MAX PERUTZ LABS VIENNA

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 with high fidelity in both space and time. For more information on the Leonard lab please visit https://www.maxperutzlabs.ac.at/leonard.

About the Master thesis project

Cells must be able to cope with all manner of insults and stressful environments in order to survive. Stress signals, including nutrient starvation, viral infection, and heme deficiency, are sensed by the integrated stress response (ISR) kinases. The ISR kinases converge on a single substrate, the eukaryotic initiation factor 2 (eIF2), phosphorylating it to elicit a global shutdown in translation, thereby allowing cells time to recover. Whilst a mechanistic understanding of how the ISR kinases phosphorylate eIF2 to inhibit translation initiation is already quite advanced, it is not currently understood how each of the ISR kinases recruits eIF2 in order to drive efficient and specific phosphorylation. The goal of the Master project will be to elucidate the mechanism(s) by which the ISR kinases PERK, HRI and GCN2 specifically recruit eIF2. The project will involve recombinant protein purification, quantitative biochemistry and structural biology.

Candidates should

- Hold a Bachelor's degree in biochemistry, chemistry or molecular biology
- Have practical experience in molecular biology
- Have excellent communication and organisation skills and a teamwork spirit

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

Please send your CV and motivation letter to Thomas Leonard (thomas.leonard@maxperutzlabs.ac.at) and Magdalena Otto (magdalena.otto@univie.ac.at). Interviews will be held on a rolling basis and as soon as a suitable candidate is found, the position will be filled. The position is anticipated to start around April-May 2025.

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A joint venture of
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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 41 research groups, involving around 450 scientists and staff from more than 50 nations.

www.maxperutzlabs.ac.at