

Biocatalysis on Industrial Scale

EFRE-Innovation alliance "White Biotechnology"

- Development of biotransformation processes for industrial use
- Enabling technologies for process development (up- and downstream)
- Transfer of knowledge and technology for application of enzymes

The aim of the project is the development of lab-scale demonstration units, that can be utilized to adapt and scale up biotransformation processes to industrial scale (whole cell biotransformation as well as enzymatic biotransformation). The industry can use the demonstration units, to develop, optimize and scale up individual process tasks. The range includes the production in alternative systems (e.g. disposable reactors) as well as a variety of downstream techniques (UF, MF, membrane adsorption).

The model projects of the BMBF-Biokatalyse2021-Cluster, that will be tested with the demonstration units, include refining of food additives (e.g. aroma) by enzymes, development of analytical systems and innovative downstream methods (enabling technologies) and many more.



Duration: 3+2 years
Effort: 108 man-month (1. grant period)
Sponsor: EFRE (European Union),
Lower Saxony Ministry of
Science and Culture

Associated industrial partners:

Biolac GmbH & Co KG
Emsland-Stärke GmbH
Henkel KGaA
Sartorius Stedim Biotech GmbH
SternEnzym GmbH & Co. KG
Südchemie AG
Symrise GmbH & Co. KG
TU Hamburg-Harburg, Technische Mikrobiologie
Universität Greifswald, Institut für Biochemie
X-Zyme GmbH



Equipment of the institutes:

- fermentation units up to 50L, various systems
- downstream facilities up to 1m³ Process volume
- fully equipped biotech labs
- Analytical equipment:
 - chromatography
 - spectroscopy
 - electrophoresis
 - Mass spectrometry
 - Immune biological methods

Institute for Technical Chemistry
Prof. Dr. Thomas Scheper
Callinstr. 5, 30167 Hanover
www.tci.uni-hannover.de

Institute for Nutritional Chemistry
Prof. Dr. Ralf G. Berger
Callinstr. 5, 30169 Hanover
www.rrzn.uni-hannover.de/LMChemie/