

# Dr. Dietrich Kohlheyer

Affiliated with Institute of Bio- and Geosciences 1: Biotechnology (IBG-1)

Helmholtz Young Investigator Group: Microscale Bioengineering



„Novel technology is always very challenging and often difficult to transfer to real world applications. I hope we will succeed and our microbial single-cell analysis tools will become standard analysis assays in future“

## Research project:

The group “Microscale Bioengineering” develops miniaturized devices for microbial single-cell analysis. These devices are utilized for the analysis of industrially relevant microorganisms to gain fundamental knowledge on cellular behavior at the single-cell level. In particular population heterogeneity of isogenic microbial populations is

analyzed under very well controlled environmental conditions, thereby unravelling cell to cell heterogeneity with full spatial and temporal resolution. State of the art microfabrication is carried out in close cooperation with the Helmholtz Nanoelectronic Facility (HNF) to fabricate single-cell bioreactors with sub-micrometer resolution and culture

volumes below one picoliter. During cultivation, advanced automated microscopy is performed to monitor hundreds of micrometer sized cultivation sites on one single device the size of a stamp. Projects are carried out in highly interdisciplinary efficiently transferring new microtechnology to relevant applications in industrial biotechnology.

## What is/has been the greatest challenge as head of a young investigators group:

„Most likely to head and focus a very heterogeneous and interdisciplinary team with various experts from completely different disciplines all of them having their special creative mind and personality.“

**Start of funding period:**

January 2014

**End of funding period:**

December 2019

**Budget:**

€ 250,000 per year

**Staff:**

3 PhD students and 2 technicians

**University affiliation:**

Junior professorship at RWTH Aachen University  
(in progress)

**Cooperations:**

Prof. Julia Frunzke (IBG-1, FZ-Jülich), Dr. Stephan Noack (IBG-1 FZ-Jülich), Dr. Thomas Drepper (HHU Düsseldorf)

**Further information:**

[Young Investigator Group Dr. Kohlheyer](#)