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PhD position in mitochondrial ADP-ribosylation biology

A PhD position in mitochondrial ADP-ribosylation biology is available as of immediate in the group of Prof. M.O. Hottiger at the Department of Molecular Mechanisms of Disease (University of Zurich, Switzerland).

We are among the worldwide leaders in ADP-ribosylation biology, particularly with respect to mass spectrometry-based identification of the ADP-ribose (ADPr) acceptor sites on modified proteins in different cell compartments controlling inflammation and inflammation-associated pathologies.

Protein ADP-ribosylation is a reversible posttranslational modification (PTM) that affects the structure and, thus, the function of modified proteins likely by modulating formation and composition of protein-protein complexes. There is strong experimental evidence that ADP-ribosylation is linked to cellular stress signaling pathways including oxidative stress and those that regulate different inflammation-associated pathologies. Using a new proprietary antibody detecting mono-ADP-ribosylation we detected for the first time mitochondrial ADP-ribosylation. As the energy metabolism is closely linked to ADP-ribosylation via the common metabolite NAD^+, we aim for a detailed understanding how ADP-ribosylation and the energy metabolism regulate and influence each other.

This PhD thesis project thus deals mainly with the regulation and functional role of mitochondrial ADP-ribosylation in different cell types. You will use *in vitro* studies including wildtype and gene-deficient murine and human primary and transformed cell lines that will be triggered with stress stimuli (e.g. oxidative or metabolic stress) and then evaluated regarding ADP-ribosylation using quantitative microscopy. These studies will be complemented by *in vivo* models to investigate the functional role of enzymes regulating mitochondrial ADP-ribosylation in different tissues during inflammation-associated disease models (i.e. high fat diet).

The range of technologies that you will perform include cloning, the generation of knock-out cell lines using CRISPR/Cas, expression analyses using quantitative RT-PCR, ELISA, quantitative microscopy and Western blotting, processing and analyses of *ex vivo* samples including flow cytometry and histology, and potentially the generation of additional conditional KO strains. For further information about the group please visit: “http://www.dmmd.uzh.ch/en/research/hottiger.html"

The department is integrated within the natural sciences campus of the University of Zurich, the largest University in Switzerland and one of Europe`s leading research centers that offers several excellent core technology facilities such the Function Genomics Center, the Imaging and Flow Cytometry Center and the Animal Facilities. The department is equipped with state-of-the-art infrastructure for biochemical, molecular and cell biological investigations, offers a stimulating research environment and actively promotes dynamic interactions between scientists. The successful applicant will be expected to support the ongoing research focus of the Hottiger group.

We are thus seeking a highly-motivated individual with good knowledge in mitochondria biology and prior experience with cell culture work and if possible microscopy. The applicant should be an independent thinker and problem-solver who is willing to work in a team, and accept new challenges arising from working in a high-paced scientific environment. The applicant should also have good communication and writing skills and a curiosity-driven attitude, and should demonstrate enthusiasm and flexibility.

Please forward your application electronically (preferably as a single PDF file) with a detailed CV, a list of publications, a one-page summary of the scientific achievements, a statement of motivation and the names and addresses of two references to applications@dmmd.uzh.ch (informal and confidential inquiries should also be sent to this address).

There is no formal application deadline, as the position will be filled as soon as a suitable candidate has been identified. The evaluation of applications will start immediately. Job sharing is not possible.