Meeting Program

Integrating Glycoscience from Biology and Chemistry to Medicine

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

www.glycobiology.org
for program updates and other useful information
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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

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

Tuesday, November 18, 2014

7:30AM - 4:00PM
Registration
Location: Coral Lounge

7:30AM - 4:00PM
Networking Room
Location: Hibiscus Suite

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, NIH
Abstract #
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
26 5:50 An E3 ubiquitin ligase regulates neural-specific glycosylation in the Drosophila embryo; Nickita Mehta, CCRC

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

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 University
Abstract #
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, OUHSC
Abstract #
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
31 9:20 Insights into rare Ser/Thr O-glycosylation of heterologous proteins expressed in plants; Patricia Bubner, University of California Berkeley
32 9:30 Synthesis of biotinylated keratan sulfate oligosaccharides; Naoko Takeda, Tottori University
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
34 9:50 EDEM1/2/3 are α1,2-mannosidases essential for endoplasmic reticulum-associated degradation of glycoproteins; Satoshi Ninagawa, Kyoto University
Session VI: Stem Cells / iPS

**Location:** Coral 3

**Chair:** Rita Gerardy-Schahn, Hannover Medical School

**Abstract 35**

**10:30AM – 12:00PM**

**Session VI: Stem Cells / iPS**

**Location:** Coral 3

**Chair:** Rita Gerardy-Schahn, Hannover Medical School

**Abstract #**

<table>
<thead>
<tr>
<th>#</th>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Institution</th>
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<tbody>
<tr>
<td>35</td>
<td>10:30</td>
<td>New Insights into the Pathophysiology of Glycolipid Biosynthetic Disorders Using iPS-Derived Cell Lines</td>
<td>Richard Steet, CCRC</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>10:50</td>
<td>Glycan structures regulate the states of pluripotent stem cells</td>
<td>Shoko Nishihara, Soka University</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>11:10</td>
<td>Sugar-coated webs to drive stem cell differentiation</td>
<td>Catherine Merry, University of Manchester</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>11:30</td>
<td>Finding of a Novel Lectin Probe for Pluripotent Stem Cells and its Installation to Regenerative Medicine</td>
<td>Jun Hirabayashi, AIST</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>11:40</td>
<td>Glycocalyx Remodeling with Synthetic Proteoglycan Mimetics Promotes Neural Specification in Embryonic Stem Cells</td>
<td>Kamil Godula, University of California</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>11:50</td>
<td>Golgi-resident polysialic acid defines distinct brain cell populations</td>
<td>Sebastian Werneburg, Hannover Medical School</td>
<td></td>
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**10:30AM – 12:00PM**

**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

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<tr>
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<th>Speaker</th>
<th>Institution</th>
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<tbody>
<tr>
<td>2</td>
<td>2:45</td>
<td>The cytoplasmic PNGase (Ngly1): a 20-plus year scientific journey encounters a human genetic disorder</td>
<td>Tadashi Suzuki, RIKEN</td>
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</tr>
<tr>
<td>3</td>
<td>3:00</td>
<td>Analysis of Ngly1-deficient human cells</td>
<td>Hudson Freeze, Sanford-Burnham Medical Research Institute</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>3:15</td>
<td>What I learned about Ngly1 from the little fly</td>
<td>Hamed Jafar-Nejad, Baylor College of Medicine</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>3:30</td>
<td>Stories from Patients &amp; Families</td>
<td>Matt Might, University of Utah</td>
<td></td>
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<tr>
<td>33</td>
<td>3:30</td>
<td>The dawn of a new research model: the case for parent-clinician-researcher collaboration</td>
<td>Matt Wilsey, Grace Wilsey Foundation</td>
<td></td>
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</tbody>
</table>

**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.

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**Wednesday, November 19, 2014**

**7:15AM – 1:00PM**

**Registration**

**Location:** Coral Lounge

**7:15AM – 8:15AM**

**Continental Breakfast**

**Location:** Coral 4 & 5
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
<th>Chair</th>
<th>Abstract #</th>
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<tbody>
<tr>
<td>7:45AM</td>
<td><strong>Sunrise Session III</strong></td>
<td>Coral 3</td>
<td>James Paulson, The Scripps Research Institute</td>
<td>#1111</td>
</tr>
<tr>
<td>8:15AM</td>
<td><strong>Session VII: Glycans, Metabolism and Functions</strong></td>
<td>Coral 3</td>
<td>Koichi Furukawa, Nagoya University</td>
<td>#2222</td>
</tr>
<tr>
<td>10:15AM</td>
<td><strong>Coffee Break</strong></td>
<td>Coral 4 &amp; 5</td>
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<tr>
<td>10:45AM</td>
<td><strong>Session VIII: Disease: Mechanism, Biomarker and Therapeutics</strong></td>
<td>Coral 3</td>
<td>Tamao Endo, Tokyo Metropolitan Institute of Gerontology</td>
<td>#3333</td>
</tr>
<tr>
<td>11:45AM</td>
<td><strong>Closing remarks</strong></td>
<td>Coral 3</td>
<td>Naoyuki Taniguchi, RIKEN, President, Society for Glycobiology and Yukishige Ito, RIKEN, President, Japanese Society of Carbohydrate Research</td>
<td>#4444</td>
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</tbody>
</table>

**SCIENTIFIC PROGRAM**

### 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

### Session VII: Glycans, Metabolism and Functions

**Location:** Coral 3  
**Chair:** Koichi Furukawa, Nagoya University  
**Abstract #**

#### 42
**Biosynthesis and Biogenetics of Lipopolysaccharide:**  
Peng George Wang, Georgia State University

#### 43
**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
**Probing glycan functions by precise gene editing:**  
Henrik Clausen, University of Copenhagen

#### 45
**Functional characterization of PMM2-CDG patient-derived iPSCs:**  
Falk F. Buettner, MH-Hannover

#### 46
**Manipulating glycan processing in the baculovirus-insect cell system for diverse biomedical applications:**  
Don Jarvis, University of Wyoming

#### 47
**Role of glycans in gastric cancer development and progression:**  
Celso Reis, IPATIMAP

### 1:30PM - 3:30PM

**Poster Session III and Exhibits**

**Location:** Coral 4 & 5

**Abstract #**

#### 56
**Development of an International Glycan Structure Repository:**  
Kiyoko F. Aoki Kinoshita, Soka University

#### 57
**A systems glycobiology approach to study leukocyte-endothelial cell interactions:**  
Sriram Neelamagham, SUNY Buffalo

#### 58
**From glycostructures to glycoknowledge:**  
Nicki Packer, Macquarie University

**Closing remarks**

**Location:** Coral 3

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