

NIH Common Fund Glycoscience Program

Participating Investigators Meeting

August 30-31, 2017

Natcher Conference Center

Agenda

August 30, 2017

Room E1/E2

8:00 a.m.

Welcome & Opening Remarks

Martha Somerman, Director, NIDCR

Lawrence Tabak, Principal Deputy Director, NIH

James Anderson, Director, DPCPSI

Session I – Tools & Technologies

8:25 a.m.

Overview: Tools to integrate glycoscience with the broader scientific community

Session Chair, Dr. Brian Cobb, Associate Professor, Department of Pathology, Case Western Reserve University

8:30 a.m.

Small-Molecule Catalysts for the Stereoselective Synthesis of Oligosaccharides

Dr. Eric Jacobsen, Sheldon Emery Professor of Chemistry, Harvard

8:50 a.m.

Making glycoproteins via mass spectrometry more accessible to the greater scientific community: Development of IsoTaG, a Chemical Glycoproteomics Technique for Profiling

Intact N- and O-Glycopeptides from Whole Cell Proteomes

Dr. Carolyn Bertozzi, Professor of Chemistry, Stanford University

9:10 a.m.

Drug like modulators targeting O-glycosylation by GalNAc transferase 2/3: Inhibitor of ppGalNAc-T3-mediated O-glycosylation blocks cancer cell invasiveness and lowers FGF23 levels

Dr. Adam Linstedt, Professor, Department of Biological Sciences, Carnegie-Mellon University

9:30 a.m.

Smart Anti-Glycan Reagents to Generate the Human Glycome Atlas

Dr. Raymond Mernaugh, Research Associate Professor, Department of Biochemistry, Vanderbilt University School of Medicine

Short Talks

9:50 a.m.

Metabolic Carbohydrate Cell Wall Probes for Bacterial Structure and Immune Recognition Studies

Dr. Catherine Leimkuhler Grimes, University of Delaware

9:55 a.m.

GlycoMiR: Mapping the miRNA-Glycogene Interactome

Dr. Lara Mahal, New York University

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Atrium

Session II – Poster Review

10:00 a.m. Group picture & Review of Posters

Room E1/E2

Session III - Synthetic Methods & Technologies

11:25 a.m. *Overview: New synthetic approaches and technologies to facilitate the rapid, robust, and affordable synthesis of bio-medically relevant glycans and glyco-conjugates.*

Session Chair, Dr. Nikki Pohl, Professor and Joan and Marvin Carmack Chair in Bioorganic Chemistry; Department of Chemistry, University of Indiana

11:30 a.m. *Luminex Multiplex Glycan Array: A High throughput and High-content Platform for GBPs*
Dr. Jin-Xiong She, Professor & Director, Augusta University

11:50 a.m. *Sugar building blocks and automated synthesis of biomedically-relevant glycans*
Dr. Nikki Pohl, Professor and Joan and Marvin Carmack Chair in Bioorganic Chemistry; Department of Chemistry, University of Indiana

12:10 p.m. *Streamlining the chemoenzymatic synthesis of asymmetrical glycans of biological importance*
Dr. Geert-Jan Boons, Franklin Professor of Chemistry, University of Georgia Complex Carbohydrate Research Center

12:30 p.m. *Expedited Synthesis of Glycosaminoglycans Containing Defined Sulfation Domains*
Dr. Linda Hsieh-Wilson, Professor of Chemistry, California Institute of Technology

Room E1/E2

12:50 p.m. Working Lunch

Synergistic CF Programs & Opportunities:

Big Data to Knowledge – Dr. Susan Gregurick, NIGMS

Metabolomics – Dr. Barbara Spalholz, NCI

Undiagnosed Disease Network – Dr. Tiina Urv, NCATS

CF-GSP Working Group Introductions:

Dr. Houmam Araj, NEI; Mr Tony Casco, OD; Dr. Preethi Chander, NIDCR; Dr. Amy Krafft, NIAID; Dr. Karl Krueger, NCI; Dr. Angela Malaspina, NIAID; Dr. Pamela Marino, NIGMS; Dr. Amanda Melillo, NIGMS; Dr. Mercy Prabhudas, NIAID; Dr. Ananda Roy, OD; Dr. Rao Rapaka, NIDA; Dr. Rita Sarkar, NHLBI; Dr. Salvatore Sechi, NIDDK; Dr. Douglas Sheeley, NIGMS; Dr. Jessica Smith, OD; Dr. Bernadette Tyree, NIAMS; Dr. Austin Yang, NIA.

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Session IV – Tools and Technologies II

- 1:55 p.m. Chair, Dr. Carolyn Bertozzi, Professor of Chemistry, Stanford University
- 2:00 p.m. *Production of high affinity anti-glycan and anti-glycolipid antibodies*
Dr. Luc Teyton, Professor, Department of Immunology and Microbiology, Scripps Research Institute
- 2:20 p.m. *Mining the oral microbiome for novel glycan-binding molecules*
Dr. Stefan Hans-Klaus Ruhl, Professor of Oral Biology. Department of Oral Biology, School of Dental Medicine, University at Buffalo, State University of New York
- 2:40 p.m. *Using CRISPR-Cas9 technology to develop a mutant cell library for heparan sulfate structure-function study*
Dr. Lianchun Wang, Associate Professor of Biochemistry and Molecular Biology, University of Georgia
- 3:00 p.m. *Activated-Ion Negative Electron Transfer Dissociation for High-Throughput Glycoproteomics*
Dr. Joshua Coon, Professor, Department of Chemistry, University of Wisconsin–Madison
- 3:20 p.m. *A hybrid IMS-MS platform for ultrasensitive and high-resolution glycan analysis*
Dr. Keqi Tang, Staff Scientist, Battelle Pacific Northwest National Laboratory
- 3:40 p.m. *Software for automated interpretation of heparan sulfate tandem mass spectra*
Dr. Joseph Zaia, Professor, Department of Biochemistry, Boston University School of Medicine
- 4:00 p.m. *Tools to enable non-specialists to model glycoconjugates and glycan-protein interactions*
Dr. Robert Woods, Professor, University of Georgia Research Foundation Inc
- 4:20 p.m. *Computational and Informatics Resources and Tools for Glycoscience Research*
Dr. Raja Mazumder, Associate Professor Department of Biochemistry & Molecular Medicine, George Washington University School of Medicine and Health Sciences & Dr. William York, Professor of Biochemistry and Molecular Biology, University of Georgia
- 4:30 p.m. Round Table Discussion
- 5:30 p.m. Adjourn
- 6:30 p.m. Dinner Positano Ristorante, 4948 Fairmont Ave, Bethesda, MD 20814