



Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,500 employees in one of Europe's biggest research centres and help us to shape change!

As a leading research institution for microbial biotechnology the Institute of Bio- and Geosciences - Biotechnology (IBG-1) at Forschungszentrum Jülich focuses on molecular and applied microbiology. Our research group Microscale Bioengineering has been successfully developing microfluidic tools for applied research in Industrial Biotechnology and fundamental research in microbiology since 2010. We are pioneers in the field. Our mission is to engineer bottom-up concepts for microbial single-cell analysis to tackle questions that cannot be answered by applying conventional systems at laboratory scale. In highly interdisciplinary projects, we exploit the potential of cultivations at the femto- to picoliter scale, revealing unseen insights into mixed cultures, population heterogeneity, cellular interactions, single-cell physiology and more.

Please find more information here: <https://www.fz-juelich.de/de/ibg/ibg-1>

We are looking to recruit a

Postdoc / Research Engineer - Microfluidics and Microbial Single-Cell Analysis

Your Job:

This position is ideal for postdocs with a passion for innovation, interdisciplinary science, and entrepreneurial impact.

At the IBG-1 at Forschungszentrum Jülich (FZJ) and within a multidisciplinary Helmholtz and University consortium (FZJ, HZI, Helmholtz Munich and HHU), we are creating a unique platform to monitor and steer how living, therapeutic gut-microbes compete with multidrug-resistant pathogens. In this position as a postdoc you will develop innovative microfluidic habitats that generate precisely controlled oxygen and nutrient dynamics for high-throughput microbial invasion assays and live-cell imaging. Working at the interface of microfluidics, quantitative microbiology, and AI-assisted microscopy, you will transform

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our

Online-Recruitment-System!

Questions about the vacancy?

Get in touch with us by using **our contact form**.

Please note that for technical reasons we cannot accept applications via email. www.fz-juelich.de

these methods into a robust screening platform. Beyond fundamental discovery, your work will foster translational applications and commercialization pathways, paving the way for spin-off ventures in microbiome diagnostics, probiotic development, and microfluidic automation.

Your tasks in detail:

- Design and fabricate microfluidic cultivation chips emulating colon-like oxygen and nutrient dynamics and gradients for high-throughput operation. Therefore, develop and Implement dual-layer gas–fluid architectures (Kasahara et al., LOC 2025) and SLE-glass top layers to achieve fine oxygen control
- Conduct microbial co-cultivation experiments on model gut communities under controlled conditions and integrate chip systems with AI-assisted live-cell microscopy for autonomous feedback imaging and data analysis.
- Contribute to trainings, technology transfer and perform lab rotations across Helmholtz centers.
- Publish results in high-impact journals and present on international conferences.
- Explore funding opportunities for potential spin offs

Your Profile:

- Masters degree with subsequent PhD in microfluidics, bioengineering, biotechnology, biophysics, or closely related field, with demonstrated expertise in microfluidics design and fabrication.
- Proven experience with live-cell imaging, quantitative analysis, and automated microscopy workflows.
- Excellent interdisciplinary communication, teamwork, and presentation skills, with confidence engaging across biology, engineering, and data science.
- Scientific writing skills and first journal publications
- Experience in programming (e.g. Python, MATLAB) for experiment control and data analysis is advantageous.
- Self-motivated, organized, and open to collaborative, cross-institutional research.
- Fluent in English; German is a plus but not required.

Our Offer:

We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We support you in your work with:

- State-of-the-art facilities for microfabrication (Helmholtz Nano Facility) and automated live-cell microscopy, and microbial physiology.
- Comprehensive training courses and individual opportunities for personal and professional further development
- Opportunities to engage in technology translation and spin-off preparation within FZJ's innovation ecosystem.
- Extensive company health management
- Ideal conditions for balancing work and private life, as well as a family-friendly corporate policy
- A full-time position (39h/week) with flexible working hours, and 30 days of annual leave
- A large research campus with green spaces, offering the best possible means for networking with colleagues and pursuing sports alongside work
- Targeted services for international employees, e.g. through our International Advisory Service
- Exploration and preparation of next career opportunities supported by our Career Center & Postdoc Office (<https://www.fz-juelich.de/careercenter>)

We offer you an exciting and varied role in an international and interdisciplinary working environment. Salary and social benefits will conform to the provisions of the Collective Agreement for the Public Service (TVöD-Bund), pay group 13, depending on the applicant's qualifications and the precise nature of the tasks assigned to them. All information about the Collective Agreement for the Public Service (TVöD-Bund) can be found on the BMI website: <https://go.fzj.de/bmi.tvloed> The monthly salaries in euro can be found here: <https://go.fzj.de/bmi.tvloed.entgelt>

In addition to exciting tasks and a collaborative working atmosphere at Jülich, we have a lot more to offer: <https://go.fzj.de/benefits>

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

Further information on diversity and equal opportunities: <https://go.fzj.de/equality> and on specific support options: <https://go.fzj.de/womens-job-journey>