MAX PERUTZ LABS VIENNA

Ogris Lab

Master's Thesis Opportunity

Molecular mechanism of PP2A activating anti-cancer drugs

The **Ogris Lab** is dedicated to uncovering the mechanisms of Protein Phosphatase 2A (PP2A) biogenesis in mammalian cells. We are currently seeking a talented and motivated Master's student to join us in a project aimed at understanding how a PP2A activating drug affects the methylation-dependent PP2A holoenzyme assembly.

About the project

PP2A comprises a large family of trimeric holoenzymes, each of which consist of a catalytic C (PP2Ac), a structural A (PP2Aa) and a regulatory B-type subunit. PP2A dysfunction has been implicated in numerous cancer types, contributing to uncontrolled cell growth and tumor progression. Therefore, targeting PP2A activity holds promise as a potential therapeutic strategy for cancer treatment. The assembly of PP2A trimers with tumor-suppressive functions is regulated by the reversible methylation of the PP2A catalytic subunit. Carboxyterminal methylation is catalyzed by the SAM-dependent methyltransferase LCMT-1, while demethylation is carried out by the PP2A methylesterase PME-1. Our most recent findings indicate that methionine starvation leads to the demethylation of PP2Ac, a process that can be partly rescued by a drug designed to restore the tumor-suppressive functions of PP2A. Understanding the mechanisms by which this small molecule interacts with PP2A and influences PP2A methylation and holoenzyme regulation are questions to be addressed in this project.

The project's main goal is to create double and triple knock out cell lines of PP2A regulatory B-type subunits by CRISPR Cas9 and to analyze the response of these cell lines to the PP2A activating drug. In the frame of this project, you will gain expertise in the following techniques: mammalian tissue culture, DNA modification with CRISPR/Cas9, protein analysis methods like, western blotting, immunoprecipitation, quantitative western blot and immunofluorescence analysis.

The Master's thesis will be carried out in the Ogris Lab at the Max Perutz Labs. The start date is preferably June 2024 for the duration of 10-12 months. The student will receive a stipend of about €518 per month.

Application and contact

Please send your CV and motivation letter to
egon.ogris@meduniwien.ac.at and ingrid.frohner@meduniwien.ac.at.

You can find more details on the research topics of the Ogris Lab page.

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 44 research groups, involving around 400 scientists and staff from more than 50 nations.

www.maxperutzlabs.ac.at

MAX PERUTZ LABS
Vienna BioCenter • Dr.-Bohr-Gasse 9 • 1030 Vienna
Tel: +43 1 4277 24001 • office@maxperutzlabs.ac.at
www.maxperutzlabs.ac.at

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