CRBM Centre de Recherche de Biologie cellulaire de Montpellier
CRBM / CNRS – Université de Montpellier
1919 Route de Mende, 34293 Montpellier Cedex 05

2027 Internship Offer

Master 1: YES – Duration: 5 months **Master 2**: YES – Duration: 6 months

Team, Contact	Zsuzsanna DOSZTANYI, CRBM, zsuzsanna.dosztanyi@crbm.cnrs.fr
Title	**Disordered Proteins in the Centrosome: Discovering Novel Interactions.**
Research Themes and questions	Many proteins involved in human disease contain intrinsically disordered regions (IDRs), flexible segments that do not adopt a single stable structure but mediate interactions through short recognition motifs. Defects in these interactions are increasingly associated with vaious disease. This project will investigate how intrinsically disordered regions contribute to the assembly and regulation of protein complexes in the centrosome–primary cilium system, a cellular structure essential for signaling and development. The student will identify novel interaction motifs, characterize their molecular functions, and determine how disease-associated mutations alter these interactions in ciliopathy-associated proteins such as OFD1, LCA5, and CDK5RAP2.
Methods and experimental approaches	The student will generate protein constructs containing wild-type and motif-disrupted variants, express them in cultured cells, and assess their interactions using biochemical assays such as co-immunoprecipitation or pull-down experiments. Cellular localization of the proteins will be examined by fluorescence microscopy. Computational predictions of disorder and interaction motifs will be used to guide experimental design and interpretation.
2-3 Publications	1. Uncovering the BIN1-SH3 interactome underpinning centronuclear myopathy. Zambo B, Edelweiss E, Morlet B, Negroni L, Pajkos M, Dosztanyi Z, Ostergaard S, Trave G, Laporte J, Gogl G. Elife. 2024;13:RP95397. The interaction between LC8 and LCA5 reveals a novel oligomerization function of LC8 in the ciliary-centrosome system.

	2. Szaniszló T, Fülöp M, Pajkos M, Erdős G, Kovács RÁ, Vadászi H, Kardos J, Dosztányi Z. Sci Rep. 2022 ;12(1):15623. 3. Novel linear motif filtering protocol reveals the role of the LC8 dynein light chain in the Hippo pathway. Erdős G, Szaniszló T, Pajkos M, Hajdu-Soltész B, Kiss B, Pál G, Nyitray L, Dosztányi Z. PLoS Comput Biol. 2017 ;13(12):e1005885.