

Joint Meeting of the **Society for Glycobiology (SFG)** and the **Japanese Society of Carbohydrate Research (JSCR)**

Integrating Glycoscience from Biology and Chemistry to Medicine

November 16-19, 2014 • Honolulu, Hawaii
Hilton Hawaiian Village Waikiki Beach Resort

Meeting Program



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Sunday, November 16, 2014

8:00AM - 6:00PM

Registration

Coral Lounge

8:40AM - 5:00PM

Satellite I: Chemical Aspects of Glycobiology

(Sponsored by RIKEN and Tokyo Chemical Industry Co., Ltd., Japan. This Symposium is a part of RIKEN Symposium Series)

*Break sponsored by Corden Pharma

Location: Coral 1

Chair: Yukishige Ito, RIKEN

8:30AM - 5:00PM

Satellite II: Glycans in Neuroscience

(Co-sponsored by RIKEN and Glyco-neuroscience project, Japan. This Symposium is a part of RIKEN Symposium Series)

Location: Coral 2

Chair: Kenji Kadomatsu, Nagoya University

9:00AM - 5:00PM

Satellite III: Consortium for Functional Glycomics (CFG) - Microbiome Glycomics

*Break sponsored by Corden Pharma

Location: Coral 3

Chair: Michael Tiemeyer, CCRC

9:00AM - 5:00PM

Satellite IV: New Vistas in Glycoscience; Challenges for Junior Scientists

(Co-sponsored by JCGG and SFG Education Committee. This Symposium is a part of RIKEN Symposium Series)

Location: Hibiscus Suite

Chair: Yoshiki Yamaguchi, RIKEN

9:00AM - 5:00PM

Satellite V: Glycoprotein Technologies

Location: Kahili Suite

Chairs: Sam Tep, ProZyme and Wesley Wang, Amgen

12:00PM - 2:00PM

Satellite Poster Session

Location: Coral 4 & 5

6:00PM - 6:10PM

Conference Opening Remarks

Location: Coral 3

Chairs: Naoyuki Taniguchi, RIKEN, President, Society for Glycobiology and Yukishige Ito, RIKEN, President, Japanese Society of Carbohydrate Research

6:10PM - 7:50PM

Session I: Systems Glycobiology from Chemistry to Biology

Location: Coral 3

Chair: Yasuhiro Kajihara, Osaka University

Abstract #

- | | | |
|---|------|---|
| 1 | 6:10 | Chemistry and Biology of Glycosylation: A Search for Universal Cancer Vaccine; Chi-Huey Wong, Academia Sinica |
| 2 | 6:30 | Bacterial glycoconjugates; chemical synthesis and functional analysis; Yukari Fujimoto, Keio University |
| 3 | 6:50 | Challenges in glycan synthesis with applications to immunology; Nicola Pohl, Indiana University |
| 4 | 7:10 | Using chemistry to understand the mechanisms and biological roles of mannosidases; Spencer Williams, University of Melbourne |
| 5 | 7:30 | Discovery and improvement of novel glycosidases through metagenomics and directed evolution; Steve Withers, University of British Columbia |

7:50PM - 9:30PM

Welcome Reception & Exhibits

Location: Coral 4 & 5

Monday, November 17, 2014

7:00AM - 8:00AM

SFG Board of Directors Meeting

(Invitees only)

Location: Kahili Suite

7:30AM - 4:00PM

Registration

Location: Coral Lounge

7:30AM - 4:00PM

Networking Room

Location: Hibiscus Suite

7:30AM - 8:30AM

Continental Breakfast

*Sponsored by Galen Laboratory Supplies

Location: Coral 4 & 5

8:00AM - 8:30AM

Sunrise Session I

Location: Coral 3

Chair: Akemi Suzuki, Tokai University

Abstract #

- 6 **Biological Roles of Glycans: Two Decades Later**; Ajit Varki, UCSD

8:30AM - 10:00AM

Session II: Virus / Inflammation Glycobiology

Location: Coral 3

Chair: Hideharu Ishida, Gifu University

Abstract #

- 7 8:30 **Natural immune programming of antibody glycosylation**; Galit Alter, Harvard University
- 8 8:50 **Immune functions of glycans in infectious disease**; Richard Cummings, Emory University
**MCP/ ASBMB Plenary Lectureship Award Winner*
- 9 9:10 **Glycan targets of the antibody response in natural and experimental schistosome infections**; Cornelis H. Hokke, Leiden University Medical Center
- 10 9:30 **Development of highly sensitive diagnostic system for dengue viruses using the interaction between sulfated sugar-chain and viral particle**; Yasuo Suda, Kagoshima University
**selected talk- poster B41*
- 11 9:40 **Molecular regulation of antigen-specific antibody glycosylation following B cell activation**; Wen-Han Yu, Massachusetts Institute of Technology
**selected talk- poster B42*
- 12 9:50 **In vivo blockade of sialylation with a global sialyltransferase inhibitor causes irreversible kidney dysfunction**; Matthew Macauley, The Scripps Research Institute
**selected talk- poster B43*

