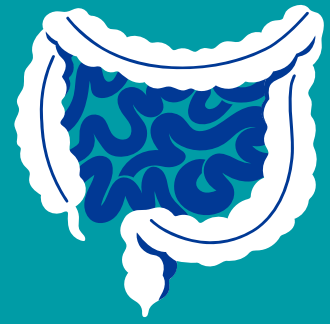


# The GEMMA Study



**G**enome, **E**nvironment, **M**icrobiome,  
and **M**etabolome in **A**utism

## Background

ASD has a higher rate in siblings than in the general population, suggesting a genetic component in its development. There is also a high rate of GI symptoms in autistic children.

Based on these facts, we are examining how genes, the environment, and the gut microbiome contribute to ASD development.

We are looking to identify a biomarker for ASD development to help physicians diagnose ASD earlier which would allow families to access services earlier.

## Recruitment

We are recruiting healthy infants in the US who:

- are less than 26 weeks old
- have an autistic full-sibling
- have not had solid food

Pregnant parents can also enroll their infant prenatally.

## Study Activities

### 1. Surveys

Monthly surveys are sent to your email. These surveys take about 5-10 minutes and ask about your infant's diet, antibiotic use, and behavior.

### 2. Assessments

Every 6 months, our study psychologist administers ASD and developmental assessments on Zoom. The psychologist goes over all results with you and will answer any questions you may have.

### 3. Samples

Every 6 months, we collect saliva, urine, stool, and blood samples. We also collect these samples from your autistic child and at least 1 parent at enrollment. This can be done at home and we provide all shipping materials.

**These study activities occur from enrollment to 3 years old.**

## Contact

If you have any questions reach out to Emma at [mghgemma@mgh.harvard.edu](mailto:mghgemma@mgh.harvard.edu)