

# 2024 SFG ANNUAL MEETING



**November 10-13, 2024  
Omni Amelia Island Resort  
Amelia Island, FL**

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SOCIETY for  
**Glycobiology**

# **2025** Annual Meeting

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November 9-12, 2025 | Sheraton San Diego

## LETTER FROM THE PRESIDENT

Dear Glyco-colleagues,

A heartfelt welcome to the 2024 Society for Glycobiology (SFG) annual meeting at the Omni Amelia Island Resort in Florida. The theme of this 51st meeting of our society is “Elucidating Functions for Glycans and Glycoconjugates”. The meeting will highlight approaches that are allowing us to gain insights into glycoenzymes and glycoconjugates that regulate a host of functions in a variety of organisms and cell types. The field of glycobiology continues to be a welcoming, accepting, and multidisciplinary community and thus this meeting offers the opportunity to share scientific findings, develop new and productive collaborations, and network with your colleagues in a respectful and highly engaged environment.



The main meeting program includes 8 sessions that each contain 4 keynote talks and 4 short talks. Reflecting our commitment to inclusion and promoting the next generation of glycobiologist across the globe, > 40% of our 32 keynote speakers are not full professors, > 80% have never (or not in the last 6 years) spoken at our meeting, > 40% are female, and >25% are not running laboratories in the USA. Following this trend, >75% of our short talks are being given by trainees and >25% are located outside of the USA. We also have 2 poster sessions during the meeting that will allow nearly 200 presenters to discuss their glycoscience.

Linked with the main meeting, there is a Mentoring Session Sunday morning into the early afternoon that is targeted at trainees that is organized by Michael Boyce, Karen Colley, and Stephanie Olivier-Van Stichelen. Concurrently, there is also a Session 0 Sunday being organized by Parastoo Azadi in the morning focused on glyco in biotechnology and by Nikki Pohl in the early afternoon focused on glyco tools sponsored by the National Center for Functional Glycomics (NCFG).

A highlight of the meeting each year is honoring and hearing from those who have made seminal contributions to the glycoscience field. During the opening session on Sunday, we will celebrate two of our award winners. We will hear a talk from Kevin Campell, the winner of the Karl Meyer Lectureship, followed by a talk from Rita Gerardy-Schahn, the winner of the Rosalind Kornfeld Lifetime achievement award. Monday evening we will hear a talk from Jeff Esko, the recipient of the President’s Innovator Award. We will also

bestow the Distinguished Service Award on the “Essentials for Glycobiology” Editors that evening. Wednesday morning Iain Wilson will give the ASBMB Molecular & Cellular Proteomics Lecture followed by a talk from Ramon Sun, the Glycobiology Significant Achievement Awardee. Congratulations also to our short talk speakers, who were chosen from the submitted abstracts, and to those trainees who received travel awards from the society.

The SFG would like to thank our many sponsors who make this meeting possible. Please take the time to interact with them at their booths to learn about their offerings as well as to express your appreciation for them sponsoring our meeting. I also offer my deepest appreciation to Lisa Hetherington and Samantha Alimi, of MSP, who played critical roles in organizing this conference.

Finally, I cannot thank enough my Program Committee, the SFG Board of Directors, the various SFG committees, and Karen Colley in her role as *Glycobiology* Editor-in-Chief for their help throughout this year. I would also like to express my special thanks to the SFG officers Susan Bellis, Kiyoko Aoki-Kinoshita, Vlad Panin, and Fikri Avci. I also owe a huge debt of gratitude to SFG Secretary Don Jarvis who served as acting President for two months this year during my medical leave of absence. It takes a village...thank you all!

In closing, this has been a special year for me that has culminated in this meeting that includes presentations from so many of my mentors and heroes in the field as well as the up-and-coming next leaders in glycoscience. I sincerely hope you enjoy the science, the amity, and the venue as much as I know I will.

Warm Wishes,



Lance Wells  
'24 President, Society for Glycobiology



## SCHEDULE OF EVENTS

### Day 1: Sunday, November 10

8:00 am–6:00 pm	<b>Registration</b>	Magnolia Foyer
8:00 am–12:00 pm	<b>Glyco in Biotechnology</b> <b>Organizer:</b> Parastoo Azadi, CCRC, UGA	Magnolia C
9:00 am–2:00 pm	<b>Graduate &amp; Postdoctoral Trainee Mentoring Session</b> <b>Organizers:</b> Michael Boyce, Karen Colley, and Stephanie Olivier-Van Stichelen	Magnolia B
1:15 pm–4:30 pm	<b>NCFG Tools In Glycoscience</b> <b>Organizer:</b> Nicola Pohl, Indiana University	Magnolia C
1:00 pm–3:00 pm	<b>SFG Board of Directors Meeting</b> ( <i>invitation only</i> )	Azalea Boardroom
5:30 pm	<b>Conference Opening Remarks</b> <b>Lance Wells</b> , University of Georgia, SFG President	Magnolia Ballroom D-G
5:40 pm–6:10 pm	<i>Karl Meyer Lectureship Award</i> <b>Dr. Kevin Campbell</b> , University of Iowa	
6:10 pm–6:40 pm	<i>Rosalind Kornfeld Award for Lifetime Achievement in Glycobiology</i> <b>Dr. Rita Gerardy-Schahn</b> , Hannover Medical School, Germany	
6:40–8:45 pm	<b>Opening Reception</b>	Magnolia Garden

