

## 25<sup>th</sup> Austrian Carbohydrate Workshop

Graz, 7<sup>th</sup> – 8<sup>th</sup> July 2022

Graz University of Technology, HS H 'Ulrich Santner'  
Kopernikusgasse 24, Chemistry



### Programme

#### Thursday, July 7<sup>th</sup>, 2022

**11:00 – 12:00** Arrival coffee, drinks, and snacks

**12:00 – 12:15** Welcome

**12:15 – 13:00** Dr. Dipl.-Ing. Daniel Kracher BSc  
**ICO Young Researcher Award**  
Polysaccharide-degrading oxidoreductases

**13:00 – 14:45** Session 1

#### **Synthesis of C-Glycosidic Sugars for Tailoring Polysaccharides**

Tobias Dorn, T. M. Wrodnigg  
TU Graz, IBioSys

#### **Synthesis of HIV GP-120 Ligands Mimetics**

Matteo Cattin, R. Pantophlet, P. Kosma  
BOKU Wien

#### **C-4 Branched D-Pentoses en route Towards Isoiminosugars**

Andre Culum, M. Thonhofer, P. Weber, A. Stütz, T. M. Wrodnigg  
TU Graz, IBioSys

**N-Heterocyclic Carbene Controlled Dehomologation of Aldoses -  
Mechanistic Insights**

Christoph Suster, M. Draskovits, H. Kalas, C. Stanetty  
TU Wien, IAS

**Synthesis of Iminosugar-Based Glycomimetics for Glycosidase Profiling**

Melanie Zündel, T. M. Wrodnigg  
TU Graz, IBioSys

**News on Altrubiosides**

Clemens Lütjohann  
Christian-Albrechts University of Kiel

**Towards the Synthesis of the [18F] radiolabeled Analogue of 3-Deoxy-3-  
fluoro-D-xylulose**

Toda Stankovic, L. Scheibelberger, K. Pallitsch  
University of Vienna, Organic Chemistry

**Unraveling Mechanistic Details of Human GDP-Fucose Synthase  
Catalytic Process**

Denis Smyshliaev, B. Nidetzky  
TU Graz, Biotechnology and Biochemical Engineering

**14:45 – 15:15 COFFEE BREAK**

**15:15 – 16:05 Session 2**

**Process Chemistry at Thermo Fisher Scientific**

Manuel Gintner, C. Schmölder  
Thermo Fisher Scientific

**Polysaccharide-Based 3D Bioscaffolds with Controlled Porosity,  
Mechanical Strength and Biocompatibility**

Tamilselvan Mohan, A. D. Stiglic, F. Lackner, I. Duarte, J. Plavec, U. Maver,  
M. Beaumont, R. Kargl, K. Stana Kleinschek  
TU Graz, IBioSys

**Kinetic and Mechanistic Aspects of Furfural Degradation in Biorefineries**

Lukas Almhofer, R. H. Bischof, C. Paulik  
Kompetenzzentrum Holz GmbH

## **3D Printing and Alignment of NFC-Alginate Nanocomposites with Highly Tunable Properties**

Florian Lackner, I. Knechtl, M. Nowak, R. Kargl, t. Mohan, K. Stana Kleinschek  
TU Graz, IBioSys

### **Group Picture of all Participants of 25th ACWS**

**16:15 – 16:45 COFFEE BREAK**

**16:45 – 18:15 Session 3**

#### **The Binding Epitope for S-layer Anchoring and its Potential as Antimicrobial Target**

Fiona Hager-Mair, M. Legg, C. Stefanovic, S. Krauter, C. Lim, M. Blaukopf, P. Kosma, C. Schäffer  
BOKU Vienna, Department für NanoBiotechnologie/NanoGlycobiologie

#### **Elucidating the O-Glycan Structure of *Tannerella serpentiformis* – a Novel Periodontal Health-Associated Bacterium**

Stephanie Walcher, C. Schäffer  
BOKU Wien, Department für NanoBiotechnologie/NanoGlykobiologie

#### **Expression and Characterization of a $\beta$ -Galactosidase from *Arion vulgaris***

Julia Thoma, R. Grabherr, E. Staudacher  
BOKU Vienna, Biochemistry

#### **Identification, Expression and Characterisation of the First Mollusc Core 1 $\beta$ 1,3-Galactosyltransferase**

Marilica Zemkollari, R. Grabherr, E. Staudacher  
BOKU Vienna, Biochemistry

#### **A Plant Galactosyltransferase Involved in Type II Arabinogalactan Biosynthesis**

Colin Ruprecht, I. Pasini, G. Seifert, F. Pfrengle  
BOKU Vienna, Organic Chemistry

#### **Chemical Synthesis of Sugar Nucleotide Donors for the Identification and Characterization of Plant Arabinogalactan Glycosyltransferases**

