

Metabolic Engineering 16

June 15-19, 2025 | Tivoli Hotel and Congress Center, Copenhagen, Denmark

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Technical Program for ME16

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All times listed in CEST

Sunday, June 15, 2025

13:30-17:00	Registration and Badge Pick-Up
15:15-15:30	Opening Remarks
15:30-16:00	Keynote 1 Genetic Circuit Design for Agriculture Christopher Voigt , Massachusetts Institute of Technology
16:00-16:30	Lightning Session 1: New Frontiers of Metabolic Engineering Chairs: Verena Siewers , Chalmers University of Technology & Pavel Dvořák , Masaryk University
16:00-16:05	Introduction by Session Chairs
16:05-16:10	Single-Cell Biosensor Analysis Reveals Metabolic Subpopulations As Sources of Production Heterogeneity Juline Savigny , Bioengineering, Imperial College London, London, United Kingdom
16:10-16:15	Engineering Microbes to Create and Harness Non-Standard Amino Acids Aditya Kunjapur , Department of Chemical and Biomolecular Engineering, University of Delaware, Newark, DE
16:15-16:20	Single Distal Mutation Enhances Activity of Known Petases Via Stabilisation of PET-Binding Xiaozhi Fu , Chalmers University of Technology, Gothenburg, Sweden
16:20-16:25	Metabolite-Responsive Scaffold RNAs for Dynamic CRISPR Transcriptional Regulation of Metabolic Pathways Mark Blenner , Chemical & Biomolecular Engineering, University of Delaware, Newark, DE
16:25-16:30	Boosting Carbon Yield of Bioprocesses Via Synthetic Chemolithoheterotrophy Daniel Bergen , Australian Institute for Bioengineering and Nanotechnology, The University of Queensland, Brisbane, QLD, Australia

16:30-17:00	Break
17:00-18:00	Session 1: Metabolic Engineering for Biofuels and Biochemicals Chairs: Elke Nevoigt , Constructor University Bremen & Gyoo Yeol Jung , Pohang University of Science and Technology
17:00-17:05	Introduction by Session Chairs
17:05-17:22	From Systems Biology to Metabolic Engineering of Eubacterium Limosum for the Conversion of Methanol and CO2 to C4 Chemicals Philippe Soucaille , TBI, University of Toulouse, Toulouse, France
17:22-17:39	Finding the Right Substrate for Microbial Oleochemical Synthesis Brian Pfleger , Department of Chemical and Biological Engineering, University of Wisconsin-Madison, Madison, WI
17:39-17:49	Myth or Reality? Achieving Simultaneous Co-Utilization of Multiple Sugars for Producing Cellulosic Biofuels, Chemicals, and Food Ingredients Yong-Su Jin , Department of Food Science and Human Nutrition, University of Illinois at Urbana-Champaign, Urbana, IL; DOE Center for Advanced Bioenergy and Bioproducts Innovation, University of Illinois at Urbana-Champaign, Urbana, IL
17:49-17:59	Title To Be Announced
18:00-18:30	Rapid Fire Session 1: 1-20 Chairs: Rajib Saha , University of Nebraska-Lincoln & Kevin Solomon , University of Delaware
18:30-21:00	Poster Session 1A Opening Reception sponsored by Wuhan Hesheng Technology Co., Ltd

Monday, June 16, 2025

7:30-8:30	Registration and Badge Pick-Up
8:30-9:30	Session 2: Metabolic Engineering for Health Chairs: Ji-Sook Hahn , Seoul National University & Mattheos Koffas , Rensselaer Polytechnic Institute
8:30-8:35	Introduction by Session Chairs
8:35-8:50	Engineering Microbes for Dynamic Host-Microbiome Modulation Matthew Chang , National University of Singapore, Yong Loo Lin School of Medicine
8:50-9:05	Nathan Lewis , University of California San Diego
9:05-9:20	Engineering Microbes to Upcycle Waste Plastics on Earth and for Space Exploration Tae Seok Moon , Craig Venter Institute
9:20-9:30	Elucidation of the Final Steps of Taxol Biosynthesis Leads to Its Biotechnological Production Sotirios Kampranis , Department of Plant and Environmental Sciences, University of Copenhagen, Frederiksberg C, Hovedstaden, Denmark
9:30-10:00	Keynote 2 GLP-1: From the Academic Discovery to the World's Best-Selling Drug Class Mads Krogsgaard Thomsen , Novo Nordisk Foundation

