Graz University of Technology

23rd Austrian Carbohydrate Workshop

Graz, 14th – 15th February 2019

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

Program

Thursday, February 14th, 2019

12:30
Welcome

Session 1: 12:45 – 14:15

Synthesis of Bismuth-Sugar Conjugates: Scope and Limitations
Martin Thonhofer[1], Roland Fischer[2], Carina Sampl[2,3], Berenike Doler[2], Daniel Garstenauer[2], Richard Amering[2], Rupert Kargl[1] and Karin Stana Kleinschek[1]
[1] University of Maribor, Faculty of Mechanical Engineering
[2] TUGraz, Institute of Inorganic Chemistry
[3] TUGraz, Institute of Paper, Pulp and Fibre Technology

First Synthesis of 5-Fluoro-Isofagomine
Michaela Haider[1], Philipp Toplack[1], Roland Fischer[3], Arnold E. Stütz[1], Martin Thonhofer[1,2], Patrick Weber[1], Fabian Wiedemaier[1] and Tanja M. Wrodnigg[1]
1 Glycogroup, TUGraz, Institute of Organic Chemistry
[2] University of Maribor, Faculty of Mechanical Engineering
[3] TUGraz, Institute of Inorganic Chemistry

Novel Cyclopentanoid Inhibitors of Protein *O*-GlcNAcase
Patrick Weber, Arnold E. Stütz
Glycogroup, TUGraz, Institute of Organic Chemistry

***N*-Heterocyclic Carbene Mediated Activation of Aldoses: Controlled Dehomologation or Redox-lactonization by Choice of Catalyst**
Markus Draskovits, Hubert Kalaus, Christian Stanetty, Marko Mihovilovic
TU Wien, Institute of Applied Synthetic Chemistry

Quantification of the Open Chain Content of Aldoses: A Photometric Kinetic Assay of an Aldehyde-specific Adduct Formation
Hubert Kalaus, Alexander Reichetseder, Christian Stanetty, Marko Mihovilovic
TU Wien, Institute of Applied Synthetic Chemistry

Application of the Indium-mediated Allylation Reaction for the Synthesis of 3-Deoxy-2-uloses
Manuel Gintner
Department of Organic Chemistry, University of Vienna

Diastereoselective Elongation of Disaccharides Taking Advantage of the Indium-mediated Allylation Reaction
Christian Denner
Department of Organic Chemistry, University of Vienna

COFFEE BREAK 14:15 – 14:45

Session 2: 14:45 – 16:00

Investigation of 4-amino-4-deoxy-L-arabinose transferases from Gram-negative bacteria involved in antibiotic resistance
Charlotte Olagnon, Paul Kosma
BOKU Vienna, Department of Chemistry

Synthetic endeavours towards C-glycoside inhibitors of 4-amino-4-deoxy-L-arabinose transferases
Lukas Kerner, Paul Kosma
BOKU Vienna, Department of Chemistry

Product Solubility Control in Cellooligosaccharide Synthesis by Coupled Cellobiose and Cellodextrin Phosphorylase
Chao Zhong[1], Christiane Luley[2], Bernd Nidetzky[1,2]
[1] TUGraz, Institute of Biotechnology and Biochemical Engineering
[2] Austrian Centre of Industrial Biotechnology (acib)

Investigating the swelling behavior of cellulose thin films by multilayer density analysis using AFM/SPR spectroscopy
Carina Sampl[1,2], Katrin Niegelhell[1,2], David Reishofer[1], Roland Resel[3], Stefan Spirk[1,2], Ulrich Hirn[1,2]
[1] TUGraz, Institute for Paper, Pulp and Fibre Technology
[2] TUGraz, CD-Laboratory for Fibre Swelling and Paper Performance,
[3] TUGraz, Institute of Solid State Physics

Industrially relevant cationic starches and cellulose
Stefanie M. Müller1, Katrin Niegelhell[1,2]; Angela Chemelli[3]; Josefine Hobisch[4]; Thomas Griesser[5]; Heidemarie Reiter[2,6]; Ulrich Hirn[1,2]; Stefan Spirk[1,2]
[1] TUGraz, Institute for Paper, Pulp and Fiber Technology,
[2] CD-Laboratory for Fibre Swelling and Paper Performance
[3] TUGraz, Institute for Inorganic Chemistry
[4] TUGraz, Institute for Chemistry and Technology of Materials
[5] University of Leoben, Chair of Polymeric Materials
[6] Mondi Uncoated Fine & Kraft Paper GmbH, Austria

A Green Procedure to Manufacture Nanoparticle-Decorated Paper Substrates
Werner Schlemmer[1], Wolfgang Fischer[1], Armin Zankel[2], Tomislava Vukušić[3], Gregor Filipič[4], Andrea Jurov[4,5], Damjan Blažeka[6], Walter Goessler[7], Wolfgang Bauer[1], Stefan Spirk[1],Nikša Krstulović[6]
[1] TUGraz, Institute of Paper-, Pulp- and Fibre Technology (IPZ)
[2] TUGraz, Institute of Electron Microscopy and Nanoanalysis (FELMI)
[3] Faculty of Food Technology and Biotechnology, University of Zagreb
[4] Jožef Stefan Institute, Jamova 39, Slovenia.
[5] Jožef Stefan International Postgraduate School, Slovenia.
[6] Institute of Physics, Croatia.
[7] University of Graz, Institute of Chemistry

