Announcement of post-doc scholarship at the Department of Clinical Sciences, division of infection medicine

Post-doctoral position in Proteomics, host-pathogen interactions and antibody design

We are seeking a highly motivated postdoctoral scientist to join the epIgG project, a cross-disciplinary collaboration between five labs from Sweden and Switzerland. The epIgG project aims at finding and characterizing IgG antibodies that interfere with pathogenic bacteria's ability to interact with host proteins. The molecular interactions between pathogens and their hosts are critical to the infection process and knowledge gained in this project will contribute to the resolution of the looming antimicrobial resistance crisis. As a member of this group, the post holder will gain access to an important scientific network with state-of-the-art technologies and will regularly interact with PIs, postdocs and graduate students from the member groups.

This specific postdoctoral research project will involve the identification and characterization of antigen-specific IgG antibodies by quantitative mass spectrometry and structural bioinformatics. The project includes isolation of protective antibodies using affinity purification followed by analysis using different types of mass spectrometry techniques to determine primary structure, epitopes recognized and affinities to improve the understanding of the humoral immune response to a bacterial infection. This knowledge will facilitate the improvement of therapies based on the humoral immune response, such as intravenous pooled polyclonal IgG (IVIG) therapy for sepsis or vaccination strategies.

Project description
The primary goals involved in the post-doctoral project is to conduct research and to add mass spectrometry based proteomics expertise to the epIgG group. The project goals include establishing experimental workflows for isolation of antibodies followed by the development of mass spectrometry based techniques for the characterization of the isolated antibodies. The post holder will collaborate closely with other postdoctoral fellows, experts in protein chemistry, structural
biology techniques, bioinformatics and immunology. To increase your chances in a future academic career as well as contribute to the group, the post holder is expected to actively seek external funding. While the post holder is expected to focus on the mass spectrometry aspects of this project, if interested, the opportunity will also be given to gain computational experience.

**Reference number:** V 2017/1390

**Scholarship period:** The scholarship covers a period of 6 months with possibility of prolongation up to a maximum of 24 months in total.

**Preliminary start date:** Fall 2017

**Supervisor/contact person:** Johan Malmström, +46-768998232, johan.malmstrom@med.lu.se, Lars Malmström, lars.malmstrom@med.lu.se

**Qualifications**

- To be eligible for a post-doc scholarship at Lund University the recipient must hold a PhD degree within a relevant field. The PhD degree must not be from Lund University. The PhD degree must not be older than three year. The applicant must not have been employed at Lund University in the past two years.

Candidates should preferably have working experience in the following subjects:

- Ph.D. in protein chemistry, analytical chemistry, biology, biomedicine or similar
- Hands-on experience with high-end mass spectrometers such as Orbitraps
- Experience with chromatography, protein expression and protein purification
- Experience in working with bioinformatics analysis of proteomics data
- Good oral and written proficiency in English.

**Additional skills that are strongly meriting:**

- Experience with top-down and intact mass measurements using mass spectrometry
Written application, including reference number, is to be sent via e-mail to the supervisor and must include the following:

- CV
- Personal letter stating the reasons why the study suits the applicant (maximum one page)
- List of publications
- References (2)
- Copy of the PhD diploma

Application deadline: 2017-10-17

Information regarding scholarships at Lund University

- The scholarship sum is paid out quarterly
- A scholarship awarded will be reviewed every six months
- Scholarships are tax-exempt
- Scholarships do not give rise to sickness benefits, compensation from the Social Insurance Office or retirement pension.
- A scholarship holder cannot be hired after the scholarship period due to tax reasons.

References:
1. Rosenberger, George; Liu, Yansheng; Rost, Hannes; Ludwig, Christina; Buil, Alfonso; Bensimon, Ariel; Soste, Martin; Spector, Tim; Dermitzakis, Emmanouil; Collins, Ben; Malmstrom, Lars; Aebersold, Ruedi; Inference and quantification of peptidoforms in large sample cohorts by SWATH-MS. Nat Biotechnol (2017)
4. Rost, Hannes; Liu, Yansheng; DAgostino, Giuseppe; Zanella, Matteo; Navarro, Pedro; Rosenberger, George; Collins, Ben; Gillet, Ludovic; Testa, Giuseppe; Malmstrom, Lars; Aebersold, Ruedi; TRIC: an automated alignment strategy for reproducible protein quantification in targeted proteomics. Nat Methods (2016)
5. Rost, Hannes; Rosenberger, George; Navarro, Pedro; Gillet, Ludovic; Miladinovic, Sasa; Schubert, Olga; Wolski, Witold; Collins, Ben; Malmstrom, Johan; Malmstrom, Lars; Aebersold, Ruedi; OpenSWATH enables automated, targeted analysis of data-independent acquisition MS data. Nat Biotechnol (2014)

7. Herzog, Franz; Kahraman, Abdullah; Boehringer, Daniel; Mak, Raymond; Bracher, Andreas; Walzthoeni, Thomas; Leitner, Alexander; Beck, Martin; Hartl, Franz-Ulrich; Ban, Nenad; Malmstrom, Lars; Aebersold, Ruedi; Structural probing of a protein phosphatase 2A network by chemical cross-linking and mass spectrometry. Science (2012)