



**biocat2024**  
HAMBURG

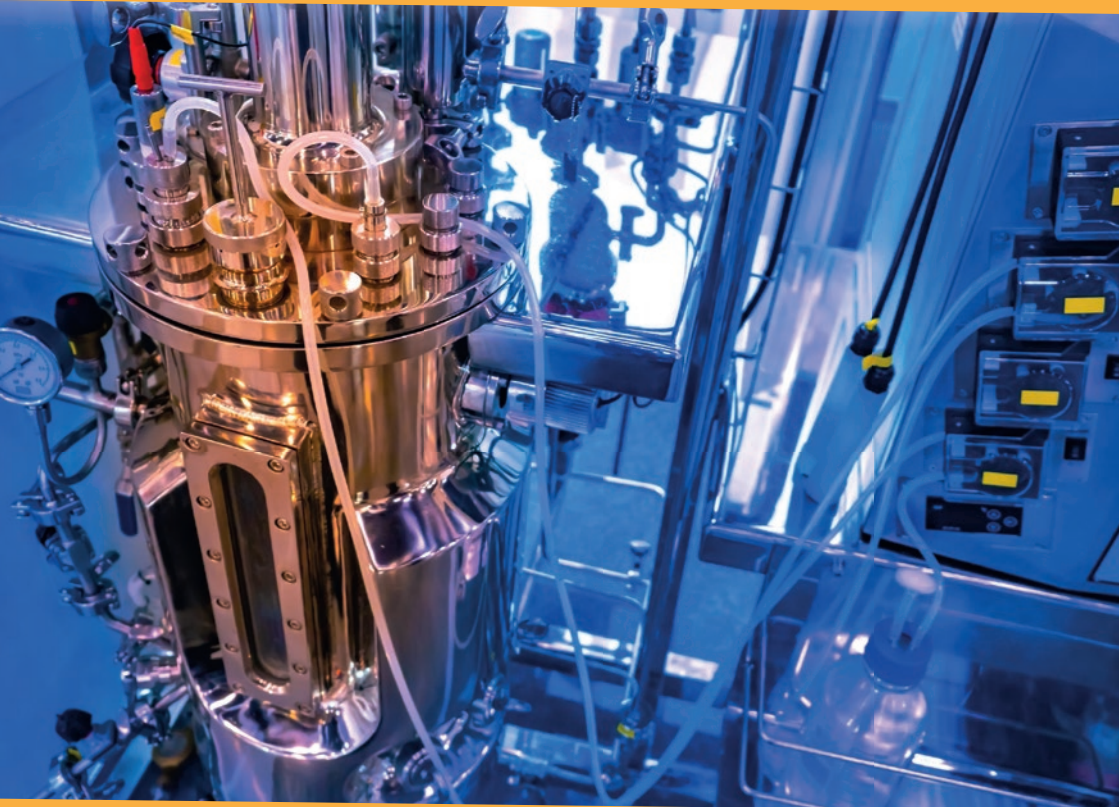
**11<sup>th</sup> INTERNATIONAL  
CONGRESS ON BIOCATALYSIS**



**CONGRESS PROGRAM**

**25–29 AUGUST 2024**

HAMBURG UNIVERSITY OF TECHNOLOGY | GERMANY



 **candidum**  
enzyme design

  
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## Venue

Hamburg University of Technology (TUHH)  
Audimax 1  
Am Schwarzenberg-Campus 5  
21073 Hamburg

## Date

25–29 August 2024

## Congress website

[www.biocat-congress.de](http://www.biocat-congress.de)

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Sandy Schmidt	University of Groningen, The Netherlands
Scott Walper	US Office of Naval Research Global, United Kingdom

# PROGRAM OVERVIEW

25.08.2024	26.08.2024		27.08.2024		
Audimax 1	Audimax 1	Ditze Lecture Hall	H0.01 - H0.09/NIT	Audimax 1	H0.01 - H0.09/NIT
	08:30–10:30 Invited speaker session 1 Topic 1+6  p. 10			08:30–10:30 Invited speaker session 2 Topic 2+3  p. 15	
	Coffee break and industrial exhibition			Coffee break and industrial exhibition	
	11:00–12:50 Morning session 1 Topic 6  p. 11			11:00–12:30 Morning session 2 Topic 2  p. 15	
	Lunch at Mensa			Lunch at Mensa	
	14:15–15:15 Lightning talk session 1 Topic 2+6  p. 11	14:00–14:10 Enzyme Technology Alliance	14:15–16:15 Poster session 1 Topic 2+6  p. 26	14:00–15:00 Lightning talk session 2 Topic 1, 4+5  p. 16	14:00–15:30 Poster session 2 Topic 1, 4+5  p. 36
15:30–17:00 Registration  p. 10	Coffee break and industrial exhibition			Coffee break and industrial exhibition	
17:00–19:00 Opening ceremony  p. 10	16:40–18:40 Afternoon session 1 Topic 1  p. 14			15:50–16:50 Afternoon session 2 Topic 3  p. 18	
19:00–22:00 Welcome reception  p. 53				17:00–22:30 Congress dinner on the boat Louisiana Star   p. 53	



28.08.2024		29.08.2024	
Audimax 1	Ditze Lecture Hall	H0.01 - H0.09/NIT	
09:00–10:30		08:30–10:00	
Invited speaker session 3 Topic 4		Invited speaker session 4 Topic 2+5	
p. 19		p. 24	
Coffee break and industrial exhibition		Coffee break and industrial exhibition	
11:00–12:40		10:30–12:30	
Morning session 3 Topic 2	Morning session 4 Topic 3	Morning session 5 Topic 4	
p. 19	p. 20	p. 25	
Lunch at Mensa		12:30–13:00	
		Closing remarks	
13:45–13:55			
14:00–15:00	Sunresin New Materials Co. Ltd	14:00–16:00	
Lightning talk session 3 Topic 3		Poster session 3 Topic 3	
p. 21		p. 43	
Coffee break and industrial exhibition			
16:20–17:40		16:20–17:40	
Afternoon session 3 Topic 3	Afternoon session 4 Topic 5		
p. 23	p. 24		

Legend

Registration/Opening/Closing/Social program
Session
Poster session
Lightning talk session
Industry session

- Topic 1 – AI and computational methods
- Topic 2 – Structure function analysis and enzyme engineering
- Topic 3 – Enzymatic and whole-cell biotransformations
- Topic 4 – Reaction cascades: Electro-, chemo- and photoenzymatic synergies
- Topic 5 – Bioprocess engineering, design of smart reactors
- Topic 6 – Facing climate change: Sustainability and circular bioeconomy

## PROGRAM | SUNDAY, 25 AUGUST

### 15:30–17:00 Registration

Building H

### 17:00–19:00 Opening ceremony

Audimax 1

17:00 Welcome note with musical act by Gospel Train  
Andreas Liese (Hamburg/DE)



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17:20 Sustainable API Process Applications Through Biocatalysis  
OL1 Carlos Martinez (Waterford, CT/US)

17:50 Biocatalytic Systems for Biomanufacturing of Metabolites and  
OL2 Metabolite-like Compounds  
Roland Wohlgemuth (Łódź/PL)

18:20 CFD-model based small scale bioreactor design for large-scale bioprocess  
OL3 development  
Sven Hansen (Frankfurt a. M./DE)

### 19:00–22:00 Welcome reception

Building I, Mensa

## PROGRAM | MONDAY, 26 AUGUST

### 08:30–10:30 Invited speaker session 1 – Topic 1+6

Audimax 1

**AI and computational methods**

**Facing climate change: Sustainability and circular bioeconomy**

Chair Alain Marty (Toulouse/FR)

08:30 Development and Implementation of AI-tools for accelerated in silico  
IL1-1 screenings and biocatalytic process development  
Martin Schürmann (Geleen/NL)

09:00 Protein design 2.0  
IL1-2 Birte Höcker (Bayreuth/DE)

09:30 Fast Yet Accurate Computational Enzyme Design  
IL1-3 Sílvia Osuna (Girona/ES)

10:00 Enzymatic catalysis for the synthesis of biomass-derived materials  
IL6-1 Alessandro Pellis (Genova/IT)

10:30–11:00 Coffee break and industrial exhibition

**11:00–12:50 Morning session 1 – Topic 6**

Audimax 1 **Facing climate change: Sustainability and circular bioeconomy**  
Chair Sandy Schmidt (Groningen/NL)

11:00 Enzymatic C1 Gas Conversion for Decarbonization of the Steel Mill Industry  
IL6-2 Yong Hwan Kim (Ulsan/KR)

11:30 Pet recycling: from enzyme and process optimization to an industrial plant  
L6-1 Alain Marty (Toulouse/FR)

11:50 Enzymatic synthesis and structural modelling of bio-based oligoesters as an  
L6-2 approach for the ecodesign of new sustainable bio-based polymers  
Anamaria Anamaria Todea (Trieste/IT, Timisoara/RO), Emanuele Carosati  
Raffaele Bruschi, Monia Renzi, Lucia Gardossi (Trieste/IT)

12:10 A hybrid chemical-biological approach can upcycle mixed plastic waste with  
L6-3 reduced cost and carbon footprint  
Blake Simmons (Berkeley, CA/US)

12:30 100 years of enzyme immobilization, what's next?  
L6-4 Rob Schoevaart (Den Hoorn/NL)

12:50–14:00 Lunch at Mensa

**14:00–14:10 Hands on slot**  
Ditze Lecture Hall Enzyme Technology Alliance



**14:15–15:15 Lightning talk session 1 – Topic 2+6**  
Audimax 1 **Structure function analysis and enzyme engineering**  
**Facing climate change: Sustainability and circular bioeconomy**  
Chair Selin Kara (Hannover/DE)

- 14:15  
P2-1 Protein engineering of formolases for the bioconversion of C1 compound formaldehyde  
Leilei Zhu (Tianjin/CN)
- 14:18  
P2-2 Engineering of D-Lactate Dehydrogenase Towards Acceptance of Nicotinamide Biomimetics  
Aaron A. Ingram, Keiko Oike, Caroline E. Paul (Delft/NL)
- 14:21  
P2-3 A robust growth-based selection platform for (continuous) enzyme engineering  
Suzanne Jansen, Clemens Mayer (Groningen/NL)
- 14:24  
P2-4 Elucidating the function of enzyme oligomerization in the fluorinase  
Brianna Lax, Aboubakar Sako, Folmer Fredslund, Tiia Kittilä (Kongens Lyngby/DK), Taner Drace, Jan Skov Pedersen Thomas Boesen (Aarhus/DK), Ditte Hededam Welner (Kongens Lyngby/DK)
- 14:27  
P2-5 Groundbreaking overall solution of mutation library generation and ultra-high throughput screening empowering directed enzyme evolution application  
Rongfeng Cai (Wuxi/CN)
- 14:30  
P2-6 From sequence to industrial application: How specialty enzymes are designed  
Jana Ford Husarcik, Simon Godehard, Alexander Pelzer (Zwingenberg/DE)
- 14:33  
P2-7 Application of rational enzyme engineering in a new route to Etonogestrel and Levonorgestrel: Carbonyl reductase bioreduction of ethyl secodione  
Daniel Dourado, Andrew Rowan, Sergej Maciuk, Jenny Spratt, Gareth Brown Darren Gray, Jill Caswell, Alexandra Carvalho, Fernando Tur, Drazen Pavlovic Derek Quinn, Thomas Moody (Craigavon/GB)
- 14:36  
P2-8 Unspecific Peroxygenases UPOs: From Expression to Selective Transformations  
Martin Weissenborn (Halle/DE)
- 14:39  
P2-9 Linkers in Action: Exploring Fusion Enzymes for Oxyfunctionlization in Biphasic System through Experiments and Simulations  
Yu Ma (Aarhus/DK), Jan Philipp Bittner (Hamburg/DE), Guillem Vernet Ningning Zhang (Hannover/DE), Selin Kara (Aarhus/DK, Hannover/DE)

