



Open PhD position: Analysis of host-pathogen interactions through single-cell RNA sequencing

We have one open PhD position as part of the Manchot Graduate School Molecules of Infection IV (MOI-IV). MOI IV offers an innovative, structured training and research program in a both stimulating and interdisciplinary field of medicine and biology. Highly motivated and excellent candidates holding a MSc degree in bioinformatics, computational biology, biochemistry or related subjects are strongly encouraged to apply. The PhD position is located at Heinrich-Heine-University Düsseldorf. Supervising Investigator is Prof. Dr. Alexander Dilthey, Institut für Medizinische Mikrobiologie und Krankenhaushygiene, UKD.

Aim of the project: To characterize host cell invasion and host-pathogen interactions of *Toxoplasma gondii* and *Chlamydia trachomatis* at high resolution using scRNA-seq; to better characterize the kinetics of host defense mechanisms and the strategies employed by the pathogens to overcome these; and to integrate scRNA-seq data with existing functional data on e.g. the GBP effector molecules.

For further information and detailed project descriptions please visit our website:
<https://www.moi.hhu.de/en/open-positions>.

Qualification profile:

- Master's degree in Bioinformatics, Computational Biology, Biology, Biochemistry, medical Biology or comparable
- Proven skills in the areas of biological data science, computational biology, computer programming, or biological statistics
- Knowledge in the field of infection research
- Good communication and presentation skills
- Good team spirit, motivation and an independence work organisation

We offer:

The scholarship comprises inter alia a monthly allowance of 1,900 € over a period of 3.5 years as well as a budget for material expenses and financial support for the attendance of national and international conferences and for a temporary stay abroad.

The dissertation projects are cross-linked both in content and methodology. Within the scope of the **MOI-IV** qualification program, lectures, seminars and a lab rotation will provide the PhD



students with thorough insight into the infection biology of the three big pathogen groups of viruses, bacteria and fungi/protozoa as well as into the host's immune response. In the course of the study program, the students will be enabled to acquire extensive professional key competences. A temporary stay abroad is an integral part of each dissertation project. Yearly MOI symposia offer a platform for presenting own research results and intensive scientific exchange. An international scientific advisory board accompanies **MOI-IV** and supports the PhD students during their projects.

The Heinrich-Heine-University with more than 34,000 students forms the core of the university town Düsseldorf. As a full university with its five faculties law, economics, humanities, medicine, and mathematics & natural sciences, the HHU promotes close interdisciplinary cooperation on the regional, national and international scale. The HHU has, already for the third time, been awarded with the certificate "TOTAL E-Quality".

Closing Date:

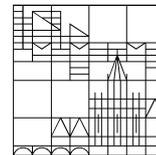
31.01.2021

IMPORTANT: Please follow application instructions of our website and download and full fill the application form. Only complete applications will be accepted. Please use the Letter of Motivation to highlight your skills in the areas of biological data science, computational biology, computer programming, or biological statistics.

<https://www.moi.hhu.de/en/open-positions>

Contact:

Please contact for further information:
Dr. Stephanie Spelberg (moi@hhu.de).



Postdoctoral Position in Microbial Ecology – Bioplastic, Biodegradation and Biofilms (f/m/d)

(full-time, E 13 TV-L)

Reference No. 2020/248. The scheduled start date is **March 1st, 2021 or by agreement**. The position is available for two years with possibility for extension. In principle, this position can be divided into two part-time positions.

The University of Konstanz is one of eleven Universities of Excellence in Germany. Since 2007 it has been successful in the German Excellence Initiative and its follow-up programme, the Excellence Strategy.

The position is available in the research team for Limnic Microbiology led by **Prof. David Schleheck** as part of a project on microbial degradation of novel plant-oil based polyethylene-like bioplastic materials in collaboration with the research teams for Chemical Materials Science led by Prof. Stefan Mecking and for Physical Chemistry led by Prof. Helmut Cölfen. The project offers an exciting opportunity for candidates wishing to conduct exceptionally innovative research with a strong interdisciplinary focus working at the interface between biology and chemistry. The working language is English.

Your responsibilities

- Establishing biodegradation tests
- Microbial community analysis
- Analytical chemistry (LC-MS, GC-MS)
- Enzymic work

Your Competencies

- PhD degree in Biology, Molecular Biotechnology, or related with outstanding results
- Documented experience in biofilm research and molecular analysis of microbial communities (meta-omics)
- Creativity and initiative, to successfully achieve goals in a team
- Enthusiasm for science at the interface of Chemistry and Biology
- Strong written and oral communication skills in English language

We Offer

- Good development opportunities, extensive training and an attractive remuneration package
- An opportunity to carry out fundamental scientific research in an international team and context
- Responsibility from day one in challenging and versatile research projects

Questions can be directed to Prof. Dr. David Schleheck *via* E-Mail: David.Schleheck@uni-konstanz.de.

We look forward to receiving your application with the usual documents until **15.01.2021** via our **Online Application Portal**.

