

The **Bernhard Nocht Institute for Tropical Medicine** ([www.bnitm.de](http://www.bnitm.de)) is the largest Research Institute for Tropical Medicine in Germany and is the National Reference Centre for Tropical Pathogens, a WHO Collaborating Centre and member of the Leibniz Research Association.

The **group of Dr. Joachim Michael Matz** at the Department of Cellular Parasitology of the Bernhard Nocht Institute for Tropical Medicine in Hamburg is looking for a highly motivated

## PhD Student (m/f/d)

to study

### hemozoin formation and digestive vacuole physiology in human malaria parasites

#### Description of the project:

Malaria is a mosquito-borne disease that puts half of the world's population at risk of infection. It is caused by unicellular *Plasmodium* parasites, which repeatedly invade and lyse red blood cells in the human bloodstream. Throughout its development within the erythrocyte, the parasite ingests ~80% of the host cell cytoplasm, which is then catabolized in an acidic digestive vacuole. Proteolytic cleavage of hemoglobin releases the co-factor heme, which is highly toxic in its unbound form. To avoid cell damage, the parasite sequesters the host-derived heme into bioinert crystals known as hemozoin, which accumulate in the digestive vacuole. The transition from hemoglobin to hemozoin is essential for parasite survival and is exploited in antimalarial chemotherapy. In our group, we study the physiology and molecular machinery of the parasite's digestive vacuole as well as other parasite adaptations that are essential for blood stage survival.

The PhD project focuses on the identification and characterization of proteins and physicochemical factors that promote hemozoin formation in the human malaria parasite *Plasmodium falciparum*. In close interaction with other malaria research groups, the successful candidate will receive a comprehensive training in molecular and cell biology, ranging from the generation of transgenic cell lines (Cas9, DiCre, etc...) to the application of various state-of-the-art imaging techniques, such as live fluorescence microscopy, time-lapse microscopy, polarization microscopy and electron microscopy.

#### Literature:

- Matz JM. *Plasmodium*'s bottomless pit: properties and functions of the malaria parasite's digestive vacuole. Trends Parasitol. 2022; S1471-4922(22)00040-X
- Matz JM, Drepper B, Blum TB, van Genderen E, Burrell A, Martin P, Stach T, Collinson L, Abrahams JP, Matuschewski K, Blackman MJ. A lipocalin mediates unidirectional heme biomineralization in malaria parasites. PNAS. 2020; 117:16546–56.

#### Your Profile:

- Diploma/master degree or equivalent in life sciences
- Background in molecular and cellular biology

- Interest in parasitology
- Excellent teamwork and communication skills
- Proficiency in English (written and spoken)
- Ability to work independently and to develop creative work

#### Our benefits:

- An interesting and challenging research project
- Comprehensive training in state-of-the-art genetic and microscopic techniques
- Integration into an open-minded, collaborative, and highly motivated research team
- A structured PhD training program and opportunities for further education and training
- A chance to participate in national and international conferences
- A central and easily accessible location close to the Landungsbrücken
- Flexible and family-friendly working hours
- Childcare subsidy
- Subsidy for HVV-ProfiTicket
- Company pension scheme
- Special conditions in selected sports and fitness clubs in Hamburg

Starting date will be as soon as possible, most likely early next year. The position is initially limited to 3½ years and is remunerated with 65% E 13 TV-AVH according to the rules of the public service under the TV-AVH (collective agreement of the “Arbeitsrechtliche Vereinigung Hamburg“).

We support our employees in achieving a healthy work-life balance and promote the professional equality of women and men. We strive to assist women in their scientific career, increase the number of women in research and reduce under-representation in all areas and positions in general. Applicants with disabilities will be given preference when equally qualified.



As a member of the Diversity Charter, the largest diversity management network in Germany, we are also committed to making diversity an integral part of our institute culture. It is our goal to create a working environment that is free of prejudice.

Please apply **by 20.02.2023** preferably via our **online form** with a motivation letter, CV, high school and university certificates and the names and contact information of two references. Alternatively, you can submit your application referring to "**PhD\_Celluar Parasitology**" via postal mail to: Bernhard Nocht Institute for Tropical Medicine, Ms. Katja Bünger, HR Department, Bernhard-Nocht-Str. 74, 20359 Hamburg, Germany.

If you have any questions regarding the application process or the selection procedure, please contact Ms. Katja Bünger (buenger@bnitm.de) from the Human Resources Department.

For further questions please contact Dr. Joachim Michael Matz (joachim.matz@bnitm.de) or Prof. Dr. Tim-Wolf Gilberger (gilberger@cssb-hamburg.de).