10:00AM - 10:30AM

Coffee Break

Location: Coral 4 & 5

10:30AM - 12:30PM

Session III: Glycan Binding Proteins / Immunology

Location: Coral 3

Chair: Sachiko Sato, Laval University

Abstract #

- 30 10:30 **Carbohydrate-binding lipoproteins enhance glycan sensing and acquisition by human gut bacteria**; Nicole Koropatkin, University of Michigan
- 14 10:50 **O-glycoprotein podoplanin is critical for vascular integrity during inflammation**; Lijun Xia, Oklahoma Medical Research Foundation
- 15 11:10 **Sialylated glycans on airway mucins, such as Muc5b, bind mouse eosinophils via Siglec-F and induce their apoptosis in vitro and in vivo**; Bruce Bochner, Northwestern University Feinberg School of Medicine
- 16 11:30 **Role of CD22/Siglec2 and its ligand in B lymphocyte activation**; Takeshi Tsubata, Tokyo Medical and Dental University
- 17 11:50 **Glycan-mediated control of immune homeostasis**; Juan J. Garcia Vallejo, VU University Medical Center
- 18 12:10 **Galectin-3 protects intracellular Listeria monocytogenes by suppressing autophagy activation via inhibition of nitric oxide production and bacterial ubiquitination**; I-Chun Weng, Academia Sinica
**selected talk- poster B61*
- 19 12:20 **Functional evaluation of sialoglycans expressed in activated T cells**; Hiromu Takematsu, Kyoto University
**selected talk- poster B62*

12:30PM - 2:00PM

Lunch on your own

12:30PM - 2:00PM

Glycobiology Editorial Board Meeting

(Invitees only)

Location: Kahili Suite

2:00PM - 4:00PM

Poster Session I and Exhibits

**Sponsored by Caisson Biotech*

Coffee break provided

Location: Coral 4 & 5

2:00PM - 4:00PM

Bioinformatics Hands-On Session (Part 1)**Location:** Kahili Suite

4:00PM - 6:00PM

Session IV: Regulation and Signaling**Location:** Coral 3**Chair:** Kelly Ten Hagen, NIHAbstract #

- 20 4:00 **Regulation of neuronal development by glycosaminoglycans;** Hiroshi Kitagawa, Kobe Pharmaceutical University
- 21 4:20 **Roles of glycosaminoglycans in neurophysiology and neurological disorders;** Yu Yamaguchi, Sanford-Burnham Medical Research Institute
- 22 4:40 **Crystal structures of an archaeal oligosaccharyltransferase provide insights into the catalytic cycle of N-linked protein glycosylation;** Daisuke Kohda, Kyushu University
- 23 5:00 **Protein O-mannosylation in mammals: news and views;** Sabine Strahl, Centre for Organismal Studies Heidelberg
- 24 5:20 **Molecular mechanism of O-GlcNAc transferase translocation into nucleus;** Jin Won Cho, Yonsei University
- 25 5:40 **The Molecular Mechanisms of Fringe Modification on Drosophila Notch: Examining the Structure and Function of Notch EGF Repeats;** Beth M. Harvey, Stony Brook University
**selected talk- poster B112*
- 26 5:50 **An E3 ubiquitin ligase regulates neural-specific glycosylation in the Drosophila embryo;** Nickita Mehta, CCRC
**selected talk- poster B113*

6:00PM - 6:45PM

Rosalind Kornfeld Award for Lifetime Achievement in Glycobiology Award Presentation**Location:** Coral 3**Chair:** Michael Pierce, CCRC**2014 recipient:** Ten Feizi, Imperial College London**Tuesday, November 18, 2014**

7:30AM - 4:00PM

Registration**Location:** Coral Lounge

7:30AM - 4:00PM

Networking Room**Location:** Hibiscus Suite

7:30AM - 8:30AM

Continental Breakfast**Sponsored by Galen Laboratory Supplies***Location:** Coral 4 & 5

