QUERQUES LAB

Master's Rotation Project – Querques Lab

The **Querques Lab** is looking for a **Master's student** for a **two-month rotation project**, with the possibility of extension into a **Master's thesis** position. If you're passionate about **mobile DNA, RNA biology, and genome engineering**, apply!

About the Querques lab

Our lab focuses on understanding the molecular mechanisms by which **mobile genetic elements (MGEs)** move between and within genomes. We aim to explore their biological impact on genome remodeling and leverage this knowledge to develop new tools for **genome engineering**.
Our research integrates **structural biology** with a variety of **biochemical, biophysical, and biotechnological** approaches, including cell-based assays, protein design, and genome editing experiments.
For further details about the Querques lab, please visit https://www.maxperutzlabs.ac.at/research/research-groups/querques.

About the project

Fanzors are a novel class of highly compact, eukaryotic, programmable RNA-guided endonucleases capable of editing human cells. Their small size and eukaryotic origin may offer advantages over existing CRISPR-Cas systems, including improved cellular delivery, reduced immunogenicity, and enhanced compatibility with chromatinized DNA. Despite their potential, very little is known about their biochemistry and biological function. Their role in eukaryotic genomes remains unclear, and no studies have yet examined how their cellular context influences their mechanisms of action.
Overall, this project aims to characterize Fanzor activity and explore their potential function in eukaryotes. Key objectives include:

- Resolving the molecular architecture of Fanzors to identify key structural features and potential new functionality.
- Investigating nucleic acid binding and cleavage properties to uncover their biochemical mechanisms.
- Studying Fanzors in a cellular context to identify potential interacting factors and biological roles.

This integrative mechanistic insight may help reveal how Fanzors influence eukaryotic physiology and guide their development as genome-editing tools.
The Master's project will involve recombinant protein purification, biochemistry, and RNA biology, with the exact project focus to be decided based on the previous experience and interests of the student.

Requirements

- Bachelor's degree in **molecular biology, biochemistry, or a related field**
- Hands-on experience in **molecular biology techniques**

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A joint venture of universität wien, MEDIZINISCHE UNIVERSITÄT WIEN
Part of Vienna BioCenter

- **Proactive mindset** and eagerness to learn new methods
- **Strong teamwork and collaboration skills**

Application Process

Please submit your application to: irma.querques@maxperutzlabs.ac.at

Please include the following in your application:

- A motivation letter - Why are you excited about this project/working in our lab?
- A CV with a detailed description of research experience and interests.
- Your transcripts of records from your University studies.

Interviews will be conducted on a **rolling basis**, and the position will be filled as soon as a suitable candidate is found.
The project is available for **any two-month period starting from August 2025** and the application phase will remain open **until May 2025**.

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 (www.maxperutzlabs.ac.at) are located at the Vienna BioCenter, one of Europe's hotspots for the Life Sciences, and host to around 50 research groups, involving more than 450 scientists and staff from 40 nations.