Do you want to take part in the foremost research to understand how gut microbes affect disease development?

PhD project: High-resolution imaging of host-microbial interactions

Visualisation of microbes and host interactions using new advanced high-resolution imaging technology

Project description
Many modern world diseases such as Inflammatory Bowel Disease (IBD) involve an interaction between diet, gut microbes, and genetic risk factors. Understanding how these factors work together is key for improving prevention and treatment. Helium Ion Microscopy (HIM) is a new advanced technology that enables visualisation of microbes and human cells at high resolutions allowing for resolving fine structures, without the need for coating e.g. used in electron microscopy. This project will combine confocal immunofluorescence microscopy with ultra-high resolution HIM to, for the first time, visualise the interaction between microbes and host-epithelium structures such as Neutrophil Extracellular Traps (NETs).

Declaration of interest regarding PhD project:
University of Southern Denmark, ALSION, and University Hospital of Southern Denmark, are looking for applicants for a PhD scholarship within the field of IBD, advanced microscopy, and pathology. Master and bachelor students are also welcomed for smaller projects.

Research environment
The PhD project is a collaboration between The University Hospital of Southern Denmark, University of Southern Denmark, the Mads Clausen Institute at Alsion, Sønderborg and Aalborg University, and include experts in confocal immunofluorescence microscopy, pathology, and HIM. The work will primarily be performed at University Hospital of Southern Denmark and Alsion,but may include a research visit to Aalborg University.

For further information about the project, please contact:
Ass Professor Jakob Kjelstrup-Hansen, Mads Clausen Institute, University of Southern Denmark, jkh@mci.sdu.dk
Pathologist, Chief Physician Jacob B. Hansen, University Hospital of Southern Denmark, Jacob.Hansen2@rsyd.dk
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Mails regarding questions for this declaration of interest must be named “HIM PhD applicant” in the subject line.

Qualifications
Our ideal candidate have a relevant Masters degree (MD, MSc. etc.) with acquired competences within the fields of pathology and/or microscopy. This project is in the cross field of pathology and microscopy, and the applicant must have an education given knowledge within one of the fields and an interest in gaining knowledge within the other field. The PhD applicant will work together with the team on preparation of the project description for enrolment at the PhD school, University of Southern Denmark, and securing missing finances for the project. Already, some finances are ensured. The PhD study is expected to be initiated September 1st, 2021 or hereafter. We wish our staff to reflect the diversity of society and thus welcomes applications from all qualified candidates regardless of personal background.