

HALRIC Research Internship Programme

Internship Proposal

Project Title: Investigating Allosteric Communication in fluoroacetate dehalogenase (FACD)

Name of Institution/Country: University of Hamburg, Germany

Name of internship provider: Dr Caitlin Hatton (Postdoc), Dr Pedram Mehrabi (Group leader)

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Proposed timeframe: 2-6 months (to be decided jointly with the candidate)

Application deadline: May 15th, ideally start June 2025 (Flexible-can be decided jointly with the candidate)

Administrative contact person at the organisation: Elena Kornilova

Scientific research questions

The research investigates the allosteric communication that occurs in fluoroacetate dehalogenase (FACD) between the two protein subunits, this allosteric communication modulates substrate turnover and answers questions in fundamental biochemistry.

Experimental approach

We currently use a combination of ultrahigh and time-resolved crystallography and enzyme activity, and other biophysical methods to observe and understand allosteric communication.

Tasks of the intern

- General Lab Duties (making competent cells, communal reagents)
- Protein Expression and Purification (Established methods)
- Protein Crystallisation
- Protein Assay's (Established methods)
- Data Analysis and Interpretation

General information about the work group, the university and the region

The Mehrabi group specialises in time-resolved x-ray crystallography of proteins (<https://www.physik.uni-hamburg.de/en/inf/ag-pearson/subgroup-mehrabi.html>), based in the HARBOR building at the University of Hamburg on the Hamburg Bahrenfeld campus. HARBOR is a collaborative and welcoming interdisciplinary research building. The University of Hamburg is a world-leader in time-resolved structural biology due to its position and collaboration with EMBL And DESY facilities.

Eligibility and qualification of the applicant.

We are looking for a motivated MSc/BSc student in biophysics, structural biology, biochemistry or related field, due to the interdisciplinary work, backgrounds in chemistry, physics, or biochemistry are encouraged to apply.