### Day 2: Monday, November 11

7:30 am–5:30 pm	<b>Registration</b>	Magnolia Foyer
7:30 am–8:30 am	<b>Continental Breakfast</b>	Magnolia Foyer
<b>8:30 am–10:10 am</b>	<b>Session 1: Glycopathologies &amp; Therapeutics</b> <b>Session Chair: Heather Flanagan-Steet</b> , Greenwood Genetic Center Medical Discovery Institute	Magnolia Ballroom D-G
8:30 am–8:50 am	<b>Andrew Edmondson</b> , Children Hospital of Philadelphia <i>Congenital Disorders of Glycosylation: Glycobiology at the Bedside</i>	
8:50 am–9:10 am	<b>Judy Fridovich-Keil</b> , Emory University <i>Toward effective gene therapy for classic galactosemia</i>	
	<i>Poster Talks:</i>	
9:10 am–9:15 am	<b>Niclas Karlss</b> - <i>Exploring O-Glycobiomarker in Osteoarthritis: Lubricin glycoforms in plasma and synovial fluid</i>	
9:15 am–9:20 am	<b>Chiara Manz</b> - <i>Leveraging zebrafish to study glycosyltransferases mutated in the dystroglycanopathies</i>	
9:20 am–9:25 am	<b>Avishek Roy</b> - <i>A Murine Mpi mutation reproduces aspects of Inflammatory Bowel Disease with the specified role of MUC2 in the progression of the disease</i>	
9:25 am–9:30 am	<b>Jasmeen Merzaban</b> - <i>Sugar Genes: Biomarkers beneath cancer's glycan patterns open new avenues for diagnostics and treatment</i>	
9:30 am–9:50 am	<b>Guido Bommer</b> , Université Catholique de Louvain <i>Dolichol Synthesis: From a Human Disease to Novel Twists and Required Detours</i>	
9:50 am–10:10 am	<b>Osman Sheikh</b> , Amicus Therapeutics <i>Cipa glucosidase alfa plus miglustat: Linking Mechanism of action to clinical outcomes in late-onset Pompe disease</i>	
10:10 am–10:40 am	<b>Coffee Break</b>	Magnolia Foyer
<b>10:40 am–12:20 pm</b>	<b>Session 2: Glycoconjugates in Infection &amp; Immunity</b> <b>Session Chair: Mandy Lewis</b> , University of California San Diego	Magnolia Ballroom D-G
10:40 am–11:00 am	<b>Mandy Lewis</b> , University of California San Diego <i>Phase Variation in Gardnerella Sialidase &amp; Implications for Bacterial Vaginosis</i>	

11:00 am–11:20 am	<b>Nina Van Sorge</b> , Amsterdam University Medical Center <i>Dress the part: Bacterial Glycans as dynamic virulence factors and targets for protective antibodies</i>	
	<i>Poster Talks:</i>	
11:20 am–11:25 am	<b>Emily Kukan</b> - M2 macrophages exhibit enhanced efferocytosis via the inhibitory receptor CD22	
11:25 am–11:30 am	<b>John Erickson</b> - Inflammation-induced antibody sialic acid acetylation disables protection against intracellular infection	
11:30pm–11:35 am	<b>Sarah Dohadwala</b> - Sialidase enzymes derived from bacterial vaginosis associated bacteria may impair sperm function by remodeling the sperm glycocalyx	
11:35 pm–11:40 am	<b>Mayank Saraswat</b> - Mannosylated Protein Turnover Links Mrc1 to Inflammation and Sepsis	
11:40 am–12:00 pm	<b>Lakshmi Rajagopal</b> , Seattle Children's Research Institute <i>Sialic ACD Masking by GBS</i>	
12:00 pm–12:20 pm	<b>Matt Redinbo</b> , University of North Carolina Chapel Hill <i>Glycoconjugate Processing by Human Gut Microbial Enzymes</i>	
12:20 pm–1:45 pm	<b>Lunch On Your Own</b>	
1:45 pm–4:00 pm	<b>Poster Session I</b>	Cumberland Ballroom
1:45 pm–4:00 pm	<b>Exhibit Hall</b>	Magnolia Foyer
<b>4:00 pm–5:40 pm</b>	<b>Session 3: Roles for Intracellular Glycosylation</b> <b>Session chair: Stephanie Olivier-Van Stichelen</b> , Medical College of Wisconsin	Magnolia Ballroom D-G
4:00 pm–4:20 pm	<b>Jerry Hart</b> , University of Georgia <i>Roles of O-GlcNAcylation in Ribogenesis, and in Regulating Translation and Proteostasis</i>	
4:20 pm–4:40 pm	<b>Jiaoyang Jiang</b> , University of Wisconsin-Madison <i>O-GlcNAc regulation beyond the enzyme active site</i>	
	<i>Poster Talks:</i>	
4:40 pm–4:45 pm	<b>Tetsuya Hirata</b> - Dynamic O-GlcNAcylation on the disordered domain of Sec24D regulates COPII function and is required for collagen transport	
4:45 pm–4:50 pm	<b>Dimitri Vanauberg</b> - Regulation of the pro-oncogenic enzyme Fatty Acid Synthase (FASN) by the nutrient-dependent modification O-GlcNAcylation in cancer cells	
4:50 pm–4:55 pm	<b>Lilyana Massmanz</b> - Regulation of Placental Growth Hormone Expression by O-GlcNAcylation	
4:55 pm–5:00 pm	<b>Megna Tiwari</b> - Sweet support: O-fucosylation detected by new antisera in protists promotes stable expression of a nucleocytoplasmic protein in <i>Toxoplasma gondii</i>	
5:00 pm–5:20 pm	<b>Gulcin Pekkurnaz</b> , University of California San Diego <i>O-GlcNAcylation: Mitochondria's Sweet Tooth for Metabolic Plasticity in Neurons</i>	
5:20 pm–5:40 pm	<b>Matt Gentry</b> , University of Florida College of Medicine <i>Metabolic Channeling of Signaling Monosaccharides in the brain..And more!</i>	
5:40 pm–6:10 pm	<b>President's Innovator Award Lecture</b> <b>Dr. Jeff Esko</b> , University of California San Diego	
6:10 pm–6:20 pm	<b>Distinguished Service Award Presentation</b> <b>Essentials of Glycobiology Editors</b>	
6:20 pm–7:00 pm	<b>Meet with Essentials of Glycobiology Editors (optional)</b>	Talbot



