# Fos Expression in Female Rats with a Conditioned Partner Preference for an Individual Male

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## Introduction

- Pavlovian paradigms have demonstrated that rats will form preferences for partners and places that are associated with rewarding copulation.
- Females develop a conditioned preference for scented males associated with paced copulation
- Oxytocin has been shown to be necessary for the formation of partner preferences in prairie voles
- Male rats with a conditioned ejaculatory preference for almond scented females show increased c-fos protein expression in the paraventricular nucleus of the hypothalamus (PVN) to almond odour

## Aims

- To examine whether female rats can show a sexually conditioned partner preference for a specific individual male
- To evaluate whether conditioned partners can induce c-fos expression in oxytocin neurons in brain areas associated with sexual reward and motivation, and bonding

## Methodology

**One-hole pacing:**

n=16

10 Conditioning Trials

Paired with Same Male

**Sexual Preference Test**

Reconditioning

2 Trials

**c-fos induction**

Partner

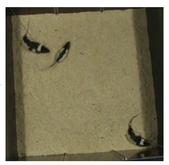
Novel

**Four-hole pacing:**

n=16

10 Conditioning Trials

Paired with Same Male



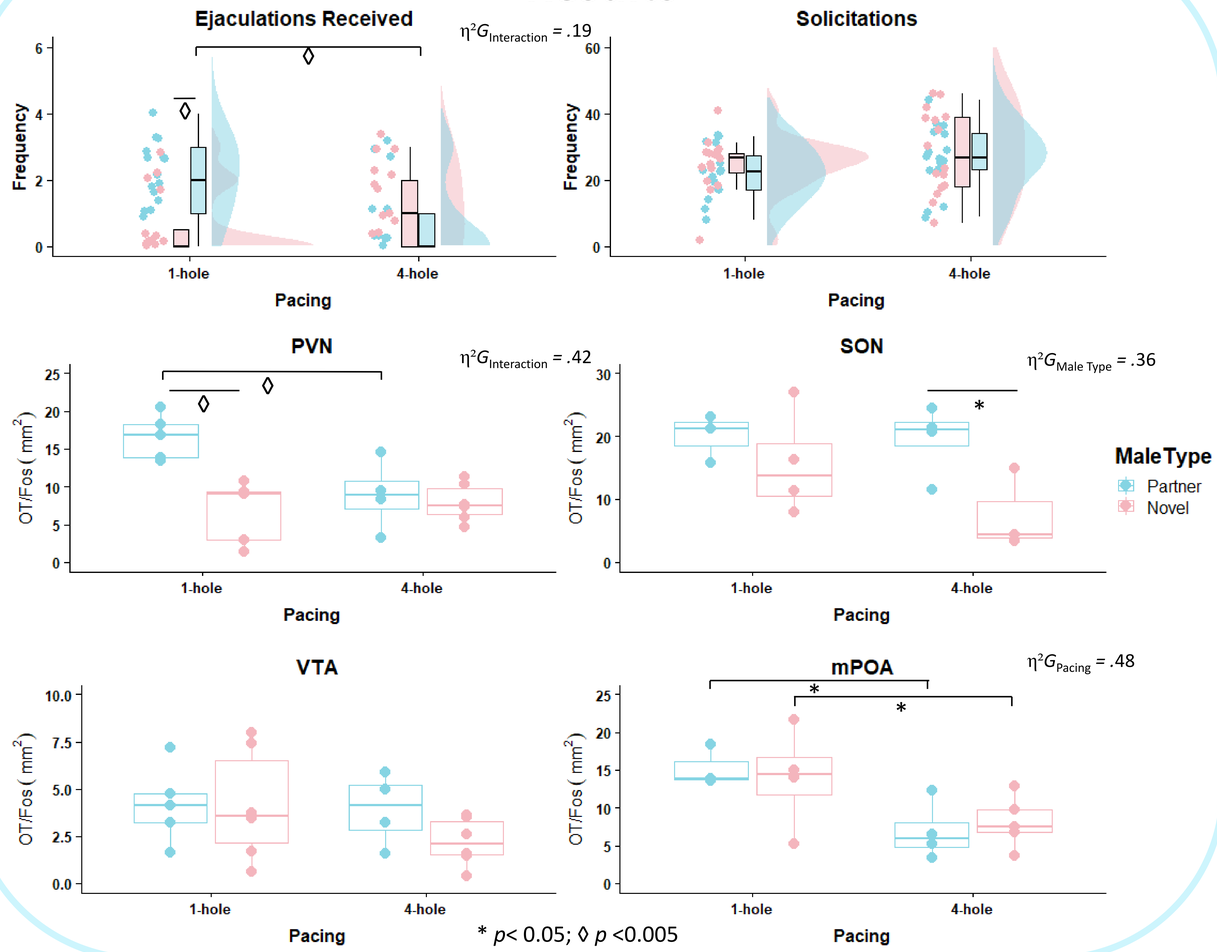
Reconditioning

2 Trials

Partner

Novel

## Results




## Discussion

- Female rats can be conditioned to show selective preferential behaviours for the individual male they copulated with in conditioning trials
- Pacing is necessary but not sufficient for this preference
- Oxytocin neurons in the PVN are sensitive to the conditioned male's cues and their activation is associated with females displaying a preference

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