

PROGRAM
Joint Meeting of the
Society for Glycobiology and American Society for Matrix Biology



November 11-14, 2012
Sheraton Hotel and Marina
San Diego, CA

Organizers: Jeff Davidson, Hudson Freeze, Robert Haltiwanger, David Roberts, Jean Schwarzbauer

Sunday, November 11th

8:00 am -7:30 pm **Registration**
(Grande Foyer)

8:00 am-6:00 pm **Speaker Ready Room and
Cyber Café**
(Marina 6)

8:00am-12:00 pm **ASMB Council Meeting (by
invitation only)**
(Marina 5)

8:30am-5:30 pm **SFG Guest Symposium I**
**Advances in Glycoprotein Production,
Characterization and Modification**
(Nautilus II)
Pre-Registration required

Co-Chairs: Qun Zhou (*Genzyme*), John Briggs
(*Genentech*), and Sam Tep (*Biogenidec*)

Speakers: Xiaoying Jin, Matthew DeLisa, Parastoo
Azadi, Lori Yang, Damian Houde, Steffan Goletz,
Lars Stockl, John Cipollo, Edith Chang; Stephen
Cohen, Lynn Gennaro

9:00am-5:30 pm **ASMB Guest Symposium I**
Wound Healing Society
**Quantifying Heterogeneity and Modeling
Complexity in the Injury Response. Implications
for Therapeutics Development**
(Nautilus I)
Pre-Registration Required

Organized by Andrew Baird, UCSD

*Quantifying Heterogeneity and Modeling Complexity in
the Injury Response. Implications for Therapeutics
Development.*

Topics include:

1. Epithelial and Endothelial Barriers in Injury Response and Resolution.
2. Afferent and Efferent Neuronal Pathways Signaling Injury Responsiveness.
3. Systemic Contributions to Responsiveness Predict Repair.
4. Tissue-Dependent Heterogeneity in the Response to Infection and Immunity.
5. Distinguishing Stem Cell Niches in Tissues and Bone Marrow.
6. Mathematical Modeling Predict Response and Resolution.

12:00-5:30 pm **SFG Guest Symposium II**
Consortium for Functional Glycomics
**Participating Investigator Meeting and
Symposium**
(Grande Ballroom B)
Organized by: James Prestegard, *University of Georgia*, and Daron Freedberg (*NIH-FDA*)

Pre-Registration required

Speakers: Jeffery Esko, *University of California - San Diego*, Paul DeAngelis, *University of Oklahoma Health Sciences Center*, Cynthia Larive, *University of California -Riverside*, Joe Zaia, *Boston University*, Brian Cobb, *Case Western Reserve University*, Laura Kiessling, *University of Wisconsin - Madison*, Geert-Jan Boons, *University of Georgia - CCRC*, Daron Freedberg, *NIH-FDA*.

12:00-7:00 pm **Exhibits**
(Grande Ballroom A)

1:00-4:00 pm ASMB Guest Symposium II

TERMIS: Tissue Engineering & Regenerative Medicine International Society

Organized by Anthony Ratcliffe, *Synthasome, Inc* and Karen Christman, *University of California San Diego*
(Grande Ballroom C)

Matrix for Vascular and Lung Regeneration

Laura E. Niklason, *Yale University*

Extracellular Matrix Scaffolds for Airway Repair

Thomas W. Gilbert, *University of Pittsburgh*

Injectable Extracellular Matrix Based Hydrogels for Treating Cardiovascular Disease

Karen L. Christman, *University of California San Diego*

The Extracellular Matrix in Biomaterials Design and Tissue Engineering

Jennifer H. Elisseeff, *Johns Hopkins University*

3:00-5:00 pm SFG Board Meeting (by invitation only)

(Marina 5)

6:00-7:00 pm Opening Reception

(Grande Foyer and Grande Ballroom A)

7:00-8:00 pm ASMB and SFG Society Welcome

(Grande Ballroom B & C)

Chairs: Hudson Freeze and Jean Schwarzbauer

Keynote Lecture

Chairs: Hudson Freeze and Jeff Davidson

Bioorthogonal Chemistry for Glycoprofilng and Beyond

Carolyn Bertozzi, *University of California, Berkeley*

Monday, November 12th

7:00 am -5:00 pm Registration

(Grande Foyer)

7:30 -8:30 am Continental Breakfast

(Grande Foyer and Grande Ballroom A)

7:30-8:30 am Career Mentoring Breakfast (*pre-registration required)

(Marina 5)

Career Mentoring Breakfasts will provide students, postdoctoral scientists, and professionals an opportunity to discuss topics relevant to career development, planning, and transitions with experienced and committed mentors in a relaxed, small group setting.

