

PhD student position

Molecular interactions between Dishevelled 3 (Dvl3) and cytoskeleton

Project: Dvl3 is a scaffolding protein involved in Wnt signalling pathways that are essential for both correct embryo development and tissue homeostasis in adulthood. We have recently identified a new interacting partner of Dvl3 that tethers Dvl3 to microtubules. This project is focused on uncovering molecular basis of Dvl3 interactions with microtubule cytoskeleton and physiological significance of such interactions. The project involves both *in vitro* reconstitution of the Dvl3-tether-microtubule complex as well as complementary cell-based studies elucidating physiological role(s) of Dvl3/microtubule interactions *in vivo*.

Methodology: Molecular biology techniques (cloning, site-directed mutagenesis), heterologous expression of proteins variants in different hosts (e.g., *E.coli*, HEK293 cells) and target purification using advanced chromatography techniques. *In vitro* reconstitution and characterization of the system exploiting an array of biochemical and biophysical techniques (pull-down, microscale thermophoresis, analytical ultracentrifugation, X-ray crystallography). Advanced fluorescence microscopy including TIRF microscopy at the single molecule level. Cell-base assays (CRISPR/Cas9 knock-in/knock-out, fluorescent microscopy).

Qualifications: Applicants should have a solid background in molecular biology, biochemistry, or cell biology. We expect good communication skills, analytical thinking, and the ability for teamwork. The successful candidate will participate in a PhD program at the Charles University, Prague. The starting date is summer/fall 2022.

How to Apply: For more information, please contact Cyril Bařinka (cyril.barinka@ibt.cas.cz) directly.

Cyril Barinka, PhD
Laboratory of Structural Biology
Institute of Biotechnology of the Czech Academy of Sciences
BIOCEV, Centre of Excellence
25242 Vestec
Czech Republic
<http://lsb.avcr.cz/>