

FOCUS

Development of
Tailor-Designed
Biocatalysts for
Industrial
Applications

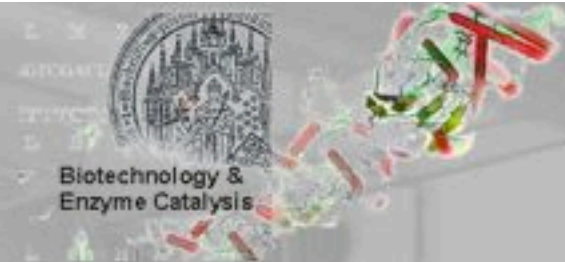


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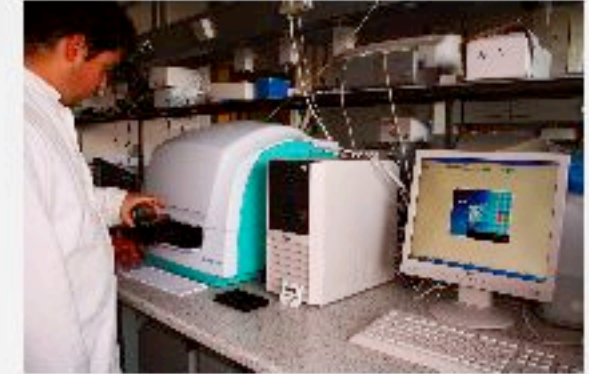


**BIOTECHNOLOGY &
ENZYME CATALYSIS**

**INSTITUTE OF
BIOCHEMISTRY**

**ERNST-MORITZ-ARNDT
UNIVERSITY GREIFSWALD**





BIOTECHNOLOGY & ENZYME CATALYSIS

Access to Biocatalysts

- ✦ Commercial enzymes
- ✦ Screening in strain collections
- ✦ Cloning & functional expression in microorganism
(i.e., *E. coli*, *P. pastoris*, *B. subtilis*)
- ✦ Metagenome

Optimization of Biocatalysts

- ✦ Rational protein design
- ✦ Directed (molecular) evolution

Analytics

- ✦ High-throughput screening
- ✦ (Chiral) gas chromatography
- ✦ (Chiral) HPLC
- ✦ Capillary electrophoresis

Equipment

- ✦ Chemical synthesis
- ✦ Standard for micro- & molecular biology research (gene technology labs)
- ✦ Pipetting robot
- ✦ Colony picker
- ✦ Cell sorter
- ✦ 3 Fluorimeters (for microtiterplate)
- ✦ 4 GC, 2 GC-MS
- ✦ 2 HPLC (equipped with i.e., light scattering detector, micro polarimeter)
- ✦ Capillary electrophoresis
- ✦ Iatroscan
- ✦ Fermenter (1-5 L, access to 100 L)
- ✦ Access to 300 & 600 MHz-NMR

Biocatalysts (Selection)

- ✦ Lipases, Esterases, Peptidases
- ✦ Baeyer-Villiger-Monooxygenases
- ✦ Alcohol dehydrogenases
- ✦ Various oxidases
- ✦ Transaminases
- ✦ Phospholipases
- ✦ Racemases

Reaction systems/Methods

- ✦ Desymmetrization
- ✦ (Dynamic)-kinetic resolutions
- ✦ Deprotection
- ✦ Phage display
- ✦ Immobilization