

10th Carbohydrate Bioengineering Meeting

CBM Scientific Programme

Sunday, 21st April

10:00 - 20:00 **Registration** *Hotel Pyramida, Prague, Reception Foyer*
16:30 - 16:45 **Opening Ceremony of CBM10** *Hotel Pyramida, Prague, Congress Hall I*
Chairperson: *Vladimir Kren, Czech Republic*

OPENING LECTURE *Congress Hall I*

Chairperson: *Birte Svensson, Denmark*

16:45 - 17:30 Jon S. Thorson, USA (Keynote Lecture)
"The differential glycosylation of small and macromolecules: New tools and applications"

SESSION 1 *Congress Hall I*

Synthesis, structure and function of carbohydrates and glycoconjugates

Chairperson: *Steve Withers, Canada*

17:30 - 18:10 **Lothar Elling**, Germany (Keynote Lecture)
"The glyco-biointerface: Glycoconjugates for biofunctionalization of biomaterial surfaces"

19:00 **Welcome Reception**, All delegates and accompanying persons registered Benediktine Monastery Brevnov, Prague (bus transfer from Pyramida Hotel Prague, departing at 18:30 sharp; takes ca 8 min; buses return back to hotel at 22:15)

Monday, 22nd April

8:00 - 18:00 **Registration** *Hotel Pyramida Prague, Reception Foyer*

SESSION 2 *Congress Hall 1*

Synthesis, structure and function of carbohydrates and glycoconjugates

Chairperson: *Antoni Planas, Spain*

09:00 - 09:40 **James C. Paulson**, USA (Keynote Lecture)
"Siglecs as sensors of self"

09:40 - 10:00 **Alexander Schiller**, Germany
"Supramolecular logic with sugars"

10:00 - 10:20 **Kristyna Slamova**, Czech Republic

- "Fungal β -N-acetylhexosaminidases: Promiscuous synthetic tools"
- 10:20 - 10:40 **Michaela Scigelova**, Germany
"Towards direct glycan/glycopeptide sequencing and identification in glycoproteomic applications"
- 10:40 – 11:00 **Julian Ihssen**, Switzerland
"Microplate screening of *Campylobacter jejuni* N-oligosaccharyltransferase mutant libraries for activity-relevant residues"
- 11:00 -11:30 **Coffee Break** *Congress Hall Foyer*

SESSION 3 *Congress Hall I*

Glycomis; Systems glycobiology and bioinformatics

Chairperson: *Pedro Coutinho*, France

- 11:30 – 11:50 **Gurvan Michel**, France
"Ten years of exploration of the agarolytic system of *Zobellia galactanivorans*"
- 11:50 -12:10 **Manuel Eibinger**, Austria
"*In situ* visualization of cooperativity among cellulases"
- 12:10 -12:30 **Claire Dumon**, France
'Mining for lignocellulases in termite using functional metagenomic"
- 12:30 – 12:50 **Finn L. Aachmann**, Norway
"Directed evolution, high throughput screening and production of alginate-modifying enzymes with new and targeted properties"

FLASH PRESENTATIONS *Congress Hall I*

Chairperson: *Carlos Fontes*, Portugal

- 12:50 – 12:55 **Tasuku Ito**, Japan
"Crystal structure of lacto-N-biosidase from *Bifidobacterium bifidum*" (Poster 067)
- 12:55 -13:00 **Stefan Janecek**, Slovakia
" α -Amylase families GH57 and GH119 are closely related to each other, whereas family GH38 α -mannosidases is remotely related to both of them" (Poster 071)

- 13:00 -13:05 **Sophia Böcker**, Germany
 "Fluorescent SNAP-Tag galectin-3 fusion protein as a novel tool in glycobiology" (Poster 013)
- 13.05 - 13:10 **Hitomi Ichinose**, Japan
 "Biochemical characterization and structural elucidation of the novel GH31 enzyme of dextran glucanase from *Paenibacillus* sp. 598K" (Poster 065)
- 13:10 - 13:15 **Laura Masgrau**, Spain
 "Substrate vs. nucleophilically assisted catalysis in retaining glycosyltransferases: Insights from QWMM calculations" (Poster 099)
- 13:15 – 13:20 **Marie Sofie Møller**, Denmark
 "The crystal structure of a starch debranching enzyme in complex with a protein inhibitor reveals an extremely tight and novel mode of interaction" (Poster 103)
- 13:20 – 14:30 **Lunch** *Hotel Pyramida Prague, Restaurant*