**Day 3: Tuesday, November 12**

7:30 am–5:30 pm	<b>Registration</b>	Magnolia Foyer
7:30 am–8:30 am	<b>Continental Breakfast</b>	Magnolia Foyer
<b>8:30 am–10:10 am</b>	<b>Session 4: GAGs &amp; Proteoglycans: Regulation and Function</b> <b>Session Chair: Ryan Weiss</b> , University of Georgia	Magnolia Ballroom D-G
8:30 am–8:50 am	<b>Linda Hsieh-Wilson</b> , California Institute of Technology <i>Decoding Glycosaminoglycan-Protein Interactions</i>	
8:50 am–9:10 am	<b>Aaron Petrey</b> , University of Utah <i>Loss of Layilin augments platelet activation via RAC1 in inflammatory bowel disease</i>	
	<i>Poster Talks:</i>	
9:10 am–9:15 am	<b>Po-Nien Lu</b> - UGDH Sequence Variants Highlight the Importance of its Allosteric Regulation by Nucleotide Sugars During Vertebrate Development	
9:15 am–9:20 am	<b>Daniel Tehrani</b> - Elucidating the interaction mechanisms between the proteins involved in chondroitin sulfate biosynthesis	
9:20 am–9:25 am	<b>Saumya Digraskar</b> - Unmasking the role of heparan sulfate proteoglycans in $\alpha$ -synuclein pathology	
9:25 am–9:30 am	<b>Xiaolin Dong</b> - A Genome-Wide CRISPR Screen Uncovers a Novel Role for Mucin-Type O-Glycosylation in Heparan Sulfate Assembly	
9:30 am–9:50 am	<b>Amulya Sreekumar</b> , University of Pennsylvania <i>Glycosaminoglycan biosynthesis is a therapeutic vulnerability of breast cancer minimal residual disease</i>	
9:50 am–10:10 am	<b>Peng Zhang</b> , Case Western Reserve University School of Medicine <i>The Role of Heparan sulfate modification on neurexin1 in synapse development</i>	
10:10 am–10:40 am	<b>Coffee Break</b>	Magnolia Foyer
<b>10:40 am–12:20 pm</b>	<b>Session 5: Gaining Insights into Glycoenzymes and Glycoconjugates with: Genetic Tools</b> <b>Session Chair: Yoshiki Narimatsu</b> , University of Copenhagen	Magnolia Ballroom D-G
10:40 am–11:00 am	<b>Matthew Paszek</b> , Cornell University <i>Mucin engineering for health and disease understanding</i>	
11:00 am–11:20 am	<b>Sriram Neelamegham</b> , State University of New York, Buffalo <i>Surface display technologies for the high-throughput screening of glycan binding proteins and glycosyltransferases</i>	
	<i>Poster Talks:</i>	
11:20 am–11:25 am	<b>Pierre Gilormini</b> - Activity-based genome-wide CRISPR-Cas9 pooled screening for modifiers of lysosomal glucocerebrosidase uncovers candidate risk factors for Parkinson disease	
11:25 am–11:30 am	<b>Katarina Madunic</b> - O-mannosylation of E-cadherin in an invasive cancer spheroid model	
11:30 am–11:35 am	<b>Dilyara Sadykova</b> - Revolutionizing Homogeneous Glycosylation: The SUGAR-TARGET Platform	
11:35 am–11:40 am	<b>Stefan Chulze</b> - Disruption of individual protein glycosylation pathways in <i>Pseudomonas aeruginosa</i> results in distinct phenotypes for motility, biofilm formation, and antibiotic resistance	
11:40 am–12:00 pm	<b>Daan Van Aalten</b> , Aarhus University <i>Models and Mechanisms of OGT-CDG</i>	
12:00 pm–12:20 pm	<b>Hans Wandall</b> , University of Copenhagen <i>The Use of Glycoengineered Cell Lines and Tissue Models to Study Essential Functions of Specific Glycans in Viral Infections</i>	
12:20 pm–1:45 pm	<b>Lunch On Your Own</b>	
1:45 pm–4:00 pm	<b>Poster Session II</b>	Cumberland Ballroom
1:45 pm–4:00 pm	<b>Exhibit Hall</b>	Magnolia Foyer

4:00 pm–5:40 pm	<b>Session 6: Gaining Insights into Glycoenzymes and Glycoconjugates with : Structural Biology</b> <b>Session Chair: Anne Imberty</b> , French National Centre for Scientific Research	Magnolia Ballroom D-G
4:00 pm–4:20 pm	<b>Anne Imberty</b> , French National Centre for Scientific Research <i>Neutrons for structural glycobiology in host-pathogen interactions</i>	
4:20 pm–4:40 pm	<b>Fiona Kerns</b> , University of California San Diego <i>Breaking Down the Bottlebrush: Atomically Detailed Structural Dynamics of Mucins through Molecular Dynamics Simulation</i>	
<i>Poster Talks:</i>		
4:40 pm–4:45 pm	<b>Andrew Alexander</b> - <i>Structural and functional analysis of mannosyltransferases responsible for high-mannose N-linked glycan synthesis in the endoplasmic reticulum</i>	
4:45 pm–4:50 pm	<b>Amin Akbari Ahangar</b> - <i>Computational Insights into the Modulation of N-glycosylation on the Pentameric Assembly and Channel Gating of GABAA Receptors</i>	
4:50 pm–4:55 pm	<b>Deepak Sharma</b> - <i>Development of a rhamnogalacturonan II (RG-II) glycoform library to study identify the sequence-structure determinants of borate diester formation</i>	
4:55 pm–5:00 pm	<b>Martin Horvath</b> - <i>Interbacterial warfare in plant colonization: structural biology to understand recognition of glycan receptors by tailocin tailfiber proteins</i>	
5:00 pm–5:20 pm	<b>Nadine Samara</b> , NIH <i>A mucin-type O-glycosyltransferase from the protozoan pathogen Toxoplasma gondii is distinct from its host homologues</i>	
5:20 pm–5:40 pm	<b>Ben Schumann</b> , Francis Crick Institute, Imperial College London EMBO Young Investigator Lecture <i>Glycosyltransferase Bump-and-hole Engineering to Study Proteoglycan Biosynthesis in Mammalian Cells</i>	
7:00 pm–11:00 pm	<b>Banquet Dinner</b> (Tickets required)	Amelia Ballroom

## Day 4: Wednesday, November 13

7:30 am–1:00 pm	<b>Registration</b>	Magnolia Foyer
7:30 am–8:30 am	<b>Continental Breakfast</b>	Magnolia Foyer
8:30 am–10:10 am	<b>Session 7: Gaining Insights into Glycoenzymes and Glycoconjugates with: High-throughput Analytical Approaches</b> <b>Session Chair: Nick Riley</b> , University of Washington	Magnolia D-G
8:30 am–8:50 am	<b>Nick Riley</b> , University of Washington <i>Making use of informative glycan-specific ions in glycopeptide MS/MS spectra</i>	
8:50 am–9:10 am	<b>Rebekah Gundry</b> , University of Nebraska Medical Center <i>New Analytical Technologies &amp; Tools for Exploiting the Human Glycoproteome for Personalized Medicine</i>	
<i>Poster Talks:</i>		
9:10 am–9:15 am	<b>Valentina Rangel-Angarita</b> - <i>Characterization of CD107a, CD107b, and CD68 glycosylation and its implication in the tumor microenvironment.</i>	
9:15 am–9:20 am	<b>Lyndsay Young</b> - <i>Single Cell Glycomic Analysis of Slide Captured Immune Cells</i>	
9:20 am–9:25 am	<b>Maxence Noel</b> - <i>Specific Modifications of N-glycans are Restricted to Synapses of Specific Neurons</i>	
9:25 am–9:30 am	<b>Zachary Shaver</b> - <i>Discovery of high efficiency oligosaccharyltransferase mutants for conjugate vaccine synthesis using a high-throughput cell-free screening platform</i>	
9:30 am–9:50 am	<b>Karli Reiding</b> , Utrecht University <i>LC-MS/MS-based structural glycoproteomics</i>	
9:50 am–10:10 am	<b>Kimberly Alonge</b> , University of Washington <i>Advancing spatial mass spectrometry technologies for chondroitin sulfate glycan imaging in health and disease</i>	