7:30 am-5:30 pm Exhibits

(Grande Ballroom A)

7:00 am-5:00 pm Speaker Ready Room and Cyber Café

(Marina 6)

8:30-10:00 am Plenary I: Stem and Progenitor Cells, Genetic Therapy and Regenerative Medicine

(Grande Ballroom B & C)

Chair: Linda Sandell, *Washington University Medical School*

8:30 am Glycobiology of Human Pluripotent Stem Cells

Steve Dalton, *University of Georgia*

#1 9:00 am Siglec-Sialoglycan Binding Regulates Cell-Cell Interactions

Ronald Schnaar, *Johns Hopkins School of Medicine*

9:30 am Stem Cell Therapies in Epidermolysis Bullosa

Angela Christiano, *Columbia University Medical Center*

10:00-10:30 am Coffee Break

(Grande Foyer and Grande Ballroom A)

10:30-12:00 pm Plenary II: Biomaterials and Matrix Engineering

(Grande Ballroom B & C)

Chair: Adam Engler, *University of California, San Diego*

10:30 am Hydrogels as Synthetic Extracellular Matrices

Kristi Anseth, *University of Colorado at Boulder*

11:00 am Mechanical Regulation of Cell Adhesion and Function

Christopher Chen, *University of Pennsylvania*

11:30 am Biofunctional Hydrogels: ECM-mimetic Materials for Tissue Repair

Andres Garcia, *Georgia Institute of Technology*

Toshihiko Katoh, *Complex Carbohydrate Research Center, University of Georgia*

#5 3:10 pm *Listeria monocytogenes* subverts 2-O-sulfated HS domains in syndecan-1 to promote its infection

Rafael Aquino, *Children's Hospital, Harvard Medical School*

CS2: Matricellular Proteins

(*Nautilus I*)

Chair: David Roberts

#6 2:00 pm Thrombospondin-1 signaling through CD47 regulates cell and tissue radiosensitivity via autophagy

David Roberts, *NIH, NCI, CCR*

Selected Talks

#7 2:30 pm The search for proteins bound to C-mannosylated TSR-derived peptides involved in the regulation of TGF- β signaling in cultured fibroblasts

Yoshito Ihara, *Wakayama Medical University*

#8 2:50 pm Collagen signaling promotes hypoxia induced tumor progression in murine models of pancreatic cancer

Lee Rivera, *UT Southwestern Medical Center*

#9 3:10 pm Matrix-associated glycoprotein 2 (MAGP2) binds TGF β superfamily ligands and MAGP2 loss-of-function has pleiotropic effects in vivo

Michelle D. Combs, *Washington University School of Medicine*

CS3: Receptors, Signaling, and Cytoplasmic Glycosylation

(*Grande Ballroom B*)

Co-Chairs: Ambra Pozzi and Gerald Hart

2:00 pm Role of Collagen Binding Receptor in Renal Fibrosis.

Ambra Pozzi, *Vanderbilt University*

Selected Talks

#10 2:30 pm SFG Travel Award Winner



12:00-2:00 pm Poster Session I/ Lunch

(*Nautilus III, IV, V*)

12:00-1:30 pm Glycobiology Editorial

Board Meeting Lunch

(by invitation only)

(*Spinnaker I/II*)

12:00-1:30 pm Matrix Biology Editorial

Board Meeting Lunch

(by invitation only)

(*Marina 5*)

2:00-3:30 pm Concurrent Sessions 1 - 4

CS1: Matrix and Carbohydrate Immunology

(*Grande Ballroom C*)

Chair: Jim Paulson

#2 2:00 pm Siglecs in B cell Tolerance

Jim Paulson, *The Scripps Research Institute*

Selected Talks

#3 2:30 pm SFG Travel Award Winner



Glycosylation of IgG by B cells is Regulated by Immune Stimuli

Alison Mahan, *Ragon Institute of MGH, MIT and Harvard*

#4 2:50 pm Identification of endogenous lung proteins bearing glycan counter-receptors for mouse Siglec-F

