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PhD position in RNA biophysics

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 Medical Biochemistry and Microbiology (IMBIM) at Uppsala University provides a broad international environment for research and teaching. The Department's research covers three collaborative and partially integrated sections: Cancer, infections and immunity as well as genetics and genomics. More info: https://www.imbim.uu.se/research-areas/.

Read more about our benefits and what it is like to work at Uppsala University

Projects Background
Possibly more than 50% of the human genome codes for non-coding RNA. These RNAs are ubiquitous among all life forms and the mechanisms how non-coding RNAs regulate these cellular functions are largely unknown.

Our research group, www.petzoldlab.com is interested in understanding how RNAs adopt their structures to select specific functions in a pool of RNAs. We employ different biochemical and biophysical techniques (e.g. NMR, SHAPE, cryo-EM, EMSA), to investigate the molecular mechanism of RNA function (Nature 2012, 2015 & 2020).

Duties
The doctoral project, which is a part of a larger ongoing project in the group, aims to

focus on understanding how RNA structure dynamics affects biological functions especially in the context of miRNA34a and the formation of the target-directed miRNA degradation process with AGO2 protein. As part of this role, the job duties include conducting laboratory work focusing on developing methodologies to enhance signal/noise ratio for in-cell NMR experiments. This multidisciplinary project will involve working with human cell lines, optimizing in-vitro RNA synthesis and purification, protein production and purification, state-of-the-art NMR spectroscopy (solution and solid-state DNP NMR). The Candidate should have a strong interest for structural and computational biology. Additionally, the successful candidate will be responsible for writing research articles on their findings and publishing them in scientific journals. The candidate will also be expected to present own research at relevant international conferences within their field. Finally, this position may involve other departmental duties such as teaching undergraduate courses.

Requirements

To meet the entry requirements for doctoral studies, you must hold a Master's (second-cycle) degree in a field that is relevant to the topic of the PhD thesis, or have completed at least 240 credits in higher education, with at least 60 credits at Master's level including an independent project worth at least 15 credits, or have acquired substantially equivalent knowledge in some other way.

Good communication skills and excellent study results, as well as sufficient proficiency in oral and written English. Knowledge in RNA biochemistry and experience in programming (R, Python) are of additional importance. Previous knowledge of nucleic acid structure and basic molecular biology methodologies (PCR, IVT, gel purification) are of importance. The candidate is expected to take initiative driving the project, but also collaborate with the other members of the groups, as well as national and international collaborator. Emphasis will be given on personal qualities, including analytical capacity, accuracy, flexibility and collaborative skills.

Additional qualifications

Basic knowledge of NMR and/or cryoEM is considered to be an advantage.

The selection is based on the following criteria: Completion of the above qualifications, grades in relevant courses, suitability of the courses to the research program, previous experience in working and/ or performing research in the wider

area that relates to the project described above. An integrated assessment of the applicant is generated in order to employ the best possible candidate that can succeed in the doctoral studies and contribute to a positive development of the research program.

To be employed as a PhD student, the applicant must be accepted in a doctoral programme. Information concerning doctoral education, requirements and rules of admission can be found at Medicine and Pharmacy - Uppsala University (uu.se)

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

About the employment:
The employment is a temporary position according to the Higher Education Ordinance chapter 5 § 7. Scope of employment 100 %. Starting date 2023-06-01 or as agreed. Placement: Petzold lab, Uppsala.

For further information about the position, please contact: Prof. Katja Petzold katja.petzold@imbim.uu.se

Please submit your application by 24 May 2023, UFV-PA 2023/1889.

Please do not send offers of recruitment or advertising services.

Submit your application through Uppsala University's recruitment system.

Placement: Department of Medical Biochemistry and Microbiology
Type of employment: Full time , Temporary position
Pay: According to local agreement
Number of positions: 1
Working hours: 100
Town: Uppsala
County: Uppsala län
Country: Sweden

Union representative: Saco-rådet saco@uadm.uu.se
ST/TCO tco@fackorg.uu.se
Seko Universitetsklubben seko@uadm.uu.se

Number of reference: UFV-PA 2023/1889

Last application date: 2023-05-24

Apply for position