

## **SUPPLEMENTAL MATERIAL**

# **Cell-type specific synaptic plasticity in dorsal striatum is associated with punishment-resistance compulsive-like cocaine self-administration in mice**

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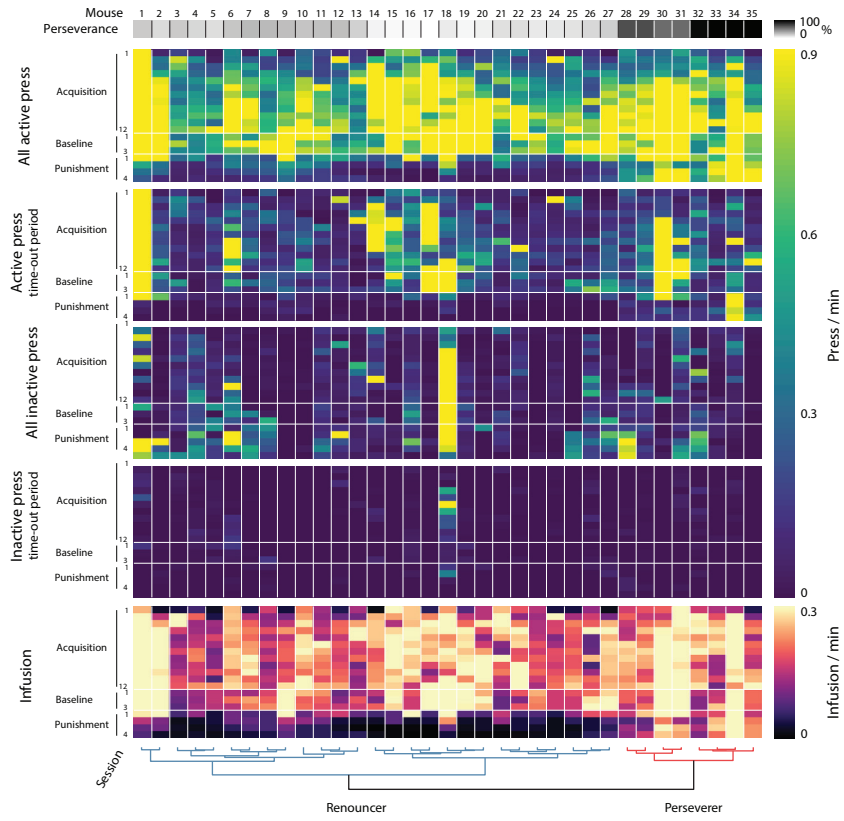
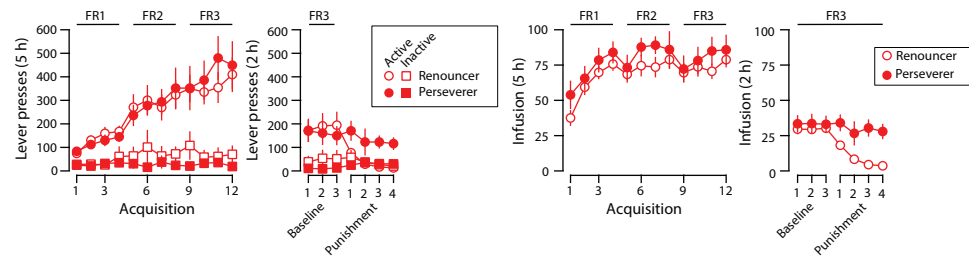
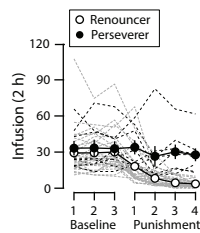
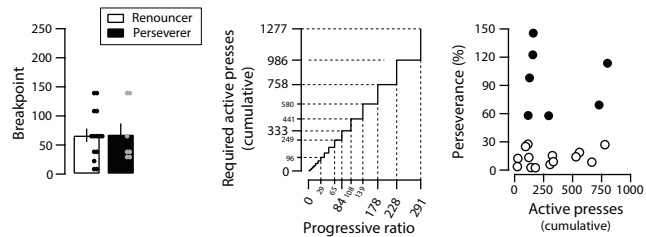
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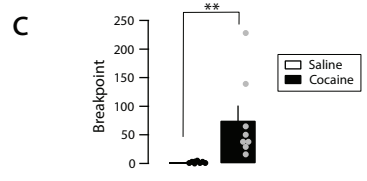
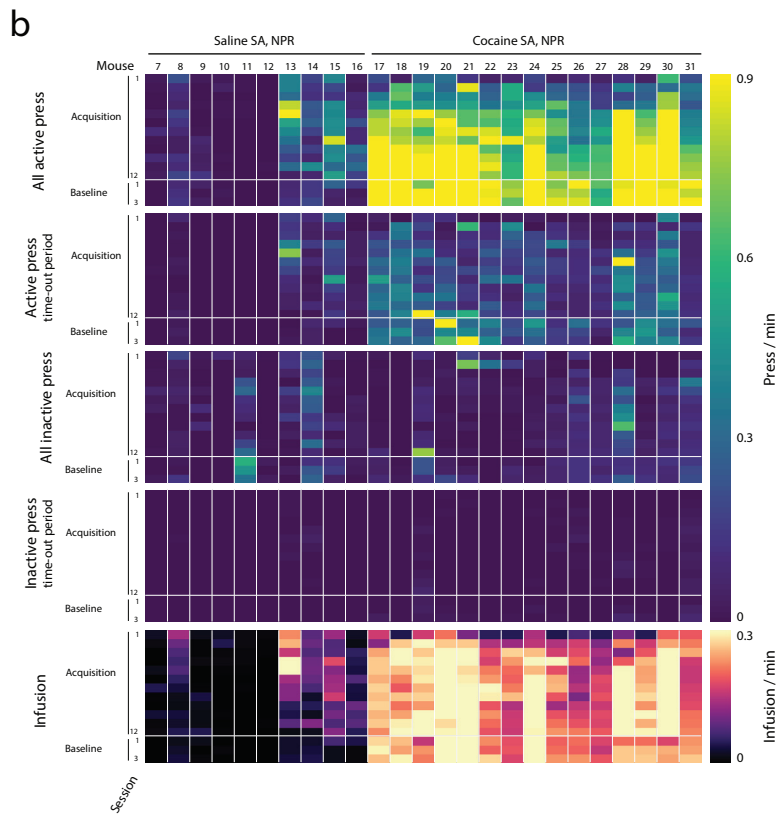
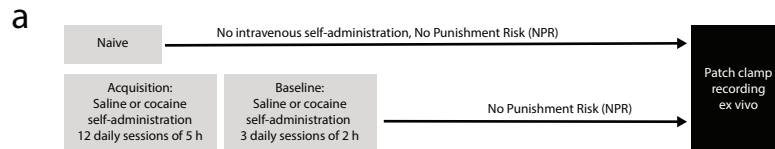
**a**