**O-GlcNAc regulated arginine methylation:
a new paradigm in survival signaling**

Albert Lee, *The Johns Hopkins University*

- #11 2:50 pm** Combating Adaptation to Stretch
Conditioning Through Prolonged
Activation of Extracellular Signal-
Regulated Kinase

Justin Weinbaum, *University of Minnesota*

- #12 3:10 pm** Recognition of hyaluronan by
Siglec-9 blunts neutrophil activation:
Molecular mimicry by group A
Streptococcus

Ismael Secundino-Vélazquez, *Glycobiology
Research and Training Center, University of
California, San Diego*

**CS4: Vascular Biology, Elastic Fibers, and
Related Diseases**

(*Nautilus II*)

Chair: Cecilia Giachelli

2:00 pm Vascular Matrix Calcification

Cecilia Giachelli, *University of Washington*

Selected Talks

- #13 2:30 pm ASMB Travel Award Winner** 
COL4A1 and COL4A2 mutations cause
abnormal angiogenesis and genetically
modifiable Cerebrovascular Diseases

Marion Jeanne, *University of California, San
Francisco (UCSF)*

- #14 2:50 pm** Expression of V3 versican in
arterial smooth muscle cells reprograms
cell phenotypes by modulating TGF- β - and
EGF-induced signaling pathways

Inkyung Kang, *Benaroya Research Institute*

- #15 3:10 pm** Extracellular regulation of BMP
signaling by fibrillin microfibrils

Alexander Wohl, *University of Cologne,
Germany*

3:30-4:00 pm Coffee Break

(*Grande Foyer and Grande Ballroom A*)

4:00-5:30 pm Concurrent Sessions 5-8

**CS5: Carbohydrate and Matrix
Metabolism in Disease States**

(*Grande Ballroom C*)

Chair: Marian Young

**4:00 pm Key Roles of Proteoglycans and
their Partners in Skeletal Homeostasis and
Disease**

Marian Young, *NIH, NIDCR*

Selected Talks

- #16 4:30 pm** Patient fibroblast alpha-
dystroglycan glycosylation studies: A
versatile tool for identification of novel
muscular dystrophy disease genes

Tobias Willer, *Howard Hughes Medical
Institute, University of Iowa*

- #17 4:50 pm** Glycomic analysis of cell lineages
derived from Salt-and-Pepper Syndrome
iPS Cells

Kazuhiro Aoki, *Complex Carbohydrate
Research Center, University of Georgia*

- #18 5:10 pm** An absence of ADAMTS5
significantly reduces degenerative changes
in dystrophic skeletal muscle

Chantal Coles, *Murdoch Childrens Research
Institute*

CS6: Basement Membranes

(*Nautilus I*)

Chair: Taina Pihlajaniemi

**4:00 pm Collagen XIII – A Novel
Neuromuscular Junction Component**

Taina Pihlajaniemi, *University of Oulu*

Selected Talks

- #19 4:30 pm** Prolyl 3-hydroxylation of type IV
collagen is obligatory to avoid early
embryonic lethality in mice

Elena Pokidysheva, *Shriners Hospital for
Children*

- #20 4:50 pm** Fibrillin-1 deficiency in cardiac
basement membrane zone causes
myopathy in Marfan Syndrome

Jason Cook, *Mount Sinai School of Medicine*

- #21** **5:10 pm** **Feasibility of Repairing GBM Defects in Alport Syndrome**
Jeffrey Miner, *Washington University School of Medicine*

CS7: Genetics and Gene Expression

(Grande Ballroom B)

Chair: Kelley Moremen

4:00 pm **Regulation and Recombinant Production of Mammalian Glycosylation Enzymes**

Kelley Moremen, *University of Georgia*

Selected Talks

- #22** **4:30 pm** **Nervous system-specific sialylation in *Drosophila***
Hilary Scott, *Texas A&M University*
- #23** **4:50 pm** **Epigenetic Silencing of *Cosmc* in Leukocytes Expressing Tn Antigen**
Rongjuan Mi, *Emory University School of Medicine*
- #24** **5:10 pm** **Macrophage Proteoglycans: Decrease in Sulfation Results in Accentuated Atherosclerosis**
Philip L.S.M. Gordts, *University of California, San Diego*

CS8: Mechanobiology and Biomedical Engineering

(Nautilus II)

Chair: Thomas Barker

4:00 pm **ASMB Junior Investigator**

Awardee 

Mechanochemical Signaling of the ECM

Thomas Barker, *Georgia Institute of Technology*

Selected Talks

- #25** **4:30 pm** **Matrix Elasticity and Cell Geometry Regulate Beta-catenin Signalling in Mesenchymal Stem Cells**
Silvia Goldoni, *Imperial College London*

