

The 3rd LPMO symposium

9-11 November 2022, Oslo, Norway



Wednesday 9. November

09:00 Registration (09:00-12:30)

12:30 Lunch

13:30 Welcome

SESSION 1: Biomass conversion and virulence

13:40 Lytic pectin monooxygenases as key virulence factors in plant pathogenic oomycetes.
Federico Sabbadin (University of York, UK). Invited speaker.

14:20 A biological role for LPMOs at the plant: pathogen interface. Are they friends or foes, for whom?
David Cannella (Universite libre de Bruxelles, Belgium)

14:50 Role of the AA9 Cel1 and its role in *Cryptococcus neoformans* growth and virulence.
Magnus Hallas-Møller (University of Copenhagen, Denmark)

15:20 Coffee break

15:50 Copper-dependent AA16 oxidoreductases boost cellulose active AA9 lytic polysaccharide monooxygenases from *Myceliophthora thermophila*.
Peicheng Sun (Wageningen University & Research, The Netherlands)

16:20 Role for a lytic polysaccharide monooxygenase in cell wall remodeling.
Xiaobo Zhong (Leiden University)

16:50 Inhibition of lytic polysaccharide monooxygenases by natural plant extracts.
Radina Tokin (University of Copenhagen, Denmark)

17:20 Poster session

18:30 Free time

19:30 Dinner

Thursday 10. November

07:00 Breakfast

SESSION 2: LPMO structure, spectroscopy and chemical catalysis

09:00 Advanced spectroscopic studies of copper-containing metalloproteins: Recent applications to pMMOs and LPMOs.

Serena DeBeer (Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany). Invited speaker.

09:40 Decoding LPMO structures by theoretical EPR spectroscopy.

Maylis Orio (Aix-Marseille Université/CNRS, France)

10:10 Bis(benzimidazole)amine/phenol-based N₃O-Cu systems as model systems of tyrosine-containing LPMO active sites.

Ivan Castillo (Universidad Nacional Autónoma de México, Mexico)

10:40 Coffee break

11:10 Capture of activated dioxygen intermediates at the copper-active site of a lytic polysaccharide monooxygenase.

Gabriela Schröder (North Carolina State University USA/ University of the Free State, South Africa)

11:40 Pushing the limits of LPMO crystallography.

Leila Lo Leggio (University of Copenhagen)

12:10 Don't forget the tail: in-silico and experimental evidence of intrinsically disordered regions in lytic polysaccharide monooxygenases.

Ketty Concetta Tamburrini (Aix Marseille University/INRAE/CNRS, France)

12:40 Lunch

SESSION 3: LPMO enzymology and mechanism

13:40 How do we harness the oxidative power of LPMOs?

Katja Salomon Johansen (University of Copenhagen). Invited speaker.

14:20 Electrochemical sensors to measure LPMO activity on natural substrates.

Roland Ludwig (University of Natural Resources and Life Sciences, Vienna, Austria)

14:50 Theoretical perspective on a mononuclear copper-oxygen mediated C-H and O-H activations: a comparison between biological and synthetic systems.

Binju Wang (Xiamen University, China)

15:20 Coffee break

15:50 Kinetics of H₂O₂-driven catalysis by LPMOs: implications of enzyme inactivation.

Priit Väljamäe (Tartu University, Estonia). Invited speaker.

16:30 The effects of reductants and free copper ions on catalytic efficiency and enzyme stability in LPMO reactions.

Anton Stepnov (Norwegian University of Life Sciences, Norway)

17:00 Elucidating the impact of second sphere residues on copper-site reactivity in LPMOs.

Kelsi Hall (Norwegian University of Life Sciences, Norway)

17:30 Poster session

18:30 Free time

19:30 Dinner

Friday 11. November

07:00 Breakfast

SESSION 4: LPMO enzymology, diversity and application

09:00 AA9 LPMO diversity, insights from sophisticated product profiling, and possible interplay with lignin.

Mirjam Kabel (Wageningen University & Research, The Netherlands). Invited speaker.

09:40 Xylan debranching plays a key role on the xylan degrading activity of AA9 LPMOs.

Monika Tölgo (Chalmers University of Technology, Sweden)

10:10 Insights into the activity of a dual cellulolytic/xylanolytic AA9 LPMO on xylan and its role in nanocellulose production in an enzymatic bioprocess.

Koar Choroizian (National Technical University of Athens, Greece)

10:40 Coffee break

11:10 Surface-to-core characterization of enzymatically treated cellulosic fibres.

Irina Sulaeva (University of Natural Resources and Life Sciences, Vienna, Austria)

11:40 Enzymatic oxidation of cellulosic fibres for improved solubility and fibrillation.

Kaisa Marjamaa (VTT Technical Research Centre of Finland)

12:10 Hydrogen peroxide feeding for LPMO-assisted cellulose saccharification using cellulase cocktails.

Svein Horn (Norwegian University of Life Sciences, Norway)

12:40 Lunch

13:40 Light activation of *T. thermophilus* LPMOs 9A and 9H, synergy with cellulases and application for cellulose nanofibers production.

Igor Polikarpov (University of São Paulo, Brasil)

14:10 Natural photoredox catalysts promote light-driven LPMO activity and enzymatic turnover of biomass.

Eirik Kommedal (Norwegian University of Life Sciences, Norway)

14:40 Recent insights into fungal LPMOs in a biological context.

Jean Guy Berrin (Aix Marseille University/INRAE, France). Invited speaker.

15:20 Concluding remarks

15:30 Symposium end