10:00-10:30	Break
10:30-11:30	Session 3: Metabolic Engineering for Food and Feed Ingredients and Agriculture Chairs: Elena Brevnova , Aise Bio, UK & Rodrigo Ledesma-Amaro , Imperial College London
10:30-10:35	Introduction by Session Chairs
10:35-10:52	Generating Superior Industrial Yeasts for Industrial Fermentations Kevin Vestrepen , VIB – KU Leuven Center for Microbiology, CMPG Laboratory of Genetics and Genomics, KU Leuven, Tianjin Institute for Industrial Biotechnology
10:52-11:09	Mining of Terpenoids from Plants Genome and Overproduction in Yeast Tiangang Liu , Wuhan University
11:09-11:19	From Lab to Table: Harnessing Fungi for Food and Sustainability Vayu Hill-Maini , Stanford University
11:19-11:29	Computational Design of Regulation in Interacting Soil Bacilli Jae Sung Cho , Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA
11:30-12:00	Panel Discussion: Consumer Acceptance, Public Opinion, Regulation of GM-based Products
12:00-13:00	Lunch
13:00-14:30	Poster Session 1B
14:30-15:30	Session 4: Metabolic Engineering for Gas Fermentation Chairs: Lars Nielsen , University of Queensland & Adam Thompson , LanzaTech
14:30-14:35	Introduction by Session Chairs
14:35-14:52	Omics and Chemostats: Essential Tools to Improve Gas-Fermenting Microorganisms Esteban Marcellin , Australian Institute for Bioengineering and Nanotechnology, The University of Queensland, Brisbane, QLD, Australia
14:52-15:09	Thermophilic Methanogens in Biotechnology: A Genetic Toolbox for CO ₂ Conversion Beyond Biomethanation Bastian Molitor , Leipzig University
15:09-15:19	Electro-Biodiesel Empowered By Synthetic Biology Design and Redox Balance Regulation Susie Dai , Department of Chemical and Biomedical Engineering, University of Missouri, Columbia, MO
15:19-15:29	Coupling Growth of E. coli to Novel Modules of Synthetic CO ₂ Fixation Cycles. Helena Schulz-Mirbach , Biochemistry and Synthetic Metabolism, Max Planck Institute for Terrestrial Microbiology, Marburg, Germany
15:30-16:00	Lightning Session 2 Chairs: Birgitta Ebert , University of Queensland & Antonius van Maris , KTH
15:30-15:35	Introduction by Session Chairs
15:35-15:40	Metabolic Regulation of Acetyl-CoA and NADPH Production Pathways in Rhodotorula Toruloides Alina Rekena , Department of Chemistry and Biotechnology, Tallinn University of Technology, Tallinn, Estonia

15:40-15:45	Engineering Phase Separation in Cyanobacteria for Metabolic Pathway Optimization Bruno Rojas , KTH-Royal Institute of Technology, Stockholm, Sweden
15:45-15:50	Efficient Production of Itaconic and Lactic Acid from the Single Carbon Substrate Methanol with Engineered Komagataella Phaffii Diethard Mattanovich , BOKU University, Vienna, Austria
15:50-15:55	Mechanisms of Plastic Fragmentation into Nanoparticles and Metabolism of Bioavailable Plastic Derivatives By Wastewater Comamonas Ludmilla Aristilde , Civil and Environmental Engineering, Northwestern University, Evanston, IL
15:55-16:00	The Molecular Dynamics of Electron Flows of Synechocystis in Biophotovoltaics Bin Lai , BMBF junior research group Biophotovoltaics, Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany
16:00-16:30	Break
16:30-17:30	Session 5: Metabolic Engineering for Plastic Recycling Chairs: Carrie Eckert , Oak Ridge National Laboratory & Pablo Ivan Nikel , DTU
16:30-16:35	Introduction by Session Chairs
16:35-16:52	Open Loop Recycling Using Engineered Microbes Lars M. Blank , iAMB - Institute of Applied Microbiology, RWTH Aachen University, Aachen, NRW, Germany
16:52-17:09	Synthetic Biology of Halophilic Bacteria: Next Generation Industrial Biotechnology George Guo-Qiang Chen , Tsinghua University
17:09-17:19	Metabolic Engineering of Pseudomonas sp. LFM046 Producing Polyhydroxyalkanoates from Different Renewable Sources Juliana Cardinali-Rezende , Center for Natural and Human Sciences - CCNH / Genetics and Metabolic Engineering Lab (LGEM), Federal University of ABC, Santo André, Brazil
17:19-17:29	
17:30-18:00	Rapid Fire Session 2: 21-40 Chairs: Julie Ming Liang , Opera Biosciences & Eric Young , Worcester Polytechnic Institute
18:00-21:00	Poster Session 2A & Reception