8:00AM - 8:30AM

Sunrise Session II**Location:** Coral 3**Chair:** Inka Brockhausen, Queen's UniversityAbstract #

- 27 **A Serendipic Career;** Harry Schachter, Hospital for Sick Children

8:30AM - 10:00AM

Session V: Prokaryotic Glycan Assembly**Location:** Coral 3**Chair:** Christopher West, OUHSCAbstract #

- 28 8:30 **Bacterial sialyltransferases: structure, function and engineering for glycoconjugate synthesis;** Warren Wakarchuk, Ryerson University/University of Guelph
- 29 8:50 **Some like it hot and sweet: Structure and role of N-glycans in the thermoacidophilic archaeon Sulfolobus acidocaldarius;** Sonja Alber, MPI for Terrestrial Microbiology
- 30 9:10 **Tannerella forsythia - A sweet periodontal pathogen;** Christina Schäffer, Universität für Bodenkultur Wien
**selected talk- poster B150*
- 31 9:20 **Insights into rare Ser/Thr O-glycosylation of heterologous proteins expressed in plants;** Patricia Bubner, University of California Berkeley
**selected talk- poster B151*
- 32 9:30 **Synthesis of biotinylated keratan sulfate oligosaccharides;** Naoko Takeda, Tottori University
**selected talk- poster B152*
- 33 9:40 **Sweet Neurobiology: New insights into the role of alterations in protein glycosylation in Alzheimer's Disease pathology;** Moran Frenkel-Pinter, Tel-Aviv University
**selected talk- poster B153*
- 34 9:50 **EDEM1/2/3 are α 1,2-mannosidases essential for endoplasmic reticulum-associated degradation of glycoproteins;** Satoshi Ninagawa, Kyoto University
**selected talk- poster B154*

10:00AM - 10:30AM

Coffee Break**Location:** Coral 4 & 5

10:30AM - 12:00PM

Session VI: Stem Cells / iPS

Location: Coral 3

Chair: Rita Gerardy-Schahn, Hannover Medical School

Abstract #

- 35** 10:30 **New Insights Into the Pathophysiology of Glycolipid Biosynthetic Disorders Using iPS-Derived Cell Lines;** Richard Steet, CCRC
- 36** 10:50 **Glycan structures regulate the states of pluripotent stem cells;** Shoko Nishihara, Soka University
- 37** 11:10 **Sugar-coated webs to drive stem cell differentiation;** Catherine Merry, University of Manchester
- 38** 11:30 **Finding of a Novel Lectin Probe for Pluripotent Stem Cells and its Installation to Regenerative Medicine;** Jun Hirabayashi, AIST
**selected talk- poster B167*
- 39** 11:40 **Glycocalyx Remodeling with Synthetic Proteoglycan Mimetics Promotes Neural Specification in Embryonic Stem Cells;** Kamil Godula, University of California
**selected talk- poster B168*
- 40** 11:50 **Golgi-resident polysialic acid defines distinct brain cell populations;** Sebastian Werneburg, Hannover Medical School
**selected talk- poster B169*

12:00PM - 1:30PM

Lunch on your own

12:00PM - 1:30PM

SFG Board of Directors Meeting

(Invitees only)

Location: Kahili Suite

1:30PM - 2:15PM

Karl Meyer Award Lecture

Location: Coral 3

Chair: Michael Pierce, CCRC

2014 recipient: Ronald L. Schnaar, Johns Hopkins University School of Medicine

2:15PM - 2:45PM

SFG Business Meeting

(open to all attendees)

Location: Coral 3

2:45PM - 3:45PM

Ngly1 Disease Session

Location: Coral 3

Chairs: Hudson Freeze, Sanford-Burnham Medical Research Institute and Tadashi Suzuki, RIKEN

- 2:45** **The cytoplasmic PNGase (NGLY1): a 20-plus year scientific journey encounters a human genetic disorder;** Tadashi Suzuki, RIKEN
- 3:00** **Analysis of NGLY1-deficient human cells;** Hudson Freeze, Sanford-Burnham Medical Research Institute
- 3:15** **What I learned about NGLY1 from the little fly;** Hamed Jafar-Nejad, Baylor College of Medicine
- 3:30** **Stories from Patients & Families**
NGLY1: Going from bench to bedside, Matt Might, University of Utah
The dawn of a new research model: the case for parent-clinician-researcher collaboration; Matt Wilsey, Grace Wilsey Foundation

3:45PM - 5:45PM

Poster Session II and Exhibits

Coffee break provided

Location: Coral 4 & 5

3:45PM - 5:45PM

Bioinformatics Hands-On Session (Part 2)

Location: Kahili Suite

6:00PM - 10:00PM

Banquet

Location: Tapa Ballroom *(Located in the Tapa Conference Center)*

Nominal fee. Extra tickets for guests may be ordered.

