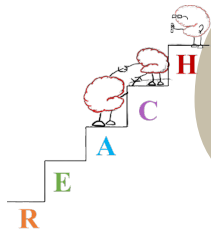


# The Effects of Maternal Autoimmune Dysregulation on ASD Associated Behaviors in Offspring

Team Rugrats

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Mentors: Luna Butriago, Noon Elsaeyed, Asma Sadia, & Amrin Rahman



DOWNSTATE  
HEALTH SCIENCES UNIVERSITY

# Overview

**01** Goals &  
Hypothesis

**02** Specific Aims

**03** Research Design

**04** Methods &  
Results

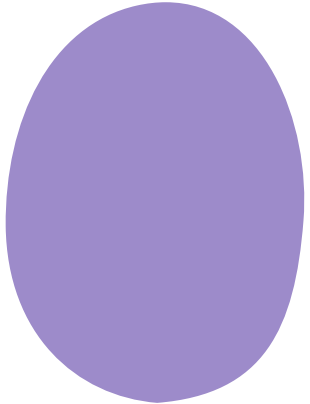
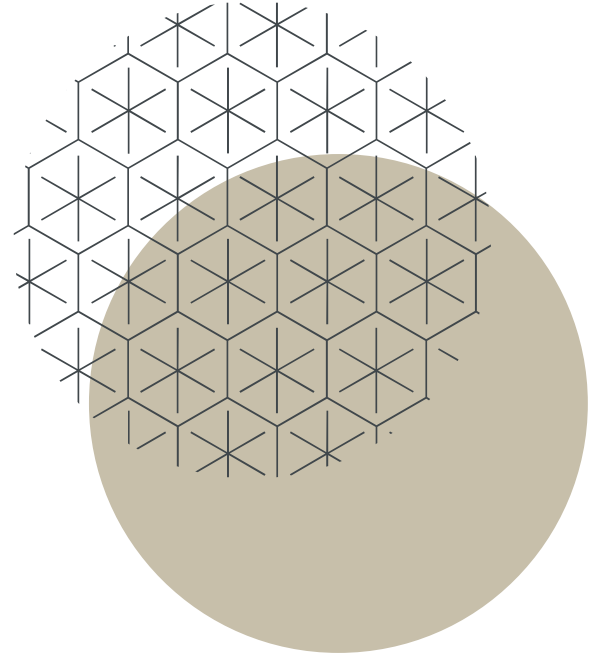
**05** Interpretations &  
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01

# Goals & Hypothesis

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## Goal

To investigate whether ASD - like behaviors arise from exposure to maternal autoantibodies in lupus mice (NZB).

## Hypothesis

The lupus mice will display ASD- like behaviors.



02

# Approach: Specific Aims



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# Specific Aims

## **Specific Aim:**

To evaluate Lupus mice models for repetitive, social, and motor behaviors at 3 and 12 weeks old and compare the behaviors to those associated with ASD.

## **Working Hypothesis :**

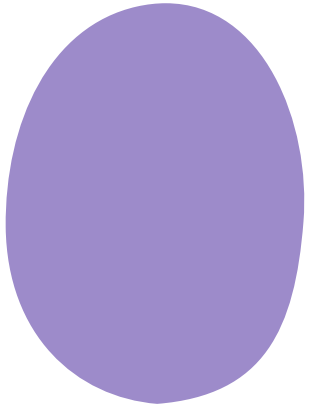
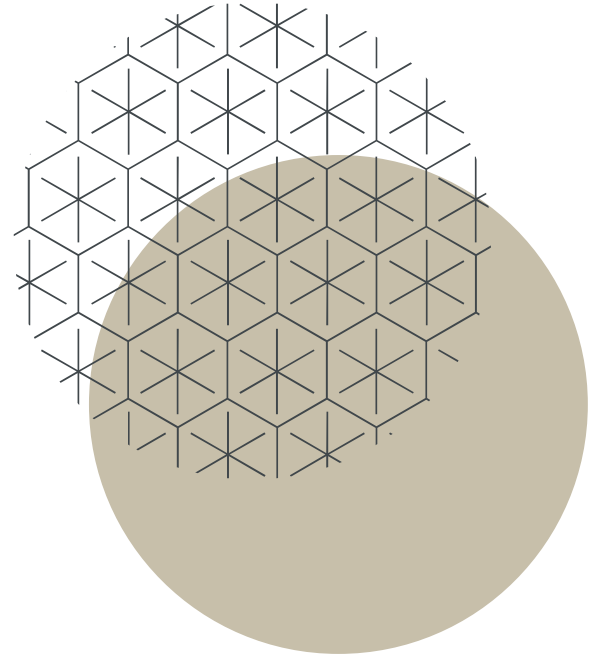
The Lupus mice will demonstrate ASD - like behaviors at a higher rate than the control mice, with the 3 week old lupus mice displaying the most deficits.



03

# Research Design

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# Research Design

## Repetitive Behavior (Marble Test)



Tests the mice' repetitive behavior patterns by surveying how many marbles are buried.

