

The Helmholtz Centre for Environmental Research - UFZ is a research institution within the Helmholtz Association. It provides scientific contributions to the safeguarding of the natural basis of life and of human development potentialities for current and future generations under the challenges of global and climate change. In this way the UFZ contributes towards a sustainable development.

The Department of Environmental Microbiology, Working group Flow Cytometry is inviting applications for a

**PhD position (m/f)**  
**code digit: 35/2011**

The position is granted within Subproject 3 '**Analyzing whole-cell biocatalyst performances at the single-cell level.**' and part of the ERA-IB Consortium '***Pseudomonas* 2.0: industrial biocatalysis using living cells**'.

The successful candidate will have the unique opportunity to work within an European consortium of well known microbial biotechnologists and industrial partners. The basic objective is to exploit the innate potential of *Pseudomonas* by a combination of thorough systems analysis and the construction of a novel *Pseudomonas* 2.0 strain using a Synthetic Biology approach. The *Pseudomonas* strains will be characterized with respect to their performance in an industrial environment. In detail, to improve the biocatalytic performance (e.g., production of (*S*)-styrene epoxide) of *Pseudomonas* the carbon and energy metabolism will be engineered. Metabolic and regulatory mechanisms complicating industrial applications will be studied such as solvent tolerance adaptation, product yield, and cell-to-cell variability.

The work will be done in close cooperation with the Department of Biochemical and Chemical Engineering at the TU Dortmund and the Institute of Bioprocess Engineering at the University Stuttgart. The work in Leipzig will focus on cell-to-cell variability and include (1) the determination of population heterogeneity using single-cell analytics like flow cytometry, (2) the monitoring of cell heterogeneity in eGFP-tagged protein expression during cultivation, and (3) the study of the causes of cell heterogeneity by introducing Omics-approaches (e.g. proteomics).

The ideal candidate has a background in molecular genetics and/or metabolome/proteome applications. We expect a strong knowledge in biochemistry, an understanding of cell biology, and the combination of organisational skills and strong personal responsibility. The ideal candidate has a proven experience in use of web-based library tools and is fluent in spoken and written English. The desire to engage in collaborative research is essential.

The research of the Flow Cytometry group at the Department of Environmental Microbiology of the Helmholtz Centre for Environmental Research UFZ focussed on developing schemes for optimization of biotechnological processes on the basis of individual microbial cell states. The group has wide experiences in microbial community analysis of natural ecosystems and has developed basic approaches for combining microbial single-cell analytics with omics-technologies. We provide extensive scientific networks both nationally and internationally and a young and highly collaborative research environment.

The position is available for 3 years. It will be located at the Helmholtz Centre for Environmental Research, Leipzig, Germany, with a salary according to TVÖD 13 (65%). The successful candidate can participate in the Graduate School HIGRADE (<http://www.ufz.de/index.php?en=11429>). Women are explicitly encouraged to apply for increase their share in science and research. Physically handicapped persons will be favoured if they are equally qualified. Applicants must hold a Diploma or Master degree in biology, biochemistry, biotechnology, or chemistry.

More information can be provided by  
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<http://www.ufz.de/index.php?en=13582>

Please send your application **until 11.03.2011** under code **35/2011** to the Personnel department of the Helmholtz Centre for Environmental Research, PO Box 500136, 04318 Leipzig, Germany, or by email to [application@ufz.de](mailto:application@ufz.de).