COFFEE BREAK 16:00 – 16:30

Guest Lecture 16:30

Glycosidase-catalyzed synthesis of glycosyl esters and phenolic glycosides
Vladimír Křen[1], Ivan Bassanini[2], Lucie Petrásková[1], Jana Kapešová[1], Sergio Riva[2]
[1] Institute of Microbiology of the Czech Academy of Sciences,Laboratory of Biotransformation, Czech Republic.
[2] Istituto di Chimica del Riconoscimento Molecolare, Consiglio Nazionale delle Ricerche, Italy.

Discussion 17:15

Generell topics of the Austrian Network of Carbohydrates and Glycoconjugates
Future Meetings, Conferences and Symposia
Paul Kosma

End of scientific program 18:00

Friday, 15 February 2019

Guest Lecture 9:00 – 09:45

Bioorthogonal Ligations Reactions for Imaging Glycoconjugates
Valentin Wittmann
University of Konstanz, Department of Chemistry

COFFEE BREAK 09:45 – 10:15

Session 3: 10:15 – 11:30

Man-7 and Man-9: oligomannoside target molecules against HIV-1
Matteo Cattin, Paul Kosma
BOKU Vienna, Department of Chemistry

***Paenibacillus alvei*: Synthesis and biosynthetic studies of pyruvylated cell wall fragments**
Simon Krauter, Paul Kosma
BOKU Vienna, Department of Chemistry

Novel nanomolar inhibitors of the gram negative bacterial heptose pathway
Markus Blaukopf, Paul Kosma
BOKU Vienna, Department of Chemistry

Synthesis of modified Iminoxylitol based building blocks towards ligands and tools for lysosomal β-glucocerebrosidase
Andreas Wolfsgruber, Tanja M. Wrodnigg
Glycogroup, TUGraz, Institute of Organic Chemistry

Design of Iminosugar based probes for activity-based protein profiling of glyco-processing enzymes
Michael Schalli, Tanja M. Wrodnigg
Glycogroup, TUGraz, Institute of Organic Chemistry

Epimerization of nucleotide sugars
Christian Rapp[1], Bernd Nidetzky[1,2,]
[1] TUGraz, Institute of Biotechnology and Biochemical Engineering
[2] Austrian Centre of Industrial Biotechnology (acib)

COFFEE BREAK 11:30 – 12:00

Session 4: 12:00 – 13:15

Gluconoylation - a frequent *N*-terminal modification - studied in isotope-labeled proteins by NMR spectroscopy

Mario Schubert[1,2,]4, D Schweida[1], P Barraud[2,3], C Regl[1,4], FE Loughlin[2,5], CG Huber[1,4], C Cabrele[1,4]

[1] Dept. Biosciences, University of Salzburg, Billrothstr. 11, 5020 Salzburg, Austria
[2] Institute of Molecular Biology and Biophysics, ETH Zürich,
[3] Institut de biologie physico-chimique (IBPC), Université Paris Diderot, France
[4] Christian Doppler Laboratory for Innovative Tools for Biosimilar Characterization, University of Salzburg
[5] Monash Biomedicine Discovery Institute, Department of Biochemistry & Molecular Biology, Monash University, Australia

Sialic Acid of Caco2 cell: analysis and modification of glycans surface

Erika Gasparotto

Institute of Pathophysiology and Allergy Research, Center for Pathophysiology, Infectiology and Immunology, Medical University of Vienna, Division of Macromolecular Chemistry, Institute of Applied Synthetic Chemistry, Vienna University of Technology

Sialic Acid and Pathology

Davide Ret

Institute of Pathophysiology and Allergy Research, Center for Pathophysiology, Infectiology and Immunology, Medical University of Vienna; Division of Macromolecular Chemistry, Institute of Applied Synthetic Chemistry, Vienna University of Technology

Human Milk Oligosaccharides in Pregnancy: predictive markers for gestational diabetes?

Evelyn Jantscher-Krenn

Deptartment of Obstetrics and Gynecology, Medical University of Graz

Production of sialylated human milk oligosaccharides in optimized enzymatic one-pot reactions

Sabine Schelch[1], Barbara Petschacher[1,2], Stefanie Gross Belduma[1,2], Manuel Eibinger[2], Bernd Nidetzky[1,2]

[1] Austrian Centre of Industrial Biotechnology (acib)
[2] TUGraz, Institute of Biotechnology and Biochemical Engineering

Isolation and biophysical characterisation of heparan sulfate from human lung tissues

Tanja Gerlza[1], Rupert Derler[1], Nikola Kitic[1], Friedrich Anderhuber[2] and Andreas Kungl[1]

[1] Karl-Franzens-Universität Graz, Institute of Pharmaceutical Chemistry
[2] Medical University Graz, Institute of Anatomy

Closing 13:15