

Vacancies: 3 PhD student positions in biochemistry, biophysics and structural biology

Department of Biochemistry, University of Groningen, the Netherlands

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Job description

The 3 PhD students with backgrounds in biophysics or biochemistry will conduct curiosity-driven biomolecular research to investigate the working mechanism of an ABC transporter involved in cell volume regulation, using high-resolution cryo-electron microscopy, single-molecule fluorescence and biochemical assays, and develop methods to study protein networks in synthetic membrane systems. The research will be performed in the groups of Cristina Paulino and Bert Poolman of the Groningen Biomolecular Sciences and Biotechnology Institute. There will be significant interactions and collaborations between the 3 PhD students, other team members and international colleagues (*e.g.* in the context of the EU program BioInspireSensing). In addition to conducting research, there will be some teaching duties (~10% of your time).

Project

One of the outstanding questions in biochemistry and cell biology relates to the control of cell volume during growth and under environmental stress. We have found a new structural element located in the ABC transporter OpuA that may act as the ionic strength sensor and allow the transporter to be gated by osmotic stress. In addition, we have found that the 2nd messenger cyclic-di-AMP can act as a safety check for OpuA and prevent the unbridled uptake of solutes under conditions that the cell is in danger of lysis. We now aim to elucidate the full mechanism of transport of OpuA (two PhD positions with main focus on structure and function, respectively) and study the protein in the context of a synthetic network with control of vesicle volume via a mechanosensitive channel protein (one PhD position).

Qualifications

The candidates are expected to have a (research) master's degree in biophysics, biochemistry and/or molecular biology, and a strong interest in unravelling the structure-function relationship that underlies the transport mechanism of proteins. Experience with membrane proteins and protein chemistry in general, and depending on the distinct positions - experience with functional assays and fluorescence microscopy, or structural biology (specifically electron microscopy) are a plus. You have good teamwork skills, a "can-do" mentality, are perseverant and have excellent communication skills in English.

Conditions of employment

The conditions of employment are available at: <https://www.rug.nl/about-ug/work-with-us/new-staff/conditions-of-employment?lang=eng>. At our Faculty, a PhD project takes four years, during which the PhD student receives a salary. In addition, our PhD students receive an annual training budget of 675 EUR to be spent on courses, conferences, etc.

The preferred starting date should be between July and September 2021.

University of Groningen

Founded in 1614, the University of Groningen enjoys an international reputation as a dynamic and innovative center of higher education offering high-quality teaching and research. Flexible study program and academic career opportunities in a wide variety of disciplines encourage the 32,000 students and researchers alike to develop their own individual talents. The University is in the top 100 on several influential ranking lists.

Groningen Biomolecular Sciences and Biotechnology Institute, Faculty of Science & Engineering

The Groningen Biomolecular Sciences and Biotechnology Institute is a center for top-noted research and teaching in biomolecular sciences, hosting the subdisciplines biochemistry, bioinformatics, biophysical chemistry, cell biology, chemical biology, enzymology, genetics, microbiology, computational modeling, and systems biology. The focus is on curiosity-driven science, with application outlets into (industrial) biotechnology and biomedicine.

Application

Do you want to become a member of our team? Please send your application to us, by submitting the following requested documents:

- a motivation letter, in which you indicate your interest in one of the PhD position
- a complete curriculum vitae
- names and email addresses of two referees
- if available, an example research paper with a brief explanation on what sparked your interest.

You can submit your application until May 31st 2021, by sending an email to Cristina Paulino (c.paulino@rug.nl) or Bert Poolman (b.poolman@rug.nl).

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