- 14:42  
P2-10      Engineering of an organic solvent tolerant esterase based on computational predictions  
Lara Scharbert (Düsseldorf, Jülich/DE), Alexander Bollinger (Düsseldorf/DE)  
Anna Jäckering, Jennifer Loschwitz (Düsseldorf, Jülich/DE)  
Stephan Thies (Jülich/DE), Karl-Erich Jäger, Birgit Strodel (Düsseldorf, Jülich/DE)
- 14:45  
P2-11      Discovery of novel ‚split‘ transketolases for application in biocatalysis  
Alessia Tonoli, Silvia Anselmi, John M. Ward, Helen C. Hailes  
Jack Jeffries (London/GB)
- 14:48  
P2-12      Droplet-based microfluidics for efficient high-throughput screening in biotechnology applications  
Sundar Hengoju, Ashkan Samimi, Kasra Kamali, Miriam A. Rosenbaum (Jena/DE)
- 14:51  
P2-13      Epistasis & Context Dependency in Enzyme Evolution of Borneol-type Dehydrogenases  
Jasmin Zuson (Graz/AT), Andrea M. Chánique (Graz/AT, Santiago/CL)  
Katarína Kavčiaková (Graz/AT), Bernhard Loll (Berlin/DE), Daniel Kracher  
Robert Kourist (Graz/AT)
- 14:54  
P2-14      Structure and identification of catalytic residues of D-Threonine aldolase from the green alga *Chlamydomonas reinhardtii*  
Chieri Kohzu, Yuki Hirato (Tokyo/JP), Masaru Goto (Funabashi/JP)  
Minoru Tanigawa, Katsushi Nishimura (Tokyo/JP)
- 14:57  
P2-15      Enzyme Proximity Sequencing: A Deep Mutational Scanning Workflow for Studying and Engineering Protein Catalysts  
Rosario Vanella, Christoph Küng, Michael Nash (Basel-Stadt/CH)
- 15:00  
P6-1      Cellulozymes: Cellulose as a renewable carrier for immobilized enzymes  
Hessel van Dijk, Rob Schoevaart (Den Hoorn/NL)
- 15:03  
P6-2      Zearalenone (ZEN) degradation using *Aeromicrobium*.  
Jog Raj, Zdenka Jakovčević, Hunor Farkas, Svetlana Čujić  
Marko Vasiljević (Misicevo/RS)
- 15:06  
P6-3      Potato peels as substrate for laccase-catalysed synthesis of phellinsin A  
Blessing Nemadziva, Sandile Ngubane, Faith Matiza Ruzengwe  
Kabange Kasumbwe, Tukayi Kudanga (Durban/ZA)

- 15:09 Enzymatic Upcycling of Textile Wastes for Mycelium Leather Production  
 P6-4 Zak Towle, Jane Scott, Meng Zhang, Gary Black  
 Paul James (Newcastle-upon-Tyne/GB)
- 15:12 Clearing Oxidoreductases for Take-Off: Biocatalytic Recycling Approaches  
 P6-5 for Aerospace Epoxy Composites  
Leon Klose, Barbara Klippel, Neele Meyer-Heydecke, Sasipa Wongwattanasat  
 Wolfgang Streit, Garabed Antranikian, Ana Malvis Romero  
 Andreas Liese (Hamburg/DE)

15:15–16:40 Coffee break and industrial exhibition

**16:40–18:40 Afternoon session 1 – Topic 1**

Audimax 1

**AI and computational methods**

Chair Alexander Pelzer (Zwingenberg/DE)

- 16:40 Computational mathematic model for the immobilization of cells on  
 L1-1 charged solid surfaces by electrostatic interactions  
Alberto del Monte, Freddy Castillo-Alfonso, Bessy Cutiño-Avila  
 Marcia Rojas, Irina Salgado, Juan Carlos Marín, Jonathan Guerra  
 Margarita Lugioyo, Jorge Rojas, Jorge Gonzalez-Bacerio (La Habana/CU)
- 17:00 Computer-Aided Enzyme Discovery and Engineering for Industrial Biocatalysis  
 L1-2 Marco Bocola, Neha Verma (Düsseldorf/DE), Baoqin Cai, Qiaole He  
 Hao Yang, Haibin Chen (Ningbo/CN), Thomas Dausmann (Düsseldorf/DE)
- 17:20 Helix Engineering: Combining the Power of 3DM with AI to Disrupt Protein  
 L1-3 Engineering  
 Henk-Jan Joosten (Nijmegen/NL)
- 17:40 Regression Models as Cornerstone of AI-guided Protein Design  
 L1-4 Lukas Pluska (Berlin/DE)
- 18:00 The EnzymeML framework: improving efficiency and quality of biocatalytic  
 L1-5 science  
Jürgen Pleiss, Jan Range, Max Häußler (Stuttgart/DE)
- 18:20 Computational Pipeline for Structure-based Prediction of Temperature  
 L1-6 induced Unfolding of Proteins  
 Gregor Wirnsberger, Daniel Mokos, Anna Schrüfer, Karl Gruber  
Bastian Daniel (Graz/AT)

**08:30–10:30 Invited speaker session 2 – Topic 2+3**

Audimax 1

**Structure function analysis and enzyme engineering  
Enzymatic and whole-cell biotransformations**

Chair

Uwe Bornscheuer (Greifswald/DE)

08:30

IL2-1

Engineering fungal peroxygenases a la carte for a more efficient  
oxyfunctionalization chemistry  
Miguel Alcalde-Galeote (Madrid/ES)

09:00

IL2-2

A Journey towards Sustainable Catalysis – Examples of Biocatalysis in  
Development at Novartis Pharma  
Frederic Stanger (Basel/CH)

09:30

IL3-1

Biocatalysis @ scale  
Laura Grabowski (Ludwigshafen am Rhein/DE)

10:00

IL3-2

Self-assembled nanoparticle-enzyme clusters and substrate channeling:  
a developing system for de novo biosynthesis  
Joyce Breger (Washington/US)

10:30–11:00 Coffee break and industrial exhibition

**11:00–12:30 Morning session 2 – Topic 2**

Audimax 1

**Structure function analysis and enzyme engineering**

Chair

Yasuhisa Asano (Imizu/JP)

11:00

IL3-3

Engineering aliphatic halogenases  
Rebecca Buller (Zurich/CH)

11:30

L2-1

Bioinformatic-assisted identification and engineering of promiscuous  
amidases for multi-purpose applications  
Thomas Bayer, Hannes Meinert, Clemens Cziegler, Ina Somvilla  
Louis Schmidt, Stefanie König, Dominique Böttcher, Ulrike Garscha  
Uwe Bornscheuer (Greifswald/DE)

11:50

L2-2

Spiroluchuene A Synthase: A Cyclase from *Aspergillus luchuensis* Forming a  
Spirotetracyclic Diterpene  
Zhengyu Huang, Jian-He Xu (Shanghai/CN)

12:10

L2-3

Enzymatic late-stage functionalization – Creating compound diversity  
Pascal Schneider, Jäger Christof, Lucy Harwood, Jordi Chi, David Öling  
Mikhail Kabeshov, Thierry Kogej, Felix Faber, Martin A. Hayes (Mölnal/SE)

12:30–14:00 Lunch at Mensa



- 14:00–15:00 **Lightning talk session 2 – Topic 1, 4+5**  
 Audimax 1 **AI and computational methods**  
**Reaction cascades: Electro-, chemo- and photoenzymatic synergies**  
**Bioprocess engineering, design of smart reactors**  
 Chair Johannes Gescher (Hamburg/DE)
- 14:00 Enhancing Low-N Enzyme Engineering through Zero-Shot Predictor  
 P1-1 Integration  
David Harding-Larsen (Kongens Lyngby/DK), Stanislav Mazurenko (Brno/CZ)  
 Ditte Hededam Welner (Kongens Lyngby/DK)
- 14:03 Characterization of the enantioselective carbene free cyclopropanation  
 P4-1 reaction catalyzed by *E.coli* cyclopropane fatty acid synthase (ecCFAS)  
Michele Crotti, Daniele Castagnolo, Sarah Barry (London/GB)
- 14:06 Boron Catalysis in a Designer Enzyme  
 P4-2 Lars Longwitz, Gerard Roelfes (Groningen/NL)
- 14:09 Co-substrate recycling for (S)-TAs in kinetic resolutions  
 P4-3 Tobias Heinks (Magdeburg, Bielefeld/DE), Simon Koopmeiners, Nicolai Montua  
 Norbert Sewald (Bielefeld/DE), Matthias Höhne (Greifswald/DE)  
 Jan von Langermann (Magdeburg/DE), Uwe Bornscheuer (Greifswald/DE)  
 Gabriele Fischer von Mollard (Bielefeld/DE)
- 14:12 Advancements in Cofactor Regeneration for Efficient Nucleotide Sugar  
 P4-4 Synthesis  
Benjamin Schmitz, Lothar Elling (Aachen/DE)
- 14:15 Multifunctional artificial enzymes for tandem abiotic transformations  
 P4-5 Weijin Wang (Lausanne/CH), Ryo Tachibana (Basel/CH), Kelvin Lau  
 Florence Pojer (Lausanne/CH), Thomas R. Ward (Basel/CH)  
 Xile Hu (Lausanne/CH)
- 14:18 Biocatalytic cascade reactions featuring a designer enzyme for  
 P4-6 intramolecular Friedel-Crafts alkylations  
Claudia Da Settimo Passetti, Gerard Roelfes (Groningen/NL)

- 14:21 Protein-polymer Conjugates as Artificial Enzymes for Catalysis  
P4-7 Changzhu Wu (Odense/DK)
- 14:24 Biomimetic enzymatic cascade for fatty alkyl *p*-hydroxycinnamates synthesis  
P4-8 Horiya Nassiba Ham, Nabila Imatoukene, Louis Mouterde (Pomacle/FR)
- 14:27 Optimization of Enzymatic Membrane Reactors for Effective Continuous  
P5-1 Flow Biocatalysis  
Andrei Popkov, Magdalena Malankowska, Ziran Su  
Manuel Pinelo (Kongens Lyngby/DK)
- 14:30 Reaction Dynamic of Enzymatic Butane Hydroxylation in a Bubble Column  
P5-2 Reactor  
Florian Kelsch (Hamburg/DE), Gábor Schultz (Braunschweig/DE)  
Kilian Roth, Paul Bubenheim (Hamburg/DE), Rainer Krull (Braunschweig/DE)  
Andreas Liese (Hamburg/DE)
- 14:33 Expanding the Applicability of Pickering Emulsions for Biocatalysis  
P5-3 Sara Fatima Bhutta, Marion Ansorge-Schumacher (Dresden/DE)
- 14:36 Functionalized poly(aspartic acid) hydrogel particles as a carrier for covalent  
P5-4 enzyme immobilization  
Lars-Erik Meyer, Johanna Meyer, Jona Gebauer, Marko Matosevic  
Katharina Naerger (Hannover/DE), Selin Kara (Hannover/DE, Aarhus/DK)
- 14:39 Characterization of linen fabric Immobilized thermostable  $\beta$ -glucosidase  
P5-5 Ani Paloyan, Karine Dyukova, Lev Khoyetsyan  
Artur Hambardzumyan (Yerevan/AM), Garabed Antranikian (Hamburg/DE)
- 14:42 Crystallization-assisted enantiopure amine synthesis using transaminase-  
P5-6 membrane reactor  
Hippolyte Meersseman Arango, Tom Leysens  
Patricia Luis (Louvain-La-Neuve/BE), Francesca Paradisi (Bern/CH)  
Damien Debecker (Louvain-La-Neuve/BE)
- 14:45 Immobilization of enological pectinase by absorption on polyamide 6  
P5-7 microparticles and its application in the clarification of wine must  
Sandra Oliveira, Nadya Dencheva, Zlatan Denchev (Guimarães/PT)
- 14:48 Formulation of Enzyme-Based Biomaterials for Flow Biocatalysis  
P5-8 Astrid Winterhalter, Julian S. Hertel, Kersten S. Rabe  
Christof M. Niemeyer (Eggenstein-Leopoldshafen/DE)

- 14:51 P5-9 Design of laccase coated membranes as promising reusable filtration materials for enzymatic bioremediation  
Ian Coupez (Louvain-La-Neuve/BE), Alice Wolper  
 Frédéric Debaste (Brussels/BE), Christine Dupont-Gillain  
 Sophie Demoustier (Louvain-La-Neuve/BE)
- 14:54 P5-10 Effect of oxygen mass transfer on the kinetics of Baeyer-Villiger oxidation using a recombinant whole-cell biocatalyst  
 Patrik Cabadaj, Viera Illeová, Magdalena Lech, Marek Bučko  
Milan Polakovič (Bratislava/SK)
- 14:57 P5-11 In-line NMR Monitoring: A Window into Biocatalytic Transformations  
Luca Schmidt (Hamburg/DE), Logia Jolly (Bielefeld/DE)  
 Victoria Bueschler (Hamburg/DE), Harald Gröger (Bielefeld/DE)  
 Andreas Liese (Hamburg/DE)