10:10 am-10:40 am	<b>Coffee Break</b>	Magnolia Foyer
10:40 am-11:10 am	<i>ASBMB Molecular &amp; Cellular Proteomics (MCP) Lecture</i> <b>Dr. Iain Wilson</b> , BOKU University, Vienna, Austria	
11:10 am-11:40 am	<i>Glycobiology Significant Achievement Awardee Lecture</i> <b>Dr. Ramon Sun</b> , University of Florida	
11:40 am-12:20 pm	<b>SfG Business Meeting</b>	
12:20 pm-1:30 pm	<b>Lunch On Your Own</b>	
<b>1:30 pm-3:10 pm</b>	<b>Session 8: Gaining Insights into Glycoenzymes and Glycoconjugates with: Artificial Intelligence / Machine Learning / Computer Science</b> <b>Session Chairs: Nathan Lewis</b> , University of Georgia	Magnolia Ballroom D-G
1:30 pm-1:50 pm	<b>Nathan Lewis</b> , University of Georgia <i>Are glycans really non-templated? Deploying AI deciphers how the underlying protein helps shape their glycans</i>	
1:50 pm-2:10 pm	<b>Ratmir Derda</b> , University of Alberta, Canada <i>Genetically Encoded Liquid Glycan Array (LiGA) and Liquid Lectin Array (LiLA) explore protein-glycan interactions in vivo</i>	
	<i>Poster Talks:</i>	
2:10 pm-2:15 pm	<b>Silvia D'Andrea</b> - <i>Evolutionary differentiation of Siglecs: insight into the binding specificity of Siglec-6 and Siglec-10 through all-atoms molecular dynamics simulations</i>	
2:15 pm-2:20 pm	<b>Samuel Canner</b> - <i>The Proteome as a Lectome: Predictions from Deep Learning Propose Substantial Protein-Carbohydrate Interplay</i>	
2:20 pm-2:25 pm	<b>James Urban</b> - <i>Predicting glycan structure from tandem mass spectrometry via deep learning</i>	
2:25 pm-2:30 pm	<b>Margaret Lunn-Halbert</b> - <i>Genetic control of N-linked Glycosylation through Protein Design</i>	
2:30 pm-2:50 pm	<b>Mateusz Sikora</b> , Jagiellonian University, Poland <i>Integrative modeling of glycoproteins</i>	
2:50 pm-3:10 pm	<b>Natarajan Kannan</b> , University of Georgia <i>Glycoscience research and education in the AI era</i>	
3:10 pm – 3:20 pm	<b>Poster Award Presentation</b>	
3:20 pm-3:30 pm	<b>Conference Closing Remarks</b> <b>Lance Wells</b> , SfG President	

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## SOCIETY FOR GLYCOBIOLOGY AWARDS - 2024

### Karl Meyer Lectureship Award

The Karl Meyer Lectureship Award was established in 1990 to honor the distinguished career of Karl Meyer and his outstanding contributions to the field of Glycobiology. This international award is given to well-established scientists with currently active research programs who have made widely recognized major contributions to the field of Glycobiology.

The 2024 Karl Meyer Award will be presented to **Dr. Kevin Campbell**, Investigator, Howard Hughes Medical Institute, Director, Wellstone Muscular Dystrophy Specialized Research Center, Professor and Chair, Department of Molecular Physiology and Biophysics, University of Iowa.

Dr. Campbell discovered dystroglycan, a novel high affinity extracellular matrix receptor required for skeletal muscle function in the 1990's. His laboratory cloned dystroglycan and elucidated its function as an extracellular matrix receptor in skeletal muscle. He demonstrated that disrupted dystroglycan expression is a key feature in the pathogenesis of Duchenne muscular dystrophy. Subsequently, his biochemical and physiological studies showed that  $\alpha$ -dystroglycan binds with high-affinity to laminin, a component of the extracellular matrix that surrounds muscle cells; that the C-terminus of  $\beta$ -dystroglycan anchors dystrophin to the membrane; and that dystrophin binds actin filaments. His group also showed binding of laminin to  $\alpha$ -dystroglycan enables the extracellular matrix to strengthen the muscle cell membrane, thus maintaining the integrity of the skeletal muscle sarcolemma. Collectively, this work illustrated the mechanism by which dystroglycan links the subsarcolemmal actin cytoskeleton to the extracellular matrix that surrounds skeletal muscle and prevents muscular dystrophy.

His laboratory went on to discover defects in dystroglycan glycosylation disrupting the functional link between the cytoskeleton and extracellular matrix cause Walker-Warburg syndrome, muscle-eye-brain disease, and Fukuyama congenital muscular dystrophy, all congenital muscular dystrophies with associated defects in brain development. Specifically, his laboratory showed O-mannosylation of dystroglycan is abnormal in each of these three distinct congenital diseases and abnormal O-glycosylation of dystroglycan disrupts its normal binding to each of its major extracellular matrix ligands in muscle and brain: laminin, neurexin, and agrin. He also deduced from mouse studies that the functional disruption of dystroglycan underlies the pathogenesis of developmental brain abnormalities associated with congenital muscular dystrophies.

Dr. Campbell's efforts to understand the structural basis underlying laminin binding to dystroglycan led him to identify like-acetylglucosaminyltransferase (LARGE1), a novel bifunctional enzyme with both xylosyltransferase and glucuronyltransferase activities. He showed LARGE1 synthesizes matriglycan, a polysaccharide comprised of alternating glucuronic acid (GlcA) and xylose (Xyl) residues. Thus, his work revealed a novel repeating disaccharide in mammals, which Dr. Meyer surely would have appreciated. His laboratory also made major strides in defining the M3 O-mannose underlying matriglycan. Importantly, this included identifying a glycosylation-specific O-mannose kinase, an SGK196 "pseudokinase" now termed POMK, which is required for synthesis of functional  $\alpha$ -dystroglycan. His laboratory continues to utilize mouse models, structural biology, and classical biochemistry to further define the role of matriglycan, O-mannosylation, and  $\alpha$ -dystroglycan as scaffolds for the ECM that ensure proper skeletal muscle function and prevent muscular dystrophy.

