

We are looking for medical doctors interested in the MD-PhD program of the German Center for Infection Research (DZIF)

The DZIF MD-PhD program

- Aimed at MDs (Physicians - *Ärzte* - or Dr. med.) in active patient service
- Allows the acquisition of a Dr. rer. nat. (3-4 years) and is intended to educate a new generation of doctors with experience in medical research.
- Applications are submitted to the DZIF in conjunction between the applicant and the host laboratory.
- If successful, the applicant will be released from clinical duties at full pay to devote himself/herself to the research project in the host laboratory.
- Next opportunity to submit proposals in Feb/March 2025.

Who is eligible for the MD-PhD Program?

- MDs (Physicians - *Ärzte* - or Dr. med.) in active patient service in a **German hospital**.
- Advanced medical students nearing completion of medical studies **in Germany**.
- Physicians (*Ärzte*) and advanced medical students without the „Dr. med.“ are expected to hand in their medical doctoral thesis before starting their MD/PhD program. An approximate date for the Dr. med. defense must be included in the application.

Proposed Project of the Host laboratory of S. Heilbronner: “Nasal probiotics to prevent colonization with *Staphylococcus aureus*”

Background:

- The pathogen *Staphylococcus aureus* colonizes the anterior nares of about 1/3 of all humans.
- Colonization is the starting point of serious infections in the healthcare setting.
- Antibiotic-resistant strains are a worldwide concern.
- Eradicating *S. aureus* from the nose can prevent infections, but sustainable strategies to achieve this are lacking.

Objectives:

- Development of synthetic nasal communities to prevent *S. aureus* colonization.
- Which nasal bacteria inhibit *S. aureus* growth?
- What molecular mechanisms underly this phenomenon?

Strategies and approach:

- *In vitro* interaction with *S. aureus*:
We investigate the interactions of *S. aureus* with the other members of the human nasal microbiome under laboratory conditions -> *hundreds of different strains of dozens different species, high-throughput methodology (robotics) qPCR, genomics, competitive index analysis.*
- *In vivo* relevance.
Which nasal bacteria or synthetic communities can prevent nasal colonization of *S. aureus*? -
> *Nasal colonization models in germ-free animals*

How to apply:

- If you meet the criteria for eligibility and are interested in the proposed topic, please contact simon.heilbronner@lmu.de.
- The application process involves the writing of a grant application in conjunction of the applicant and the host.
- The application will be submitted to the DZIF-Academy and evaluated by an independent review panel.