



DECHEMA

Gesellschaft für Chemische Technik
und Biotechnologie e.V.

PROGRAMME

14 – 16 February 2024
Kloster Irsee

36th Irsee Natural Product Symposium

www.dechema.de/Irsee2024



LECTURE PROGRAMME

ORGANISER/CONTACT

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Oskar Tropitzsch



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Wednesday, 14 February 2024

13:30 **Board Meeting**

14:30 **Opening**
Jörn Piel; ETH Zürich, Zürich/CH

Young researcher's session

Chair: Dietrich Ober; Universität Kiel/D

14:35 **Elucidating unusual biosynthetic transformations in plant specialised metabolism**
Jakob Franke
Leibniz Universität Hannover, Hannover/D

15:00 **Harnessing Bacterial Protein Compartments: Innovating Artificial Metal Catalytic Nanoreactors**
Claudia Jessen-Trefzer
University of Freiburg, Freiburg/D

15:25 **Deciphering the biosynthesis of chromodepsins, potent G protein inhibitors from nature**
Max Crüsemann
Universität Bonn, Bonn/D

15:50 **Coffee break**

Young researcher's session

Chair: Dietrich Ober; Universität Kiel/D

16:30 **Connecting Metabolome and Phenotype: A Functional Metabolomics Toolbox for the Identification of Bioactive Natural Products**
Daniel Petras
University of California at Riverside, United States

16:55 **Tailor-Made, Molecular Flavin Catalysts**
Golo Storch
Technical University of Munich, Garching bei München/D

17:20 **New catalytic reactions by enzyme engineering**
Stephan Hammer
Universität Bielefeld, Bielefeld/D

17:45 **Deciphering the functions of marine microbes in the phycosphere**
Eva Sonnenschein
Swansea University/UK

18:10 **Break**

18:30 **Dinner**

LECTURE PROGRAMME

Thursday, 15 February 2024

09:00	Poster short lectures & exhibition (P01 - P25) <i>Chair: Evi Stegmann; Eberhard Karls Universität Tübingen, Tübingen/D</i>
10:30	Coffee break
11:00	Poster short lectures & exhibition (P26 - P43) <i>Chair: Evi Stegmann; Eberhard Karls Universität Tübingen, Tübingen/D</i>
13:00	Lunch break
	Syntheses
	<i>Chair:</i>
14:30	Biomimetic Natural Product Synthesis Andrew Lawrence, University of Edinburgh/UK
14:55	Chemoenzymatic Approaches to Glycans, Glycopeptides and Glycoproteins Carlo Unverzagt, University of Bayreuth/D
15:20	Flexible total syntheses of natural products using Matteson's homologation approach Uli Kazmaier, Universität des Saarlandes/D
15:45	Coffee break
	Industrial research
	<i>Chair: Ingo Hartung; w Merck KGaA, Darmstadt/D</i>
16:30	Natural products at Evotec –opportunities for discovery and development of new medicines Jens Glaeser; Evotec International GmbH, Göttingen/D
16:55	Natural Products In Modern Crop Protection Research Olivier Loiseleur, Syngenta Crop Protection AG, Stein/CH
17:20	Micro4all: A Major Change In Drug Discovery Margherita Sosio; NAICONS srl/I
18:00	Dinner
	Evening lecture
	<i>Chair: Christian Hertweck, Leibniz-Institut für Naturstoffforschung, Jena/D</i>
20:00	How the analysis of phosphinothricin biosynthesis in Streptomyces finally led to the identification of a novel candidate target in Mycobacterium tuberculosis Wolfgang Wohlleben; University Tübingen, Tübingen/D
21:00	AWARD CEREMONIES

LECTURE PROGRAMME

Friday, 16 February 2024

	Bioactive peptides
	<i>Chair: Till Opatz; Johannes Gutenberg-Universität Mainz, Mainz/D</i>
08:30	The Mechanisms of Lipid-targeting Antibiotics Markus Weingarth Utrecht University, Utrecht/NL
08:55	Inspired by nature: Development of cyclic peptide ligands against intracellular targets Christian Heinis École Polytechnique Fédéral de Lausanne (EPFL), Lausanne/CH
09:20	Structure-based design of antiviral peptides Jutta Eichler Universität Erlangen-Nürnberg/D
09:45	Coffee break
	Chemical biology
	<i>Chair: Elke Dittmann; Universität Potsdam, Potsdam-Golm/D</i>
10:30	Chemical biology of virus-microbe-host interactions Prof. Dr. Thomas Böttcher Universität Wien/A
10:55	Expanding the genetic code – new chemistries for biology Kathrin Lang ETH Zurich/CH
11:20	Natural Products From Interacting Microorganisms and Ancient Microbiomes Pierre Stallforth Leibniz Institut für Naturstoff-Forschung und Infektionsbiologie - Hans-Knöll-Institut e.V., Jena/D
11:45	Closing Ingo Hartung; Merck KGaA, Darmstadt/D
12:00	Joint lunch after prior registration
12:30	Bus transfer to Kaufbeuren station

