

Brain Mapping Center SEMINAR SERIES

Sponsored by the UCLA Brain Mapping Center Faculty

The focus of these talks is on advancing the use of brain mapping methods in neuroscience with an emphasis on contemporary issues of neuroplasticity, neurodevelopment, and biomarker development in neuropsychiatric disease.

Hosted By: Shantanu Joshi, PhD, Neurology, UCLA

“Genes, Microbes, and Brain Development”



Rebecca Knickmeyer, PhD

Associate Professor, Department of Pediatrics and Human Development
Michigan State University



[Click for zoom registration](#)

The prenatal and early postnatal period represents the foundational phase of human brain development, while infancy and early childhood are characterized by explosive brain growth, the emergence of functional brain networks, and dramatic advances in cognitive ability and behavioral repertoire. The goal of Dr. Knickmeyer's research program is to identify genes and molecular pathways that shape brain development during these critical stages through the integration of pediatric neuroimaging with cutting-edge techniques in genomics, metagenomics, and analytical chemistry. In this talk, Dr. Knickmeyer will present data from several different studies. The first portion of her presentation will focus on identifying common genetic variants associated with neuroimaging phenotypes in the infant brain using genome-wide association approaches. She will also introduce the Organization for Imaging Genomics in Infancy (ORIGINS), a working group within the Enhancing NeuroImaging Genetics through Meta-Analysis (ENIGMA) consortium, and describe who will be included in this dataset, what is being measured, and our data analysis plans. She will provide highlights from our first major analysis in which we mapped the trajectory of intracranial volume (ICV), subcortical structures (Thalamus, Hippocampus, Amygdala, Caudate, Putamen and Pallidum) and cognitive development from birth to six years in over 2000 children from four countries (Germany, Singapore, South Africa, and the US), investigated the effect of sex, preterm birth, birthweight, maternal education, and family income on trajectories of ICV and subcortical volumes and on cognitive development, and examined brain-cognition correlations. The second portion of her presentation will focus on integrating measures of the infant gut microbiome with imaging and behavioral data, which has revealed that certain features of the human infant gut microbiome are strongly associated with infants' cognitive development, regional brain volumes, functional connectivity, and responses to frightening or unpleasant stimuli.

March 2, 2023 11:00am - 12:00pm PST

<https://tinyurl.com/BMCSeminar119>

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