Tuesday, June 17, 2025

7:30-8:30	Registration and Badge Pick-Up
8:30-9:05	Greg Stephanopolous Award Lecture
9:05-10:10	Session 6: Emerging Tools and Strategies of Metabolic Engineering Chairs: Michael Bott , Forschungszentrum Jülich & Yaojun Tong , Shanghai Jiao Tong University
9:05-9:10	Introduction by Session Chairs
9:10-9:27	Xiaozhuo Luo , Shenzhen Institute of Synthetic Biology

9:27-9:44	Machine Learning and Automation to Enable Biomanufacturing through Synthetic Biology Hector Garcia Martin , Lawrence Berkeley National Laboratory
9:44-9:54	Synthetic Microbial Communities for Improved Bioproduction Rodrigo Ledesma Amaro , Department of Bioengineering, Imperial College London, London, United Kingdom
9:54-10:04	Development of a Colorimetric Platform for High-Throughput Screening of Aromatic Polyketide Overproducers Dongsoo Yang , Department of Chemical and Biological Engineering, Korea University, Seoul, Republic of Korea
10:05-10:35	Break
10:35-12:00	Session 7: Modeling, Big Data, and Artificial Intelligence Chairs: Feiran Li , Tsinghua University & Aleksej Zelezniak , Chalmers University of Technology
10:35-10:40	Introduction by Session Chairs
10:40-10:55	Reconstructing Metabolic Cellular Logic: Integration of Signaling, Expression, and Metabolism Vassily Hatzimanikatis , École Polytechnique Fédérale de Lausanne (EPFL)
10:55-11:10	What are iModulons? Bernhard Palsson , University of California San Diego
11:10-11:20	A Method for Massive, High-Diversity, and Full-Length Enzyme Sequence-Fitness Data Collection for Machine Learning-Aided Enzyme Engineering Jinbei Li , Bjarke Erichsen and Simon Krarup, Enzidia, Kgs Lyngby, Denmark
11:20-11:30	Catpred: A Comprehensive Framework for Deep Learning in Vitro Enzyme Kinetic Parameters Costas D. Maranas , Department of Chemical Engineering, The Pennsylvania State University, University Park, PA
11:30-12:00	Panel Discussion: How Will Data and AI Change the Field? Featuring the session's speakers and Sang Yup Lee , Korea Advanced Institute of Science and Technology (KAIST)
12:00-13:00	Lunch
13:00-14:30	Poster Session 2B
14:30	Ticketed Events - Copenhagen Tours **Pre-Registration Required! Make sure to register for only 1 tour when you register, if you need to add-on or change your tour contact customerservice@aiche.org.

Wednesday, June 18, 2025

7:30-8:30	Registration and Badge Pick-Up
8:30-9:30	Session 8: Metabolic Engineering of Cyanobacteria and Plant Cells Chairs: Paul Hudson , KTH & Bin Lai , UFZ Helmholtz
8:30-8:35	Introduction by Session Chairs