Irene Pasini, F. Pfrengle  
BOKU Vienna, Organic Chemistry

## **Ligand Directed Profiling of Carbohydrate Processing Enzymes**

Herwig Prasch, T. M. Wrodnigg

TU Graz, IBioSys

### **18:15 Discussion**

General Topics of the Austrian Network of Carbohydrates and Glycoconjugates

Future Meetings, Conferences and Symposia, Glycoperspectives

Tanja Wrodnigg

### **18:45: Poster Session and Social Get Together with Buffet and Drinks**

#### **Photocontrol of Lectin Activity and Bacterial Adhesion**

Carina Spormann, T. K. Lindhorst

Otto Diels Institute of Organic Chemistry/ Christian-Albrecht University of Kiel

#### **Deconvolution of *N*-Glycan Microheterogeneity by Oxidative Degradation**

Johannes Helm, J. Stadlmann, F. Altmann

BOKU Vienna

#### **Cutinases, the Next Solution for Plastic Degradation? - A Phylogenetic and Structure-Function Analysis of CE5 Enzymes**

Leonor Cameiro

TU Graz, Molecular Biotechnology

#### **Indium Mediated Acyloxyallylation of Aldoses**

Lara Maltrovsky, N. Biedermann, M. Draskovits, C. Stanetty

TU Wien, IAS

#### **Catalytic Transfer Hydrogenation of Xylose Using Non-Fossil H Donors**

Lena Hinterholzer, L. Almhofer, R. H. Bischof, T. M. Wrodnigg

TU Graz, IBioSys

#### **Cellulose-Based Chiral Stationary Phases for Enantioseparation by HPLC**

Anna F. Lehrhofer, C. V. Bui, T. Goto, J. Jaxel, G. Sixta, T. Rosenau, H.

Hettegger

BOKU Vienna,

#### **Phase Separation and Stability of Cotton and Bacterial Cellulose Nanocrystals in the Presence of Various Salts**

Vladimir Grachev, O. Deschaume, M. P. Lettinga, W. Thielemans

KU Leuven

## **Synthesis of 1-Dexojirimycin Based Ligand-Directed Probes for Labeling of $\beta$ -Glucosidases**

Elena Spari, H. Prasch, A.E. Stütz, T. Wrodnigg  
TU Graz IBioSys

## **Synthesis towards C-5a elongated isofagomines**

Andre Culum, M. Thonhofer, P. Weber, A. E. Stütz, T. M. Wrodnigg  
TU Graz IBioSys

**Friday, 8<sup>th</sup> July 2022**

**9:00 – 9:30**      **Morning coffee**

**9:30 – 11:00**      **Session 4**

## **A Concise and Efficient Synthetic Approach Towards 4-epi-Isofagomines**

Martin Thonhofer, A. Culum, P. Weber, A. Stütz, T. M. Wrodnigg  
TU Graz IBioSys

## **O-Methylated N-Glycans Distinguish Mosses from Vascular Plants**

David Stenitzer, R. Mocsai, H. Zechmeister, R. Reski, E. L. Decker, F. Altmann  
BOKU Vienna

## **Synthesis of Oligosaccharides Related to Plant Rhamnogalacturonan II**

Uwe Osswald  
BOKU Vienna, Organic Chemistry

## **Chemoenzymatic Synthesis of Xylan Oligosaccharides**

Ignacio Alvarez Martinez, C. Ruprecht, F. Pfrengle  
BOKU Vienna, Organic Chemistry

## **Oxidation of Starch with a Laccase-Mediator System – Turning multiple Screws for optimal Performance**

Hubert Kalas, K. Obleser, M. D. Mihovilovic, C. Stanetty  
TU Wien, IAS

## **Visualization of Biological Cellulose Deconstruction on a Nanoscale Level Using Atomic Force Microscopy**

Krisztina Zajki-Zechmeister, G. S. Kaira, M. Eibinger, B. Nidetzky  
TU Graz, Biotechnology and Biochemical Engineering

## **Tuning the Stereoselectivity in 1,1'-Glycosylation with Glucosamins**

Daniele Zucchetta, A. Zamyatina

BOKU Vienna

**11:00 – 11:30 COFFEE BREAK**

**11:30 – 13:00 Session 5**

## **Glycoside Phosphorylases in Multi-Enzyme Cascade System for the Biosynthesis of Functional Cello-Oligosaccharides**

Chao Zhong, B. Nidetzky

TU Graz, Biotechnology and Biochemical Engineering

## **Nitrogen Containing Glycosides: the Nonulosonic Acids and More**

Philipp Gritsch

TU Wien, IAS

## **Synthesis of 1-Amino DMDP Derivatives as Potential O-GlcNAcase Inhibitors**

Manuel Ebner, P. Weber, A. Stütz, T. M. Wrodnigg

TU Graz, IBioSys

## **Synthesis of 4-Deoxy-4-fluoro-D-sedoheptulose and an Approach for its Fluorine-18 Labelled Analogue**

Lukas Scheibelberger, K. Pallitsch

University of Vienna

## **The Indium-Mediated Acyloxyallylation – A Tool for the Elongation of Aldoses Towards Non-Natural Sugar Alcohols as Potential Phase Change Materials**

Nina Biedermann, M. Schnürch, C. Stanetty

TU Wien, IAS

## **Synthesis of Fully Orthogonally Desymmetrised Trehaloses for Exploiting Mycobacterial Transporter Proteins**

Tomas Vasicek, A. Monti, A. Zamyatina

BOKU Vienna

## **From Zero to Hero: Turning Unselective Hexosaminidase Inhibitors into Powerful O-GlcNAcase Inhibitors**

Patrick Weber, A. Stütz

TU Graz, IBioSys

**13:00**

**Closing**