PhD-student position in structural biology of antibiotic resistance

Published: 2021-05-04

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 45,000 students, more than 7,000 employees and a turnover of around SEK 7 billion.

The Department of Cell and Molecular Biology is one of the most international, broad and distinguished molecular bioscience departments in Europe. The department comprises six research programs with about 130 employees. Please read more at [http://www.icm.uu.se](http://www.icm.uu.se).

This PhD position will be in the group of Professor Maria Selmer in the Department of Cell and Molecular Biology. Maria Selmer leads a structural biology group using X-ray crystallography and cryo-EM in combination with a broad range of other techniques to understand structure-function relationships in translation and antibiotic resistance as well as in protein evolution and adaptation. Please see [https://www.icm.uu.se/structural-biology/selmer-lab/](https://www.icm.uu.se/structural-biology/selmer-lab/) for more information about the research in the group.

This position is partly funded by the Uppsala Antibiotic Center (UAC), and the recruited PhD student will be part of UAC’s graduate research school. UAC is a center for research, education, innovation & awareness founded in 2015 to bring together, stimulate and support important research on antibiotic resistance from all three disciplinary domains at Uppsala University: Medicine and Pharmacy, Science
and Technology, and Humanities and Social Sciences. The doctoral student positions and graduate school are central parts of UAC with the goal of educating a new generation of researchers with broad knowledge and willingness to contribute to combating the problem of antibiotic resistance. For more information about UAC: www.uac.uu.se

**General description:** A large proportion of clinically used antibiotics act on bacterial translation. Clinical resistance mechanisms include efflux pumps, mutations or modifications of the target, degradation or modification of the drug and factor-assisted protection of protein synthesis. There are few examples of factor-assisted rescue and they are mostly poorly understood. The aim of this project is to clarify the structural and mechanistic details of such mechanisms, for example FusB-mediated resistance to fusidic acid (FA). The project will include single-particle cryo-electron microscopy (cryo-EM) as well as other methods in structural biology, biochemistry and biophysics and will involve collaboration with the group of Magnus Johansson (https://www.icm.uu.se/molecular-systems-biology/johansson-lab/).

**Duties:** The Ph.D. student shall primarily focus on postgraduate studies, but other duties related to teaching and administrative work may be involved, up to a maximum of 20 % of the time. Information about doctoral education, eligibility requirements and admission rules can be found at the faculty website, http://www.teknat.uu.se/utbildning/utbildning-pa-forskarniva/.

**Requirements:** We welcome applications from strongly motivated candidates with a master's degree in biochemistry, biophysics or biotechnology or in a related area. The applicant must have a good ability to work independently as well as in a group. Excellent oral and written communication skills in English are required.

**Merits:** Documented experience of experimental and computational methods in single-particle cryo-EM will be considered as strong merits. Experience of protein expression and purification and additional experimental methods in structural biology and biophysics will be considered as strengths.

**The application:** Your application must include:
A cover letter where you describe yourself, your research interest, your experiences and why you are interested in the position (max. 2 pages). A CV containing your education, list of publications and other qualifications, and copies of diplomas. A full-
text version of your master thesis. Please provide contact information to two reference persons, e.g. prior research supervisors.

Rules governing PhD students are set out in the Higher Education Ordinance chapter 5, §§ 1-7 and in Uppsala University's rules and guidelines.

**Salary:** According to local agreement for PhD students.

**Starting date:** September 1st or as otherwise agreed.

**Type of employment:** Temporary position according to the Higher Education Ordinance chapter 5 § 7.

**Scope of employment:** 100 %

**For further information about the position please contact:** Maria Selmer, maria.selmer@icm.uu.se. For administrative questions contract HR-generalist Frida Österdahl, frida.osterdahl@icm.uu.se.

**Please submit your application by June 4th 2021, UFV-PA 2021/1722.**

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Please do not send offers of recruitment or advertising services.

Submit your application through Uppsala University's recruitment system.

Placement: Department of Cell and Molecular Biology
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: ST/TCO tco@fackorg.uu.se
Seko Universitetsklubben seko@uadm.uu.se
Saco-rådet saco@uadm.uu.se
Number of reference: UFV-PA 2021/1722
Last application date: 2021-06-04

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