## Motor Function Test (Beam Test)



Tests the motor function of the mice by surveying their ability to walk across the beam; coordination.

## Social Behavior Test (Partition)



Tests their sociability (amount of time they spend with another mouse).



# Timeline

3 and 12 week old  
Control & Lupus Mice



1 day

1 trial of marble test;  
30 minutes each

2 days

Day 1: Training Day 3  
trials; 10 minute  
intervals  
Day 2: Test Day, 2  
successful trials

1 day

1 trial of partition test;  
Habituation: 10 minutes  
of familiarity  
15 minutes of testing

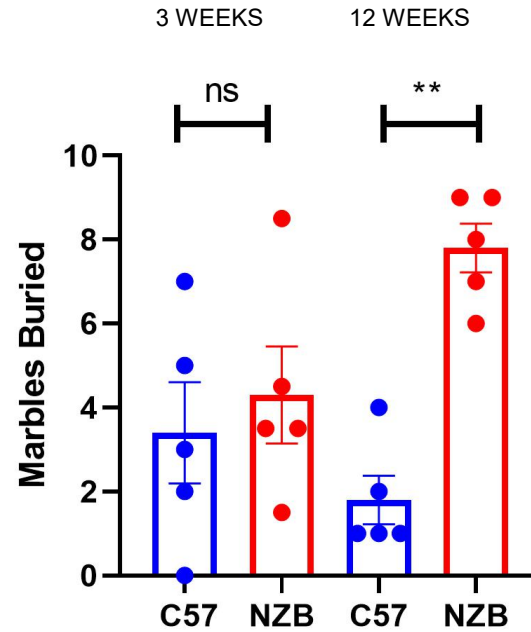
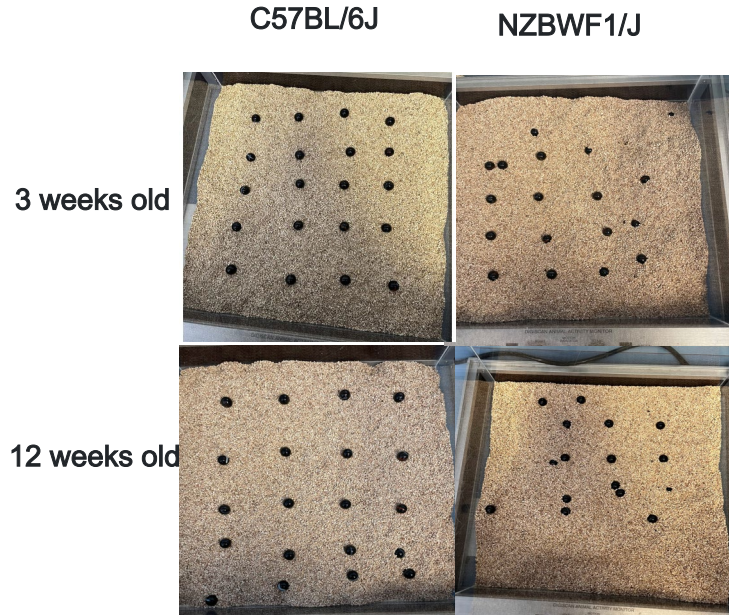


