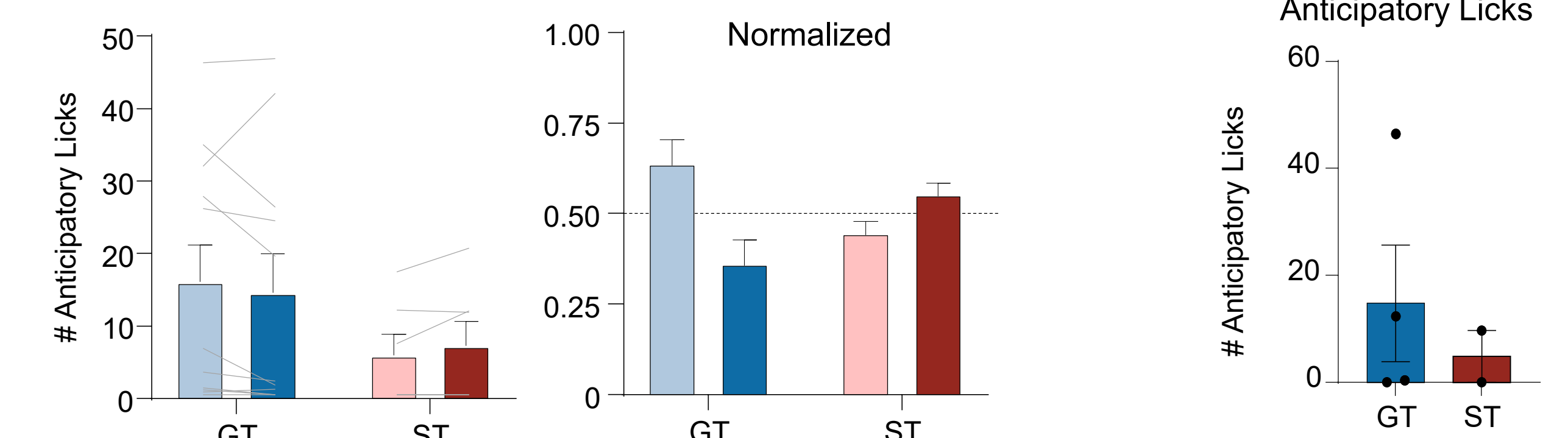
Cue Discrimination



Satiety-Induced Devaluation



Number of Anticipatory Licks



Ongoing Neural Analysis