15:00–15:50 Coffee break and industrial exhibition

**15:50–16:50 Afternoon session 2 – Topic 3**

Audimax 1

**Enzymatic and whole-cell biotransformations**

Chair

Lucia Gardossi (Trieste/IT)

- 15:50 L3-1 Holistic Understanding of Alcohol Dehydrogenase Catalysis in Deep Eutectic Solvents  
Ningning Zhang (Hannover/DE), Jan Philipp Bittner (Hamburg/DE)  
 Pablo Domínguez de María (Canary Islands/ES), Sven Jakobtorweihen  
 Irina Smirnova (Hamburg/DE), Selin Kara (Hannover/DE, Aarhus/DK)

- 16:10 L3-2 Photoenzymatic Asymmetric Hydroamination for Chiral Alkyl Amine Synthesis  
Wesley Harrison, Guangde Jiang, Zhengyi Zhang, Maolin Li, Haoyu Chen  
 Zhao Huimin (Urbana, IL/US)

- 16:30 L3-3 Discovery and Application of Anthranilate-Glycosylating Enzymes, Utilising a UGT for Gram-Scale Production of Methyl Anthranilate Glucoside for Biological Studies  
Hani Gharabli, Ditte Hededam Welner (Kongens Lyngby/DK)

17:00–22:30



Congress dinner on the boat Louisiana Star  
 with award ceremony (see page 53)

**09:00–10:30 Invited speaker session 3 – Topic 4**

Audimax 1

Chair

**Reaction cascades: Electro-, chemo- and photoenzymatic synergies**

Vladimír Křen (Prague/CZ)

09:00

IL4-1

Repurposing enzymes for non-natural reactions

Melanie Hall (Graz/AT)

09:30

IL4-2

Enzyme Cascades for Fuel Cell and Electrosynthesis Applications

Shelley Minteer (Salt Lake City, UT/US)

10:00

IL4-3

The Quest for Artificial Biocatalytic Reactivities: Metalloproteins as Mediators of Pericyclic Reactions

Jan Deska (Helsinki/FI)

10:30–11:00 Coffee break and industrial exhibition

**11:00–12:40 Morning session 3 – Topic 2**

Audimax 1

Chair

**Structure function analysis and enzyme engineering**

Stefan Lutz (Redwood City, CA/US)

11:00

L2-4

Solvent Effects on Alcohol Dehydrogenase: Insights from Molecular Dynamics Simulations

Jan Philipp Bittner (Hamburg/DE), Ningning Zhang (Hannover/DE)  
 Pablo Domínguez de María (Las Palmas de Gran Canaria/ES)  
 Irina Smirnova (Hamburg/DE), Selin Kara (Hannover/DE)  
 Sven Jakobtorweihen (Hamburg/DE)

11:20

L2-5

How do metalloproteins manipulate their cofactor's reactivity to determine the metal preference of their catalysis?

Natalia Kwiatos, Mariam Esmaeeli, Rafał Mazgaj (Warsaw/PL)  
 Simone Ciofi Bafoni (Florence/IT), Michał Dadlez (Warsaw/PL)  
 Thomas Kehl-Fie (Champaign, IL/US), Kevin Waldron (Warsaw/PL)

11:40

L2-6

Predictive biotechnology: Revealing sequence-function relationships of 4-phenol oxidases

Dirk Tischler, Nils Weindorf, Heiner G. Weddeling  
 Daniel Eggerichs (Bochum/DE)

12:00

L2-7

Biocatalytic Ether Lipid Synthesis by an Ultrastable Archaeal Glycerolprenylase

Felix Kaspar, Lea Eilert, Sophie Staar, Sangwar Wadtey Oung  
 Mario Wolter (Braunschweig/DE), Charity S. G. Ganskow (Gothenburg/SE)  
 Sebastian Kemper (Berlin/DE), Philipp Klahn (Gothenburg/SE)  
 Christoph R. Jacob, Wulf Blankenfeldt, Anett Schallmeyer (Braunschweig/DE)

- 12:20 Engineering Unspecific Peroxygenase from *Agrocybe aegerita* Towards  
L2-8 Efficient Aliphatic Substrate Oxyfunctionalization  
Niklas Teetz, Sonja Schönrock, Dirk Holtmann (Karlsruhe/DE)
- 11:00–12:40 Morning session 4 – Topic 3**  
Ditze Lecture Hall **Enzymatic and whole-cell biotransformations**  
Chair Carlos Martinez (Waterford, CT/US)
- 11:00 A platform approach to manufacturing single stranded oligonucleotides by  
L3-4 enzymatic assembly  
Richard Lloyd (Stevenage/GB)
- 11:20 Imine synthesis in gram scale by variant of D-amino acid oxidase  
L3-5 Yasuhisa Asano, Wiyada Khanghachit (Imizu/JP)
- 11:40 Hybrid Technology as a Solution for Biomanufacturing Challenges  
L3-6 Getachew S. Molla, Ted Johanson, Manos Papadakis  
Niels Banke (Hørsholm/DK)
- 12:00 Enzymatic synthesis of novel oligosaccharides from raffinose  
L3-7 oligosaccharides  
Philipp Garbers (Ås/NO), Jane Wittrup Agger (Kongens Lyngby/DK)  
Svein Halvor Knutsen (Ås/NO), Birgitte Zeuner (Kongens Lyngby/DK)  
Bjørge Westereng (Ås/NO)
- 12:20 Bio-oxidation of cellobiose using engineered *Gluconobacter oxydans* yields  
L3-8 highly concentrated cellobionic acid  
Emmeran Bieringer (Garching/DE), Lisa Pütthoff (Freising/DE)  
Arne Zimmermann (Garching/DE), Natalia Kucher (Freising/DE)  
Mariana de Souza Góes, Uraz Yilmaz (Garching/DE), Armin Ehrenreich  
Wolfgang Liebl (Freising/DE), Dirk Weuster-Botz (Garching/DE)

12:40-13:45 Lunch at Mensa

- 13:45–13:55 Hands on slot**  
Ditze Lecture Hall Sunresin New Materials Co. Ltd



14:00–15:00

## Lightning talk session 3 – Topic 3

Audimax 1

## Enzymatic and whole-cell biotransformations

Chair

Anna-Lena Heins (Hamburg/DE)

14:00

P3-1

Non-Conventional Biocatalysis Strategies for Propyl Oleate Synthesis through the halophilic Lipase/Esterase *LipN* in *n*-Propanol Surfactantless Microemulsion and AOT/H<sub>2</sub>O/Isooctane Reverse Micelles systems

Jose Martín Marquez Villa, Juan Carlos Mateos Diaz

Jorge Alberto Rodriguez Gonzalez (Zapopan/MX)

Ali Asaff Torres (Hermosillo/MX), Rosa Maria Camacho Ruiz (Zapopan/MX)

14:03

P3-2

Selective Methylations and Alkylations using Methyltransferases

Matthew Salinger, Jack Jeffries (London/GB), Thomas Moody (Craigavon/GB)

John M. Ward, Helen C. Hailes (London/GB)

14:06

P3-3

Strain- and process optimization of hydroxy-L-lysine production fueled by D-xylose using *Pseudomonas taiwanensis* VLB120

Julian Handke, Georg Hubmann, Philipp Nerke, Stephan Lütz (Dortmund/DE)

14:09

P3-4

Unveiling Novel Carbonylase Homologues for C1-C3 Aldehyde Conversion to Bioactive Hydroxy Ketones

Hana Dobiašová (Bratislava/SK), Valentina Jurkaš (Graz/AT), Eva Puchřová

Kvetoslava Vranková, Peter Both (Bratislava/SK)

Florian Rudroff (Vienna/AT), Margit Winkler (Graz/AT)

14:12

P3-5

Engineering the Fatty Acid Photodecarboxylase from *Chlorella Variabilis* to Catalyze C-C Bond Formations

Christoph K. Winkler, Florian Weissensteiner, Maria Emilia Iglesias Moncayo

Wolfgang Kroutil (Graz/AT)

14:15

P3-6

Dimethylsulfoniopropionate lyase from *Pelagibacter ubique* HTCC1062 as a catalyst for  $\beta$ -amino acid synthesis by aza-Michael reaction

Diletta Arceri, Karel Hernández, Ángela Mourelle-Insua, Jesús Joglar

Jordi Bujons, Pere Clapés (Barcelona/ES)

14:18

P3-7

Enantioselective Biocatalytic Reduction of Sterically challenging

Pharmaceutically Relevant Chiral Amines Using whole cell biocatalyst

Kiran Dalal, Pratik Wagh (Jalgaon/IN)

- 14:21  
P3-8      A Ketoreductase Utilizes Synthetic Nicotinamide Cofactor Mimetics  
Keiko Oike, Aaron A. Ingram, Christian M. Heckmann  
Caroline E. Paul (Delft/NL)
- 14:24  
P3-9      A deamination-driven biocatalytic cascade for the synthesis of  
ribose-1-phosphate  
Jonas Motter, Sarah Westarp, Jonas Barsig, Christina Betz  
Amin Dagane (Berlin/DE), Felix Kaspar (Berlin, Braunschweig/DE)  
Lena Neumair, Sebastian Kemper, Peter Neubauer, Anke Kurreck (Berlin/DE)
- 14:27  
P3-10     IN Silico Informed metaGenomic Harvesting Technology – (*INSIGHT*) – How a  
smart platform can accelerate the timelines of genes-to-GMP  
Jane Mueller, Alexandra Carvalho (Craigavon/GB), Christine Fleming  
Matthew Boyd, Xiangwen Wang, Aliyu Ibrahim (Belfast/GB)
- 14:30  
P3-11     New biocatalytic lactamization: Caprolactam production scale-up and  
exploration of industrial purification methodologies  
Vivien Herrscher, Blandine Godon, Louis Mouterde (Pomacle/FR)  
Anne Zaparucha (Evry-Courcouronnes/FR)
- 14:33  
P3-12     CO<sub>2</sub> capture and conversion by dual-functional Enzyme/MOF composites  
containing Ferulic Acid Decarboxylase  
Fang Wang (Aarhus/DK)
- 14:36  
P3-13     Application of  $\beta$ -N-Acetylhexosaminidases in Chemo-Biocatalysis  
Helena Hronská, Mária Bláhová, Vladimír Štefuca  
Michal Rosenberg (Bratislava/SK)
- 14:39  
P3-14     Development of a Thermodynamically Favorable Multi-enzyme Cascade  
Reaction for Efficient Sustainable Production of  $\omega$ -Amino Fatty Acids and  
 $\alpha,\omega$ -Diamines  
Jumou Li (Shanghai/CN)
- 14:42  
P3-15     Enzymatic esterification of dihydroferulic acid with ethylene glycol:  
maximizing the conversion toward the monoester as a building block for  
biosourced antioxidant polymer synthesis  
Felipe Domingues Blanco (Nancy/FR), Melissa Geevers (Delft/NL)  
Catherine Humeau (Nancy/FR), Ulf Hanefeld (Delft/NL), Latifa Chebil  
Jean-Luc Six, Yann Guivarc'h (Nancy/FR)



- 14:45 Substrate flexibility of rutinoidase from *Aspergillus niger*  
P3-16 Katerina Brodsky, Lucie Petrásková (Prague/CZ)  
Michal Kutý (České Budějovice/CZ), Pavla Bojarová, Helena Pelantová  
Vladimír Křen (Prague/CZ)
- 14:48 Acrylic acid hydrating enzyme from *Fusarium* sp. No. 17 strain  
P3-17 Michihiko Kataoka (Osaka/JP)
- 14:51 Stereoselective isomerization-reduction one-pot cascade catalyzed by Old  
P3-18 Yellow Enzymes  
Federico Rossi, Marina Toplak, Melanie Hall (Graz/AT)
- 14:54 The impact of the BLUETOOLS project on the biocatalytic activity of Servier  
P3-19 Gergő Dargó, Viktor Gaják, András Telek, Gábor Tasnádi (Budapest/HU)
- 14:57 Oxyfunctionalization of Terpenoids by Unspecific Peroxygenases  
P3-20 Christopher Grimm, Henry Struwe, Andreas Kirschning  
Sascha Beutel (Hannover/DE), Selin Kara (Hannover/DE, Aarhus/DK)