8:35-8:52	Metabolic Rewiring for Efficient Co-Utilization of CO ₂ and Lignocellulosic Sugars in Sustainable Chemical Production Shota Atsumi , University of California Davis
8:52-9:09	Engineering Cyanobacteria for High Levels of Photosynthetic Isoprene Production Pia Lindberg , Uppsala University
9:09-9:19	Enhanced Production of Aromatic Compounds By Controlling Cell Division in Cyanobacteria Tomohisa Hasunuma , Engineering Biology Research Center, Kobe University, Kobe, Hyogo, Japan; Graduate School of Science, Technology and Innovation, Kobe University, Kobe, Japan; Center for Sustainable Resource Science (CSRS), RIKEN, Yokohama, Japan
9:19-9:29	Integrative Metabolic Engineering of Cyanobacteria for Carbon Fixation and Water Conservation Pengfei Xia , School of Environmental Science and Engineering, Shandong University, Qingdao, China
9:30-10:00	Keynote 3 Metabolic Engineering for Scale Nelson Barton , Genomatica
10:00-10:30	Break
10:30-11:35	Session 9: Biomanufacturing: From Lab to Industry Chairs: Vratislav Stovicek , Arxada & Michael Koepke , LanzaTech
10:30-10:35	Introduction by Session Chairs
10:35-10:47	Human Milk Oligosaccharides: Biological Solutions for a Growing Health Market Katja Parschat , R&D, Chr. Hansen HMO GmbH (part of Novonesis), Rheinbreitbach, Germany
10:47-10:59	Sweet Success: Scaling Alternative Sweetener Solutions for a Healthier and More Sustainable Future Adam Burja , DSM-Firmenich
10:59-11:11	Making Biology Easier to Engineer, Together Patrick Boyle , Ginkgo
11:11-11:23	Food for Thoughts for Prospective Biomanufacturing Ralf Takors , Institute of Biochemical Engineering, University of Stuttgart, Stuttgart, Germany
11:25-12:00	Panel Discussion From Lab to Industry Confirmed Panelists: Michael Koepke , LanzaTech - Moderator Vratislav Stovicek , Arxada Charlie Chen , Bota Bio Christine Santos , Manus Bio Eric van der Meer , DAB.Bio Monica Tassone , Novozymes
12:00-13:30	Lunch & Networking
13:30-15:00	Session 10: Start-Up Pitch Competition Final Chairs: Claudia Vickers , BioBuilt Solutions and Queensland University of Technology & Markus Herrgård , BioInnovation Institute
15:00-15:45	Break
15:45-17:15	ME16 Award Ceremony International Metabolic Engineering Award Lecture James E. Bailey Award Poster Awards

17:45-19:00	Canal Tour
19:00-22:00	Conference Banquet

Thursday, June 19, 2025

7:30-9:00	Registration and Badge Pick-Up
9:00-10:00	Session 11: Evolutionary Protein and Strain Engineering Chairs: Adam Feist , University of California San Diego & Ditte Hededam Welner , DTU
9:00-9:05	Introduction by Session Chairs
9:05-9:22	Alexandre Zanghellini , Arzeda
9:22-9:39	AI-Powered Evolutionary Strategies for Protein and Strain Engineering Huimin Zhao , Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL
9:39-9:49	Engineering Yeast for Bio-Based Production: Insights from Adaptive Laboratory Evolution and Robustness Quantification Nathália Vilela , Chalmers University of Technology, Gothenburg, Sweden
9:49-9:59	Improving <i>Cupriavidus necator</i> as Host for Conversion of Waste-Derived Substrates Alissa C. Bleem , National Renewable Energy Laboratory
10:00-10:30	Break
10:30-11:30	Session 12: Metabolic Engineering for Biochemicals and Biomaterials Chairs: Kayla Nemr , Geno & Si Jae Park , Ewha Womans University
10:30-10:35	Introduction by Session Chairs
10:35-10:52	Designer Membraneless Organelles for Metabolic Engineering Xiaoxia Xia , Shanghai Jiao Tong University
10:52-11:09	Living Materials Programmed by Life Chao Zhong , Shenzhen Institute of Synthetic Biology
11:09-11:19	Metabolic Engineering for Microbial Production of High-Molecular-Weight, High-Performance Materials Fuzhong Zhang , Department of Energy, Environmental, and Chemical Engineering, Washington University in St. Louis, St. Louis, MO
11:19-11:29	Development of Recombinant Platforms for the Production of Protein-Based Biopolymers from Various Carbon Sources Including Plastic Waste Mattheos Koffas , Howard P. Isermann Department of Chemical and Biological Engineering, Rensselaer Polytechnic Institute, Troy, NY
11:30-12:00	Panel Discussion: Reflections on the Present and Future of Metabolic Engineering Moderator: Hal Alper , University of Texas Austin Confirmed Panelists: Greg Stephanopoulos , Massachusetts Institute of Technology Jay Keasling , University of California, Berkeley Zixin Deng , Shanghai Jiao Tong University Kristala Prather , Massachusetts Institute of Technology

12:00-12:15	Closing Remarks
14:00-17:00	Early Career Development Workshop

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CHS Center for Hydrogen Safety

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ISWS International Society for Water Solutions

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