Acquisition: Cocaine self-administration 12 daily sessions of 5 h	Baseline: Cocaine self-administration 3 daily sessions of 2 h	Punishment: Cocaine self-administration 4 daily sessions of 2 h
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**b****c****d****e****f**

**Supplemental Figure 1: Retrospective analysis of cocaine self-administration acquisition in renouncing and persevering mice.**

**(a)** Experiment schedule. **(b)** Heat maps showing the cocaine self-administration behavioral parameter of each mouse during acquisition, baseline and punished sessions. Clustering was performed with all behavioral parameters of the last two punished sessions and correlation with perseverance. **(c)** Active and inactive lever presses (left) and infusion (right) during acquisition, baseline and punished sessions of cocaine self-administration for renouncing and persevering mice ( $N = 27$  and  $8$  mice, respectively). **(d)** Left, Mean rate of infusions during the different phases of cocaine self-administration (4 sessions of 5 h with FR1 (1-4), 4 sessions of 5 h with FR2 (5-8), 4 sessions of 5 h with FR3 (9-12) and the 3 baseline sessions of 2 h with FR3 (B1-B3)). Right, Total number of infusions obtained during the 15 sessions of cocaine self-administration before the introduction of punishment in renouncers and perseverers ( $N = 27$  and  $8$  mice, respectively). The time spent during these 15 sessions represent 66 hours. **(e)** Mean number of cocaine infusions during to baseline and punished sessions in renouncers and perseverers ( $N = 27$  and  $8$  mice respectively). Dashed lines represented individual mouse. **(f)** Left, Breakpoint for renouncers and perseverers ( $N = 14$  and  $7$  mice, respectively). Middle, schedule of the progressive ratio showing the cumulative number of active lever presses required to reach each reinforced ratio. Right, Perseverance as a function of cumulative number of active presses made during the progressive ratio session. Each dots represents a renouncer or a perseverer ( $N = 14$  and  $7$  mice respectively). Data are expressed as mean  $\pm$  SEM.



Pascoli et al., Supplemental Figure 2

## **Supplemental Figure 2: Cocaine vs saline intravenous self-administration**

**(a)** Experiment schedule. **(b)** Heat maps showing the saline and cocaine self-administration behavioral parameter of each mouse during acquisition and baseline sessions. **(c)** Breakpoint obtained during the progressive ratio experiment mice self-administering saline or cocaine ( $N = 10$  and  $8$  mice, respectively). Student's  $t$ -test:  $**P < 0.01$ . Data are expressed as mean  $\pm$  SEM.