For his pioneering scientific contributions, Kevin has received numerous awards and honors, including being an investigator of the Howard Hughes Medical Institute since 1989, receiving both the Amgen (1994) and Herbert Tabor Research (2020) Awards from the American Society for Biochemistry and Molecular Biology, being elected as a member of the National Academy of Medicine (1999) and National Academy of Sciences, and most recently (2024) being named a Fellow of the American Association for the Advancement of Science. Kevin also received the Tamio Yamakawa Award from the Japan Consortium for Glycobiology and Glycotechnology in 2020 and the SFG President's Innovator Award in 2017.

In summary, Kevin is a true trailblazer and role model in the field of glycobiology, and the 2024 Karl Meyer Lectureship Award recognizes his seminal contributions not only to our basic understanding of functional glycosylation of  $\alpha$ -dystroglycan, but also to the appreciation of how defects in the O-mannose pathway translate into congenital muscular dystrophies.





## Rosalind Kornfeld Award for Lifetime Achievement in Glycobiology

The winner of the 2024 Rosalind Kornfeld Lifetime Achievement Award is **Dr. Rita Gerardy-Schahn**, who recently became Professor Emeritus at the Hannover Medical School.

Rita studied biochemistry at the Eberhard Karls University of Tübingen. She received her diploma in 1985 and joined the laboratory of Dieter Bitter-Suermann, Institute of Medical Microbiology at the Johannes Gutenberg University Mainz, for her doctoral thesis, which she completed in January 1989. While working on the kinetic and functional characterization of the guinea pig anaphylatoxin receptor for C3a, Rita experienced a stimulating “glycoatmosphere” in the Bitter-Suermann team, where the production of monoclonal antibodies against bacterial capsular polysaccharides (CPS) was the focus of research activities. In 1985, the Bitter-Suermann laboratory succeeded in generating the famous monoclonal antibody 735 (mab 735), which specifically recognizes the CPS of group B meningococci. This CPS consists of chains of sialic acid (polysialic acid, polySia) in alpha-2,8-linkage. Indeed, mab 735 became the key tool for Rita’s work when she started her second postdoc position at Hannover Medical School in 1990, again with Dieter Bitter-Suermann as mentor.



By that time, other laboratories, most notably Jukka Finne’s, had shown polySia also occurs in vertebrates (including humans), where it forms an extended post-translational modification of the neuronal cell adhesion molecule NCAM. However, nothing was known about vertebrate polysialyltransferase (polyST), the enzyme responsible for polySia biosynthesis. Rita was given the task of identifying this enzyme in a mammalian species. With little knowledge of molecular cloning techniques, she benefited from the stimulating company of immunologists. On the advice of her colleagues, she decided to start the search for a mammalian polyST using a complementation cloning strategy in CHO cells. In a productive team with her technician Andrea Bethe and two very talented students, Matthias Eckhardt and Martina Mühlenhoff, she succeeded in cloning the first mammalian polyST. The study was published in *Nature* in 1995. Intrigued by the “simplicity” of the cloning approach, other well-characterized CHO mutants with impaired polysialylation were used in the same way. In quick succession, the CMP-sialic acid transporter, the UDP-galactose transporter and the CMP sialic acid synthetase were expression cloned by complementing respective mutations in the CHO mutants Lec2, Lec8 and Lec32. All rescuing cDNAs were characterized at the molecular and biochemical levels and mutant mouse models were generated. The work expanded exponentially and Rita’s team established close contacts with renowned glycoscientists. In addition, the established importance of polySia in brain development brought her into close contact with groups working in neurobiology. Importantly, with these collaborators Rita’s group characterized brain defects in mice lacking ST8SIA2 and ST8SIA4 and showed that brain defects in the double knockout are rescued by the additional removal of NCAM, their major glycoprotein substrate.

Rita received offers from other German universities (Hamburg in 2000, Bielefeld in 2005), but thanks to retention negotiations she stayed at MHH, where she was promoted to Director of the Institute of Cellular Chemistry (later Clinical Biochemistry). Now she was able to expand her group to eight (and after 2017 to 19) faculty members. All were entitled to pursue independent projects and most decided to continue their successful PhD thesis work. Rita returned to her roots and continued to expand the toolbox of polySia-specific reagents. With the aid of a small team, Rita has established a biotechnologically relevant platform by developing bacterial capsule polymerases into enzymes with scalable product spectra. A platform that enables the enzyme-catalyzed production of polySia chains with a defined degree of polymerization (DP) is now well developed. Testing these fragments provided initial evidence that the polySia dispersity present in the natural system is associated with several functions. In a mouse model of Alzheimer’s disease, fragments of DP10 and DP12 were shown to effectively restore memory functions, while DP24 is the minimal polySia chain required to inhibit microglial inflammation and induce remyelination. Current investigations of Rita’s team revolve around the use of polySia DPs as therapeutics as well as the search for ways to target these drugs in the body.

## Glycobiology Significant Achievement Award

The Glycobiology Significant Achievement Award is given annually by Oxford University Press (publisher of *Glycobiology*) to honor new or mid-career scientists who have made key discoveries during their early careers with the potential to have a substantial impact on the glycoscience community.

Oxford is delighted to present the 2024 Glycobiology Significant Achievement Award to **Dr. Ramon C. Sun**, Associate Professor, University of Florida. The award will be given to Dr. Sun during the Annual Meeting of the Society for Glycobiology, which will be held in Florida this fall.

Dr. Sun holds the prestigious title of Anne and Oscar Lackner Endowed chair and Associate Professor of Biochemistry and Molecular Biology. He also directs the Center for Advanced Spatial Biomolecule Research (CASBR) at the University of Florida. Now a leading expert in spatial metabolism, Dr. Sun received this PhD from the Australian National University, Canberra, Australia in 2010 and trained as a postdoctoral fellow at Stanford University. Dr. Sun's most notable honors include St. Baldrick's Scholar 2019 and V-Scholar 2021. His research primarily explores the molecular nexus between complex carbohydrates and cellular metabolism, signaling, and physiology with focus on elucidating special metabolism of neurological disorders and many different forms of cancers.



His laboratory has pioneered several innovative mass spectrometry-based methodologies that enable the profiling and imaging of metabolomes, lipidomes, and complex carbohydrate molecules at near single-cell resolution with precise spatial detail. These methodologies leverage sophisticated machine learning software for data analysis, positioning his lab to generate and test scientific hypotheses using transdisciplinary approaches. These include genetically modified cell lines, mouse models and human specimens, which are crucial in validating his spatial technology-based findings.