POSTER PROGRAMME

- P 01 **Functional and structural studies on the sesquiterpene cyclase BcBOT2**
Trang Nguyen¹; Andreas Kirschning²
¹ Leibniz Universität Hannover, Institut für Organische Chemie, Hannover/D; ² Leibniz Universität Hannover, Hannover/D
- P 02 **Mapping the activity landscape of the type III polyketide synthase family in fungi reveals unexpected products**
Nika Sokolova¹; T Hackl¹; Kristina Haslinger²
¹ University of Groningen, Groningen/NL; ² Rijksuniversiteit Groningen, Groningen/NL
- P 03 **Alternative biosynthesis of ephedrine**
Michael Müller¹; Karina Witte¹
¹ University of Freiburg, Freiburg/D
- P 04 **Atheliapyrrolidines - novel alkaloids from a termite-associated *Athelia* species**
Annika Jagels¹; Zachary Konkel²; Kari Basso³; Jason Slot²; Sandra Loesgen⁴
¹ University of Florida/LifeMine Therapeutics, Basel/CH; ² Ohio State University, Columbus/USA; ³ University of Florida, Gainesville/USA; ⁴ University of Florida, St. Augustine/USA
- P 05 **A novel family of methyl transferases with terpene cyclization activity**
Lena Barra¹; Sarah Steidle¹; Tatjana Reuter¹; Katrin Zoller¹; Dominik Hanauska¹; Katharina Racz¹
¹ Universität Konstanz, Konstanz/D
entfällt
- P 06 **Photorhabdus and Xenorhabdus – beyond killing insects**
Alexander Rill¹
¹ Max-Planck-Institut für terrestrische Mikrobiologie, Marburg/D
- P 07 **Nanoliter-scale selection of optimized bioengineered bicyclic peptide antibiotics that rescue mice with bacterial lung infection**
Nils Böhringer¹; I Dewa Made Kresna¹; Zerlina G. Wuisan¹; Michael Marner²; Steven Schmitt³; Silke Reiter³; Ulrich Matt⁴; Till F. Schäberle¹
¹ Justus-Liebig-University of Giessen, Giessen/D; ² Fraunhofer Institute for Molecular Biology and Applied Ecology, Branch Bioresources, Giessen/D; ³ Myria Biosciences, Basel/CH; ⁴ University Hospital Giessen and Marburg (UKGM), Giessen/D
- P 08 **Total Synthesis Studies on Novel Drimane-type Terpenes from Thai Basidiomycota**
Claudia Manna¹; Oliver Spieß²; Dieter Schinzer³
¹ Otto von Guericke Universität Magdeburg, Magdeburg/D; ² Otto-von-Guericke-Universität Magdeburg, Magdeburg/D; ³ Otto-von-Guericke Universität Magdeburg, Magdeburg/D
- P 09 **Molecular Insights into the Multi-Enzyme Complex of Glycopeptide Antibiotics**
Dardan Beqaj¹; Thomas Hamm²; Boris Macek²; Mirita Franz-Wachtel²; Wolfgang Wohlleben²; Samuel Wagner²; Evi Stegmann¹
¹ University of Tü, Tübingen/D; ² University of Tübingen, Tübingen/D