15:00–16:20 Coffee break and industrial exhibition

**16:20–17:40 Afternoon session 3 – Topic 3**

Audimax 1

**Enzymatic and whole-cell biotransformations**

Chair

Katja Bühler (Leipzig/DE)

- 16:20 Asymmetric whole-cell bioreduction of (*R*)-carvone with elimination of  
L3-9 host-mediated side reactivity  
Ingmar Polte, Dirk Weuster-Botz (Garching/DE)  
Kathrin Castiglione (Erlangen/DE)
- 16:40 Convergent biocatalytic mediated synthesis of siRNA  
L3-10 Jill Caswell, Stephanie Paul, Darren Gray (Craigavon/GB)  
Thomas Moody (Craigavon/GB, Athlone/IE)
- 17:00 Extensive mapping of IRED performance reveals untapped potential for  
L3-11 reductive amination at equimolar substrate concentrations  
Sarah Berger, Christopher Grimm, Isabel Oroz-Guinea, Stephan Vrabl  
Marco Cesugli, Andreas Krassnigg, Tobias Schopper (Graz/AT)  
Irene Marzuoli (Basel/CH), Bettina Nestl, Georg Steinkellner  
Christian Gruber (Graz/AT), Hans Iding, Kurt Püntener (Basel/CH)  
Francis Gosselin (San Francisco, CA/US), Serena Bisagni (Basel/CH)  
Wolfgang Kroutil, Jörg Schrittwieser (Graz/AT)

## PROGRAM | WEDNESDAY, 28 AUGUST

- 17:20  
L3-12 Ene reductase catalysed biosynthesis of delta-decalactone at high substrate concentration and high yield  
Kerstin Steiner, Sebastien Willot, Jean-Charles Kuhn (Satigny/CH)
- 16:20–17:40** **Afternoon session 4 – Topic 5**  
Ditze Lecture Hall **Bioprocess engineering, design of smart reactors**  
Chair Selin Kara (Hannover/DE)
- 16:20  
L5-1 Enhanced One-Pot Reaction for the (Bio)Synthesis of Sucrose Monopalmitate: Leveraging Imidazolium-Based Ionic Liquid for Efficient Transesterification  
Tadeja Vajdič (Graz/AT, Maribor/SI, Graz/AT), Bernd Nidetzky (Graz/AT)
- 16:40  
L5-2 Maximizing Efficiency of Multi-Enzyme Cascades – A Data-Driven Optimization Strategy  
Regine Siedentop (Dortmund/DE), Maximilian Siska (Jülich, Dortmund/DE)  
Stephan Lütz (Dortmund/DE), Eric von Lieres (Jülich/DE)  
Katrin Rosenthal (Bremen/DE)
- 17:00  
L5-3 Enzymatic Synthesis of Human Milk Fat Substitute by Immobilized Lipases: Role of Enzyme Carriers and Regulatory Implications  
Alessandra Basso, Simona Serban, Yan Jun Li (Xi'an/CN)
- 17:20  
L5-4 One-Pot Crystallization-Assisted Dynamic Kinetic Resolutions of a Beta-Chiral Amine and a Chiral Hydroxycarboxylic Acid  
Feodor Belov (Magdeburg/DE), Alina Gazizova (Rostock/DE), Hannah Bork  
Harald Gröger (Bielefeld/DE), Jan von Langermann (Magdeburg/DE)

## PROGRAM | THURSDAY, 29 AUGUST

- 08:30–10:00** **Invited speaker session 4 – Topic 2+5**  
Audimax 1 **Structure function analysis and enzyme engineering**  
**Bioprocess engineering design of smart reactors**  
Chair Roland Wohlgemuth (Łódź/PL)
- 08:30  
IL2-3 Exploring IREDs with Catalophore-AI: Shifting Frontiers for Broad-Scope Reductive Aminations  
Christian Gruber (Graz/AT)

- 09:00  
IL2-4      Synthesis of Pharmaceutical Amides Using Amide Bond Synthetases  
Gideon Grogan (York/GB)
- 09:30  
IL5-1      Scale-down reactors to build knowledge and data for design of biocatalysts  
and processes  
John Woodley (Kgs Lyngby/DK)

10:00–10:30    Coffee break and industrial exhibition

**10:30–12:30    Morning session 5 – Topic 4**

Audimax 1  
Chair

**Reaction cascades: Electro-, chemo- and photoenzymatic synergies**

Kathrin Castiglione (Erlangen/DE)

10:30  
L4-1      Electrobiocatalytic Conversion of CO<sub>2</sub> with Formate Dehydrogenases  
Lara Pfaff, Jeppe Refshauge Christensen, Anne S. Meyer (Kongens Lyngby/DK)

10:50  
L4-2      One-step hydrogen-driven carboxylic acid reduction under non-explosive  
conditions  
Robert Kourist, Marianna Karava, Margit Winkler (Graz/AT)

11:10  
L4-3      Selective hydrogenation of nitro compounds to amines by coupled redox  
reactions over a heterogeneous biocatalyst  
Daria Sokolova, Tara Lurshay, Jack Rowbotham, Georgia Stonadge  
Holly Reeve, Sarah Cleary, Tim Sudmeier, Kylie Vincent (Oxford/GB)

11:30  
L4-4      Electro-Driven Biocatalysis for Sustainable Chemical Synthesis in a  
Future Bioeconomy  
Pierre Schoenmakers, Gui Yeoul Lim (Aachen/DE)  
Ammar Al-Shameri (Munich/DE), Stéphane Guillouet (Toulouse/FR)  
Ulf-Peter Apfel (Bochum/DE), Lars Lauterbach (Aachen/DE)

11:50  
L4-5      Opportunities for Merging Chemical and Biological Synthesis  
Xiaoguang Lei (Beijing/CN)

12:10  
L4-6      Batch and continuous operation of a fluidized bed electrode for in-situ  
co-factor generation in an electro-enzymatic process  
Michael Abt, André Tschöpe, Matthias Franzreb (Eggenstein-Leopoldshafen/DE)

**12:30–13:00    Closing remarks**

Audimax 1

**Poster awards** (see page 54)



14:15–16:15

H0.01–0.09/NIT

Poster session 1 – Topic 2 + 6

Structure function analysis and enzyme engineering

Facing climate change: Sustainability and circular bioeconomy

- P2-1 Protein engineering of formolases for the bioconversion of C1 compound formaldehyde  
Leilei Zhu (Tianjin/CN)
- P2-2 Engineering of D-Lactate Dehydrogenase Towards Acceptance of Nicotinamide Biomimetics  
Aaron A. Ingram, Keiko Oike, Caroline E. Paul (Delft/NL)
- P2-3 A robust growth-based selection platform for (continuous) enzyme engineering  
Suzanne Jansen, Clemens Mayer (Groningen/NL)
- P2-4 Elucidating the function of enzyme oligomerization in the fluorinase  
Brianna Lax, Aboubakar Sako, Folmer Fredslund, Tiia Kittilä (Kongens Lyngby/DK)  
Taner Drace, Jan Skov Pedersen, Thomas Boesen (Aarhus/DK)  
Ditte Hededam Welner (Kongens Lyngby/DK)
- P2-5 Groundbreaking overall solution of mutation library generation and ultra-high throughput screening empowering directed enzyme evolution application  
Rongfeng Cai (Wuxi/CN)
- P2-6 From sequence to industrial application: How specialty enzymes are designed  
Jana Ford Husarcik, Simon Godehard, Alexander Pelzer (Zwingenberg/DE)
- P2-7 Application of rational enzyme engineering in a new route to Etonogestrel and Levonorgestrel: Carbonyl reductase bioreduction of ethyl secodione  
Daniel Dourado, Andrew Rowan, Sergej Maciuk, Jenny Spratt  
Gareth Brown, Darren Gray, Jill Caswell, Alexandra Carvalho, Fernando Tur Drazen Pavlovic, Derek Quinn, Thomas Moody (Craigavon/GB)
- P2-8 Unspecific Peroxygenases UPOs: From Expression to Selective Transformations  
Martin Weissenborn (Halle/DE)

- P2-9            Linkers in Action: Exploring Fusion Enzymes for Oxyfunctionalization in Biphasic System through Experiments and Simulations  
Yu Ma (Aarhus/DK), Jan Philipp Bittner (Hamburg/DE), Guillem Vernet Ningning Zhang (Hannover/DE), Selin Kara (Aarhus/DK, Hannover/DE)
- P2-10          Engineering of an organic solvent tolerant esterase based on computational predictions  
Lara Scharbert (Düsseldorf, Jülich/DE), Alexander Bollinger (Düsseldorf/DE) Anna Jäckering, Jennifer Loschwitz (Düsseldorf, Jülich/DE), Stephan Thies (Jülich/DE), Karl-Erich Jäger, Birgit Strodel (Düsseldorf, Jülich/DE)
- P2-11          Discovery of novel ‚split‘ transketolases for application in biocatalysis  
Alessia Tonoli, Silvia Anselmi, John M. Ward, Helen C. Hailes Jack Jeffries (London/GB)
- P2-12          Droplet-based microfluidics for efficient high-throughput screening in biotechnology applications  
Sundar Henggoju, Ashkan Samimi, Kasra Kamali, Miriam A. Rosenbaum (Jena/DE)
- P2-13          Epistasis & Context Dependency in Enzyme Evolution of Borneol-type Dehydrogenases  
Jasmin Zuson (Graz/AT), Andrea M. Chánique (Graz/AT, Santiago/CL) Katarína Kavčiaková (Graz/AT), Bernhard Loll (Berlin/DE), Daniel Kracher Robert Kourist (Graz/AT)
- P2-14          Structure and identification of catalytic residues of D-Threonine aldolase from the green alga *Chlamydomonas reinhardtii*  
Chieri Kohzu, Yuki Hirato (Tokyo/JP), Masaru Goto (Funabashi/JP) Minoru Tanigawa, Katsushi Nishimura (Tokyo/JP)
- P2-15          Enzyme Proximity Sequencing: A Deep Mutational Scanning Workflow for Studying and Engineering Protein Catalysts  
Rosario Vanella, Christoph Küng, Michael Nash (Basel-Stadt/CH)
- P2-16          Heterologous expression and characterization of a GDS(L)-like hydrolase from *Pleurotus sapidus*, which is highly stable at alkaline conditions and contains an unusual SGNH motif in the active site  
Miriam Fingerhut (Giessen/DE), Christiane Lauber (Idstein/DE), Niklas Broel Parviz Ghezellou, Dominik Karrer, Lea Henrich, Bernhard Spengler (Giessen/DE) Kim Langfelder, Timo Stressler (Darmstadt/DE) Holger Zorn (Giessen, Darmstadt/DE), Martin Gand (Giessen/DE)

- P2-17            Structure and function of a novel PU depolymerase  
Weidong Liu, Zhishuai Li, Xu Han (Tianjin/CN), Ren Wei (Greifswald/DE)
- P2-18            GtHNL catalyzes oxidative C=C bond cleavage  
 Jose Coloma (Delft/NL), Isabel Bento (Hamburg/DE)  
 Peter-Leon Hagedoorn, Ulf Hanefeld (Delft/NL)
- P2-19            Functionally Diverse Peroxygenases by AlphaFold2, Design, and Signal  
 Peptide Shuffling  
 Niklas Dietz (Halle/DE)
- P2-20            Machine learning guided directed evolution of unspecific peroxygenases  
Li Wan, Martin Weissenborn (Halle/DE)
- P2-21            Enzymatic bio-construction: diversity-oriented synthesis of building blocks  
Clement Dince, Pierre Gilles, Lucie Aubaterre, Pascal Auffray (Nîmes/FR)
- P2-22            Molecular modification of  $\alpha$ -glucan phosphorylase during glucose  
 metabolic processes  
Peng Chen, Yali Chen, Yuanxia Sun (Tianjin/CN)
- P2-23            Engineering Formaldehyde Dehydrogenase from *Pseudomonas putida* and  
*Burkholderia multivorans* Towards Increased Direct Electron Transfer  
 Capabilities  
Anna-Lena Drommershausen, Dirk Holtmann (Karlsruhe/DE)
- P2-24            Effect of the Loop Structure of Alanine Racemase from *Shewanella*  
*livingstonensis* Ac10 on Pressure Tolerance  
Minoru Tanigawa, Shoko Higashi, Ayu Kawai, Hidetoshi Akasaka (Tokyo/JP)  
 Masaru Goto (Funabashi/JP), Yuki Hirato (Tokyo, Funabashi/JP)  
 Katsushi Nishimura (Tokyo/JP)
- P2-25            Directed evolution of tailored enzymes for the remediation of bioproduction  
 wastes  
Claudio Piselli, Marcus Hartmann (Tübingen/DE), Katrin Rosenthal (Bremen/DE)
- P2-26            Hot Enzymes for Cool Reactions:  $sp^3$  C-H Functionalization of  
 Pharmaceutical Building Blocks Using a Thermostable Enzyme  
Donato Calabrese, Paul R. Cordero (Aachen/DE)  
 Bettina Nestl (Graz/AT, Stuttgart/DE), Lars Lauterbach (Aachen/DE)

