
CDKL5 Program of Excellence 2021 Pilot Grant Program

Project Title: “Impact of Cdkl5 deficiency on cortical dynamics and network architecture”

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Cognition and perception are supported by complex interactions between neurons that form large-scale networks in the cerebral cortex. These key brain functions are vulnerable to disruption in neurodevelopmental disorders, including CDKL5 Deficiency Disorder, but it has been difficult to evaluate the impact of CDKL5 dysregulation on the structure and function of brain networks. This proposal focuses on validation of key phenotypes and biomarkers in CDKL5 deficiency and uses novel techniques in the awake behaving mouse to examine altered cortical neural networks in a model of this neurodevelopmental disorder. We will use our newly developed strategies for imaging brain activity in CDKL5-deficient mice in order to investigate altered circuit dynamics and their amelioration with genetic or pharmacologic treatment.