Dr. Sun's recent research has provided foundational insights into how complex carbohydrate metabolism and its dysregulation can influence dementia, pulmonary fibrosis, and different forms of tumors. Notably, his latest publications in *Cell Metabolism*, *EMBO Molecular Medicine*, and *Nature Communications* detailed an advanced methodology to assess spatial metabolism, uncovering critical metabolic channeling and interactions between glycogen and N-linked glycans in brain and lung cancers and their implications for normal versus diseased physiology.

Throughout his career, Dr. Sun has published over 65 manuscripts – 45 since 2019 - in esteemed journals such as *Cell Metabolism*, *Nature Communications*, and *Science Advances*. His seminal contributions have significantly enhanced our understanding of carbohydrate's roles in chronic and acute diseases, potentially paving the way for the development of more targeted therapies.

Dr. Sun's lab is currently funded by 5 major awards, 2 R01's from NCI, 2 R01's from NIA, and 1 RM1 from NINDS. Under his direction, CASBR is quickly becoming one of the largest spatial metabolomics centers in the world with over 7 employees, supporting over 150 unique projects, with over 30 million dollars in NIH funding.

For more information about Dr. Sun's research and his laboratory's work, visit the lab website at [imaging-metabolomics.com](https://imaging-metabolomics.com), the CASBR website at <https://casbr.biochem.med.ufl.edu/>, or his resource site at <https://metavision3d.rc.ufl.edu/>.

## Molecular and Cellular Proteomics/ASBMB Lectureship

The 2024 Molecular and Cellular Proteomics (MCP) / American Society for Biochemistry and Molecular Biology (ASBMB) Lectureship Award will be presented to **Dr. Iain Wilson** during this year's Society for Glycobiology (SFG) Annual meeting on Amelia Island, Florida. The MCP journal was created in 2001 to address the growing needs of the proteomics community. The MCP/ASBMB award was established in 2013 and has been bestowed upon a single scientist each year who is at the forefront of the emerging fields of glycomics and glycoproteomics.

Dr. Wilson earned his Bachelor of Science degree with Honors from the University of Edinburgh in 1988, and his PhD degree in Biochemistry from the University of Oxford in 1992. Since 2002, he has been an Associate Professor at the University of Natural Resources and Life Sciences in Vienna (BOKU).

Dr. Wilson is an esteemed expert in glycomics, focusing particularly on non-vertebrate eukaryotes, such as invertebrates and protist species. He has successfully led twelve projects supported by the Austrian Science Fund, he has participated in two Marie Curie Initial Training Networks, and he serves as a faculty member in the BioTOP doctoral program.

Notably, Iain's research has focused on understanding the structure, biosynthesis, function, and medical repercussions of glycans. His ongoing projects cover the development of glycan arrays, comparative glycomics of various organisms, and correlating glycosylation with actual function. His team has also worked on glycosylation in model organisms and examined the enzymes responsible for glycan biosynthesis. They use a wide range of tools such as cDNA cloning, expressing glycosyltransferases, enzymatic characterization, RNAi in cell culture, and analysis of glycans from plants and invertebrates. He has also been involved in a translational research project focused on preparing recombinant glycosidases. At present, he is dedicated to developing a dipteran glycan array, as well as conducting comparative glycomics of bivalves, trichomonads, and flukes in his efforts to uncover correlations between glycosylation and function.

In addition to his research accomplishments, Dr. Wilson served as President of the International Glycoconjugate Organization from 2011 to 2013 and was a board member of the Austrian Science Fund for twelve years. He also serves on the editorial boards of the Journal of Biological Chemistry, Glycobiology, and the Glycoconjugate Journal.

In recognition of his accomplishments, in particular his work in mass spectroscopy, Dr. Wilson was recommended by the SFG awards committee and chosen by the editorial leadership of the MCP to receive the 2024 MCP Lectureship Award.





## President's Innovator Award

The Society for Glycobiology President's Innovator Award acknowledges the contributions of one scientist each year who has made a significant impact on society. The 2024 President's Innovator Award will be presented to **Dr. Jeffrey D. Esko**, Distinguished Professor of Cellular and Molecular Medicine and a Founding Director of the Glycobiology Research and Training Center at the University of California San Diego.

Dr. Esko has always been interested in the interface between cells and the extracellular environment. As an undergraduate with Mike Glaser at the University of Illinois and then as a Ph.D. student with Chris Raetz at the University of Wisconsin, his work focused on phospholipid assembly and signaling. He subsequently undertook postdoctoral work at the University of California Los Angeles and accepted his first faculty position at the University of Alabama Birmingham (UAB). There, his research focused on glycosaminoglycans (GAGs) and proteoglycans and he published his first landmark paper on CHO cell mutants defective in GAG assembly in 1985. He remained at UAB from 1983 to 1996, where he rose through the ranks to full professor.

Dr. Esko moved to the University of California, San Diego in 1996, where he co-founded the Glycobiology Research and Training Center, with particular emphasis on the development of both introductory and advanced courses in Glycobiology. He was promoted to Distinguished Professor in 2015. Throughout his career, Dr. Esko has been a leader in the use of genetic models in the glycosciences, particularly to study GAG biology. Dr. Esko's work has yielded over 250 research publications, more than 50 review articles and book chapters, and 10 patents. Dr. Esko's early work focused on the GAG assembly process, in particular the use of somatic cell genetics to identify and characterize Chinese hamster ovary cell mutants defective in GAG biosynthesis. These mutants have been used by hundreds of laboratories world-wide and served as a benchmark for the evaluation of mutants in other cells and model organisms. He subsequently translated this work to model organisms, including *C. elegans* and the mouse. He provided the first genetic evidence that endothelial heparan sulfate proteoglycans bind, transport and present chemokines at the luminal surface of blood vessels. His work has included analysis of adhesion and invasion of bacteria, parasites and viruses using cellular and animal models in which his group genetically manipulated proteoglycan formation. He also uncovered roles for heparan sulfate in mediating lipoprotein clearance in the liver. His laboratory has provided many tools and reagents to study GAGs, proteoglycans, and glycosylation, in general. Dr. Esko's recent work utilizing in vivo tagging studies has shown sepsis-causing pathogens induce extensive remodeling of the vascular proteome. Most recently, he showed the SARS-CoV-2 spike protein binds to cell surface heparan sulfate through the receptor binding domain and that both heparan sulfate and ACE2 are codependent receptors for SARS-CoV-2 infection. Additional work led to the identification of small molecules that modulate glycosylation and genome wide screenings to identify additional genes involved in heparan sulfate assembly.