- P2-27 Directed Evolution of Nylon Depolymerizing Enzymes  
Christoph Janknecht, Hendrik Pütz, Alexander Illig, Francisca Contreras  
Mariia Vorobii, Ulrich Schwaneberg (Aachen/DE)
- P2-28 Mutants of the *pleurotus citrinopileatus* lipase for applications in cheese  
Lea Henrich, Niklas Broel, Jonathan Schüler, Marius Lang (Giessen/DE)  
Joana Ritter, Julia Manhard, Alexander Siegl  
Edgar Weichhard (Oy-Mittelberg/DE), Fengjiao Xin (Beijing/CN)  
Holger Zorn (Giessen/DE), Binglin Li (Shaanxi/CN), Martin Gand (Giessen/DE)
- P2-29 Optimization of a microfluidics-based assay for the metagenomic screening  
of N-Acetylneuraminic acid synthase and aldolase  
John Martinez (Madrid/ES), Theofania Andreadaki (Haltwhistle/GB)  
Wolf-Dieter Fessner (Darmstadt/DE), Simon Charnock (Haltwhistle/GB)  
Aurelio Hidalgo (Madrid/ES)
- P2-30 Study of recombinant unspecific peroxygenases from *Candolleomyces*  
(*Psathyrella*) *aberdaensis* through crystallography and reaction analysis  
Andrea Menés Rubio, Danelis Toledo Monterrey, Ángela Fernández García  
Patricia Gómez de Santos, Julia Sanz Aparicio, Israel Sánchez Moreno  
Miguel Alcalde-Galeote (Madrid/ES)
- P2-31 Directed evolution of a fungal peroxygenase from *Daldinia* sp. EC12 for  
functional expression in yeast and synthesis of indigoids  
Alejandro Beltran-Nogal, David Gonzalez-Perez, Ivan Mateljak  
Miguel Alcalde-Galeote (Madrid/ES)
- P2-32 Chiral alcohols from alkenes and water – Evolution of a „dream catalyst“  
Vanessa Reitz, Shubhanshu Jain, Stephan C. Hammer (Bielefeld/DE)
- P2-33 Metal Affinity Immobilization of the Vanadium Chloroperoxidase from  
*Curvularia inaequalis*  
Sera Bolat, Ouryana Wardah (Gießen/DE), Dirk Holtmann (Gießen, Karlsruhe/DE)
- P2-34 Efficient and scalable enzyme engineering by computational design of  
combinatorial mutant libraries in an iterative manner  
Lucas Bocquin, Stephan C. Hammer (Bielefeld/DE)
- P2-35 Engineering of NAD-dependent dehydrogenases to change cofactor  
specificity towards NMN  
Nicolas Travnicek, Caroline E. Paul (Delft/NL)



- P2-36 Improving the Hydrogen Peroxide Stability of P450<sub>SP4</sub>, a Highly Selective Peroxygenase for the  $\alpha$ -Hydroxylation of Fatty Acids  
Stephan Vrabl, Klara Bangert, Enrico Semeraro, Wolfgang Kroutil (Graz/AT)
- P2-37 Engineering Tunable Protein Nanoparticles for Biocatalysis  
Santhosh Vijayakumar, Anwar Sunna (Macquarie Park/AU)
- P2-38 Enzyme exploration in the extreme environments of the Hellenic Volcanic Arc: the unveiling of a novel thermostable PL7 alginate lyase  
Vasileios Tsopanakis, Elena Anastasiadou (Heraklion/GR), Maria D. Mikeelsen Anne S. Meyer (Lyngby/DK), Ioannis V. Pavlidis (Heraklion/GR)
- P2-39 The structural insight into the SAM-dependent methyltransferase mechanism  
Seseg Bolotova, Xiaojin Wen, John Reed, Florian Peter Seebeck (Basel/CH)
- P2-40 The enzymatic synthesis of metaraminol – an unexpected hurdle race  
Berit Rothkranz, Doris Hahn, Lilia Arnold (Jülich/DE)  
Daniel Becker (Jülich, Düsseldorf/DE), Marina Tcholakova  
Tayebeh Mirzaeigarakani, William Graf von Westarp, Ulrich Schwaneberg  
Andreas Jupke (Aachen/DE), Stephan Schott-Verdugo (Jülich/DE)  
Holger Gohlke (Jülich, Düsseldorf/DE), Dörte Rother (Jülich, Aachen/DE)
- P2-41 Harnessing Environmental Microbiota for the Discovery of Biocatalytic Enzymes Using Microbial Single-Cell Genome Sequencing  
Soichiro Tsuda, Masato Kogawa, Shigeru Sakurai, Akiho Morimoto-Harima  
Masahito Hosokawa, Hideaki Mabashi-Asazuma, Makoto Hirai (Tokyo/JP)
- P2-42 Investigation of Structural Features of Lipase from *Rhizopus Oryzae* and the Impact on Fatty Acid Selectivity in Vegetable Oils and Fats  
Zehui Dong (Lund/SE), Majid Haddad Momeni, Kim Olofsson (Malmö/SE)  
Jean Marc Nicaud (Jouy-en-Josas/FR), Eva Nordberg Karlsson (Lund/SE)
- P2-43 Role of a conserved lysine residue in stabilizing the redox cofactors of a Mo-dependent formate dehydrogenase  
Feilong Li, Michael Lienemann (Espoo/FI)
- P2-44 An amino acid position next to the active site histidine significantly affects enzyme activity and stability of a type IIa PETase  
Rebecka Molitor (Düsseldorf/DE), Stephan Thies (Jülich/DE)  
Nadine Königshausen, Tobias Horbach (Düsseldorf/DE)  
Christina Gohlke (Jülich/DE), Holger Gohlke  
Karl-Erich Jäger (Jülich, Düsseldorf/DE)

- P2-45 Computational-aided engineering of a selective unspecific peroxygenase towards enantiodivergent beta-ionone hydroxylation  
Linda Anna Michelle Kulka, Judith Münch (Halle/DE), Jordi Soler (Girona/ES)  
Nicole Hünicke, Dominik Homann (Halle/DE), Marc Garcia-Borràs (Girona/ES)  
Martin Weissenborn (Halle/DE)
- P2-46 Exploring the Substrate Promiscuity of Bacterial Pyrimidine Deaminases  
Justas Vaitekūnas, Jonita Stankevičiūtė, Agota Aucynaite  
Renata Gasparavičiūtė, Rolandas Meškys (Vilnius/LT)
- P2-47 Molybdoenzyme mediates carbon-sulfur bond making and breaking  
Gladwin Suryatin Alim, Mariia A. Beliaeva, Florian Peter Seebeck (Basel/CH)
- P2-48 Improvement of the thermostability of the arylmalonate decarboxylase (AMDase) using ancestral sequence reconstruction  
Jan G. Gerstenberger (Hannover/DE), Elske van der Pol, Klaus P. Schliep  
Robert Kourist (Graz/AT), Selin Kara (Hannover/DE, Aarhus/DK)
- P2-49 Bulky alkene reduction catalyzed by ene reductases  
Hugo Brasselet, Laura Koekkoek (Delft/NL), Anke Hummel (Bielefeld/DE)  
Hessel van Dijk, Michiel van Vliet (Delft/NL), Harald Gröger (Bielefeld/DE)  
Ulf Hanefeld (Delft/NL)
- P2-50 Novel activities from an allogenic microbial glycosyltransferase  
Joseph O'Sullivan, Jose Munoz, Graeme Turnbull  
Sterghios Moschos (Newcastle-upon-Tyne/GB)
- P2-51 Biotechnological Potential of a Novel Psychrophilic Phage-Type Single Subunit RNA Polymerase from a Low-Temperature Consortium Metagenome  
Sebastián L. Márquez Miranda, Litsy Martínez  
Sebastián A. Muñoz-Ibacache, Giannina Espina, Jenny M. Blamey (Santiago/CL)
- P2-52 Bioremediation of TNT by Novel Antarctic Bacteria: Genomic and Transcriptomic Analysis Unveils Enzymatic Arsenal for Pollutants Biotransformation  
Ma. Ángeles Cabrera, Sebastián L. Márquez Miranda  
José M. Pérez-Donoso (Santiago/CL)

- P2-53 Crystal Structure and Substrate Spectrum of  $\alpha$ -Ketoacid C-Methyltransferases SgvM and MrsA  
Ziruo Zou, Juliane Breiltgens, Christina Sommer-Kamann, Stefan Gerhardt Raspudin Saleem-Batcha, Florian Kemper, Oliver Einsle, Jennifer Andexer Michael Müller (Freiburg i. Br./DE)
- P2-54 Ancestral sequence reconstruction of unspecific peroxygenases  
Dianelis Toledo Monterrey, Ivan Mateljok, Javier Viña-González Miguel Alcalde-Galeote (Madrid/ES)
- P2-55 Together or apart? Investigation of P450-CPR complex for flavonoids hydroxylation  
Kinga Dulak, Agata Matera, Sandra Sordon, Ewa Huszcza Jarosław Popłoński (Wrocław/PL)
- P2-56 Discovering N-methyltransferases in *Crinum asiaticum* transcriptome for simple functionalization of pharmaceuticals using ML  
Oscar Nicolas Londoño Sanchez, Maria Francisca Villegas-Torres (Bogotá/CO)
- P2-57 Discovery of C-C phenol-coupling cytochromes P450 in *Crinum asiaticum*: a machine learning approach  
Mateo Valderruten-Cajiao, Maria Francisca Villegas-Torres (Bogotá/CO)
- P2-58 Extension of PETase classes by newly identified alpha/beta hydrolases from the bacterial genus Halopseudomonas  
Onur Turak, Birte Höcker (Bayreuth/DE), Erik Borchert (Kiel/DE)
- P2-59 Glucose oxidase converted into a C1 and C6 carbohydrate oxidase: Production of organic acids derived from glucose  
Pamela Vasquez, Ronny Martinez, Claudia Bernal (La Serena/CL)
- P2-60 Manipulating Activity and Chemoselectivity of a Benzaldehyde Lyase for Efficient Synthesis of  $\alpha$ -Hydroxymethyl Ketones and One-pot Enantio-complementary Conversion to 1,2-Diols  
Yifan Zhang, Yu Li, Yangyang Zhang, Weidong Liu, Jinhui Feng, Peiyuan Yao Qiaqing Wu, Dunming Zhu (Tianjin/CN)
- P2-61 An engineered imine reductase for highly diastereo- and enantioselective synthesis of  $\beta$ -branched amines with contiguous stereocenters  
Zhen-Yu Zhu, Gao-Wei Zheng (Shanghai/CN)