POSTER PROGRAMME

- P 10 **New Bioactive Secondary Metabolites From Nematode-associated Fungi**
Marc Stadler¹
¹ HZI Helmholtz Zentrum für Infektionsforschung, Braunschweig/D
- P 11 **Chemoselective Metabolomics – New Chemical Biology Tools to Explore Gut Microbiome Metabolism**
Daniel Globisch¹
¹ Uppsala University, Uppsala/S
- P 12 **Retro-evolutionary mining uncovers mixing and matching of hybrid megasynthases in cyanobacteria**
Martin Baunach¹; Keishi Ishida²; Qui Sun³; Masahiro Murakami³; Jonna Teikari⁴; Christian Hertweck²; Elke Dittmann⁴
¹ University of Bonn, Bonn/D; ² Leibniz Institute for Natural Product Research and Infection Biology - Hans Knöll Institute, Jena/D; ³ University of Tokyo, Tokyo/J; ⁴ University of Potsdam, Potsdam/D
- P 13 **Chemoenzymatic synthesis of kavain plant natural products using an enzymatic late-stage O-methylation–dynamic kinetic resolution**
Simon Rydzek¹; Frank Hahn¹
¹ Universität Bayreuth, Bayreuth/D
- P 14 **Formicine Ant Venoms Put to the Acid Test**
Lukas Koch¹; Simon Tragust²; Timo H. J. Niedermeyer³
¹ MLU Halle-Wittenberg und Freie Universität Berlin, Halle (Saale) / Berlin/D; ² MLU Halle-Wittenberg, Halle (Saale)/D; ³ Freie Universität Berlin, Berlin/D
- P 15 **Ethyl-Branched Terpenoid Macrocylic Lactones in a Tropical Frog**
Johanna Kuhn¹; Stefan Schulz¹
¹ TU Braunschweig, Institut für Organische Chemie, Braunschweig/D
- P 16 **SAM regeneration goes radical**
Lukas Gericke¹; Dipali Mhaindarkar¹; Lukas Karst¹; Marco Kuge¹; Sören Jahn¹; Jana Gagsteiger¹; Gunhild Layer¹; Christoph Loenarz¹; Jennifer N. Andexer¹
¹ University of Freiburg, Freiburg/D
- P 17 **De novo discovery of natural product-like thiopeptides with designed biological activities**
Alexander Vinogradov¹; Yue Zhang¹; Yuki Goto¹; Hiroaki Suga¹
¹ The University of Tokyo, Tokyo/J
- P 18 **What's New in the antiSMASH Ecosystem?**
Kai Blin¹; Simon Shaw¹; Marnix Medema²; Kai Blin¹
¹ Technical University of Denmark, Kgs. Lyngby/DK; ² Wageningen University, Wageningen/NL
- P 19 **Engineering fatty acid synthase (FAS) from mouse for the biosynthesis of polyketides**
Martin Grininger¹; Felix Lehmann¹; Nadja Joachim¹; Lynn Buyachuihan¹
Goethe Universität Frankfurt, Frankfurt am Main/D

POSTER PROGRAMME

- P 20 **Bioinformatics-Guided Discovery of the Biaryl-Linked Lasso Peptide Nocapeptide A**
Harald Groß¹
¹ Universität Tübingen, Tübingen/D
- P 21 **One Step from Garbage? Total Biosynthesis of New and Known Natural Products**
Russell J. Cox¹
¹ Leibniz Universität Hannover, Hannover/D
- P 22 **Lipophilically Functionalized Analogs of Muraymycin Nucleoside Antibiotics**
Simone Rosinus¹; Stefanie C. Weck¹; Markus Bischoff²; Sören Becker²; Christian Ducho¹
¹ Saarland University, Saarbrücken/D; ² Saarland University, Homburg/D
- P 23 **Fungal biodiversity as source for new oxidizing enzymes**
Hannes Andrae¹; Martin Dippe²; Ludger A. Wessjohann²
¹ Leibniz Institute of Plant Biochemistry (IPB), Halle (Saale)/D; ² Leibniz-Institut für Pflanzenbiochemie (IPB), Halle (Saale)/D
- P 24 **Integrative -omics analysis of Nostoc punctiforme to chase their cryptic natural product diversity**
María Miguel Gordo¹; Sofia Kerestetzopoulou²; Julia Krumbholz²; Tam Dang³; Roderich Süßmuth³; Elke Dittmann²
¹ Universität Potsdam/Department of Microbiology, Golm /D; ² Universität Potsdam/Department of Microbiology, Golm/D; ³ Technische Universität Berlin / Institut für Chemie, Berlin/D
- P 25 **Machine learning-based expansion, exploration and definition of the atropopeptide family of ribosomally synthesized and posttranslationally modified peptides**
Friederike Biermann¹; Bin Tan²; Milena Breitenbach²; Pakjira Nanudorn²; Yuya Kakumu²; Reiko Ueoka³; Eric Helfrich²
¹ Goethe University Frankfurt, Frankfurt/D; ² Goethe University Frankfurt, Frankfurt/D; ³ Kitasato University, Sagamihara/J
- P 26 **Progress toward a Total Synthesis of Thioholgamide**
Tobias Blodau¹; Hanke Spinck¹; Jan-Philipp Möller¹; Philipp Heretsch¹
¹ Leibniz Universität Hannover, Hannover/D
- P 27 **How does a supramolecular capsule enable catalytic β -selective glycosylations for diverse substrates?**
Konrad Tiefenbacher¹
¹ University of Basel & ETH Zürich, Basel/CH
- P 28 **Towards the Atroposelective Synthesis of Natural Biscarbazoles via Chirality Transfer**
Sebastian Myllek¹; Jörg Pietruszka²
¹ Heinrich Heine Universität Düsseldorf, Düsseldorf/D; ² Heinrich Heine University Düsseldorf & Forschungszentrum Jülich GmbH, Jülich/D

