Hallacli Lab

Master Thesis Opportunity

About the Hallacli lab

Neurodegenerative diseases like **Parkinson's Disease (PD)** pose a major challenge to our aging society. At the Hallacli Lab, we study how toxic protein aggregates, especially **alpha-synuclein (α-syn)**, contribute to disease progression. Our recent work has uncovered a novel connection between α-syn and **Processing bodies (P-bodies)** - RNA granules that play key roles in RNA metabolism (Hallacli et.al, Cell, 2022). Our goal is to understand how these ancient structures contribute to α-syn-induced toxicity in neurons and how a-syn modulates RNA metabolism in the cell.

About the position / the research project

We currently do not fully understand how α-syn integrates to the human decapping complex and how it modulates its enzymology. This project will aim to reconstitute full or partial human mRNA decapping complex, along with purified α-syn in order to understand the mechanistic details of α-syn-decaping interactions. Your work will include; i) generation of multi-cistronic Baculovirus expression constructs, ii) working with Baculovirus expression systems and expression of full/partial human decapping complex, iii) measuring stoichiometry of human decapping complex by mass photometry, iv) Establishing cross-linking mass-spectrometry to understand protein-protein interactions, v) using AlphaFold models to rationally design point mutants to pinpoint interaction surfaces within the complex.

The ideal Candidate

We are seeking a **highly motivated** Master's student to join our international research team, where English is the working language. The ideal candidate holds a Bachelor's degree in Molecular Biology, Biochemistry, Chemistry, Biotechnology, or a related field, with strong academic performance. Candidates should have solid experience in molecular cloning and protein purification techniques, excellent organizational skills, meticulous attention to detail, and a commitment to accurate lab documentation. We value a proactive mindset, curiosity about neurodegenerative disease mechanisms, and the ability to work both independently and collaboratively. The position begins with a rotation, with the possibility to continue into the Master's thesis based on successful performance and mutual agreement.

How to apply?

Are you interested? Send your detailed **CV** along with a **motivation letter** explaining your background and how you could contribute to **erinc.hallacli@maxperutzlabs.ac.at**.

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 40 research groups, involving approximately 450 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

A joint venture of
universität wien
MEDIZINISCHE UNIVERSITÄT WIEN
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