



The Technische Universität Braunschweig in collaboration with Helmholtz Centre for Infection Research and Ostfalia University of Applied Sciences initiate the doctoral program "Drug Discovery and Cheminformatics for New Anti-Infectives" (iCA) which is granted by the Ministry of Science and Culture of Lower Saxony.

Our core mission is to investigate fundamental principles of drug discovery by combining life sciences and digital sciences. The affiliated program of the iCA consortium offers an ambitious, structured and interdisciplinary training based on top-level fundamental research.

A total of **15 Georg-Christoph-Lichtenberg fellowships** are awarded as part of the doctoral program. The individual scholarship has a duration of three years and consists of a basic monthly amount of 1,400 Euro as well as a contribution towards material costs of 100 Euro per month. iCA supports doctoral projects in various fields of life sciences and digital sciences (e.g. medicinal chemistry, cheminformatics, infection biology, theoretical chemistry, biostatistics). Details of the individual projects offered can be found below.

We are recruiting engaging and motivated candidates to join our doctoral program. Important for all candidates will be the willingness to collaborate widely and to look beyond traditional disciplines to further our mission.

What we expect

- A degree (MSc or equivalent) in natural sciences (e. g. pharmacy, medicinal chemistry, infection biology, biostatistics) or comparable;
- Highly motivated individuals with an interest in interdisciplinary research areas;
- The ability to work creatively and independently towards developing your own research project;
- A collaborative personality with enthusiasm for actively participating in the iCA program;
- Excellent English communication skills, both written and spoken.

What we offer

- A highly communicative atmosphere within a scientific network focused on drug discovery;
- A comprehensive mentoring program and soft skill courses for doctoral candidates;
- Braunschweig – the Lion City: a young and lively town rich in tradition and culture.

Applications from motivated and qualified candidates interested in a doctorate within the framework of the doctoral program are welcome. The scholarships are to start in the period from February to July 2020. Please send your application documents (letter of motivation, curriculum vitae, certificates, etc.) combined in a single PDF file (max. 15 MB) by email to:

pvz-apply@tu-braunschweig.de

Please select your project(s) and include the number(s) of the projects in question in your email and prioritize your choice. Applications for up to three of the following projects are possible.

Application deadline: 31 December 2019

Open PhD Projects

Project #1: Data Analysis of Drug-Protein-Interactions

Supervision: Prof. Dr. Knut Baumann

Institute of Medicinal and Pharmaceutical Chemistry, TU Braunschweig

→ [Detailed project description](#)

Project #2: Polyprenylated Xanthenes Against Multiresistant *Staphylococcus aureus*

Supervision: Prof. Dr. Ludger Beerhues

Institute of Pharmaceutical Biology, TU Braunschweig

→ [Detailed project description](#)

Project #3: PhzF-like Isomerases as Targets for New Pharmaceuticals

Supervision: Prof. Dr. Wulf Blankenfeldt

Department Structure and Function of Proteins, Helmholtz Centre for Infection Research, Braunschweig

→ [Detailed project description](#)

Project #4: Chemical Probes for the Mode of Action Analysis of Novel Antibacterial Lead Structures

Supervision: Prof. Dr. Mark Brönstrup

Department Chemical Biology, Helmholtz Centre for Infection Research, Braunschweig

→ [Detailed project description](#)

Project #5: Colloidal Lipid Particles for Targeting Intracellular Infections

Supervision: Prof. Dr. Heike Bunjes

Institute of Pharmaceutical Technology, TU Braunschweig

→ [Detailed project description](#)

Project #6: Quantum-Chemical Embedding Methods for Modeling Protein–Drug Interactions

Supervision: Prof. Dr. Christoph Jacob

Institute of Physical and Theoretical Chemistry, TU Braunschweig

→ [Detailed project description](#)

Project #7: Methods of Statistics and Bioinformatics for Joint Analysis of *in vitro* and *in vivo* Expression and High-resolution Time-lapse Microscopy Data

Supervision: Prof. Dr. Frank Klawonn

Institute for Information Engineering, Ostfalia University of Applied Sciences

→ [Detailed project description](#)

Project #8: Cyathane as Neutrophin-inducing Host-specific Anti-infectious Compounds Against *Staphylococcus aureus*

Supervision: Prof. Dr. Reinhard Köster

Zoological Institute, TU Braunschweig

→ [Detailed project description](#)

Project #9: Computer-aided Design of Inhibitors of the Bacterial Enzyme PhzF

Supervision: Prof. Dr. Conrad Kunick

Institute of Medicinal and Pharmaceutical Chemistry, TU Braunschweig

→ [Detailed project description](#)

Project #10: Structure-based Anti-infective Discovery Using Machine Learning

Supervision: Prof. Dr. Alice C. McHardy & Prof. Dr. Anna K. H. Hirsch

Department of Computational Biology of Infection Research, Helmholtz Centre for Infection Research, Braunschweig & Department of Drug Design and Optimization, Helmholtz Institute for Pharmaceutical Research Saarland (HIPS), Saarbrücken

→ [Detailed project description](#)

Project #11: Organometallic Anti-infectives as Inhibitors of Thioredoxin or Trypanothione Reductase

Supervision: Prof. Dr. Ingo Ott

Institute of Medicinal and Pharmaceutical Chemistry, TU Braunschweig

→ [Detailed project description](#)

Project #12: Molecular Properties and Solubilities of organometallic Anti-infectiva

Supervision: PD Dr.-Ing. Gabriele Raabe

Institute for Thermodynamics, TU Braunschweig

→ [Detailed project description](#)

Project #13: Polycationic Oligomers as Lead Structures for New Anti-infectives for the Treatment of Acanthamoeba Keratitis

Supervision: Prof. Dr. Stephan Reichl

Institute of Pharmaceutical Technology, TU Braunschweig

→ [Detailed project description](#)

Project #14: High-content Screening and Determination of the Pharmacokinetics of Potential Biofilm Inhibitors from Fungi

Supervision: Prof. Dr. Marc Stadler & Dr. Mathias Müssen

Department of Microbial Drugs & Central Facility for Microscopy, Helmholtz Centre for Infection Research, Braunschweig

→ [Detailed project description](#)

Project #15: N-Heterocyclic Carbene-Carboxylate Complexes as Anti-Infectives

Prof. Dr. Matthias Tamm

Institute of Inorganic and Analytical Chemistry, TU Braunschweig

→ [Detailed project description](#)