- P2-62      Reaction Mechanism and Regioselectivity of Uridine Diphosphate Glucosyltransferase RrUGT3: A Combined Experimental and Computational Study  
 Menagsha Li (TianJin, Tianjin/CN), Cai You, Fei Guo, Shengying Li  
 Lei Du (Qingdao/CN), Xiang Sheng (Tianjin/CN), Hao Su (TianJin, Tianjin/CN)
- P2-63      Determining the reaction mechanism of the flavin reductase ThdF from *S. albobriseolus*  
 Hendrik Horstmeier, Simon Gäfe, Marius Nagel  
 Hartmut Niemann (Bielefeld/DE)
- P2-64      Engineering of dimeric forms of the cysteine peptidase xylellain  
Ana Obaha, Marko Novinec (Ljubljana/SI)
- P2-65      Unveiling New Frontiers in Plastic Biodegradation: Novel Enzymatic Pathways for PET and Beyond  
 Pablo Pérez-García, Tabea Neumann, Marno Gurschke, Robert F. Dierkes  
 Golo Feuerriegel, Alan Wypych, Nico Bäse, Wolfgang Streit (Hamburg/DE)
- P2-66      Computational Identification of Nerve Agent Binding Proteins  
 Nihan Çelebi Ölçüm, Zehra Evla İpekli (Istanbul/TR)
- P2-67      Discovery and engineering of biocatalysts for the synthesis of bioactive C-glycosides  
Natalia Putkaradze, Ditte Hededam Welner (Lyngby/DK)
- P2-68      Engineering 2-Deoxy-d-ribose-5-phosphate Aldolase for *anti*- and *syn*-Selective Epoxidations of  $\alpha,\beta$ -Unsaturated Aldehydes  
 Hangyu Zhou (Groningen/NL)
- P2-69      Construction of enzyme variants for optimised activity of AaeUPO-PaDal towards aliphatic substrates  
Sonja Schönrock, Niklas Teetz, Dirk Holtmann (Karlsruhe/DE)
- P2-70      EvoEnzyme in the Horizon Europe program: Engineering robust enzymes for healthcare monitoring, sustainable energy, green chemistry and plastic degradation  
Ivan Mateljak, Patricia Gómez de Santos, Javier Viña-González, Mikel Dolz, Juan Carlos Martín, Miguel Alcalde-Galeote (Madrid/ES)
- P2-71      Allozymes' microfluidic platform opens new perspectives for enzyme engineering  
Audrey Robic, Pradeep Nair, Tiago Resende, Balaji Sundara Sekar  
 Patrick Tan, Shelly Cheng, Akbar Vahidi (Singapore/SG)

- P2-72      Engineering of interfaces for screening of oxyfunctionalization targets catalyzed by heterogenized unspecific peroxygenases (UPOs)  
Maria Zahid, Selin Kara (Hannover/DE)
- P6-1      Cellulozymes: Cellulose as a renewable carrier for immobilized enzymes  
Hessel van Dijk, Rob Schoevaart (Den Hoorn/NL)
- P6-2      Zearalenone (ZEN) degradation using *Aeromicrobium*.  
Jog Raj, Zdenka Jakovčević, Hunor Farkas, Svetlana Čujić  
 Marko Vasiljević (Misicevo/RS)
- P6-3      Potato peels as substrate for laccase-catalysed synthesis of phellinsin A  
 Blessing Nemadziva, Sandile Ngubane, Faith Matiza Ruzengwe  
Kabange Kasumbwe, Tukayi Kudanga (Durban/ZA)
- P6-4      Enzymatic Upcycling of Textile Wastes for Mycelium Leather Production  
Zak Towle, Jane Scott, Meng Zhang, Gary Black  
 Paul James (Newcastle-upon-Tyne/GB)
- P6-5      Clearing Oxidoreductases for Take-Off: Biocatalytic Recycling Approaches for Aerospace Epoxy Composites  
Leon Klose, Barbara Klippel, Neele Meyer-Heydecke, Sasipa Wongwattananat  
 Wolfgang Streit, Garabed Antranikian, Ana Malvis Romero  
 Andreas Liese (Hamburg/DE)
- P6-6      Assessing High Pressure Homogenization for Producing Proteolytically Active Spent Yeast Extracts  
Marie Schottroff (Hamburg, Düsseldorf/DE)  
 Ana Malvis Romero (Hamburg/DE), Silvia Grasselli  
 Mark Schneeberger (Düsseldorf/DE), Andreas Liese (Hamburg/DE)
- P6-7      Modifying the product profile of biocatalytically hydrolyzed PET  
Tobias Heinks (Magdeburg/DE), Katrin Hofmann (Köthen/DE)  
 Igor Gamm, Simon Last, Luise Blach (Magdeburg/DE), Ren Wie  
 Uwe Bornscheuer (Greifswald/DE) Christof Hamel (Magdeburg, Köthen/DE)  
 Jan von Langermann (Magdeburg/DE)
- P6-8      A mycobacterial aminoacylase as a versatile catalyst for the synthesis of *N*-acyl-amino acids  
Jessika Wirges, Johannes Bongaerts (Jülich/DE), Gerrit Haeger (Måløv/DK)  
 Petra Siegert (Jülich/DE)
- P6-9      Functionalised cellulose microspheres as sustainable enzyme carriers  
Muhammad Kamran, Katie Barnard, Davide Mattia (Malmesbury/GB)

- P6-10      STEM-Communication Projects Empowering Society to Understand Research on Sustainability and Circular Bioeconomy to Face Climate Change  
Gesine Liese, Lara Gibowsky, Julia Husung, Franziska Rohweder, Ina Klose  
 Christoph Eberenz, Baldur Schröter, Irina Smirnova, Anna Katharina Zörner  
 Andreas Liese (Hamburg/DE)
- P6-11      Study on recovery of metals from printed circuit board using acidophilic iron-oxidizing bacteria  
Miho Suzuki, Rinka Harikae, Minoru Tanigawa, Katsushi Nishimura (Tokyo/JP)
- P6-12      Immobilization of *Trametes versicolor* laccase for the oxidation of 5-hydroxymethylfurfural to 2,5-furandicarboxylic acid  
Nadia Guajardo, Aura Araya, Maria Elena Lienqueo (Santiago/CL)
- P6-13      A combined chemo-enzymatic treatment for the oxidative degradation of epoxy-based CFRPs  
Sasipa Wongwattanasat, Pablo Pérez-García, Andrea Schorn, Leon Klose  
 Neele Meyer-Heydecke, Ana Malvis Romero, Andreas Liese  
 Wolfgang Streit (Hamburg/DE)
- P6-14      *De Novo* Multienzyme Synthetic Pathways for Lactic Acid Production  
Ding Xuwei, Zheng Gaowei (Shanghai/CN)
- P6-15      Biodegradable polyacrylates: Assessing the enzymatic and microbial degradation potential for novel polyester-acrylate copolymers  
Robert F. Dierkes, Barbara Klippel (Hamburg/DE), Sascha A. Wilhelm  
 Diana Spettmann, Jürgen Bohnen (Krefeld/DE), Andreas Liese  
 Garabed Antranikian (Hamburg/DE)
- P6-16      Exploring the Diversity of Extreme Habitats for the Degradation of Epoxy Resins  
Neele Meyer-Heydecke, Barbara Klippel, Anke Peters, Leon Klose  
 Andreas Liese, Sasipa Wongwattanasat, Wolfgang Streit  
 Garabed Antranikian (Hamburg/DE)

14:00–15:30

H0.01 - H0.09/NIT

Poster session 2 – Topic 1, 4+5

AI and computational methods

Reaction cascades: Electro-, chemo- and photoenzymatic synergies  
Bioprocess engineering, design of smart reactors

- P1-1 Enhancing Low-N Enzyme Engineering through Zero-Shot Predictor Integration  
David Harding-Larsen (Kongens Lyngby/DK), Stanislav Mazurenko (Brno/CZ)  
Ditte Hededam Welner (Kongens Lyngby/DK)
- P1-2 Single-step biosynthesis of a novel LSD1 inhibitor using an IRED engineered rapidly using machine learning and laboratory automation  
Tim Eyes, Andrew Almond, Andrew Currin, Jack Manning, Joe Webb,  
Matthew Burn (Manchester/GB)
- P1-3 Using artificial intelligence for the identification of enzymes with desired properties  
Marius Stoeckle, Florian Lenk, Anne-Kristin Kaster, Kersten S. Rabe  
Christof M. Niemeyer (Karlsruhe/DE)
- P1-4 STRENDA Biocatalysis Guidelines  
Dominik Meißner, Stephan Malzacher (Jülich/DE)  
Zvezdana Blažević (Zagreb/HR), Katrin Rosenthal (Bremen/DE)  
John Woodley (Lyngby/DK), Jan Range (Stuttgart/DE)  
Roland Wohlgemuth (Lodz/PL), Peter Wied, Bernd Nidetzky (Graz/AT)  
Robert Giessmann (Berlin/DE), Kridsakorn Prakinee  
Pimchai Chaiyen (Rayong/TH), Andreas Bommaris (Georgia, GA/US)  
Johann Rohwer (Stellenbosch/ZA), Rodrigo de Souza (Rio de Janeiro/BR)  
Peter Halling (Glasgow/GB), Jürgen Pleiss (Stuttgart/DE)  
Carsten Kettner (Frankfurt a. M./DE), Dörte Rother (Jülich/DE)
- P4-1 Characterization of the enantioselective carbene free cyclopropanation reaction catalyzed by *E.coli* cyclopropane fatty acid synthase (ecCFAS)  
Michele Crotti, Daniele Castagnolo, Sarah Barry (London/GB)
- P4-2 Boron Catalysis in a Designer Enzyme  
Lars Longwitz, Gerard Roelfes (Groningen/NL)
- P4-3 Co-substrate recycling for (S)-TAs in kinetic resolutions  
Tobias Heinks (Magdeburg, Bielefeld/DE), Simon Koopmeiners  
Nicolai Montua, Norbert Sewald (Bielefeld/DE)  
Matthias Höhne (Greifswald/DE), Jan von Langermann (Magdeburg/DE)  
Uwe Bornscheuer (Greifswald/DE)  
Gabriele Fischer von Mollard (Bielefeld/DE)

- P4-4 Advancements in Cofactor Regeneration for Efficient Nucleotide Sugar Synthesis  
Benjamin Schmitz, Lothar Elling (Aachen/DE)
- P4-5 Multifunctional artificial enzymes for tandem abiotic transformations  
Weijin Wang (Lausanne/CH), Ryo Tachibana (Basel/CH), Kelvin Lau  
Florence Pojer (Lausanne/CH), Thomas R. Ward (Basel/CH)  
Xile Hu (Lausanne/CH)
- P4-6 Biocatalytic cascade reactions featuring a designer enzyme for intramolecular Friedel-Crafts alkylations  
Claudia Da Settimo Passetti, Gerard Roelfes (Groningen/NL)
- P4-7 Protein-polymer Conjugates as Artificial Enzymes for Catalysis  
Changzhu Wu (Odense/DK)
- P4-8 Biomimetic enzymatic cascade for fatty alkyl *p*-hydroxycinnamates synthesis  
Horiya Nassiba Ham, Nabila Imatoukene, Louis Mouterde (Pomacle/FR)
- P4-9 Enzymatic cascade to natural ligustrazine  
Valentina Jurkaš (Graz/AT), Hana Dobiašová (Bratislava/SK)  
Eva Puchlřová (Bratislava/DE), Marta Perego (Milan/IT), Kvetoslava Vrankova  
Peter Both (Bratislava/DE), Florian Rudroff (Vienna/AT)  
Fabio Parmeggiani (Milan/IT), Margit Winkler (Graz/AT)
- P4-10 A multi enzyme system for the generation of a new natural sugar syrup  
Nathanael Weber, Sabine Lutz-Wahl, Lutz Fischer (Stuttgart/DE)
- P4-11 Electrochemical characterisation of Formaldehyde dehydrogenase  
Jeppe Refshauge Christensen, Lara Pfaff (Kongens Lyngby/DK)  
Douglas Call (Raleigh, NC/US), Anne S. Meyer (Kongens Lyngby/DK)
- P4-12 Enzymatic catalyzed esterification of small molecules in a biphasic process  
Nina Klos (Julich, Aachen/DE), Lars M. Blank (Aachen/DE)  
Walter Leitner (Mulheim, Aachen/DE), Dorte Rother (Julich, Aachen/DE)
- P4-13 Metal affinity immobilization of fusion enzymes for oxyfunctionalizations in micro-aqueous media  
Guillem Vernet (Hannover/DE), Yu Ma (Aarhus/DK), Simona Serban  
Alessandra Basso (Xi'an/CN), Ningning Zhang, Selin Kara (Hannover/DE)