- #26** **4:50 pm** **Evaluating fibronectin conformation based on biochemical and mechanical cues**
Brant Hubbard, *Boston University*

- #27** **5:10 pm** **Myoepithelial cells mediate the balance between cytoskeletal tension and extracellular stiffness during mouse submandibular salivary gland development**
Sarah Peters, *University at Albany, SUNY*

6:00-7:30 pm

SFG Award Lectures

(Grande Ballroom C)

Chair: Hudson Freeze

6:15 pm **Rosalind Kornfeld Award**
Introduction: Carolyn Bertozzi

Some Face Lifting of NANA 
Werner Reutter, *Charité - Universitätsmedizin Berlin*

6:45 pm **Karl Meyer Award**
Introduction: Richard Cummings

Recognizing Sugars 
Kurt Drickamer, *Imperial College*

6:00-8:00 pm

ASMB Award Lectures



(Grande Ballroom B)

Chairs: Jean Schwarzbauer and David Hulmes
Join us for the presentation of the ASMB Junior and Senior Investigator awards and lecture presentations by the ASMB Senior and ISMB Distinguished Investigator Awardees.

6:00 pm **ASMB Senior Investigator Award**
Collagen IV Glycoprotein: An Essential Innovation at the Dawn of Tissue Evolution
Billy Hudson, *Vanderbilt University*

6:45 pm **ISMB Distinguished Investigator Award**
Sponsored by The International Society of Matrix Biology (ISMB)
Decoding the Matrix

Richard Hynes, *Massachusetts Institute of Technology*

ISMB Travel Awards

#28 Vanessa López-Alpuche, University of Oulu, Oulu, Finland; "Collagen XVIII Regulates Hair Follicle Cycling and Growth of Skin Tumors"

#29 Alessandro Malara, *University of Pavia*, Pavia, Italy; "Fibronectin, laminin and type IV collagen are key components of the sinusoids-associated megakaryocyte niche within bone marrow"

#30 Wei Xin, *University of Cologne*, Cologne, Germany; "Collagen II plays an important role in the differentiation of chondrocytes via regulating the Ihh/PTHrP axis."

Tuesday, November 13th

7:00 am -5:00 pm **Registration**
(Grande Foyer)

7:30 am -8:30 am **Continental Breakfast**
(Grande Foyer and Grande Ballroom A)

7:30-8:30 am **Career Mentoring Breakfast (*pre-registration required)**
(Marina 5)
Career Mentoring Breakfasts will provide students, postdoctoral scientists, and professionals an opportunity to discuss topics relevant to career development, planning, and transitions with experienced and committed mentors in a relaxed, small group setting.

7:30 am-6:00 pm **Exhibits**
(Grande Ballroom A)

7:00 am-5:00 pm **Speaker Ready Room and Cyber Café**
(Marina 6)

8:30-10:00 am **Plenary III: Biosynthesis, Secretion and Assembly**

(Grande Ballroom B & C)
Chair: Robert Haltiwanger, *Stony Brook University*

8:30 am **Stabilizing Proteins by N-Glycosylating their Reverse Turns is also a Prescription for Increased N-Glycosylation Efficiency**
Jeffery Kelly, *The Scripps Research Institute*

9:00 am **Imaging the Secretory Pathway and its Dynamics**
Jennifer Lippincott-Schwartz, *NICHD*

9:30 am **Collagen Glycosylation**
Thierry Hennet, *University of Zurich*

10:00-10:30 am **Coffee Break**
(Grande Foyer and Grande Ballroom A)

10:30 am-12:00 pm **Plenary IV: Immunology and Inflammation**
(Grande Ballroom B & C)
Chair: Michael Hawkeye Pierce, *University of Georgia*

10:30 am **The Lymphocyte Homing Cascade Updated**
Steve Rosen, *University of California, San Francisco*

11:00 am **Integrins and the Immune Response**
Yoji Shimizu, *University of Minnesota*

#31 **11:30 am** **Regulation of Leukocyte Migration through Galectin-Glycan Interactions**
Linda Baum, *UCLA*

12:00-2:00 pm **Poster Session II/ Lunch**
(Nautilus III, IV, V)

