



## Introduction

- Maternal immune activation [MIA] during pregnancy can increase the risk of neurodevelopmental disorders in offspring [1].
- Experimentally-induced MIA in rodents alters behavior and neuroanatomy across the lifespan [2].

Goal: to investigate this relationship between behavior and neuroanatomy using magnetic resonance imaging [MRI] and behavioral assays.

## Conclusions

- MIA induced with Poly I:C at gestational day 9 in mice alters brain anatomy in offspring during adolescence and early adulthood.
- Prepulse inhibition not statistically impacted, but trending sex-effects.
- Future directions:**
  - Investigate brain connectivity through functional MRI and chemistry through MR spectroscopy
  - Integrate modalities with multivariate approaches

## Results

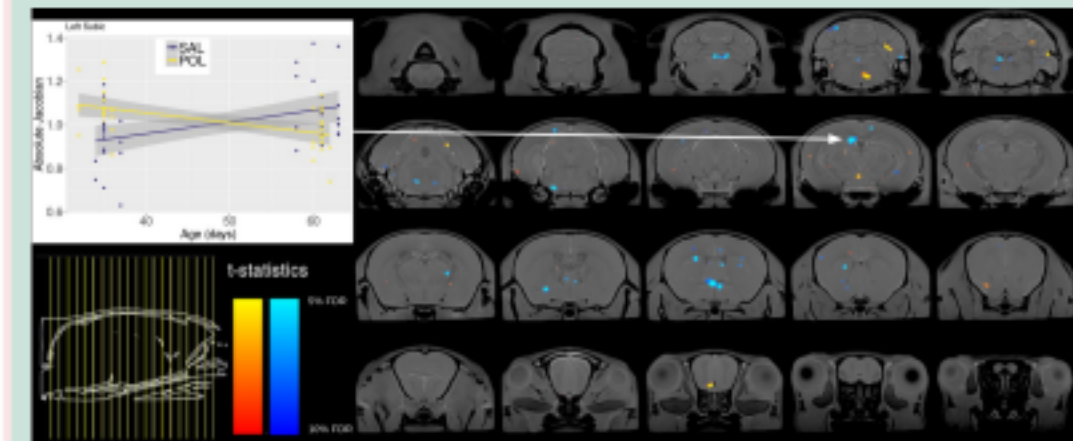
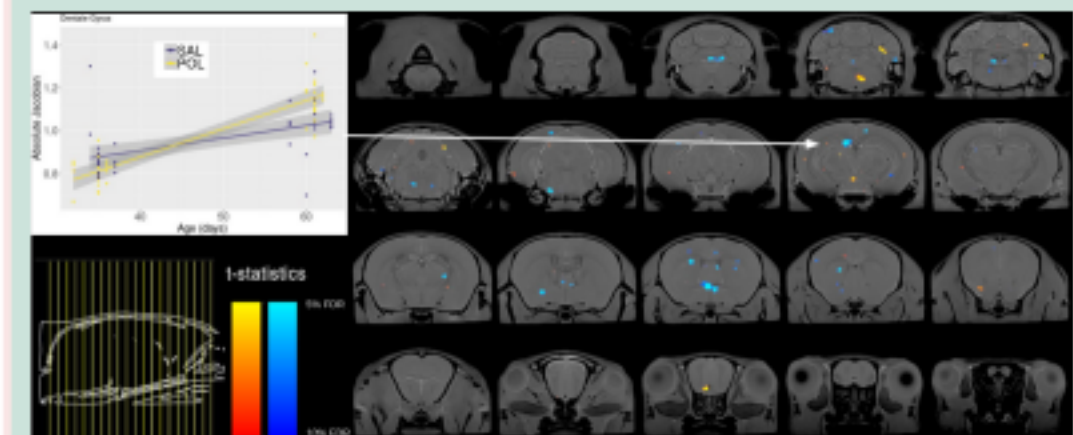


