University of Zurich[UZH]

Department of Chemistry

Master Student Project in Chemical Biology

A collaborative Master project position is available in the groups of Prof. Dr. Nina Hartrampf in the Department of Chemistry and Prof. Dr. Cyril Zipfel in the Department of Plant and Microbial Biology at the University of Zurich (Switzerland). The project relates to the characterization of stress-induced plant signaling proteins. As part of this interdisciplinary collaborative project, we aim to investigate the role of these proteins in plants' adaptation to environmental stresses. To this aim, we will prepare synthetic and recombinant proteins (with potential post-translational modifications) and characterize their biological activities in a range of biochemical and cellular assays.

Your responsibilities

This interdisciplinary project combines a variety of tools in the broader field of chemical biology. You will design and synthesize several proteins of interest using our state-of-the-art fully automated synthesis platform and will receive training in protein folding and purification. In addition, you will also explore possibilities to produce recombinant proteins in a range of biological systems. You will carry out the biophysical characterization of these proteins using various analytical techniques (UHPLC, LCMS, NMR, CD, X-Ray, etc), and will work with well-established biochemical, and cellular assays to analyze their biological activities.

Your profile

We are looking for a highly motivated, curious, and enthusiastic student. The candidate should hold a BSc in chemistry, biochemistry, biology or biomedicine. Previous lab experience is preferable. You enjoy working in an open, interdisciplinary, and collaborative environment, and you will add to that with curiosity, scientific agility, self-motivation, and strong communication skills.

Skills development

During the project, you will develop proficiencies in state-of-the-art techniques in chemical biology, biophysics, and molecular biosciences including:

1. Chemical protein synthesis, modification, and purification
2. Oxidative protein folding
3. Recombinant protein expression and purification
4. Biophysical assays
5. Core molecular biology techniques
6. Plant-based bioassays
7. Experimental design, data handling, and analysis

In addition to wet lab skills, you will develop valuable transferable skills, including data analysis and presentation, clear and concise written and oral communication of scientific concepts, problem-solving, and teamwork. These skills will be developed through regular communication of your work in one-on-one meetings with the supervisors, in small, topic-focused 'mini-meetings', and in weekly lab meetings/journal clubs.

Places of work

University of Zurich
Department of Chemistry / Hartrampf Research Group
Winterthurerstrasse 190
8057 Zürich

University of Zurich
Department of Plant and Microbial Biology / Zipfel Research Group
Zollikerstrasse 107
8008 Zürich

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Start of employment

The employment should ideally start in June 2023, but can be adjusted accordingly.

Your application should contain:

- letter of motivation
- curriculum vitae
- short summary of past research experience
- transcripts of your academic records from your university, and a copy of your degree

Please submit your application as soon as possible as a single pdf (incomplete applications will not be considered).

Further information

Prof. Dr. Nina Hartrampf, nina.hartrampf@chem.uzh.ch
see also group website

Prof. Dr. Cyril Zipfel, cyril.zipfel@botinst.uzh.ch
see also group website