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## CDKL5 Program of Excellence 2024 Pilot Grant Program

**Project Title:** “Cortical Visual Impairment in CDKL5 Deficiency: Dissecting the Link between Functional Deficits and Molecular Mechanisms”

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Cortical visual impairment, a distinct clinical feature of CDKL5 deficiency disorder (CDD), manifests in over 75% of CDD patients. Although cortical visual impairment has been reported in CDKL5 knockout mice, the connection between deficits in CDKL5 function and circuit-specific sensory processing impairment remain elusive. Here we propose to examine how impaired neuronal activities in the primary visual cortex (V1) lead to circuit deficits using in vivo two-photon calcium imaging. We have identified previously uncharacterized substrates of CDKL5 that contain the CDKL5 phosphorylation consensus motif through a phosphoproteomics screen of the V1 of CDKL5 knockout mice. Together, this proposal will provide a novel mechanism to explain the visual processing deficits in CDD.