

Preliminary Program

Enzyme Engineering XXVIII

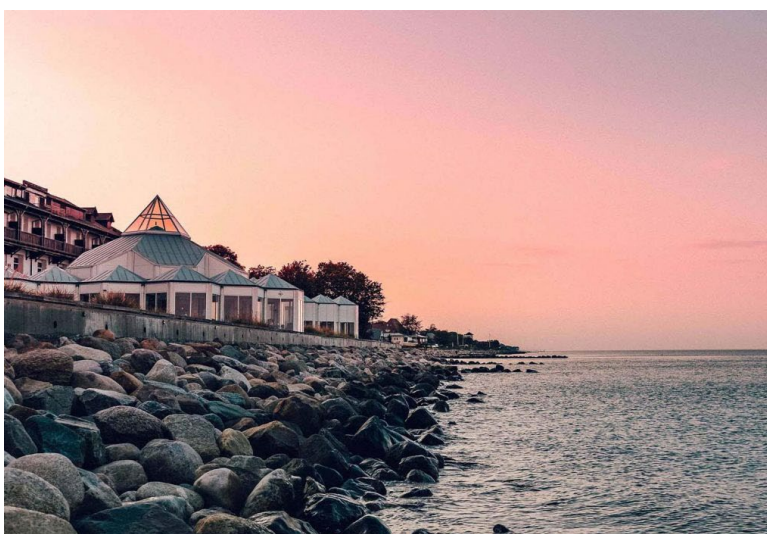
October 19-24, 2025
Helsingør, Denmark

Conference Co-Chairs

John M. Woodley
Technical University of Denmark

Ditte Hededam Welner
Technical University of Denmark

Jens Erik Nielsen
Novonosis, Denmark



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Sunday, 19 October 2025

- 14:00 Conference check-in
- 17:00 – 17:15 Chairs welcome and opening remarks
- 17:15 – 18:15 **Opening session**
Chair: Ditte Hededam Welner, Technical University of Denmark, Denmark)
- Plenary: Insights into enzyme catalysis and engineering for sustainable synthetic biology**
Pimchai Chaiken, Vistec, Thailand
- 19:00 – 22:00 Welcome reception and dinner

Monday, 20 October 2025

- 07:00 – 08:30 Breakfast
- 08:30 – 12:10 **Session 1: Computational methods for enzyme engineering**
Chair: Anthony Green, University of Manchester, UK
- 08:30 – 09:10 **Keynote: One shot design of highly efficient enzyme repertoires**
Sarel Fleishman, Weizmann Institute of Science, Israel
- 09:10 – 09:35 **Digital enzyme evolution: Creation of a fully digitalized enzyme engineering platform, demonstrated through the multiparameter engineering of imine reductases (IREDs)**
Andrew Currin, Imperagen, UK
- 09:35 – 10:00 **Enzymes of the future are built bottom – up: SAM-independent methyltransferases**
Matthew Thompson, Biomatter, Lithuania
- 10:00 – 10:40 Coffee Break
- 10:40 – 11:20 **Keynote: Computational enzyme engineering using AF2**
Silvia Osuna, University of Girona, Spain
- 11:20 – 11:45 **Capturing protein dynamics and its determinants using explainable artificial intelligence**
Faraneh Haddadi, Masaryk University, Czech Republic
- 11:45 – 12:10 **Benchmarking novel AI platforms against *in silico* designs: Enzymes for low – sugar foods**
David Schönauer, Aminoverse, Netherlands
- 12:10 – 13:30 Lunch and networking
- 13:30 – 17:10 **Session 2: Enzyme Engineering for Sustainability**
Chair: Jens Erik Nielsen, Novonesis, Denmark
- 13:30 – 14:10 **Keynote: Enzyme engineering for sustainable processes and products**
Volker Sieber, Technical University of Munich, Germany

14:10 – 14:35	From lab to industry: How enzyme stability can help drive the green transition through innovative biosolutions Lars Giger, Novonesis, Denmark
14:35 – 15:00	Biocatalytic methylation in drug discovery Diana Amariei, Astra Zeneca, Sweden
15:00 – 15:40	Coffee break
15:40 – 16:20	Keynote: Enzymatic synthesis in deep eutectic solvents: Catalysis across hydrophilic and hydrophobic realms Selin Kara, Leibniz University, Germany
16:20 – 16:45	Engineering formate dehydrogenase for applications in biocatalysis Carlos G. Acevedo-Rocha, Technical University of Denmark, Denmark
16:45 – 17:10	Engineering promiscuous aryl acylamidases for pesticide bioremediation Thierry Marti, ETH Zurich, Switzerland
18:00 – 21:00	Dinner and <u>Poster Session</u>

