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PhD student in medical cell biology specialized in signalling and secretion of pancreatic islet hormones

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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 Medical Cell Biology belongs to the Disciplinary Domain of Medicine and Pharmacy and is an important part of the recently launched interdisciplinary Uppsala Diabetes Centre (UDC). The Department has a long tradition of successful research into both type 1 and type 2 diabetes. Research in medical cell biology includes e.g. cellular and molecular mechanisms controlling the release of blood glucose-regulating hormones with the overarching goal to understand the mechanisms behind the defective hormone secretion patterns in diabetes. Insulin and glucagon from beta and alpha cells in the pancreatic islets of Langerhans are hormones with a direct impact on whole-body glucose homeostasis whereas somatostatin from delta cells exerts indirect effects on the other cell types in the islets. There are gaps in the understanding how hormone secretion is regulated by nutrients, hormones and neurotransmitters by direct effects on the different cells as well as by affecting the paracrine interactions within the islets.

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Duties

The PhD student project aims to study signalling via intracellular messengers, especially calcium ions and cyclic nucleotides, that directly control the hormone release process. The concentration of these and other signalling molecules as well as the activity of the different effector proteins will be measured in islet cells with fluorescent biosensors and advanced live-cell imaging, including confocal and total internal reflection microscopy. The project will address questions about the spatio-temporal dynamics of the messengers and how it is influenced by different regulators of islet hormone secretion, including glucose and other nutrients, peptide hormones and low molecular weight transmitter substances. Perturbation by pharmacological and genetic means will clarify the importance of specific signal steps. Hormone secretion will be measured with both optical methods and traditional immunoassays. The project includes experimental laboratory work with islets and living cell cultures, immunoassays, molecular biology work to generate biosensor constructs, advanced microscopy imaging as well as image analysis and will be conducted under supervision of professor Anders Tengholm.

The successful candidate will devote most of the time towards the research project and own graduate studies. Other service activities within the department, such as teaching and administrative work, can be included within the framework of the employment (maximum 20%). The position will be extended with the time devoted to teaching to allow four years of full-time graduate studies.

Requirements

To meet the entry requirements for doctoral studies, you must

- hold a Master's (second-cycle) degree in medicine, biomedicine, or otherwise relevant education, 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.

The individual being sought for should be highly motivated and have a particular interest in cellular endocrinology, microscopy, and experimental laboratory work. Good experience of general laboratory techniques, cell culture, gene transfer with plasmid and virus vectors, as well as of advanced fluorescence microscopy (total

internal reflection or confocal) of living cells, including pancreatic islet cells is required.

The applicant is expected to be able to teach in Swedish and English. Fluency in spoken and written English is a must.

Great emphasis will be placed on personal suitability and collaborative skills.

Additional qualifications

Competence for handling of experimental animals (FELASA C) is a strong merit.

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 as agreed.

Placement: Uppsala

For further information about the position, please contact: Anders Tengholm, 018-471 4481, anders.tengholm@mcb.uu.se

Please submit your application by May 5 2023, UFV-PA 2023/1547.

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 Medical Cell 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 sacco@uadm.uu.se

Number of reference: UFV-PA 2023/1547

Last application date: 2023-05-05

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