Fig. 3 (above): Volumetric Changes-Left Subiculum

Fig. 4 (below): Volumetric Changes-Left Dentate Gyrus



- Behaviors**
  - Prepulse inhibition for sensorimotor gating
- MR Acquisitions**
  - 7T Bruker Biospec, cryogenic surface coil
  - Anaesthetized with isoflurane
  - T1-weighted structural MRI (fast low-angle sequence, 70  $\mu$ m<sup>3</sup>)
- MIA**
  - 5mg/kg polyinosinic:polycytidilic acid
  - Gestational Day 9

## Methods

All Figure Links, Click Here

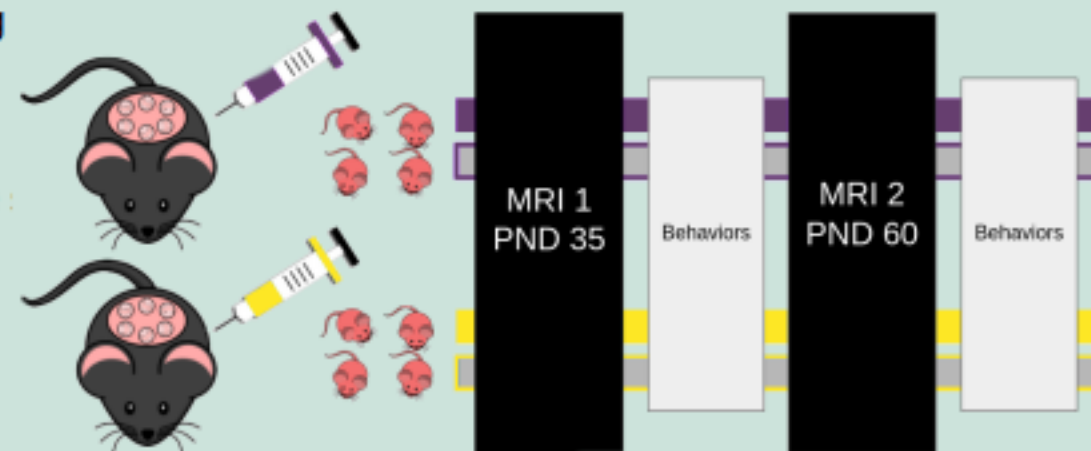
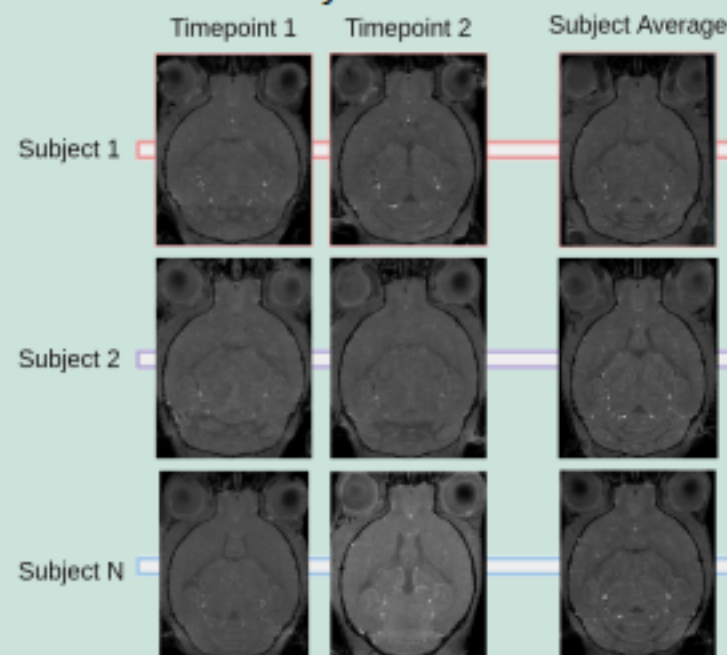


Fig. 1 (above): Experimental Design



Population Average

Fig. 2 (above): Formation of subject and population averages with deformation-based morphometry

## Statistical Methods

- Linear mixed effects model
- Fixed effects: Treatment (Poly I:C/Saline); Sex; Age
- Random effects: Subject ID
- Multiple Comparison Corrections
- False Discovery Rate, 10%-5%

	Poly I:C	Saline
Female	10	10
Male	10	10

Fig. 5 (right): Prepulse Inhibition  
No significant treatment differences but trending sex differences (further information in figure link)

