

Köhler Lab

# Postdoctoral Position in Nuclear Membrane Architecture and Lipid Metabolism

## Our research

The nuclear envelope is the signature element of eukaryotes and protective vessel for the genome. It combines disparate features: durability with plasticity, selective traffic with mass transport, spatial enclosure with sophisticated signaling. In doing so, it enables cells to protect, decode and regulate their genome. Our goal is to understand the architecture and function of this 'intelligent boundary' from a mechanistic perspective.

A specific interest of the lab is to understand the lipid composition of the inner nuclear membrane (INM), a unique territory of the endoplasmic reticulum that intimately surrounds the genome. We recently discovered metabolic turnover of lipids at the INM and found that the INM can form nuclear lipid droplets that are used for lipid storage and gene regulation (Romanauska & Köhler, Cell 2018). Intriguingly, the INM is highly sensitive to specific fatty acids and executes a detoxification mechanism that is achieved by shunting "bad" fatty acids into cytosolic, as opposed to nuclear, lipid droplets (Romanauska & Köhler, Dev Cell 2021). This rewiring of lipid storage metabolism raises interesting questions about the role of specific lipids in INM function, how the biogenesis of distinct lipid droplet populations is controlled and how the INM communicates with chromatin (Gallego et al., Nature 2020). We expect these insights to be highly relevant for understanding a variety of human diseases.

We connect various methodological approaches, including sophisticated biochemical reconstitution, as well as single cell and real-time microscopy with new approaches of acute chemical and genetic perturbations.

## Your profile

Applicants should have a keen interest in fundamental aspects of cell biology and a proven background in molecular biology, biochemistry and/or quantitative microscopy. You should have obtained your PhD recently or expect to complete your PhD soon. A demonstrated scientific excellence with at least one strong published or upcoming first author paper is required.

## We offer

The Köhler lab provides a stimulating environment for successful scientific work. The [Max Perutz Labs](#) are located at the [Vienna BioCenter Campus](#), a leading biomedical research location in central Europe. You will benefit from a range of excellent [core facilities](#). The institute is home to scientists from over 40 different nations with English as the working language. Vienna was named as city with highest quality of life in the world for many times (Mercer survey). Childcare facilities are available on campus.

The position is endowed with a competitive salary and is available initially for 3 years. It can be turned into a permanent position depending on performance. Lab funding includes an ERC Consolidator Grant.

### To apply

Please submit your CV, a statement of research accomplishments and future goals and arrange to have three letters of recommendation sent as well. Shortlisted candidates will be contacted via e-mail. The positions are open immediately.

Send correspondence to: Prof. Alwin Koehler – Scientific Director

E-mail: [alwin.koehler@maxperutzlabs.ac.at](mailto:alwin.koehler@maxperutzlabs.ac.at)

More information can be found at: <https://www.maxperutzlabs.ac.at/research/research-groups/koehler>

### 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.

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