

PhD Position in Cryo Electron Microscopy of Formate Dehydrogenase

One PhD position is available at the University of Potsdam in the research group of Prof. Dr. Petra Wendler in close collaboration with Prof. Dr. Silke Leimkühler.

Project Description:

R. capsulatus formate dehydrogenase (FDH) is a $(\alpha\beta\gamma)_2$ heterotrimer that catalyses the reversible oxidation of formate to carbon dioxide. Aim of the project is to acquire a structural and functional understanding of this FDH enzyme in the oxidised and reduced state. We use single particle cryo electron microscopy in combination with other biophysical techniques to obtain structural snapshots of the complex enabling us to deduce its function. The successful applicant is expected to collect and analyze data, participate in the experimental design and method development and to interact with external and internal collaborators. Techniques involved will include handling of multi protein complexes, high resolution imaging using cryo EM, image processing, 3D reconstruction and molecular modeling. Relevant publications:

Hartmann, T., Schrapers, P., Utesch, T., Nimtz, M., Rippers, Y., Dau, H., Mroginski, M.A., Haumann, M., Leimkühler, S. (2016) The Molybdenum Active Site of Formate Dehydrogenase Is Capable of Catalyzing C-H Bond Cleavage and Oxygen Atom Transfer Reactions. *Biochemistry*, 55(16):2381-9.
Hartmann T, Leimkühler S. (2013) The oxygen-tolerant and NAD⁺-dependent formate dehydrogenase from *Rhodobacter capsulatus* is able to catalyze the reduction of CO₂ to formate. *FEBS J.* 280:6083-96.

Qualifications:

You should have a University degree in Biochemistry, Biotechnology, Bioinformatics, Physics or other related fields, and have a strong interest in biology and biophysical techniques. Computational skills or experience in statistical analysis are an advantage. You should also have excellent technical skills, good interpersonal skills and the enthusiasm to apply and develop new techniques.

Scientific Environment:

The PhD position is funded by the Unicat (Unifying concepts in catalysis) cluster of excellence, bringing together chemists, biologists and engineers to advance basic research into applied processes. Potsdam University is located in the Berlin/Brandenburg research area. It is dedicated to excellent research and teaching, offering a stimulating environment, including open minded, ambitious young teams and state-of-the-art scientific training.

Position:

The position will initially be funded for 14 months according to TV-L E13 65%. There will be interviews from now on until the position has been filled. Potsdam University is an equal opportunity employer. Handicapped candidates with equal qualifications will be given preference.

Contact:

Further information can be obtained from Prof. Dr. Petra Wendler. Please send your application in English or German by email to petra.wendler@uni-potsdam.de. The application should comprise a cover letter with a brief statement of research experience and interests, a CV as well as copies of undergraduate and graduate certificates.

Webpage:

<http://www.uni-potsdam.de/ibb-biochemie/index.html>