In addition to his academic work, Dr. Esko is a founder and scientific advisor for two companies, Zacharon Pharmaceuticals, Inc. (acquired by Biomarin) and TEGA Therapeutics, Inc., which focus on glycan therapeutics and lysosomal storage diseases. He also has made major contributions to education materials in the field and the training of the next generation of glycoscientists. In recognition of his many outstanding accomplishments, Dr. Esko has received numerous awards including being elected as an AAAS Fellow, winning the IGO award from the International Glycoconjugate Organization, and notably winning the Karl Meyer Award from SFG in 2007. Dr. Esko's groundbreaking research utilizing cutting-edge technologies to reveal novel insights into GAG biology make him the ideal recipient of the 2024 President's Innovator Award.



## SFG Distinguished Service Award

In 2021, the SFG Board of Directors established the Distinguished Service Award, which was intended to recognize individuals with a sustained record of distinguished service to the Society for Glycobiology and/or the glycobiology community. This year, the Board has chosen to bestow the Distinguished Service Award not to an individual, but rather to a group of distinguished glycobiologists, listed below, who have served as ***Essentials of Glycobiology* Editors**. In so doing, the Board recognizes the sustained effort and altruistic contributions that drove the creation, production, and enduring impact of a textbook which continues to serve as an invaluable resource for capturing and communicating knowledge in glycobiology.

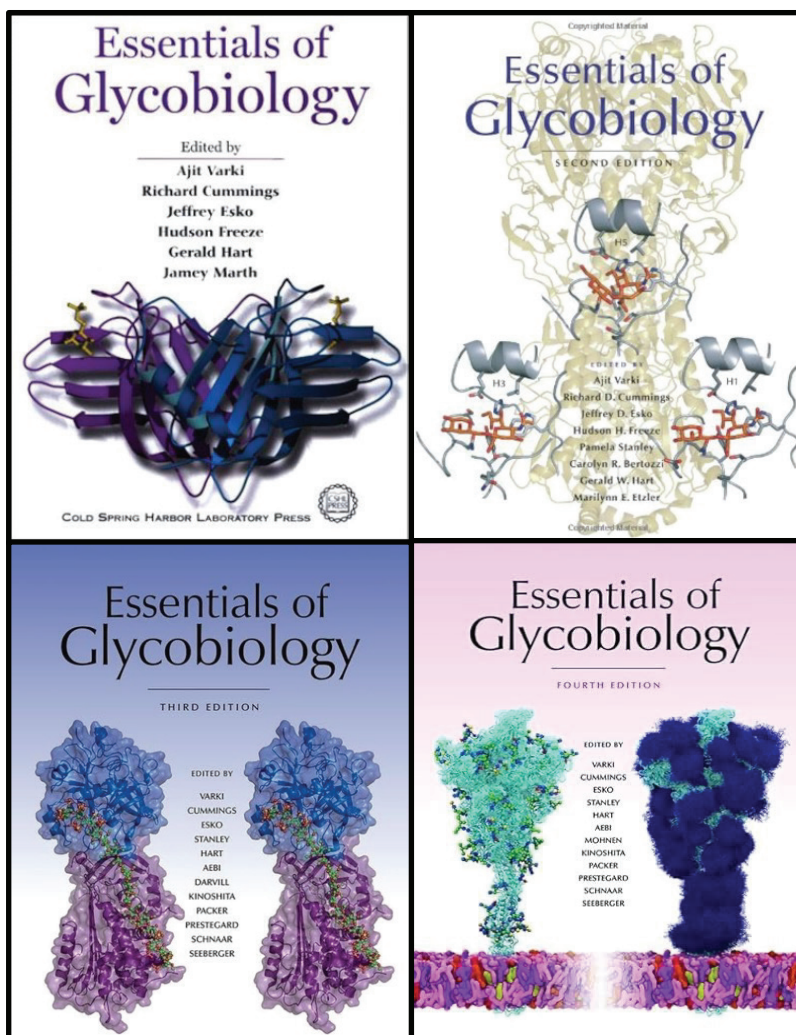
Sequential editions of *Essentials* have grown in their content, relevance, and value and constitute a distinguished deliverable of the *Essentials of Glycobiology* Editors. It is highly unlikely that any member of our Society is not familiar with this textbook and exceedingly likely that all members have held, read, and referred to its contents at one point or another. *Essentials* is also an important entry point for new students and for otherwise experienced colleagues who may not be familiar with glycobiology. The visibility this textbook provides to the field of glycobiology and the value it brings to training and dissemination cannot be underestimated.

As the editors of the first two editions considered mechanisms for maintaining sustainability and accessibility of their work, they formed the Consortium of Glycobiology Editors for the purpose of supporting “the impact of the textbook in education in the field of Glycobiology or to otherwise support education in the field of Glycobiology.” Over its lifetime, this non-profit consortium provided a mechanism for editors to allow the entirety of their royalties and other income associated with publication to be redirected toward further enhancement and development of the textbook as well as toward targeted engagement with trainees. A novel collaboration with the Cold Spring Harbor Laboratory Press and the National Center for Biotechnology Information allowed *Essentials* to become the first example of a completely free “open access” online version of a major textbook, published simultaneously with the hard copy.

While this award recognizes the success of the *Essentials of Glycobiology* Editors as a group across all four editions, its origin and expansion arose from the actions of the leadership of the early editions, especially Ajit Varki, who facilitated the full availability of the textbook on the NCBI Bookshelf, enhancing dissemination, promoting community outreach, and building visibility for the Society for Glycobiology. As Executive Editor of *Essentials*, Dr. Varki celebrates the contributions of the entire group of *Essentials of Glycobiology* Editors in the Preface to the 4th edition, emphasizing that many individuals deserve recognition and credit for the collaborative success of the textbook.

Based on the extreme value of the *Essentials* textbook to our field and on the contribution its editors have made to the goals of the Society, the Board is pleased to bestow the 2024 SFG Distinguished Service Award upon the *Essentials of Glycobiology* Editors.

The *Essentials of Glycobiology* Editors are Ajit Varki, Markus Aebi, Carolyn Bertozzi, Richard Cummings, Alan Darvill, Jeffrey Esko, Marilynn Etzler, Hudson Freeze, Gerald Hart, Taroh Kinoshita, Jamey Marth, Debra Mohnen, Nicolle Packer, James Prestegard, Peter Seeberger, Ronald Schnaar, and Pamela Stanley.



