

Thesis/Internship

“Engineering of surfactant compatible enzymes”

Description

Nowadays, the production of sustainable enzyme-based laundry formulations require a molecular understanding of interactions between laundry components to further enhance their cleaning efficiency, sustainability profile, and to modify them toward ecological friendly washing conditions. A key requisite to fulfill all these concerns is a continual engineering of high performing detergent enzymes and the discovery of novel enzyme-compatible surfactants especially from renewable resources. Therefore, interaction studies on detergent enzymes with various new combined detergent additives (e.g. novel surfactant combinations) are necessary.

The main focus of this project, which associated in the joint center of excellence named Henkel Innovation Campus for Advanced and Sustainable Technologies (HICAST), is to systematically understand the enzymes interaction at molecular level and to apply the molecular knowledge for reengineering of . Here, a “KnowVolution” protein-engineering campaign will be performed, in which directed evolution and profound computational analysis are combined.

What we offer/Techniques you will learn

In this project, you will produce enzyme libraries and evaluate the improved variants. In this process you will learn different techniques in: microbiology (e.i. handling of *E. coli* and *B. subtilis* as expression host), molecular biology (e.i. gene cloning, PCR, DNA extraction, electrophoresis and, quantification) and, biochemistry (enzymatic assays in 96-plate format, enzyme characterization and High-throughput screening (HTS)). You will enjoy working in an open and dynamic environment and cooperate actively with the computational biology division.

Qualifications

- Bachelor/Internship student (f/m) in the field of biotechnology, biology, chemistry or related
- Confident in using the usual MS Office programs
- Good knowledge in English (spoken and written)
- Creativity, flexibility, high motivation and strong commitment
- Professional biotechnological environment with close industrial cooperations and focus on the re-engineering of industrial relevant enzymes

Estimated time Up to 6 months (including two months of methodology/practical course)

Contact

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