Neural Circuit Dysfunction and Repair in Rett Syndrome

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RESEARCH INTERESTS
My laboratory seeks to understand how perturbations in neuronal growth factor expression and signaling contribute to neurologic dysfunction in general and developmental disorders in particular. For the past six years we have focused specifically on understanding the role of deficits in BDNF/TrkB signaling in the pathogenesis of Rett syndrome (RTT), a severe autism spectrum disorder, and on developing new therapeutic approaches. We use a multidisciplinary strategy that integrates in vivo and cell culture methods, including electrophysiological, biochemical, morphological and behavioral techniques to study mechanisms of synaptic dysfunction in RTT and how they contribute to specific endophenotypes of the disease. A portion of our research program is now dedicated to preclinical evaluation of BDNF/TrkB-targeted therapies for RTT.

RECENT PUBLICATIONS


Synaptic hyperexcitability associated with deficits in BDNF/TrkB signaling in Mecp2 mutant mice (Kline et al., 2010)