## TRAVEL AWARD WINNERS

The Society for Glycobiology's Student Travel Awards are given to help students and postdoctoral fellows gain the experience and exposure that comes from attending and presenting at SFG conferences. The travel awards are intended to help students defray some of the costs of their attendance.

**Majdi Aljohani** - Cleveland State University

**Joel Allen** - University of Southampton

**Collin Ballard** - Case Western Reserve University

**Sydney Bedillion** - CCRC, University of Georgia

**Donovan Cantrell** - University of Georgia

**Grace Carlson** - Case Western Reserve University

**Terrell Carter** - CCRC, University of Georgia

**Harrison Clarke** - University of Florida

**Silvia D'Andrea** - Maynooth University

**Saumya Digraskar** - Univ of AL at Birmingham

**Sarah Dohadwala** - Boston University

**Xiaolin Dong** - CCRC, University of Georgia

**Ruili Fang** - University of Georgia

**Marwa Farrag** - University of Mississippi

**Elizabeth Gazaway** - CCRC, University of Georgia

**Barnita Haldar** - Univ of AL at Birmingham

**Naomi Hitefield** - CCRC, University of Georgia

**Chin Huang** - University of Georgia

**Maros Huliciak** - Emory University

**Tianwei Jia** - Harvard Medical School

**Aidan Keelaghan** - Emory University

**Nicholas Kegley** - University of Georgia

**Ben Kellman** - Ragon Inst of MGH, MIT & Harvard

**Caroline Kittrell** - Medical University of SC

**Rohit Sai Reddy Konada** - University of TX

**Emily Kukan** - Case Western Reserve University

**Katarina Madunic** - University of Copenhagen

**Lilyanna Massman** - Medical College of WI

**Pedro Monagas-Valentin** - Texas A&M University

**Lukas Muerner** - University of Bern, Switzerland

**Valeria Nazaire** - Florida International University

**Valentina Rangel-Angarita** - Yale University

**Kameisha Rashford** - Medical University of SC

**Avishek Roy** - UT Southwestern Medical Center

**Joelle Saad** - Univ of AL at Birmingham

**Meagan Shinn** - CCRC, University of Georgia

**Ojas Singh** - Maynooth University, Ireland

**Daniel Tehrani** - University of Georgia

**Jie Tian** - CCRC, University of Georgia

**Megna Tiwari** - University of Georgia

**Seita Tomida** - Gifu University, Japan

**Ea Kristine Clarisse Tulin** - Harvard Medical School

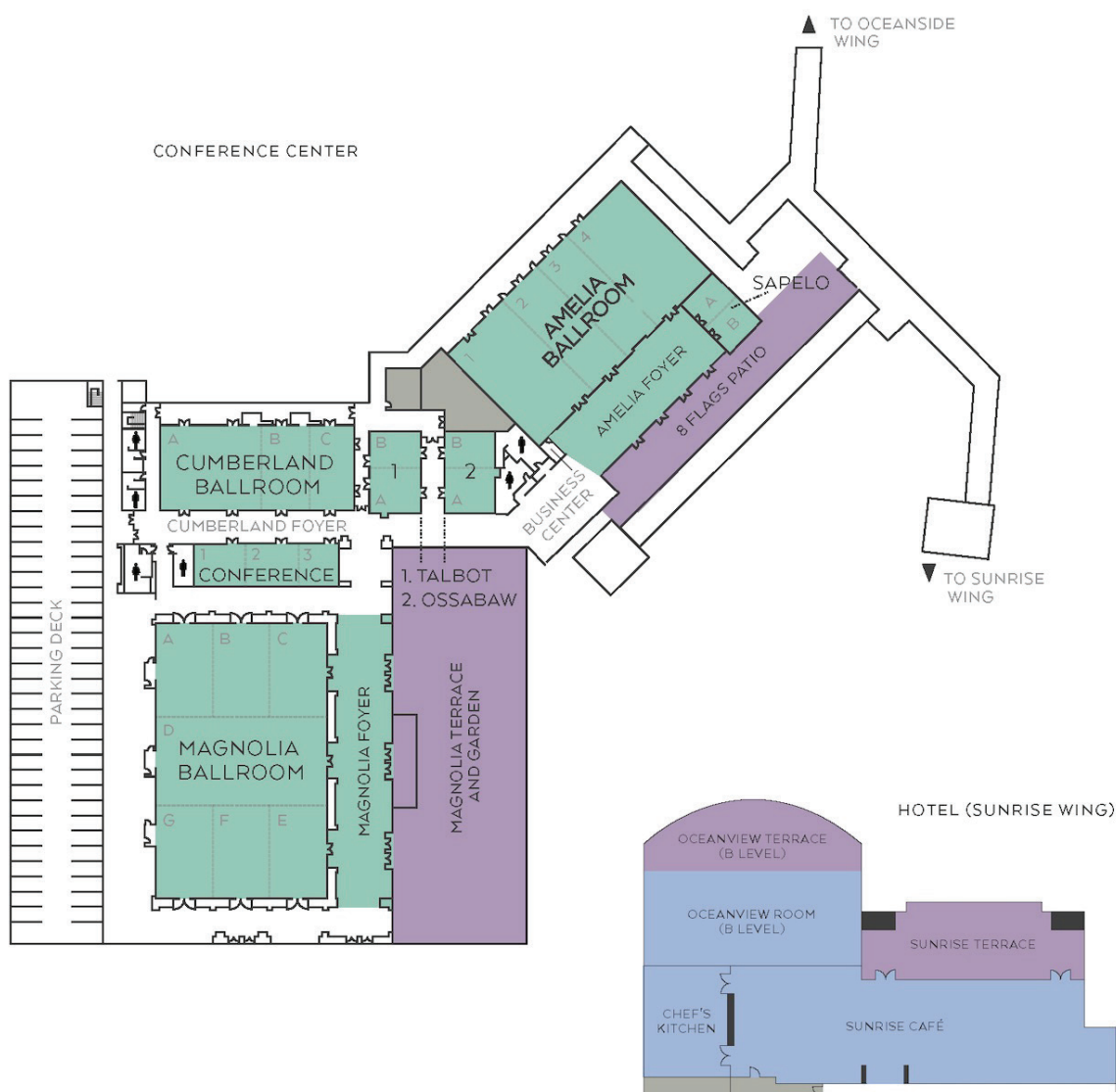
**Dimitri Vanauberg** - University of Lille, France

**Allen Wu** - JC Self Research Institute

**Xu Yang** - University of Georgia



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