POSTER PROGRAMME

- P 29 **Natural Product as Ligand – Functionalizable Iridium(III) Complexes from Kynurenic Acid under Exceptionally Mild Reaction Conditions**
Elisabeth Quraishi¹; Etienne Manz¹; Felix Weber¹; Till Opatz¹
¹ Johannes Gutenberg University Mainz, Mainz/D
- P 30 **Towards a General Synthetic Approach to Regular and Irregular Jatrophone Diterpenoids: Taking Ring-Closing Metathesis to its Limits (and Beyond)**
Dominik Birkmann¹; Martin Hiersemann¹
¹ TU Dortmund University - Faculty of Chemistry and Chemical Biology, Synthetic Organic Chemistry, Dortmund/D
- P 32 **Prediction of the biosynthetic pathway for lycopsamine type pyrrolizidine alkaloids from *Symphytum officinale* by a metabolomic approach**
Annika Engelhardt¹; Riva C. Menezes²; Ales Svatos²; Dietrich Ober³
¹ Christian-Albrechts-University Kiel, Kiel/D; ² Max Planck Institute for Chemical Ecology, Jena/D; ³ Christian-Albrechts-Universität zu Kiel, Kiel/D
- P 33 **Structure elucidation of the PKS16-related secondary metabolite from *Fusarium fujikuroi***
Katharina Steinert¹; Anna K. Atanasoff-Kardjalieff²; Florian Hübner¹; Klaus Bergander¹; Lena Studt-Reinhold²; Hans-Ulrich Humpf¹; Svetlana A. Kalinina¹
¹ University of Münster, Münster/D; ² University of Natural Resources and Life Sciences, Tulln/A
- P 34 **Towards the Synthesis of Voratin C**
Ulrich Koert¹; Chun-Ho Ip¹
¹ Fachbereich Chemie, Philipps-Universität Marburg, Germany, Marburg/D
- P 35 **Enzymatic Recovery of Catabolic Byproducts for the Biosynthesis of the Antibiotic Dihydroxytropolone in Actinobacteria**
Robin Teufel¹
¹ Universität Basel, Basel/CH
- P 36 **Design and Synthesis of Mithramycin Analogs for Improved Selectivity towards ETS Transcription-Driven Cancers**
Suhas S. Bhosale¹; Jürgen T. Rohr²; Oleg V. Tsodikov³; Markos Leggas⁴
¹ University of Kentucky, Lexington/USA; ² The University of Kentucky, Lexington, Kentucky/USA; ³ University of Kentucky, Lexington, KY/USA; ⁴ St Jude Children's Hospital, Memphis, TN/USA
- P 37 **The Antifungal Lanthipeptide Pinensin and Variants Thereof**
Julian D. Hegemann¹
¹ Helmholtz Institute for Pharmaceutical Research Saarland (HIPS), Saarbrücken/D
- P 38 **Enhancing bacterial polyketide production: Strategies to overcome the limitations of engineered biosynthesis**
Frank Schulz¹; Sofia Camila Bravo¹; Jingyi Hu¹; Susanna Kushnir¹; Marius Grote¹
¹ Ruhr-Universität Bochum, Bochum/D

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- P 39 **Biotransformation-coupled mutasynthesis for the generation of novel pristinamycin I derivatives**
Yvonne Mast¹
¹ Leibniz Institut DSMZ - Deutsche Sammlung für Mikroorganismen und Zellkulturen GmbH, Braunschweig/D
- P 40 **Improved detection sensitivity of anthocyanins in wheat seed samples by MALDI-2 Imaging**
Dirk Wunderlich¹; Janina Oetjen¹; Laura Righetti²; Frank Claassen²
¹ Bruker Daltonics GmbH & Co. KG, Bremen/D; ² Wageningen University, Wageningen/NL
- P 41 **Data Integration for Accelerated Drug Development: Bridging the Gaps in Natural Product Research**
Maximilian J. Helf¹; Michael Rust¹
¹ ETH Zürich, Zürich/CH
- P 42 **Homo-BacPROTAC-induced degradation of ClpC1 as a new strategy against drug-resistant mycobacteria**
Volker Martin Schmiedel¹; Lukas Junken²; ~~entfällt~~ Weinstebl³; Guido Boehmelt¹
¹ Boehringer Ingelheim, Vienna/A; ² Helmholtz-Institut für Pharmazeutische Forschung Saarland (HIPS), Saarbrücken/D; ³ Boehringer Ingelheim RCV GmbH & Co KG, Vienna/A
- P 43 **Towards the Total Synthesis of Xenibellol A and Related Natural Products**
Julian Lichtenegger¹
¹ Leopold-Franzens-University Innsbruck, Innsbruck/A

NOTES

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