



The Molecular Cell Infection Division at Osnabrück University

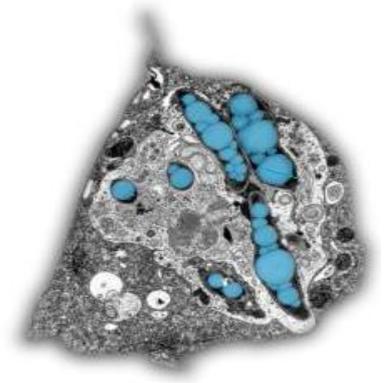
invites applications for

One PhD Researcher

to work on

“Impact of host cell lipid flows on mycobacterial infection”

PROJECT BACKGROUND - Tuberculosis is caused by *Mycobacterium tuberculosis* (*Mtb*) and is responsible for 1.6 million deaths worldwide every year. The high lipid content of this pathogen accounts for many of its unique clinical manifestations. One of the main characteristics of Tb is the formation of lipid-loaded, foamy macrophages during chronic infection. A growing body of evidence indicates that *Mtb* mobilizes lipid droplets (LDs) to scavenge lipids from their host cell. However, how this pathogen remodels the lipid metabolic network of the host to support its persistent lifestyle is so far poorly understood. We will launch a first systematic effort to unravel the molecular mechanisms by which mycobacteria acquire and exploit host lipids using the *Dictyostelium/Mycobacterium marinum* infection model. To this end, we will chart the lipid flows between mycobacteria and their hosts that are potentially relevant for infection and identify lipid species acquired by intracellular mycobacteria using metabolic tracing studies and mass spectrometry lipidomics. In addition, we plan to disrupt lipid flows from the host to the pathogen during infection using genetics or drugs. With the help of fluorescent and clickable lipid probes, we will first analyse the impact of these disruptions on host-to-pathogen lipid flows. Next, we will determine the consequences of blocking specific lipid supply routes on various stages of the mycobacterial infection course. Collectively, these efforts may uncover novel therapeutic targets to fight mycobacteria infection.



***Dictyostelium* cell infected with *M. marinum* (blue), from Barisch and Soldati 2017 (PLOS Pathogens).**

Refs: Barisch et al. (2015), Cell Microbiol, doi : 10.1111/cmi.12437 ; Barisch and Soldati (2017), PLoS Pathog, doi: 10.1371/journal.ppat.1006095; Barisch and Soldati (2017), Biochimie, doi: 10.1016/j.biochi.2017.06.001

HOST INSTITUTE - The successful candidate will join an international team of researchers with expertise in lipid and molecular biology as well as a diversity of imaging techniques. The UOS is a young university located in the historical town of Osnabrück, the only German city situated in a national park. The Molecular Infection Biology Division, headed by Dr. Caroline Barisch, is embedded in the recently established interdisciplinary Research Institute CellNanOS (www.cellnanos.uni-osnabrueck.de) and the Collaborative Research Center “SFB944: Physiology and Dynamics of Cellular Microcompartments”, which comprises 14 research groups from the Universities of Osnabrück and Münster whose common focus is thematically and methodologically linked to the projects. The Division and Research Centers offer outstanding scientific environments as well as direct access to state-of-the-art facilities in synthetic chemistry, chemical biology, biomolecular mass spectrometry and super-resolution microscopy (<https://www.ibios.uni-osnabrueck.de>).

REQUIREMENTS - We are looking for an ambitious and interactive individual with a master degree in cell biology, microbiology or biochemistry. A solid background in diverse microscopy techniques and molecular biology and a general interest in cellular microbiology and host-pathogen interactions would be advantageous. Perseverance and the aspiration to work in a strongly interdisciplinary research environment are essential.

CONDITIONS OF EMPLOYMENT - The application deadline is **15 November 2019**. The positions will be filled as soon as possible. The initial period of employment is 3 years. A 1-year extension is anticipated. Salary is at the E13/50% level according to the German TV-L scale. The UOS is an equal-opportunity employer and especially encourages women to apply. Applications from handicapped persons will be favoured if all other qualifications are equal.

HOW TO APPLY - Please send applications including Curriculum Vitae, a cover letter describing your motivation and contact details of three academic references as a **single PDF file** by 15 November 2019 to: caroline.barisch@uni-osnabrueck.de. Further information can be obtained from Dr. Caroline Barisch, phone: +49 (0) 541969 7232 or by visiting our website: www.biologie.uni-osnabrueck.de/en/research/molecular_infection_biology.html.