

2027 Internship Offer

Master 1: YES – Duration: 3-4 months

Master 2: YES – Duration: 5-6 months

Team, Contact	Team: Signaling and cytoskeleton dynamics, CRBM Supervisor: Susanne Schmidt susanne.schmidt@crbm.cnrs.fr
Title	Cytoskeleton dynamics in neurodevelopment and related disorders
Research Themes and questions	Proper brain function relies on the precise establishment of neuronal connectivity, largely orchestrated by synapses. Alterations in these connections are observed in various neurodevelopmental disorders, such as autism spectrum disorder (ASD), intellectual disability (ID). The main focus of our lab is to identify the signalling pathways that control cytoskeleton dynamics during nervous system development, and to elucidate how perturbation of these pathways contributes to the aetiology of neurodevelopmental disorders. In this context we investigate in particular the role of the Rho GTPase activator TRIO, a key regulator of different stages of neuronal development, such as neuronal migration, axon guidance and synapse formation, by controlling actin cytoskeleton remodelling. Deleterious mutations in the <i>TRIO</i> gene have recently been identified in ID/ASD patients with diverse phenotypes.
Methods and experimental approaches	This internship aims to explore the mechanisms by which these variants disrupt neuronal development. The project will combine biochemical analyses, molecular and cell biology approaches, and advanced imaging techniques, to study functionally newly identified pathogenic mutations. This work will contribute to a better understanding of <i>TRIO</i> 's role in neurodevelopmental disorders and help identify potential therapeutic targets.
Illustration	
2-3 Publications	Barbosa et al, Am J Hum Genet 2020 Bonnet et al., Mol Psy 2023 Gazdagh et al, Am J Med Genet 2023