



UNIVERSITY of MARYLAND

SCHOOL OF MEDICINE

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Brian N. Mathur, PhD

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Education and Training

Dr. Mathur received his B.A (Neuroscience) from Oberlin College in 1998 where he performed honors research on comparative neuroanatomy with Mark Braford, Ph.D. He subsequently worked for four years at Lexicon Pharmaceuticals Inc., in The Woodlands, TX as a research associate performing molecular biology/genetics research. Dr. Mathur received his Ph.D. (Neuroscience) in 2008 from Vanderbilt University under the mentorship of Ariel Y. Deutch, Ph.D. and did postdoctoral research at the National Institute of Alcohol Abuse and Alcoholism at the National Institutes of Health in Rockville, MD in the laboratory of David M. Lovinger, Ph.D. Dr. Mathur joined the faculty at the University of Maryland School of Medicine in the Department of Pharmacology in 2013.

Biosketch

The primary focus of the lab is to understand how neural macro- and microcircuits control action learning and selection under normal and pathophysiological conditions. We combine neuroanatomical methods with genetic, optogenetic, in vivo calcium imaging, animal behavior, fast-scan cyclic voltammetry, and slice electrophysiology to define both neural circuit form and function. We employ mouse models of Parkinson's disease and alcohol drinking paradigms to determine how specific neural circuits are affected by these pathological states with a focus on restoring normal circuit function and, therefore, behavior.

Research/Clinical Keywords

Systems neuroscience Attentional control of action learning and control Addiction research
Alcohol abuse and alcoholism Parkinson's disease Movement disorders Striatum Claustrum

Highlighted Publications

White MG, Cody PA, Bubser M, Wang HD, Deutch AY and Mathur BN (2016), Cortical hierarchy governs rat claustrrocortical circuit organization. J. Comp. Neurol. doi:10.1002/cne.23970

Patton MH, Roberts BM, Lovinger DM, Mathur BN. (2016) Ethanol Disinhibits Dorsolateral Striatal Medium Spiny Neurons Through Activation of A Presynaptic Delta Opioid Receptor. Neuropsychopharmacology. Jun;41(7):1831-40.

Atwood BK, Lovinger DM, Mathur BN. (2014) Presynaptic long-term depression mediated by Gi/o-coupled receptors. Trends Neurosci. Nov;37(11):663-73.

Mathur BN, Tanahira C, Tamamaki N, Lovinger DM (2013) Voltage drives diverse endocannabinoid signals to mediate striatal microcircuit-specific plasticity. Nat Neurosci. Sep;16(9):1275-83.

Mathur BN, Capik NA, Alvarez VA, Lovinger DM. (2011) Serotonin induces long-term depression at corticostriatal synapses. J Neurosci. May 18;31(20):7402-11.



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