



## Prof. Dr. Vera Meyer

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### The path to success in cell factory engineering: *Aspergillus niger* as a paradigmatic example

Fungal biotechnology is currently undergoing a renaissance with important implications for its role as platform technology for the sustainable production of products, goods and drugs. Allied to this are the recent advances in fungal Systems and Synthetic Biology which can be seen as two complementary approaches to investigate the complexity of biological systems including fungi. Whereas Systems Biology analyzes cellular systems in an iterative cycle of high-throughput generation of omics data and modeling, Synthetic Biology takes a constructive approach to reengineer biological networks and to design novel biological parts and circuits with non-natural function.

Our goal is to understand and rationally rewire the industrial cell factory *Aspergillus niger*. On the one hand, we generate and evaluate different omics data types for *A. niger* and use these Big Data to predict gene function as well as gene regulatory networks. On the other hand, we engineer synthetic gene switches and target them to specific genomic loci. By combining these two activities, we not only successfully improve *A. niger* as producer for proteins, new natural products or even new-to-nature compounds, we are also entering a new era in *Aspergillus niger* biology: we are moving from descriptive to predictive biology.

Date: Thursday, 19th April 2018, 1:15 pm  
Venue: GEOMAR Westshore, Düsternbrooker Weg 20, Lecture Hall  
Host: Prof. Dr. Deniz Tasdemir