Job Advertisement HKI-02/2021

The **Leibniz Institute for Natural Product Research and Infection Biology – Hans Knöll Institute** (Leibniz-HKI, www.leibniz-hki.de) investigates human-pathogenic germs and identifies targets for the development of medical drugs. Talented and highly qualified candidates are invited to apply for positions in the research group **Applied Systems Biology** of **Prof. Dr. Marc Thilo Figge** as

Postdoctoral Researchers (f/div/m) in Image-based Systems Biology

for two years initially with the prospect of prolongation.

Research Areas: Machine Learning, Analysis of Microscopy/Spectroscopy Data, Mathematical Modeling

In the research group **Applied Systems Biology** various positions for postdoctoral researchers are becoming available. All positions are associated with aspects of the **Image-based Systems Biology** approach. This modern computational approach comprises the automated analysis of microscopy and/or spectroscopy data based on state-of-the-art methods from machine learning as well as the computer simulation of mathematical models using advanced modeling approaches, such as state-based or agent-based techniques. We are seeking highly motivated candidates that are interested to work on the side of either machine learning and data analysis or mathematical modeling and computer simulations in experiment-driven interdisciplinary studies.

Candidate's profile:

- Doctoral degree in physics, computer science, bioinformatics or a related discipline
- Strong interest in biological systems and an educational background in biology is preferred
- Experience in machine learning and/or mathematical modeling and/or computer simulations
- Very good programming skills in Python and/or C/C++ and OpenCV
- Ability to perform team-oriented as well as independent work
- Good communication skills in English are a must

We offer:

The successful candidate will be hosted in the research group **Applied Systems Biology** of **Prof. Dr. Marc Thilo Figge**. The Leibniz-HKI is embedded in the outstanding scientific environment of the Beutenberg Campus providing state-of-the-art research facilities and a highly integrative network of life science groups. We offer a multifaceted scientific project with excellent technical facilities, a place in a dynamic, committed team, as well as strong scientific collaborations.

Salary is paid according to German TV-L (salary agreement for public service employees). As an equal opportunity employer, the Leibniz-HKI is committed to increasing the percentage of female scientists and therefore especially encourages them to apply.

Further information:

Prof. Dr. Marc Thilo Figge | +49 3641 532 1416 | career@leibniz-hki.de

Applications:

Complete applications in English, including a cover letter with a brief statement of research experiences, a CV with a complete list of publications, and the addresses of two possible referees, should be submitted by **January 31, 2021**, via the Leibniz-HKI **online application system**.

Job Advertisement HKI-01/2021

The **Leibniz Institute for Natural Product Research and Infection Biology – Hans Knöll Institute** (Leibniz-HKI, www.leibniz-hki.de) investigates human-pathogenic germs and identifies targets for the development of medical drugs. Talented and highly qualified candidates are invited to apply for positions in the research group **Applied Systems Biology** of **Prof. Dr. Marc Thilo Figge** as

Doctoral Researchers (f/div/m) in Image-based Systems Biology

for three years initially with the intention to obtain the doctoral degree.

Research Areas: Machine Learning, Analysis of Microscopy/Spectroscopy Data, Mathematical Modeling

In the research group **Applied Systems Biology** various positions for doctoral researchers are becoming available. All positions are associated with aspects of the **Image-based Systems Biology** approach. This modern computational approach comprises the automated analysis of microscopy and/or spectroscopy data based on state-of-the-art methods from machine learning as well as the computer simulation of mathematical models using advanced modeling approaches, such as state-based or agent-based techniques. We are seeking highly motivated candidates that are interested to work on the side of either machine learning and data analysis or mathematical modeling and computer simulations in experiment-driven interdisciplinary studies.

Candidate's profile:

- Master's degree (or equivalent) in physics, computer science, bioinformatics or a related discipline
- Strong interest in biological systems and an educational background in biology is preferred
- Experience in machine learning and/or mathematical modeling and/or computer simulations is beneficial
- Very good programming skills in Python and/or C/C++ and OpenCV
- Ability to perform team-oriented as well as independent work
- Good communication skills in English are a must

We offer:

The successful candidate will be hosted in the research group **Applied Systems Biology** of **Prof. Dr. Marc Thilo Figge**. The Leibniz-HKI is embedded in the outstanding scientific environment of the Beutenberg Campus providing state-of-the-art research facilities and a highly integrative network of life science groups. We offer a multifaceted scientific project with excellent technical facilities, a place in a dynamic, committed team, as well as strong scientific collaborations. The PhD candidates will participate in the structured program of the **International Leibniz Research School** and become an associated member of the **Jena School of Microbial Communication**.

Salary is paid according to German TV-L (salary agreement for public service employees). As an equal opportunity employer, the Leibniz-HKI is committed to increasing the percentage of female scientists and therefore especially encourages them to apply.