- P4-14      Analysis of protein changes induced by high taurine concentration with A $\beta$  in NE-4C  
Ito Shiho, Shoko Matsushita, Aki Hayashi  
 Yusuke Suzuki (Kanda-Surugadai, Chiyoda-ku, Tokyo/JP)
- P4-15      Analysis of lipid-modification proteins in renal cells after treatment with Shakuyaku-Kanzo-to in response to changes in glucose concentration  
Shoko Matsushita, Kensuke Tamura, Kenshiro Tashiro, Aki Hayashi  
 Mamiko Hayakawa, Tadashi Aoyama, Yusuke Suzuki (Tokyo/JP)
- P4-16      Investigation of the combinability of Unspecific Peroxygenase from *Myceliophthora thermophila* with L-amino acid oxidase from *Hebeloma cylindrosporum*  
Simon Last, Tobias Heinks (Magdeburg/DE), Niklas Dietz (Halle/DE)  
 Simon Koopmeiners, Gabriele Fischer von Mollard (Bielefeld/DE)  
 Martin Weissenborn (Halle/DE), Jan von Langermann (Magdeburg/DE)
- P4-17      Optimizing the coenzyme regeneration in alcohol dehydrogenase catalyzed rhododendrol oxidation  
Emerik Leaković (Zagreb/HR), Michel Feussi Tala  
 Karsten Siems (Potsdam/DE), Zvezdana Findrik Blažević  
 Ana Vrsalović Presečki (Zagreb/HR)
- P4-18      Electrochemical H<sub>2</sub>O<sub>2</sub>-Stat Mode as a Reaction Concept to Improve the Process Performance of an Unspecific Peroxygenase  
Giovanni Vallian Sayoga, Victoria Bueschler, Hubert Beisch, Bodo Fiedler  
 Daniel Ohde, Andreas Liese (Hamburg/DE)
- P4-19      Multi-Enzyme Cascade in Packed bed Reactors for the Production of 3'-Sialyllactose  
Kristin Hölting, Miriam Aßmann, Paul Bubenheim, Andreas Liese  
 Jürgen Kuballa (Hamburg/DE)
- P4-20      The biocatalytic production of pseudouridine, a key mRNA vaccine ingredient  
 Federica Ruggieri, Sascha Grobe, Antía Pintor, Alice MacAulay  
Catalina Novoa Henríquez, Matthew Thompson, Mónica Guevara (Solna/SE)
- P4-21      Multi-enzyme cascade reaction under high hydrostatic pressure: a novel approach for the continuous production of human milk oligosaccharides  
Fernando Lopez Haro, Jannis Reich, Marlene Schmale, Miriam Aßmann  
 Kristin Hölting, Paul Bubenheim, Andreas Liese (Hamburg/DE)

- P4-22 Enzyme Immobilization on Carbon Cloth for an Electroenzymatic System  
Victoria Bueschler, Giovanni Vallian Sayoga, Hubert Beisch, Daniel Ohde  
Bodo Fiedler, Andreas Liese (Hamburg/DE)
- P4-23 Valorization of Glycerol to 1,3-propanediol via a Bioelectrochemical Enzyme Cascade Reaction  
Fabian Lange, Kayla Dittmer, Daniel Ohde, Andreas Liese (Hamburg/DE)
- P4-24 Continuous operation of enzyme membrane reactor with free enzyme reaction cascade for production of nucleotide sugars  
Shubhang Sharma, Daniel Ohde (Hamburg/DE), Benjamin Schmitz  
Daniela Herrera Toro, Ulrich Schwaneberg, Lothar Elling (Aachen/DE)  
Andreas Liese (Hamburg/DE)
- P4-25 Production of biobased ethylbenzene via cascade biocatalysis with an engineered photodecarboxylase  
Shuke Wu, Yi Zhou (Wuhan/CN), Uwe Bornscheuer (Greifswald/DE)
- P4-26 Biocatalytic Synthesis of Macrocyclic Lactones  
Corinna Koraus, Emmanouil Chatzakis, Pedro Alejandro Sanchez Murcia  
Christoph K. Winkler, Wolfgang Kroutil (Graz/AT)
- P5-1 Optimization of Enzymatic Membrane Reactors for Effective Continuous Flow Biocatalysis  
Andrei Popkov, Magdalena Malankowska, Ziran Su  
Manuel Pinelo (Kongens Lyngby/DK)
- P5-2 Reaction Dynamic of Enzymatic Butane Hydroxylation in a Bubble Column Reactor  
Florian Kelsch (Hamburg/DE), Gábor Schultz (Braunschweig/DE)  
Kilian Roth, Paul Bubenheim (Hamburg/DE), Rainer Krull (Braunschweig/DE)  
Andreas Liese (Hamburg/DE)
- P5-3 Expanding the Applicability of Pickering Emulsions for Biocatalysis  
Sara Fatima Bhutta, Marion Ansorge-Schumacher (Dresden/DE)
- P5-4 Functionalized poly(aspartic acid) hydrogel particles as a carrier for covalent enzyme immobilization  
Lars-Erik Meyer, Johanna Meyer, Jona Gebauer, Marko Matosevic  
Katharina Naerger (Hannover/DE), Selin Kara (Hannover/DE, Aarhus/DK)
- P5-5 Characterization of linen fabric Immobilized thermostable  $\beta$ -glucosidase  
Ani Paloyan, Karine Dyukova, Lev Khoyetsyan  
Artur Hambardzumyan (Yerevan/AM), Garabed Antranikian (Hamburg/DE)

- P5-6 Crystallization-assisted enantiopure amine synthesis using transaminase-membrane reactor  
Hippolyte Meersseman Arango, Tom Leyssens  
 Patricia Luis (Louvain-La-Neuve/BE), Francesca Paradisi (Bern/CH)  
 Damien Debecker (Louvain-La-Neuve/BE)
- P5-7 Immobilization of enological pectinase by absorption on polyamide 6 microparticles and its application in the clarification of wine must  
Sandra Oliveira, Nadya Dencheva, Zlatan Denchev (Guimarães/PT)
- P5-8 Formulation of Enzyme-Based Biomaterials for Flow Biocatalysis  
Astrid Winterhalter, Julian S. Hertel, Kersten S. Rabe  
 Christof M. Niemeyer (Eggenstein-Leopoldshafen/DE)
- P5-9 Design of laccase coated membranes as promising reusable filtration materials for enzymatic bioremediation  
Ian Coupez (Louvain-La-Neuve/BE), Alice Wolper  
 Frédéric Debaste (Brussels/BE), Christine Dupont-Gillain  
 Sophie Demoustier (Louvain-La-Neuve/BE)
- P5-10 Effect of oxygen mass transfer on the kinetics of Baeyer-Villiger oxidation using a recombinant whole-cell biocatalyst  
 Patrik Cabadaj, Viera Illeová, Magdalena Lech, Marek Bučko  
Milan Polakovič (Bratislava/SK)
- P5-11 In-line NMR Monitoring: A Window into Biocatalytic Transformations  
Luca Schmidt (Hamburg/DE), Logia Jolly (Bielefeld/DE)  
 Victoria Bueschler (Hamburg/DE), Harald Gröger (Bielefeld/DE)  
 Andreas Liese (Hamburg/DE)
- P5-12 Enzymatic sorbityl laurate production in dissolved and neat systems under conventional and microwave heating  
Rebecca Hollenbach (Göppingen/DE)  
 Andre Delavault (Eggenstein-Leopoldshafen/DE), Oleksandra OPOCHENSKA  
 Sonja Schönrock (Karlsruhe/DE), Katrin Ochsenreither (Göppingen/DE)  
 Christoph Syldatk (Karlsruhe/DE)
- P5-13 Systematic methods for improved modelling of enzyme kinetics  
Thomas Waluga, Francesca von Ziegner, Mirko Skiborowski (Hamburg/DE)
- P5-14 Reductase-driven cofactor regeneration cascade in deep eutectic solvents  
Francesco Napoletano (Hannover/DE), Marco Fraaije (Groningen/NL)  
 Amin Bornadel (Cambridge/GB), Ningning Zhang (Hannover/DE)  
 Selin Kara (Hannover/DE, Aarhus/DK)

- P5-15 Application of immobilized dera enzyme in different types of continuous reactors for the production of statin precursors  
Dino Skendrović, Ana Vrsalović Presečki (Zagreb/HR)
- P5-16 A highly efficient immobilization of formate dehydrogenase for biocatalytic applications  
Lindelo Mguni, Artur Maier (Bochum/DE), Camiel de Ruiter  
Rob Schoevaart (Delft/NL), Dirk Tischler (Bochum/DE)
- P5-17 Fatty acid photodecarboxylase for drop in biofuels synthesis in deep eutectic solvents  
Aikaterini Margariti, Ningning Zhang (Hannover/DE)  
Robert Kourist (Graz/AT), Amin Bornadel (Cambridge/GB)  
Selin Kara (Hannover/DE, Aarhus/DK)
- P5-18 3D-printed microreactors for enzyme immobilization: A paradigm towards customized microfluidic screening platforms  
Elena Gkantzou (Hannover/DE), Hannah Brass, David Schönauer (Nuth/NL)  
Selin Kara (Hannover/DE, Aarhus/DK)
- P5-19 Biocatalytic oil cleavage in a Catalytic Membrane Reactor (CMR) using selective lipase variants  
David Liese (Greifswald/DE), Rob Schoevaart (Den Hoorn/NL)  
Philipp Süß (Greifswald/DE)
- P5-20 Application of cross-linked enzyme crystals of halohydrin dehalogenase HheG D114C in microfluidics  
Lina Ahlborn, Lanting Xiang, Iordania Constantinou  
Anett Schallmeyer (Braunschweig/DE)
- P5-21 Investigation of an Enzyme Cascade Reaction in a Miniplant for Flavor Synthesis  
Grit Brauckmann, Francesca von Ziegner, Thomas Waluga  
Paul Bubenheim (Hamburg/DE)
- P5-22 Reaction engineering for asymmetric *R*-PAC-synthesis with Ephedrine dehydrogenase in Pickering emulsion  
Reynaldo Jr Carubio, Marion Ansorge-Schumacher (Dresden/DE)
- P5-23 Continuous-flow microreactor-enhanced clean NAD<sup>+</sup> regeneration for biosynthesis of 7-oxo-lithocholic acid  
Hai-Peng Li, Chun-Xiu Li, Jian-He Xu (Shanghai/CN)

- P5-24      Hydrogenase Immobilization in Smart Reactors  
Kayla Dittmer, Fabian Lange, Lukas Rennpferdt, Daniel Ohde (Hamburg/DE)  
Lars Lauterbach (Aachen/DE), Hoc Khiem Trieu, Andreas Liese (Hamburg/DE)
- P5-25      Precious-metal free electrocatalysts for CO<sub>2</sub> reduction in a combined  
bio-electrochemical reactor  
Arielle Rieck, Asad Mehmood (Berlin/DE), Irina Schwarz  
Dirk Weuster-Botz (Munich/DE), Tim-Patrick Fellingner (Berlin/DE)
- P5-26      Kinetic Intensification of Biocatalytic Oxidation Reactions at High Pressure  
Anastasios Lyberis, Daniel Niehaus, Zeynep Perçin, Paul Bubenheim  
Michael Schlüter, Andreas Liese (Hamburg/DE)

14:00–16:00

## Poster session 3 – Topic 3

H0.01 - H0.09/NIT

## Enzymatic and whole-cell biotransformations

- P3-1 Non-Conventional Biocatalysis Strategies for Propyl Oleate Synthesis through the halophilic Lipase/Esterase *LipN* in *n*-Propanol Surfactantless Microemulsion and AOT/H<sub>2</sub>O/Isooctane Reverse Micelles systems  
Jose Martin Marquez Villa, Juan Carlos Mateos Diaz  
Jorge Alberto Rodriguez Gonzalez (Zapopan/MX)  
Ali Asaff Torres (Hermosillo/MX), Rosa Maria Camacho Ruiz (Zapopan/MX)
- P3-2 Selective Methylations and Alkylations using Methyltransferases  
Matthew Salinger, Jack Jeffries (London/GB), Thomas Moody (Craigavon/GB)  
John M. Ward, Helen C. Hailes (London/GB)
- P3-3 Strain- and process optimization of hydroxy-L-lysine production fueled by D-xylose using *Pseudomonas taiwanensis* VLB120  
Julian Handke, Georg Hubmann, Philipp Nerke, Stephan Lütz (Dortmund/DE)
- P3-4 Unveiling Novel Carboligase Homologues for C1-C3 Aldehyde Conversion to Bioactive Hydroxy Ketones  
Hana Dobiašová (Bratislava/SK), Valentina Jurkaš (Graz/AT), Eva Puchlová  
Kvetoslava Vranková, Peter Both (Bratislava/SK), Florian Rudroff (Vienna/AT)  
Margit Winkler (Graz/AT)
- P3-5 Engineering the Fatty Acid Photodecarboxylase from *Chlorella Variabilis* to Catalyze C-C Bond Formations  
Christoph K. Winkler, Florian Weissensteiner, Maria Emilia Iglesias Moncayo  
Wolfgang Kroutil (Graz/AT)
- P3-6 Dimethylsulfoniopropionate lyase from *Pelagibacter ubique* HTCC1062 as a catalyst for  $\beta$ -amino acid synthesis by aza-Michael reaction  
Diletta Arceri, Karel Hernández, Ángela Mourelle-Insua, Jesús Joglar  
Jordi Bujons, Pere Clapés (Barcelona/ES)
- P3-7 Enantioselective Biocatalytic Reduction of Sterically challenging Pharmaceutically Relevant Chiral Amines Using whole cell biocatalyst  
Kiran Dalal, Pratik Wagh (Jalgaon/IN)
- P3-8 A Ketoreductase Utilizes Synthetic Nicotinamide Cofactor Mimetics  
Keiko Oike, Aaron A. Ingram, Christian M. Heckmann  
Caroline E. Paul (Delft/NL)

