LEONARD Lab

Master's thesis

About the Leonard lab

The Leonard lab investigates the mechanisms by which signals are transduced in the cell into appropriate downstream effects. The post-translational modification of proteins with a single phosphate group, a process called phosphorylation, is a ubiquitous signaling mechanism that governs the flow of this information. We are interested in the mechanisms that govern the addition of phosphate groups by KINASES, their removal by PHOSPHATASES, and the structural and functional consequences of these modifications. We use a wide variety of biochemical, biophysical and structural biology tools, complemented with cell biology, to explore how cells regulate the transmission of information at the molecular level. For more information on the Leonard lab please visit https://www.maxperutzlabs.ac.at/leonard.

About the Master thesis project

PHLPP2 (PH domain leucine-rich repeat-containing protein phosphatase) is a metal-dependent protein phosphatase that has been implicated in the attenuation of Akt signaling in cells. Akt is a pro-growth and survival kinase that is critical to insulin and growth factor signaling, and is hyperactivated in the majority of human cancers. As such, PHLPP2 is regarded as a tumor suppressor gene. The goal of the Master's project will be to determine the structure of PHLPP2 to high resolution by cryo electron microscopy (already very well advanced) and characterize its phosphatase activity and substrate specificity in vitro. The project will involve recombinant protein purification, inductively coupled plasma mass spectrometry (ICP-MS) in collaboration with the Institute of Analytical Chemistry at BOKU, and quantitative biophysical and biochemical assays.

Candidates should

- Hold a Bachelor's degree in biochemistry, chemistry or molecular biology
- Have practical experience in molecular biology
- Have a solid background in and affinity for computational work (data processing)

We are looking for someone

- who is excited by science
- who is fascinated by molecular mechanisms
- who is creative, critical, and communicative
- can work independently in a supportive team

Application

Apply now by sending your CV and motivation letter to Thomas Leonard (thomas.leonard@meduniwien.ac.at).

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Part of Vienna BioCenter

About the Max Perutz Labs

The Max Perutz Labs are a research institute established by the University of Vienna and the Medical University of Vienna to provide an environment for excellent, internationally recognized research and education in the field of Molecular Biology. Dedicated to a mechanistic understanding of fundamental biomedical processes, scientists at the Max Perutz Labs aim to link breakthroughs in basic research to advances in human health. The Max Perutz Labs are located at the Vienna BioCenter, one of Europe's hotspots for Life Sciences, and host around 50 research groups, involving more than 450 scientists and staff from 40 nations.

www.maxperutzlabs.ac.at