



Open position for the LSM call of applications

Department/Institute: LMU, Faculty of Biology, Cell- and Developmental Biology

Subject areas/Research fields: Cell Biology

Keywords: Centrosome, PCM, *C. elegans*

Name of supervisor: Dr. Tamara Mikeladze-Dvali

Funding: DAAD-GSSP (LSM)

Project title: Molecular mechanisms regulating centrosome dynamics and centriole separation

Project description:

Centrosomes are the main microtubule organizing centers of animal cells and at the same time represent signaling hubs, harboring mitotic kinases and cell cycle regulators. Centrosomes comprise a pair of centrioles, surrounded by the pericentriolar material (PCM), a proteinaceous matrix, undergoing dynamic changes during the cell cycle.

Structural integrity of the PCM is essential for a bipolar spindle assembly and faithful cell division. Deregulation of PCM can lead to multipolar spindle formation, which is a source of aneuploidy and can lead to conditions like microcephaly and cancer. Therefore, precise regulation of centrosome components is key for maintaining genome stability and sustaining cell proliferation.

Our group aims to delineate mechanisms regulating centrosome stability and function using *C. elegans* as a model organism. In particular, we are interested in understanding how the microcephaly-associated proteins PCMD-1 (pericentrin in humans) and SPD-5 (Cdk5Rap2 in humans) ensure spindle pole integrity, regulate PCM size and centriole separation. The project will employ a broad spectrum of methods in molecular biology, genetics, quantitative live-cell imaging and biochemistry.

References:

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For further information, please contact:

Dr. Tamara Mikeladze-Dvali (tmdvali@bio.lmu.de)

Research group website:

https://www.cellbiology.bio.lmu.de/research_groups/mikeladze/index.html