- P3-9 A deamination-driven biocatalytic cascade for the synthesis of ribose-1-phosphate  
Jonas Motter, Sarah Westarp, Jonas Barsig, Christina Betz  
 Amin Dagane (Berlin/DE), Felix Kaspar (Berlin, Braunschweig/DE)  
 Lena Neumair, Sebastian Kemper, Peter Neubauer, Anke Kurreck (Berlin/DE)
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 Yongjie Yu, Andreas Kappler (Tübingen/DE)

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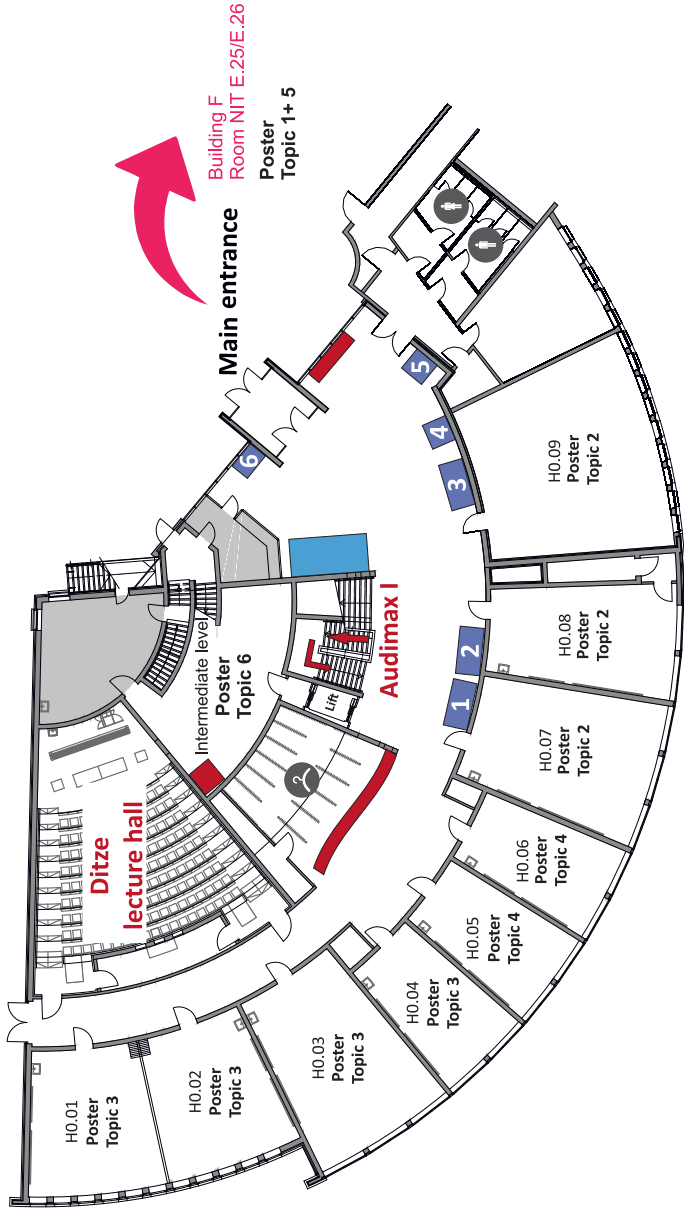
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**Get together**

Be our guest and enjoy the evening with food and drinks. Meet your colleagues, friends and industrial partners in a relaxed atmosphere.

Date Sunday, 25 August  
 Time 19:00  
 Location TUHH • Building I • Mensa



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**Congress dinner**

Ship ahoi!

Enjoy a delicious dinner with your colleagues while taking in a cruise through Hamburg harbour including highlights like the Oevelgönne museum port, the picturesque banks of the Elbe, the Elbphilharmonie and the new Hafencity. We are travelling in style aboard the MS Louisiana star, a paddle-wheeler that adds nostalgic flair and style to the evening.



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Date Tuesday, 27 August

**Timetable**

17:15 Bus shuttle leaves in front of the Audimax I  
 18:00 Boarding the “Louisiana Star”  
 18:30 Start of the harbour cruise  
 19:00 Dinner  
 22:30 The “Louisiana Star” returns to Landungsbrücken  
 22:45 Bus shuttle back to Hamburg-Harburg

If you are staying in a hotel downtown, or if you want to do some sightseeing, you are of course free not to use the bus shuttle back to Hamburg-Harburg. At the metro station “Landungsbrücken” you will find the lines S1, S3 and U3.

Landungsbrücken is close to the Old Warehouse District, which is beautifully illuminated by night, and the famous Reeperbahn with all its bars and clubs.

The bus shuttle back to Hamburg-Harburg is ready for boarding at the Landungsbrücken and will leave for the following stops: Hotel Panorama (Hotel Süderelbe, B&B Hotel Harburg) – TUHH – Hotel Heimfeld – Hotel Lindtner.





### Biocat award ceremony

Since 2004 the biocat award is given to outstanding individuals to acknowledge their achievements in the field of biocatalysis in the course of the International Congress on Biocatalysis. This prize, which is awarded in the categories “Science”, “Industry” and “Lifetime Achievement” is among the most prestigious awards in the field of biotechnology.

The award ceremony will take place on **Tuesday, 27 August** on the boat “Louisiana Star” during the congress dinner.



### Catering

Catering will be served during the official coffee and lunch breaks and is covered by the registration fee.

Lunch will take place in the Mensa. Here you will find healthy as well as predominantly vegetarian and vegan offer. You will get vouchers for lunch at the check-in.

These vouchers have a value of 10 EUR. Usually, this value is enough for a full meal. However, if you do get above the value, then you have to pay the difference. In the Mensa there is also a pizza bar, for which you can use the voucher.

In addition, you can also redeem the voucher at Café ZessP in Building B (see “Map of the Campus” on the back of the program).



### Certificate of attendance

Certificates of attendance will be sent to you by e-mail after the congress.



### Cloakroom

The coat and luggage room at the congress is free and unsecured.



### General terms and conditions

Please find our general terms and conditions at [www.biocat-congress.de](http://www.biocat-congress.de).



### Name badge

Please wear your name badge during all congress events, including the networking activities.

Admission to scientific sessions and to the industrial exhibition is restricted to participants wearing their badge. Participants will receive their name badge when collecting their congress documents at the check-in desk.



### Poster awards

The best 10 oral poster presentations will be awarded a prize money of 100 EUR. The award ceremony will be held on **Thursday, 29 August** during the closing remarks.



### Publication of abstracts

All abstracts will be available online in a secure area on the biocat homepage to all registered participants.



### WiFi access

WiFi is available for free throughout the whole congress area.

SSID: 11thBiocat2024

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## Presentation upload

The media check-in for uploading your presentation is located in the lecture hall. For submission, please use a USB flash drive that is not protected by any software. Professional staff and equipment will be available for you to arrange and preview your presentation.

## Submitting your presentation/technical information

PDF and PowerPoint presentations are permitted. Required technical equipment will be available at the congress. Please make sure that any required CODEC files for any videos are also submitted.

## Time allotment

Please prepare your presentation for the allotted amount of time and please make sure to leave approx. 5 minutes at the end of your presentation for questions. Chairs may interrupt, should you overrun your time limit.

## Poster sessions

You can find your permanent program ID in the program part of this book. Every poster wall is marked with a permanent program ID, so that authors can find their place within the poster exhibition.

All poster authors are asked to hang up their posters on Sunday, 25 August from 16:00 and remove them on Thursday, 29 August until 10:30. Mounting materials will be provided on each poster board. Please do not use any other type of pins than those provided.

### Poster session 1 – Topic 2+6 | 26 August, 14:15–16:15

Structure function analysis and enzyme engineering

Facing climate change: Sustainability and circular bioeconomy

### Poster session 2 – Topic 1, 4+5 | 27 August, 14:00–15:30

AI and computational methods

Reaction cascades: Electro-, chemo- and photoenzymatic synergies

Bioprocess engineering, design of smart reactors

### Poster session 3 – Topic 3 | 28 August, 14:00–16:00

Enzymatic and whole-cell biotransformations

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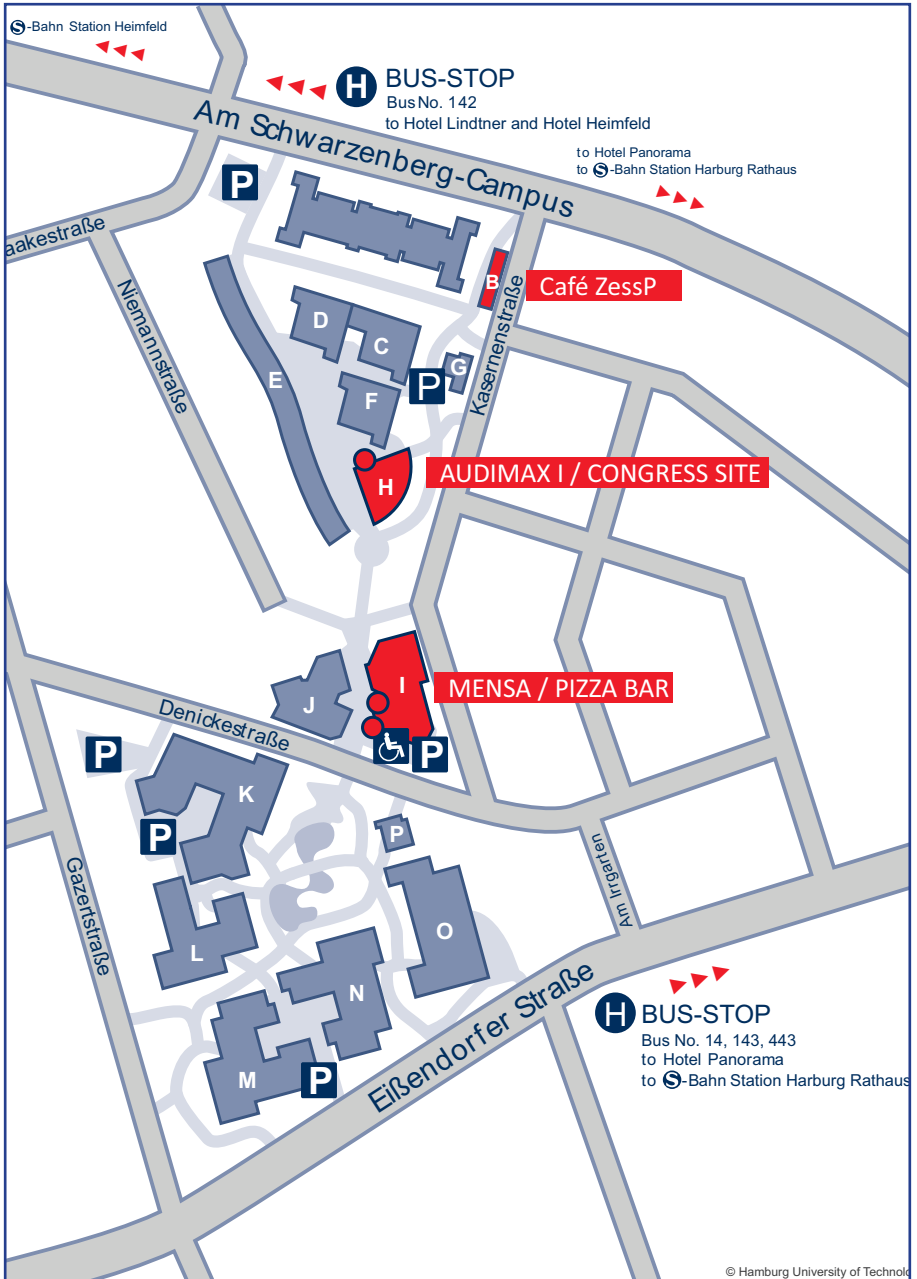








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