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UNIVERSITET

PhD student in Chemistry – Specializing in Molecular Biomimetics

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Uppsala University is a comprehensive research-intensive university with a strong international standing. Our ultimate goal is to conduct education and research of the highest quality and relevance to make a long-term difference in society. Our most important assets are all the individuals whose curiosity and dedication make Uppsala University one of Sweden's most exciting workplaces. Uppsala University has over 54,000 students, more than 7,500 employees and a turnover of around SEK 8 billion.

The Department of Chemistry - Ångström conducts research and education in the chemistry field. The department has more than 250 employees and has a turnover of 250 million SEK. At the department's six programs, we conduct very successful research of a high international standard. We have a large number of externally funded research projects, often with international cooperation and we see continued good growth in our subject area. The department has education assignments in engineering programs and master's programs. More information is available on our [website](#).

[Read more about our benefits and what it is like to work at Uppsala University.](#)

The student will be part of the bioinorganic chemistry group within the molecular biomimetics program. The program, which is highly recognized internationally, is part of the Department of Chemistry – Ångström at Uppsala University. The group is situated in a modern building at the Ångström Laboratory. The research at the department spans from organic, inorganic and physical chemistry to biochemistry and biophysics, and strong cross-disciplinary collaborations are characteristic for the program.

Project description

The research project is focused the metalloenzyme [FeFe] hydrogenase, and involves biochemistry, biophysics (spectroscopy and electrochemistry) and bioinorganic chemistry. The hydrogenase enzymes are central to hydrogen metabolism, as they catalyze the formation and oxidation of H₂ gas. This chemistry is enabled by a biologically unique organometallic cofactor. An increased understanding of these enzymes is critical for our understanding of the biological H₂ cycle, and its impact on human health as well as general biodiversity. Due to their remarkable efficiencies they are also intensively studied in (bio)technological applications. The project follows one of the major project lines in the group, which focuses on the biochemical characterization of novel examples of this diverse enzyme family. In parallel, it will also involve the development of new methods for studying their mechanism using advanced, time-resolved, spectroscopic techniques.

Work duties

The applicant will work in an interdisciplinary project that involves biochemistry, molecular biology and biophysics. The primary role of the PhD student in the project will deal with the isolation and characterization of novel [FeFe] hydrogenases of potential biotechnological or medical relevance. Selected enzymes will be characterized in depth utilizing a combination of electrochemistry and time-resolved spectroscopy (transient absorbance and IR spectroscopy), with a focus on determining reaction mechanisms. The work will be performed by the PhD student in collaboration with theoreticians, spectroscopists and synthetic chemists at Uppsala University and abroad. Thus, beyond training in several advanced experimental techniques, the project will also provide a strong international network.

The main duties of doctoral students are to devote themselves to their research studies which includes participating in research projects mentioned above and third cycle courses. The work duties can also include teaching and other departmental duties (no more than 20%).

Eligibility requirements

A person meets the general admission requirements for third-cycle courses and study programmes if he or she:

- has been awarded a second-cycle qualification, or

- has satisfied the requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second cycle, or
- has acquired essentially equivalent knowledge in some other way in Sweden or abroad.

Required qualifications

- Degree or equivalent as above in chemistry, biochemistry, biophysics or molecular biology.
- Experience in working with proteins (during studies or in industry).
- Very good oral and written proficiency in English.
- The ability of the PhD student to be innovative and not afraid to go outside traditional discipline.

Consideration will also be given to good collaborative skills, drive and independence, and how the applicant's experience and skills complement and strengthen ongoing research within the department, and how they stand to contribute to its future development.

Desirable qualifications

- Advanced knowledge and/or practical experience in biochemistry, biophysics and/or (bio)inorganic chemistry is desirable.
- Prior experience in working with metalloenzymes will be beneficial.

The rules about PhD students are found in the Higher Education Ordinance Chapter 5 §§1-7 and the university's rules and guidelines <https://regler.uu.se/?languageId=1>.

Application procedure

The application should include a statement of research interest, CV, certificates of exams, degrees and grades, a copy of Master thesis, published article or relevant materials, if available. Also, contact information of at least two reference persons should be included.

About the employment

The employment is a temporary position according to the Higher Education Ordinance chapter 5 § 7. Scope of employment 100 %. Starting date 2022-07-01 or as agreed. Placement: Uppsala.

For further information about the position, please contact: Gustav Berggren;
Gustav.berggren@kemi.uu.se.

You are welcome to submit your application no later than 2022-06-08, UFV-PA 2022/1948.

Please do not send offers of recruitment or advertising services.

Submit your application through Uppsala University's recruitment system.

Placement: Department of Chemistry - Ångström Laboratory

Type of employment: Full time , Temporary position longer than 6 months

Pay: Fixed salary

Number of positions: 1

Working hours: 100 %

Town: Uppsala

County: Uppsala län

Country: Sweden

Union representative: Seko Universitetsklubben seko@uadm.uu.se

ST/TCO tco@fackorg.uu.se

Saco-rådet sacco@uadm.uu.se

Number of reference: UFV-PA 2022/1948

Last application date: 2022-06-08

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