POSTER SESSION I *Congress Hall II*

- 14:30 -16:00 Odd number presenters will be available for discussion
 Drinks will be served

SESSION 4 *Congress Hall I*

Mechanisms and structure-function relationships of carbohydrate modifying enzymes I

Chairperson: *Gideon Davis*, UK

- 16:00 – 16:40 **Paul Walton**, UK (*Keynote Lecture*)
 "Structures and functions of copper-containing polysaccharide oxygenases"
- 16:40 - 17:00 **Roland Ludwig**, Austria
 "Mechanism of oxidative cellulose deavage by the bi-enzymatic system cellobiose dehydrogenase and lytic polysaccharide monoxygenase"
- 17:00 - 17:20 **Gustav Vaaje-Kolstad**, Norway
 "Recent insights into the structure and function of CBM33-type lytic polysaccharide monoxygenases"
- 17:20 - 17:50 **Coffee Break** *Congress Hall Foyer*

Section 5 Congress Hall I

Mechanisms and structure-function relationships of carbohydrate modifying enzymes II

Chairperson: *Magali Remaud-Simeon*, France

- 17:50 - 18:10 **Darrell Cockburn**, Denmark
"Development of a screening protocol for the identification of surface binding sites in carbohydrate active enzymes"
- 18:10 - 18:30 **Alexander Gutmann**, Austria
"Switching between *O*- and *C*-glycosylation by active-site motif exchange in plant glycosyltransferases"
- 18:30 - 18:50 **Shinya Fushinobu**, Japan
"The crystal structure of GH127 β -L-arabinofuranosidase"
- 18:50 - 19:00 **ORGANIZATORY REMARKS**

Free Evening

Tuesday, 23rd April

09:00-19:00 **Registration** *Hotel Pyramida Prague, Reception Foyer*

SESSION 6 Congress Hall I

Synthesis, structure and function of carbohydrates and glycoconjugates

Chairperson: *Marco Moracci*, Italy

- 09:00-09:40 **Roland Wohlgemuth**, Switzerland (*Keynote Lecture*)
"Carbohydrates and enzymes: Renaissance of an old interface between chemistry, biology, engineering and medicine"
- 09.40-10:00 **Peter Biely**, Slovakia
"Diversity of deacetylation of native substrate by acetylxylanesterases"
- 10:00 - 10:20 **Marcelo C. Guerin**, Spain
"Conformational changes as key factors in glycosyltransferase mediated reactions"
- 10:20 - 10:40 **Carme Rovira**, Spain
"The molecular mechanism of enzymatic glycosyl transfer with retention of configuration, QM/MM metadynamics investigations"
- 10:40 – 11:00 **Wolf-Dieter Fessner**, Germany

"Engineering improved biocatalysts for efficient syntheses of neo-sialoconjugates"

11:00 – 11:30 **Coffee Break** *Congress Foyer*

SESSION 7

New materials from carbohydrates as renewable resources

Chairperson: *Sven Pedersen, Denmark*

11:30- 12:10 **Maher Abou Hachem**, Denmark (*Keynote Lecture*)
"Oligosaccharide utilization in probiotics for biorefinery based prebiotic design"

12:10 12:30 **Magda Faijes**, Spain
"Novel insights into GH20 *Bifidobacterium bifidum* lacto-N-biosidase enzyme: Characterization and engineering for human milk oligosaccharides synthesis"

12:30 12:50 **Petr Marhol**, Czech Republic
"β-Rutinosidase - a new tool for glycosylation of phenolic compounds"

12:50 - 13:10 **Maija Tenkanen**, Finland
"Galactose oxidase opens novel ways for tailored natural polysaccharides"

13:10 - 13:30 **Wim Soetaert**, Belgium
"Bio Base Europe Pilot Plant: Open innovation center for carbohydrate bio-engineering"

13:30 - 14:30 **Lunch** Hotel Pyramida Prague, Restaurant

POSTER SESSION II *Congress Hall II*

14:30 - 16:00 Even number presenters will be available for discussion
Drinks will be served

FLASH PRESENTATIONS II *Congress Hall I*

Chairperson: *Bernd Nidetzky, Austria*

16:00 – 16:05 **Luca Albertin**, France
"(1 +4)-α-L-Guluronan in the design and synthesis of biohybrid glycopolymers and chimeric polysaccharides capable of ionotropic gelation" (Poster 004)

