Brain Mapping Center

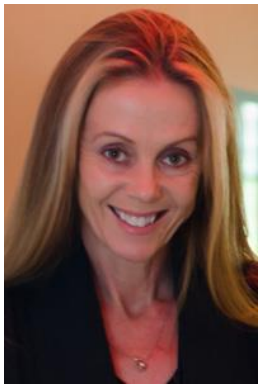
SEMINAR SERIES

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: Shanantu Joshi, PhD, Neurology, UCLA

Imaging biomarkers of clinical response to ECT in major depressive disorder



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A third of patients with major depression will not respond to two or more antidepressant medications even after weeks to months of treatment. Biomarkers that predict an individual's therapeutic response could thus play a critical role in guiding more successful personalized treatment approaches to lessen the personal, societal and economic burden of major depression. Electroconvulsive therapy (ECT) is a highly effective, well-tolerated and rapidly acting intervention for severe depression. As such, ECT provides a powerful model for determining biological factors associated with and predictive of therapeutic response over shorter time frames. To identify biomarkers of ECT response, we used a multimodal neuroimaging approach, including structural, functional (resting state) and diffusion MRI and proton magnetic resonance spectroscopy (1HMRS). Results from this work show that ECT leads to significant structural and functional neuroplasticity in hippocampal, amygdalar and striatal/pallidal centers, as well as in dorsal (dACC) and subgenual (sgACC) anterior cingulate cortex and connected prefrontal regions. Changes in a subset of multimodal MRI measures also relate to and/or predict therapeutic response. These data support that ECT represents a unique and sensitive method for defining biological indicators of clinical response not confounded by the systemic effects associated with pharmacological interventions. Multimodal imaging probes, together with other biomarkers such as treatment-sensitive measures of genomic activity, may play an important role in unraveling the mechanisms and predictors of clinical response to ECT and other rapidly acting treatments for major depression.

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Neuroscience Research Building (NRB 132)
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