



UNIVERSITY
OF COLOGNE

Faculty of Mathematics and Natural Sciences

PhD student (f/m/x) in biological physics & systems biology

Institute for Biological Physics | Bollenbach Group



Foto: Thomas Jösel

We are one of the largest and oldest universities in Europe and one of the most important employers in our region. Our broad range of subjects, the dynamic development of our main research areas and our central location in Cologne make us attractive for students and researchers from around the world. We offer a wide range of career opportunities in science, technology, and administration.

Within the framework of Collaborative Research Center 1310 »Predictability in Evolution«, the Bollenbach group at the Institute of Biological Physics investigates the evolution of antibiotic resistance in microbial systems. The group combines methods from molecular and microbiology with concepts and techniques from physics.

YOUR TASKS

- » Perform evolution experiments with *E. coli* lab strains and clinical isolates that infect host immune cells, particularly macrophages.
- » Analyze evolving bacterial populations, in particular using genome barcoding assays and next-generation sequencing.
- » Characterize the molecular mechanisms underlying resistance and the role played by immune system pressure.
- » Develop theoretical models of resistance evolution in collaboration with theorists.

YOUR PROFILE

- » Very good MSc degree in evolutionary biology, biotechnology, microbiology, biological physics, or a related field.
- » Strong interest in working in an interdisciplinary research group between physics and biology.
- » Previous knowledge of mammalian cell culture, microbiology techniques, or programming is an advantage but not essential.
- » Strong communication skills are required.
- » Applicants should be highly motivated and independent.

WE OFFER

- » An interactive and supportive research environment
- » A diverse working environment with equal opportunities
- » Support in balancing work and family life
- » Extensive advanced training opportunities
- » Occupational health management offers
- » Flexible working time models

The University of Cologne promotes equal opportunities and diversity. Women will be considered preferentially in accordance with the Equal Opportunities Act of North Rhine-Westphalia (Landesgleichstellungsgesetz – LGG NRW). We also expressly welcome applications from all suitable candidates regardless of their gender, nationality, ethnic and social origin, religion, disability, age, sexual orientation and identity.

The position is available immediately on a part-time basis (65% / 25,89 hours per week). The position is to be filled for a fixed term until 31 December 2029. If the applicant meets the relevant wage requirements and personal qualifications, the salary is based on remuneration group 13 TV-L of the pay scale for the German public sector.

Please apply online with proof of the required qualifications without a photo under: <https://jobportal.uni-koeln.de>. The reference number is Wiss2609-05. The application deadline is 26 October 2026.

For further inquiries, please contact Dr Francesca Macaluso (fmacalus@uni-koeln.de) or Professor Dr Tobias Bollenbach (t.bollenbach@uni-koeln.de) and take a look at our [FAQs](#).



HR EXCELLENCE IN RESEARCH