

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, Ph.D., Neurology, UCLA

“Neural Mechanisms of Risk and Resilience in Infants with Prenatal Substance Exposure”



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Prenatal substance exposure (PSE) is linked to cognitive and behavioral deficits that emerge during infancy and persist through childhood and adolescence, but the mechanisms driving altered brain development remain unclear. Animal models demonstrate that dosage, timing, and type of PSE differentially impact offspring outcomes, but human neuroimaging studies often collapse across exposure types and time windows when examining PSE effects on neurodevelopment. Since exposures during different sensitive periods have differential impacts on neurobehavioral outcomes, addressing this gap is essential for predicting outcomes and informing early interventions. In this talk, I will present our research examining how the dosage, timing, and treatment of prenatal opioid and polysubstance exposure shape large-scale functional connectivity in infancy. Using resting-state fMRI, I will discuss dose-dependent and treatment-related differences in intrinsic network organization at birth, as well as longitudinal findings linking exposure timing during sensitive periods of fetal brain development to divergent functional connectivity growth trajectories across the first year of life. Together, these findings integrate mechanistic and developmental perspectives, illustrating how prenatal exposures shape functional brain maturation and providing a framework for identifying pathways of risk and resilience in early life.

November 6, 2025 11:00 am - 12:00 pm PDT

In-person: Neuroscience Research Building (NRB 132) 635 Charles E. Young Dr. South
Zoom: <https://ucla.in/4nXgYxT>

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