HELMHOLTZ
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INFEKTIONSFORSCHUNG

Job announcement No. 23/2018

The research group "Integrative Informatics for Infection Biology" (IIIB) of Dr. Lars Barquist, in cooperation with the group "Host-pathogen-microbiota Interactions" (HOPI) of Jun. Prof. Alex Westermann, at the Helmholtz Institute for RNA-based Infection Research (HIRI) in Würzburg (Germany) is offering a

PhD position: "RNA-seq-based analysis of microbiota-pathogen interactions".

The Helmholtz Institute for RNA-based Infection Research (HIRI) was established in May 2017 as joint venture between the Helmholtz Centre for Infection Research (HZI) and the Julius Maximilian University of Würzburg (JMU). Located on the Würzburg medical campus, it is the first research institution worldwide to exclusively address the role of ribonucleic acids (RNAs) in infection processes. Based on these findings, the HIRI will pioneer an integrative approach to exploit the vast potential of RNAs as a diagnostic molecule, target and drug for new strategies to combat infectious diseases. www.helmholtz-hzi.de/hiri

Project description:
The HIRI is recruiting a doctoral student to investigate pathogen interactions with the gut microbiota using bioinformatic approaches to complex RNA-seq datasets. The successful applicant will work with experienced bioinformaticians and experimentalists to interpret bacterial (*Salmonella* and microbiota) and host gene expression data within a variety of defined in vivo infection models, and ultimately to construct and validate hypotheses that may lead to new intervention strategies. The project will focus on the development and application of computational methods for RNA-seq, metagenomic, and metatranscriptomic time course analysis, functional interpretation, and visualization. There will be opportunities to apply the methods developed in this project to a range of host-pathogen systems studied at the HIRI, and by our national and international collaborators. Depending on the candidate, there may also be opportunities for involvement in lab work. Additional details on multi-organism RNA-seq approaches can be found in Westermann et al. (2016) Nature 529:496-501; Westermann, Barquist, and Vogel (2017) PLoS Pathogens 13(2):e1006033; Barquist, Westermann, and Vogel (2016) Phil. Trans. R. Soc. B 371:20160081. The successful applicant(s) will work in the dynamic environment of the HIRI in Würzburg, which is part of the Helmholtz Centre for Infection Research (https://www.helmholtz-hzi.de/en/).

Qualifications:
- Master's Degree/Diploma in bioinformatics, microbiology, immunology, computer science, engineering, or a related field
- Knowledge of a scripting language (Python, Perl, etc.) and R
- Experience with the Unix shell
- Basic knowledge of statistics
- Strong written and spoken English language communication skills

Desired (non-essential) background:
- Previous experience working with large-scale biological data sets, particularly RNA-seq and/or metagenomics
- Previous experience in infection biology or bacteriology
- Basic microbiology laboratory experience
- Familiarity with non-coding RNA biology and the microbiota
- Interest in machine learning, statistical modeling, and/or network inference

Equally well qualified disabled applicants will be given preference.
The HIRI expressly invites women to apply.

Starting date:	June 1, 2018 - Initial term 1 year, with the possibility of an extension of additional 2 years –
Salary:	TVöD E13 (60%)
Probation period:	6 months
Published:	April 5, 2018
Closing date:	May 6, 2018
Application:	Applicants are required to complete the online application form here: https://hzi.opencampus.net/ (Please refer to the job number 23/2018. Please enclose a cover letter, a CV, and your references and certificates.

For more details regarding the PhD project, please contact Dr. Lars Barquist via e-mail: Lars.Barquist@helmholtz-hiri.de.