Further information:

Prof. Dr. Marc Thilo Figge | +49 3641 532 1416 | career@leibniz-hki.de

Applications:

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Job Advertisement HKI-49/2020

The **Leibniz Institute for Natural Product Research and Infection Biology – Hans Knöll Institute** (Leibniz-HKI, www.leibniz-hki.de) investigates the pathobiology of human-pathogenic fungi and identifies targets for the development of novel natural product-based antibiotics. The newly established **Department of Infection Immunology** invites talented and highly gifted candidates to apply as a

Doctoral Researcher (f/div/m) in T-Cell Immunology

for three years.

Research Area:

The **Department of Infection Immunology** addresses fundamental questions about the mechanistic basis of human T-cell memory formation, stabilization, and modulation. It also investigates T-cell communication with the local tissue microenvironment in settings of infections, autoimmunity and cancer. This research has unraveled several novel T-cell functions and immunomodulatory factors. The department uses novel cutting-edge technologies in the area of high-dimensional single-cell analysis (scRNAseq, Spectral flow cytometry) to translate fundamental insights into translational applications for human health and disease. The prospective candidate will have the opportunity to investigate the metabolic regulation of human tissue resident T-cells and their crosstalk with the microenvironment.

Requirements:

- A Master's degree (or equivalent) in life sciences or in computational biology.
- Experience in flow cytometry, cell culture and in high dimensional single-cell data analysis and programming skills are a plus.
- You are able to work in an independent, quality-oriented fashion, and you are open to new challenges.
- Very good communication and collaboration skills in English are required, German knowledge would be a plus.

We offer:

- A modern workplace in a brand-new building, with top equipment (Cytex Aurora, etc.)
- Participation in research projects in immunology
- A highly dynamic young team in a thriving research environment in a Leibniz Institute with many large collaborative projects such as the Excellence Cluster Balance of the Microverse
- Participation for the PhD candidates in the structured program of the **International Leibniz Research School** and become an associated member of the **Jena School of Microbial Communication**.

The successful candidate will be hosted in the **Department of Infection Immunology**. The Leibniz-HKI is embedded in the outstanding scientific environment of the Beutenberg Campus providing state-of-the-art research facilities and a highly integrative network of life science groups. We offer a multifaceted scientific project with excellent technical facilities, as well as strong scientific collaborations.

Salary is paid according to German TV-L (salary agreement for public service employees). As an equal opportunity employer the Leibniz-HKI is committed to increasing the percentage of female scientists and therefore especially encourages them to apply.

Further information:

Prof. Dr. med. Christina Zielinski | +49 3641 532 1251 | career@leibniz-hki.de

Applications:

Complete applications in English should include a cover letter, a CV containing a complete list of publications, a brief statement of research experiences, the addresses of two possible referees, and should be submitted by **January 31, 2021**, via the Leibniz-HKI **online application system**.



Job Advertisement HKI-48/2020

The **Leibniz Institute for Natural Product Research and Infection Biology – Hans Knöll Institute** (Leibniz-HKI, www.leibniz-hki.de) investigates the pathobiology of human-pathogenic fungi and identifies targets for the development of novel natural product-based antibiotics. The newly established **Department of Infection Immunology** invites talented and highly gifted candidates to apply as a

Postdoctoral Researcher (f/div/m) in T-Cell Immunology

for four years initially with a possibility for extension.

Research Area:

The **Department of Infection Immunology** addresses fundamental questions about the mechanistic basis of human T-cell memory formation, stabilization, and modulation. It also investigates T-cell communication with the local tissue microenvironment in settings of infections, autoimmunity and cancer. This research has unraveled several novel T-cell functions and immunomodulatory factors. The department uses novel cutting-edge technologies in the area of high-dimensional single-cell analysis (scRNAseq, Spectral flow cytometry) to translate fundamental insights into translational applications for human health and disease. The prospective candidate will have the opportunity to investigate the metabolic regulation of the human tissue resident T-cells and their crosstalk with the microenvironment.

Requirements:

- A PhD degree (or equivalent) in life sciences with an excellent productivity record.
- Experience in flow cytometry, cell culture and high-dimensional single-cell data analysis.
- Bioinformatic programming skills are a plus.
- You are able to work in an independent, quality-oriented fashion, and you are open to new challenges.
- Very good communication and collaboration skills in English are required, German knowledge would be a plus.

We offer:

- A modern workplace in a brand-new building, with top equipment (Cytex Aurora, etc.)
- Participation in research projects in immunology
- Experienced postdoctoral candidates will be given the opportunity to supervise students and to develop their own independent research agenda.
- A highly dynamic young team in a thriving research environment.
- A Leibniz Institute with many large collaborative projects such as the Excellence Cluster Balance of the Microverse.

The successful candidate will be hosted in the **Department of Infection Immunology**. The Leibniz-HKI is embedded in the outstanding scientific environment of the Beutenberg Campus providing state-of-the-art research facilities and a highly integrative network of life science groups. We offer a multifaceted scientific project with excellent technical facilities, as well as strong scientific collaborations.

Salary is paid according to German TV-L (salary agreement for public service employees). As an equal opportunity employer the Leibniz-HKI is committed to increasing the percentage of female scientists and therefore especially encourages them to apply.

Further information:

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