04

# Methods & Results



# NZB Present Repetitive Behavior at 12 Weeks But Not 3 Weeks

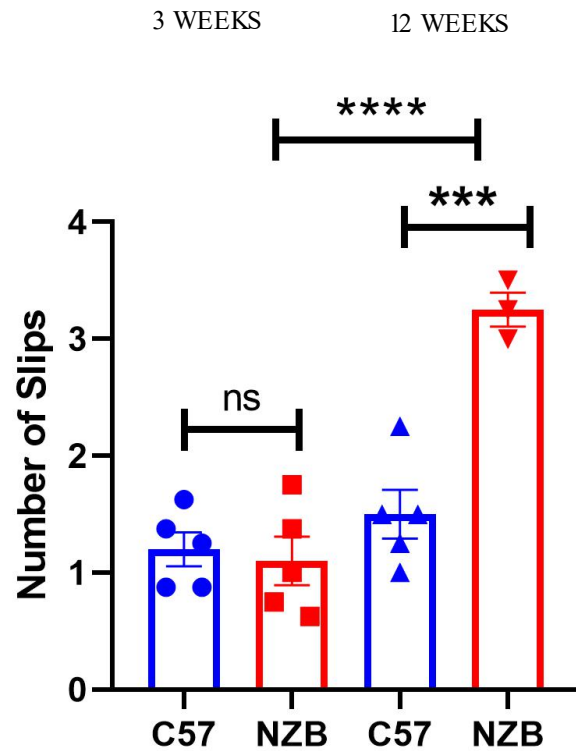


# NZB Present Motor Deficits at 12 Weeks But Not 3 Weeks

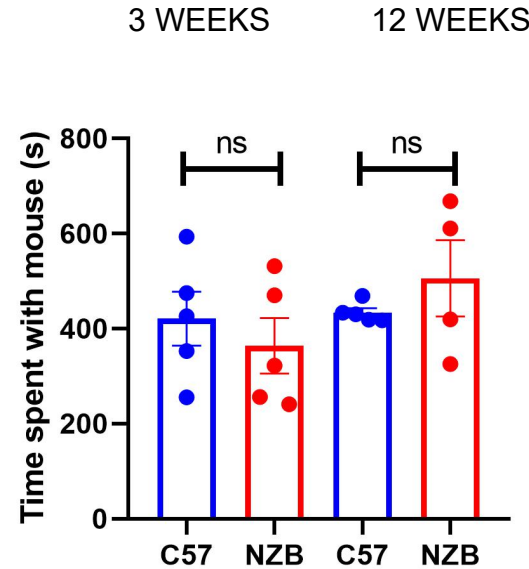
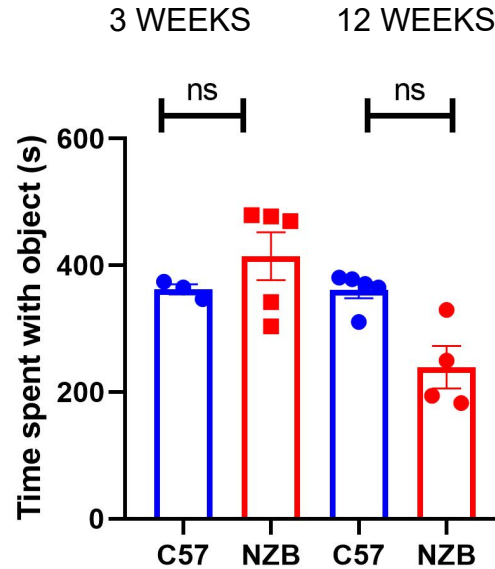
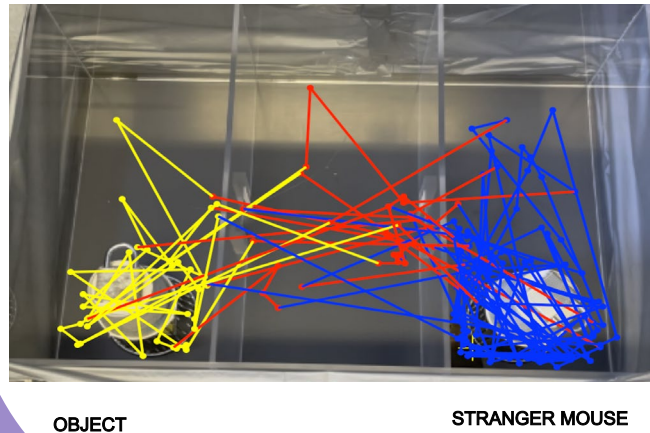
NZBWF1J



12 WEEK OLD



# NZB Mice Do Not Present Social Deficits





05

# Interpretations & Future Directions



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# Interpretations

- + At 3 weeks, the lupus mice show no deficits while the 12 week old lupus mice demonstrated repetitive behavior and impaired motor function, however no social deficits.
- + Our hypothesis was partially supported by our data since one of the age groups presented ASD like behavior

## Future Directions:

- + Larger sample size
- + Analysis of brain morphology

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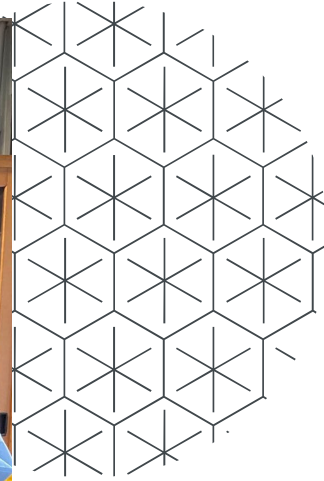
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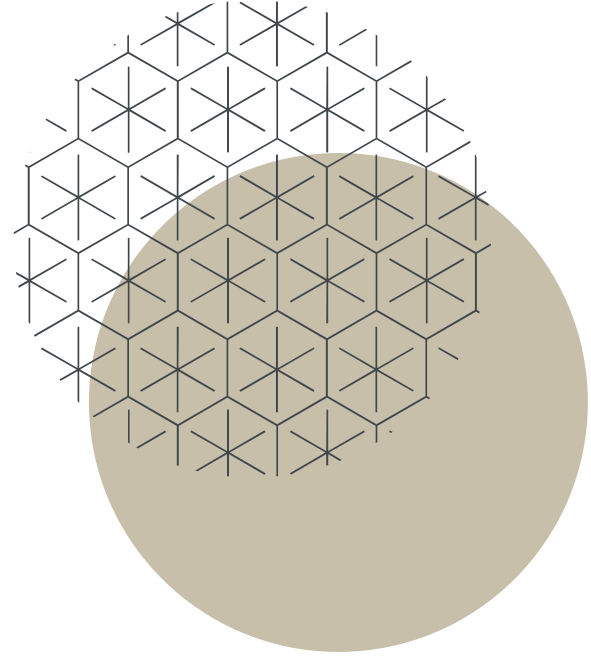
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# THANK YOU!





**Questions?**