16:05 — 16:10 **Daniela Simcikova**, Czech Republic
"α-L-Rhamnosidase: Enzyme suitable for (de)glycosylation" (Poster 152)

- 16:10 - 16:15 **Jolanda M. van Munster**, The Netherlands
"Chitinases CtcB and CfcI modify the cell wall in sporulating aerial mycelium of *Aspergillus niger* (Poster 164)
- 16:15- 16:20 **Wu Chung-Yi**, Taiwan
"Carbohydrate-based vaccines for breast cancer" (Poster 180)
- 16:20 - 16:25 **Miyazaki Takatsugu**, Japan
"Conformational changes and substrate recognition of an uncharacterized glycosidase YgjK belonging to GH63 from *Escherichia coli*" (Poster 102)
- 16:25 - 16:30 **Yari Cabezas**, France
"Synthesis of a *Leishmania* disaccharide: enzymatic and chemical approaches using partially protected monosaccharides" (Poster 018)
- 16:30 - 16:35 **Bastien Bissaro**, France
"Investigating the transglycosylation mechanism of an α -L-arabinofuranosidase for pentose-based oligosaccharides synthesis" (Poster 012)
- 16:35 - 16:40 **David Teze**, France
"Semi rational approach to design new transglycosidases" (Poster 154)

SESSION 8 *Congress Hall I*

Carbohydrates in health and medicine

Chairperson: Takashi Kuriki, Japan

- 16:40 - 17:00 **Antony J. Clarke**, Canada
"The first kinetic and mechanistic analysis of peptidoglycan-O-acetyltransferase, a potential new antibiotic target"
- 17:00 – 17:40 **Francesco Peri**, Italy
"Carbohydrate-derived synthetic molecules targeting TLR4: From antisepsis drugs to central nervous system therapeutics"
- 17:20 - 17:40 **Xevi Biamés**, Spain
"Structure-function relationships of a glycolipid synthase from *Mycoplasma genitalium*. A unified computational and experimental approach"
- 17:40 - 18:00 **Paul L. DeAngelis**, USA
"Heparosan polysaccharide for drug delivery; a biosuperior alternative to PEGylation"

SOCIAL EVENING *Prague Castle-Tilla Richter, St. Wenceslaus' Vineyard*

Special transfer from Pyramida Hotel Prague, **departing at 18:30 sharp**;
buses return back to hotel at 23:15 - 24.00

Wednesday, 24th April

09:00 - 13:00 **Registration** *Hotel Pyramida Prague, Reception Foyer*

SESSION 9 *Congress Hall I*

New materials from carbohydrates as renewable resources I

Chairperson: *Lubbert Dijkhuizen, The Netherlands*

- 09:00-09:40 **Harry Brumer**, Canada (*Keynote Lecture*)
"The enzymology of microbial hemicellulose utilization in diverse ecological niches: From the forest to the human gut"
- 09:40-10:00 **Karel De Winter**, Belgium
"Disaccharide phosphorylases as efficient biocatalysts for glycoside synthesis"
- 10:00-10:20 **Morten Sørli**, Norway
"Processivity in glycosyl hydrolases, experimental and molecular dynamics simulations data from the chitinolytic machinery of *Serratia marcescens*"
- 10:20 - 10:50 **Coffee Break** *Congress Hall Foyer*

SESSION 10 *Congress Hall I*

New materials from carbohydrates as renewable resources II

Chairperson: *Vojtech Spiwok, Czech Republic*

- 10:50 – 11:10 Tania Pozzo, Sweden
"Thermostable glycosidases and glycosynthases as biocatalysts in green chemistry applications"
- 11:10-11:30 **Barry McCleary**, Ireland
"Measurement of cellulase using nitrophenyl-cello-oligosaccharides"
- 11:30-11:50 **Richard Strasser**, Austria
"Engineering of mucin-type *O*-glycosylation in plants"

CLOSING LECTURE *Congress Hall I*

Chairperson: *Ten Feizi, UK*

- 11:50-12:50 **Markus Aebi**, Switzerland
"The making of *N*-glycoproteins"
- 12:50 **POSTER AWARDS, CLOSING REMARKS and INVITATION TO CBM11**