



UPPSALA
UNIVERSITET

PhD student in Computer-Aided Drug Design (MSCA COFUND project PRISMAS)

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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.

PRISMAS - PhD Research and Innovation in Synchrotron Methods and Applications in Sweden – is a new doctoral network training the next generation of 40 leading synchrotron experts, co-funded by the Horizon Europe MSCA COFUND Programme.

As a PRISMAS PhD student, you will have the chance to conduct cutting-edge research in your field, taking advantage of state of the art tools that will bring to attractive future job opportunities in academia or industry. Moreover, you are part of designing the future of synchrotron technology and instrumentation and using these to tackle some of the most significant global challenges the world faces today while acquiring interdisciplinary and intersectoral knowledge. Being part of the PRISMAS programme gives you the one-of-a-kind experience in form of a secondment at the world's first 4th generation synchrotron, MAX IV in Lund, Sweden. Complemented with a tailored training programme, including courses to build scientific and technical competence as well as strengthen transferrable skills, PRISMAS provides you with the skills, knowledge and competence needed to successfully achieve your doctoral degree.

The Department of Cell and Molecular Biology is organized into seven research programmes which all focus on different areas of cell and molecular biology: Computational Biology and Bioinformatics, Microbiology and Immunology, Molecular Biology, Molecular Biophysics, Molecular Evolution, Molecular Systems Biology and Structural Biology. The scientific basis of what we do lies in biology, but our research overlaps with other areas such as medicine, computer science, mathematics, chemistry, engineering sciences and physics. In total, we are over 200 staff and ~60 Ph.D. students. Please read more about the department's work at <https://icm.uu.se>.

The PhD position is available in Jens Carlsson's group in the computational biology and bioinformatics programme. Jens Carlsson's research focuses on using molecular modeling techniques to study protein-ligand interactions. The Carlsson group uses structure-based methods (e.g., molecular docking and molecular dynamics simulations) to understand protein function and to design ligands of pharmaceutically important targets, often in close collaboration with experimental groups. The Carlsson group is an international research team and is also part of the Science for Life Laboratory (<http://www.scilifelab.se/>). Visit the group website for more information (<http://www.carlssonlab.org>).

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

Duties

Uppsala University is a public authority which means that employees get particular benefits, generous annual leave and an advantageous occupational pension scheme. Read more on the University website about being a Uppsala University employee [Benefits for employees | Uppsala University](#)

The MSCA COFUND project PRISMAS offers you outstanding opportunities as well as a stimulating and inspiring surrounding for performing cutting-edge research. Supporting your mobility, it creates perfect conditions for strengthening your international network.

The goals of the PhD project are to develop computational methods that can accelerate drug discovery and apply these techniques to identify enzyme inhibitors. Fragment screening is an efficient way to identify very small molecules that bind to proteins and can be performed using X-ray crystallography. Fragments are good starting points for drug discovery, but optimization of fragments to potent enzyme

inhibitors is challenging. You will develop new virtual screening methods to identify and optimize fragments by combining molecular docking, molecular dynamics simulations, and machine learning. In the applied part of the project, you will work in a team of experimental research groups with the goal to develop anticancer and antiviral drugs. The project will be carried out in close collaboration with the crystallographic fragment screening facility at the MAX IV laboratories (FragMAX).

The training implies a secondment of 3-12 months at MAX IV laboratory in Lund, Sweden. Additional secondments and/or short stays may be arranged in agreement with the supervisor of the research project. Moreover, you will attend international conferences, participate in periodical project meetings and training schools as well as in specialised courses at different universities to complement your knowledge. A certain amount of travelling is foreseen in relation to these activities.

The position is a fixed term position for four years at 100 per cent of full time and foreseen to start on 01/09/2023.

The PhD 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: <https://teknat.uu.se/education/postgraduate/>.

To comply with the mobility rule of the MSCA COFUND programme, you are eligible if you have **not** resided in Sweden for more than 12 months during the period 2020-05-01 to 2023-05-02 for work or studies as main occupation.

By the employment date (before 01/09/2023) you must have completed courses of at least 240 credits, of which at least 60 credits are from second-cycle courses, have been awarded a Master's degree or have acquired largely equivalent knowledge in some other way, in Sweden or abroad.

In addition to the criteria above mentioned, you must have fulfilled a second cycle education in a relevant field, such as biology, chemistry, pharmacy, or physics.

You are eligible for the PRISMAS programme, if you are a doctoral candidate, i.e., are not already in possession of a doctoral degree.

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

Requirements

The applicant must hold a master's degree in biology, chemistry, pharmacy, physics or within another subject which the employer considers to be equivalent. The applicant must have good ability to work independently as well as in a group. Excellent written and oral knowledge of English is required as the work takes place in an international environment.

Additional qualifications

Experience in modeling of proteins (e.g. enzymes), computer-aided drug design, molecular dynamics simulations, molecular docking, and scientific programming is preferred, but not required.

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

How to apply

Applications are to be submitted via the Varbi system and must include the following documents:

- CV in Europass format
- A two-page cover letter, justifying your interest in the position and how it matches your qualifications as well as the prioritization in case of applying to several PRISMAS positions.
- at least one reference letter
- an evidence of English 3 proficiency (minimum B2 level)
- Copy of academic records (including marks for all coursework) with a transcript of diploma in English,
- and any other document to which you would like to draw attention (details of referees, letters of recommendation, etc.)

These documents should be uploaded (pdf) in the job application portal. Exam certificates and other documents on paper should be scanned or photographed before being uploaded.

The application will be evaluated based on scientific excellence, the adequacy of your career plan and your thesis project as well as your research experience.

Details on the novel, unique and common selection process for all the PRISMAS positions can be found here: [How to apply – MAX IV \(lu.se\)](#)

Uppsala University welcomes applicants with diverse backgrounds and experiences. We regard gender equality and diversity as a strength and an asset.

About the employment

The employment is a temporary position according to the Higher Education Ordinance chapter 5 § 7. Scope of employment 100 %. The position is foreseen to start on 01/09/2023. Placement: Uppsala.

For further information about the position, please contact:

Jens Carlsson, jens.carlsson@icm.uu.se, +46 (0)72 227 7976

If you have questions on the selection process, please contact:
prismas@maxiv.lu.se

For questions on the employment conditions and the university, please contact: Sara Blom, sara.blom@icm.uu.se, 018- 471 4416

Please submit your application by 2 of May 2023, UFV-PA 2023/808.

Are you considering moving to Sweden to work at Uppsala University? [Find out more about what it's like to work and live in Sweden.](#)

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

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 2023/808

Last application date: 2023-05-02

[Apply for position](#)