Wednesday, November 19, 2014

7:15AM - 1:00PM

Registration

Location: Coral Lounge

7:15AM - 8:15AM

Continental Breakfast

Location: Coral 4 & 5

7:45AM - 8:15AM

Sunrise Session III**Location:** Coral 3**Chair:** James Paulson, The Scripps Research Institute**Abstract #**

- 41 **Nutrient Regulation of Signaling & Transcription by O-GlcNAcylation;** Gerald Hart, John Hopkins University

8:15AM - 10:15AM

Session VII: Glycans, Metabolism and Functions**Location:** Coral 3**Chair:** Koichi Furukawa, Nagoya University**Abstract #**

- 42 8:15 **Biosynthesis and Biogenetics of Lipopolysaccharide;** Peng George Wang, Georgia State University
- 43 8:35 **Biosynthesis and mutant studies indicate roles for pectin and pectin-containing proteoglycans in plant cell wall architectural integrity and plant growth;** Debra Mohnen, CCRC
- 44 8:55 **Probing glycan functions by precise gene editing;** Henrik Clausen, University of Copenhagen
- 45 9:15 **Functional characterization of PMM2-CDG patient-derived iPSCs;** Falk F. Buettner, MH-Hannover
- 46 9:35 **Manipulating glycan processing in the baculovirus-insect cell system for diverse biomedical applications;** Don Jarvis, University of Wyoming
- 47 9:55 **Role of glycans in gastric cancer development and progression;** Celso Reis, IPATIMAP

10:15AM - 10:45AM

Coffee Break**Location:** Coral 4 & 5

10:45AM - 12:45PM

Session VIII: Disease: Mechanism, Biomarker and Therapeutics**Location:** Coral 3**Chair:** Tamao Endo, Tokyo Metropolitan Institute of Gerontology**Abstract #**

- 48 10:45 **Shedding of GPI-anchored proteins by a novel GPI cleaving enzyme;** Morihisa Fujita, Jiangnan University
- 49 11:05 **Genetic and epigenetic regulation of IgG glycosylation;** Gordan Lauc, University of Zagreb
- 50 11:25 **A heterozygous mutation of glycosyltransferase-like gene causes asthenozoospermia;** Hisashi Narimatsu, AIST

- 51 11:45 **Glycomimetic Antagonists of the Selectins Applied to Diseases in Hematology and Oncology;** John L. Magnani, GlycoMimetics Inc.
- 52 12:05 **Anti-adhesion therapy for urinary tract infections: A Study on lead optimization of FimH antagonists;** Lijuan Pang, University of Basel
**selected talk- poster 220*
- 53 12:15 **Targeted drug delivery to brain tumor vasculature by carbohydrate mimetic peptide in mouse glioma model;** Misa Suzuki-Anekoji, Sanford- Burnham Medical Research Institute
**selected talk- poster 221*
- 54 12:25 **Transcriptional factor Snail controls neuraminidase-1 and matrix metalloproteinase-9 signaling platform in regulating epidermal growth factor receptor, tumor neovascularization, growth and invasiveness in mouse model of human ovarian carcinoma;** Myron Szewczuk, Queen's University
**selected talk- poster 222*
- 55 12:35 **MAN1B1-CDG: how stressed-out can the Golgi be?;** Romain Péanne, KU Leuven
**selected talk- poster 223*

12:45PM - 1:30PM

Lunch on your own

1:30PM - 3:30PM

Poster Session III and Exhibits

Coffee break provided

Location: Coral 4 & 5

3:30PM - 4:30PM

Session IX: Glycan Structures and Bioinformatics**Location:** Coral 3**Chair:** Stuart Haslam, Imperial College London**Abstract #**

- 56 3:30 **Development of an International Glycan Structure Repository;** Kiyoko F. Aoki Kinoshita, Soka University
- 57 3:50 **A systems glycobiology approach to study leukocyte-endothelial cell interactions;** Sriram Neelamagham, SUNY Buffalo
- 58 4:10 **From glycostructures to glycoknowledge;** Nicki Packer, Macquarie University

4:30PM - 4:45PM

Closing remarks**Location:** Coral 3**Chairs:** Naoyuki Taniguchi, RIKEN, President, Society for Glycobiology and Yukishige Ito, RIKEN, President, Japanese Society of Carbohydrate Research