

Joshua A. Goldberg, PhD

Dr. Josh Goldberg's laboratory studies the physiology of basal ganglia (BG) circuitry as well as the pathophysiology of various neurodegenerative diseases such as Parkinson's disease and Huntington's disease, at the interface between the single-cell and network levels. The studies focus on the formation and role of collective activity in various BG neuronal populations, and on how vulnerability to or coping with neurodegeneration is reflected in the biophysics, autonomous activity and collective dynamics of BG (and other affected) neurons. The main experimental tools (typically complemented by computational approaches) are slice electrophysiology in conjunction with multiphoton imaging, as well as endoscopic imaging of genetically encoded calcium indicators in identified cell populations in behaving mice.