

## High-throughput screening of bacterial motility in the context of human health

The Grognot Lab (RWTH Aachen, Germany) is offering a PhD position with flexible start date before end of 2026. The position is remunerated according to the DFG's [pay scale](#) TV-L E13 (65%).

### The Lab.

We are a young interdisciplinary lab at the University Hospital of RWTH in beautiful [Aachen](#). Our research focuses on the biophysics of host-microbe interactions, using and extending quantitative methods to assess how microbes navigate the host environment.

[More information here.](#)

### The Main Project.

Many bacteria can swim using one or several flagella. The ability to swim can improve their performances in spreading, finding food, surviving, finding local niches, etc... In our gut, the rise in expression of flagella has been linked to inflammatory conditions (e.g. in IBD) as well as improved infectivity of enteric pathogens.

Within the context of the research consortium [CRC1382 Gut-Liver axis](#), we have directly interrogated how gut bacteria swim and constructed new techniques to assess motility across the full diversity of the gut microbiota. The PhD's work will take place in this context, further exploring (1) the diversity, (2) the medical relevance and (3) the modulation by gut environmental conditions of bacterial motility (in both commensals and pathogens).

### Your Profile.

We are seeking a student with a multidisciplinary profile, combining experience or knowledge in at least 2 of the following:

- Biological sciences and Microbiology.
- Microscopy techniques and/or Optics
- Pharmaceuticals with a molecular biology emphasis
- Machine learning approaches in biological questions/contexts
- Bioinformatics for metagenomic analysis
- Active soft matter

### We additionally require both:

- Experience in coding (ideally MATLAB or Python, but other languages are also an asset).
- A good knowledge of English, equivalent to at least a C1 level.

We are open to a diversity of backgrounds, from biomedical engineering students to microbiologists, granted that you have a strong interest in quantitative analysis of biological phenomena and are ready to learn new microbiology methods (gut microbes are tricky!).

### The Application Documents and Timeline.

We will receive applications until the position is filled: do not wait to send yours!

Please submit to Pr. Marianne Grognot ([mgrognot@ukaachen.de](mailto:mgrognot@ukaachen.de)) the following:

- A detailed CV
- Semester transcripts from your master's degree -if not available for the last semester, please provide a list of the attended courses.
- A succinct letter of motivation (which can be the body of the email), including a clear explanation of your match to the project.

You will be contacted within 3 weeks of submitting your application if we wish to go forward and offer an online interview with the whole team. You are welcome to contact us informally with any question relating to this offer.