Tuesday, 21 October 2025

07:00 – 08:30	Breakfast
08:30 – 12:10	<u>Session 3: Towards scalable bioprocesses using enzymes</u> Chair: John M. Woodley, Technical University of Denmark, Denmark
08:30 – 09:10	Keynote: Towards process readiness of biocatalysts: An update Andy Bommarius, Georgia Institute of Technology, USA
09:10 – 09:35	Enzymes for sustainable manufacturing: Expanding the molecular repertoire and getting there faster Ee Lui Ang, A*Star, Singapore
09:35 – 10:00	Engineering enzymes for RNA oligonucleotide manufacturing Anders Knight, Codexis, USA
10:00 – 10:40	Coffee break
10:40 – 11:20	Keynote: Enzyme engineering for the application of biocatalysts under non-physiological reaction conditions Dörte Rother, Forschungszentrum Jülich, Germany
11:20 – 11:45	Engineered enzymes at pH 11.5 to achieve a 200-fold volume reduction in API synthesis Anuj Shetty, Kcat Enzymatic, India
11:45 – 12:10	Engineering halohydrin dehalogenase HHEG for application in microflow Anett Schallmeyer, TU Braunschweig, Germany
12:10 – 13:30	Lunch

13:30 – 17:10	<u>Session 4: Enzyme engineering towards better chemistry</u> Chair: Bernhard Hauer, Johannes Gutenberg – Universität Mainz, Germany
13:30 – 14:10	Keynote: Engineering enzymes for selective catalysis Jared Lewis, Indiana University, USA
14:10 – 14:35	Integrated strain, enzyme and bioprocess design to bring progress to life René de Jong, dsm-firmenich, Netherlands
14:35 – 15:00	Increasing mevalonate kinase activity by mutating a variable active site residue identified in natural variant alignments Sylvia Sarnick, NREL, USA
15:00 – 15:40	Coffee break
15:40 – 16:20	Keynote: In vitro biocatalytic synthesis of nicotine alkaloids Gideon Grogan, University of York, UK
16:20 – 16:45	AI-guided enzyme cascade engineering for sustainable production of glucaric acid Haibin Chen, Enzymaster, China
16:45 – 17:10	Distal mutations in a designed retro-aldolase alter loop dynamics to shift and accelerate the rate-limiting step Cindy Klaus, University of Ottawa, Canada
18:00 – 21:00	Dinner and <u>Poster Session</u>

Wednesday, 22 October 2025

07:00 – 08:30	Breakfast
08:30 – 12:10	<u>Session 5: Enzyme and protein functional improvement</u> Chair: Silvia Osuna, University of Girona, Spain
08:30 – 09:10	Keynote: Improving protein functionality by combining experiment and computation Kresten Lindorff-Larsen, University of Copenhagen, Denmark
09:10 – 09:35	<i>In-silico</i> enzyme engineering for enantioselective biocatalysis: From prediction to precision Ankita Tripathi, Quantumzyme, India
09:35 – 10:00	Clean solutions from dirty genes: Discovery and engineering of plastic – degrading enzymes from soil eDNA libraries David Ackerley, University of Wellington, New Zealand
10:00 – 10:40	Coffee break
10:40 – 11:20	Keynote: Broadening the scope of oxidative activity in P450 BM3 variants Joelle Pelletier, University of Montreal, Canada

11:20 – 11:45	Protection from oxidative damage by hole hopping drives evolution in lytic polysaccharide monooxygenases (LPMOs) Tom Emrich-Mills, Norwegian University of Life Sciences, Norway
11:45 – 12:10	Analysing enzyme surface mobility kinetics in fabric and home care Charlotte Stenkjaer Fletcher, Newcastle University, UK
12:10 – 13:30	Lunch
	Free time and dinner on own

Thursday, 23 October 2025

07:00 – 08:30	Breakfast
08:30 – 12:20	<u>Session 6: Enzyme and protein design</u> Chair: Uwe Bornscheuer, University of Greifswald, Germany
08:30 – 09:10	Keynote: Designer enzymes featuring genetically encoded non-canonical catalytic groups Gerard Roelfes, Rijksuniversiteit Groningen, Netherlands
09:10 – 09:40	Invited: Protein design 2.0 Birte Höcker, University of Bayreuth, Germany
09:40 – 10:05	Stable and highly active knotted DHFR through computational design and directed evolution Yajie Liu, Peking University, China
10:05 – 10:45	Coffee break
10:45 – 11:25	Keynote: Building enzymes with new function Anthony Green, University of Manchester, UK
11:25 – 11:55	Invited: Rational enzyme design in amino acid – based biocatalysis Francesca Paradisi, University of Bern, Switzerland
11:55 – 12:20	Enzymatic synthesis of complex human milk oligosaccharides Birgitte Zeuner, Technical University of Denmark, Denmark
12:20 – 13:40	Lunch
13:40 – 14:05	Directed enzyme discovery: A new paradigm for rational biocatalyst identification Maria Fatima Lucas, Zymvol, Spain
14:05 – 14:30	The 3DM AI platform can accurately combine mutations into a small number of higher clones with massive performance increase Henk-Jan Joosten, Bio-product, Netherlands
14:30 – 15:20	Poster presentation and awards Chair: Jared Lewis, Indiana University, USA
14:30 – 14:35	Announcement of winners

14:35 – 14:50	Poster prize 1
14:50 – 15:05	Poster prize 2
15:05 – 15:20	Poster prize 3
15:20 – 16:00	Coffee break
16:00 – 17:00	Enzyme Engineering award presentation and lecture Chair: Joelle Pelletier, University of Montreal, Canada
16:10 – 17:00	Enzyme Engineering Award Lecture
18:00 – 19:00	Reception
19:00 – 22:00	Gala dinner

Friday, 24 October 2025

07:00 – 09:00	Breakfast
	Departures