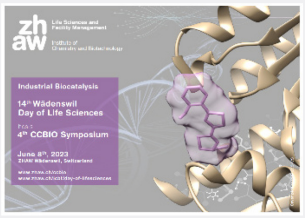
Biotechnet Conference Report:

4th CCBIO Symposium on “Industrial Catalysis”





Quick Facts

June 8th, 2023. Campus Grüental, ZHAW Wädenswil, Switzerland

11 talks, presenters from Switzerland and abroad

Exhibitors:
CCOS AG - INOFEA AG – Microsynth AG –
TECAN Sales Switzerland AG

Organized by:
ZHAW - Zürich University of Applied Sciences
and the Competence Center of Biocatalysis (CCBIO)

Takeaway

A one-day symposium with the opportunity to network and get an update on advances in the field of biocatalysis.

Upcoming events:
BIOTRANS, Basel, 2025,
5th CCBIO-Symposium, ZHAW, 2027

Additional Information

Flyer 4th CCBIO Symposium on Biocatalysis, abstract brochure; www.zhaw.ch/ccbio

Session Highlights

Fluorine biocatalysis
Adding fluorine atoms onto organic structures is a unique strategy to tune molecular properties. However, organofluorides are scarce in nature. **Pablo Nikel (University of Denmark)** showed how novel fluorinating enzymes mined from extreme environments and synthetic gene circuits can be combined in the platform bacterium *Pseudomonas putida* to synthesize fluorinated building blocks.

Biosynthetic Cascades for organic synthesis
Non-natural synthetic cascades can be used to generate complex valuable chemicals from simple precursors. The toolbox of available biocatalyst is expanding, and, in consequence, options for employing enzymatic transformations. **Sabine Flitsch (University of Manchester)** discussed several successful *de novo* cascades and showed how a computational tool - RetroBioCat – can be used to plan biocatalytic cascades and reactions.

Bridging synthetic chemistry and biology: the role of metalloenzymes
Enzymes containing metals or metal cofactors catalyze a broad range of challenging chemical reactions such as methane oxidation or nitrogen fixation. **Xiongyi Huang (Johns Hopkins University)** and his group draw inspiration from mechanistic connections between synthetic and biocatalytic systems. They reprogrammed nonheme iron enzymes to catalyze abiological C(sp3)–H functionalization reactions through iron-catalyzed radical relay, a reaction mechanism that is not utilized by naturally occurring enzymes.

Biocatalysis at Novartis Pharma
Biocatalysis is increasingly used in industry and is a valuable tool for pharmaceutical research and development. **Thierry Schlama (Novartis Pharma AG)** gave an overview on how biocatalysis is used at Novartis through early phase to full scale manufacturing and how enzymes are optimized for specific applications.