

# The Friedman Brain Institute

## 2025 FBI Research Scholars

On behalf of the Philanthropic Leadership Council of The Friedman Brain Institute, we are pleased to announce the 2025 recipients of The FBI Research Scholars Awards.

### Richard and Susan Friedman Research Scholar Award



**Stuti Bansal, BA**  
MD-PhD Student,  
Neuroscience



**Yael Jacob, PhD**  
Assistant Professor,  
Psychiatry



**Laurel Morris, PhD**  
Adjunct Associate  
Professor, Psychiatry



**James Murrough, MD, PhD**  
Professor, Psychiatry  
and Neuroscience

### Characterizing the Brain Microstructure Underlying the Antidepressant Effects of Ketamine and Transcranial Magnetic Stimulation Interventions

Most patients with major depressive disorder do not achieve remission with first-line treatments. Ketamine and repetitive transcranial magnetic stimulation (rTMS) are rapid-acting treatments for treatment-resistant depression (TRD), but their underlying mechanisms are not well understood. Both treatments seem to work via synaptic plasticity mechanisms, but these effects are difficult to observe in living humans. NODDI (Neurite Orientation Dispersion and Density Imaging) is a diffusion weighted imaging model that can capture the density and angular complexity of dendrites and axons. We will collect NODDI scans in TRD patients receiving either ketamine or rTMS, in order to investigate treatment-induced synaptic plasticity effects.