12:00-1:00 pm **National Academy of Sciences Luncheon – Future of Glycoscience** (*Pre-registration required)
(Spinnaker)

2:00-2:30 pm **ASMB Business Meeting**
(Grande Ballroom C)
Chair: Jean Schwarzbauer

2:00-2:30 pm SFG Business Meeting

(Grande Ballroom B)

Chair: Hudson Freeze

2:30-4:00 pm Concurrent Sessions 9-12

CS9: Stem/Progenitor Cells and Their Environment

(Grande Ballroom C)

Chair: Hiroshi Nakato

2:30 pm Heparan Sulfate Proteoglycans in Gradients and Niche

Hiroshi Nakato, *University of Minnesota*

Selected Talks

- #32 3:00 pm ST6Gal-I sialyltransferase is highly upregulated in epithelial cancers, and correlates with stemness in both normal and cancer stem cell populations**
Amanda F. Swindall, *University of Alabama at Birmingham*

- #33 3:20 pm Substrate Stiffness Dependent Vinculin Activation Modulates Mechanosensitive Stem Cell Differentiation**
Andrew Holle, *UC San Diego*

- #34 3:40 pm Epithelial Stem Cell and ECM Dynamics in *C. elegans* Molting Cycles**
Alison Frand, *University of California, Los Angeles*

CS10: Biosynthesis, Protein Folding, Secretion, and Matrix Assembly

(Nautilus I)

Chair: Lance Wells

2:30 pm Remodeling of Glycans on Mammalian Cells

Lance Wells, *University of Georgia*

Selected Talks

- #35 3:00 pm Structural Basis of Procollagen Trimerization and Regulation of C-terminal Processing**

Jean-Marie Bourhis, *CNRS/University of Lyon 1, Lyon, France; University Joseph Fourier/EMBL/CNRS, Grenoble, France*

- #36 3:20 pm Glycosyltransferase-specific Golgi targeting mechanisms**

Armen Petrosyan, *University of Nebraska Medical Center*

- #37 3:40 pm ASMB Travel Award Winner  Fibronectin matrix assembly promotes mesenchymal cell condensation during chondrogenic differentiation**
Purva Singh, *Princeton University*

CS11: Cancer Microenvironment

(Grande Ballroom B)

Chair: Richard Cummings

- #38 2:30 pm Altered O-Glycan Expression in Tumor Glycoproteins: Genetics and Consequences**
Richard Cummings, *Emory University*

Selected Talks

- #39 3:00 pm Heparanase promotes myeloma bone disease by regulating the bone microenvironment**
Yang Yang, *University of Alabama at Birmingham*

- #40 3:20 pm Basement membrane localized tumor cells are protected from HER2-targeted therapy in vivo**
Jason Zoeller, *Harvard Medical School*

- #41 3:40 pm Tabor Award Winner  The Extracellular Matrix: Proteomic Signatures of Breast Cancer Progression and Metastasis**
Alexandra Naba, *MIT - Koch Institute for Integrative Cancer Research*

CS12: Glycomics/Chemical Biology I: Function

(Nautilus II)

Chair: Linda Hsieh-Wilson

2:30 pm Chemoenzymatic Tools for Glycan Detection and Their Applications to Biology

Linda Hsieh-Wilson, *Caltech/Howard Hughes Medical Institute*

Selected Talks

#42 3:00 pm Competition between core-2 GlcNAc transferase and ST6GalNAc transferase regulates the synthesis of the leukocyte selectin-ligand on P-selectin glycoprotein ligand-1

Sriram Neelamegham, *State University of New York*

#43 3:20 pm Glycoengineering at the surface of living cell

Nicolai Bovin, *Shemyakin Institute of Bioorganic Chemistry RAS, Moscow, Russia*

#44 3:40 pm SFG Travel Award Winner Engineering Carbohydrate Recognizing Biosensors via Computational Modeling and Directed Evolution

Kausar N. Samli, *The University of Georgia*

4:00-4:30 pm

Coffee Break

(Grande Foyer and Grande Ballroom A)

4:30-6:00 pm

Concurrent Sessions 13-16

CS13: Development

(Grande Ballroom C)

Chair: Mauricio Pacifici

4:30 pm Matrix macromolecules in limb synovial joint development and function

Mauricio Pacifici, *Thomas Jefferson University*

Selected Talks

#46 5:00 pm Adamtsl2 modulates the ratio of fibrillin-1 to fibrillin-2 in tissue microfibrils in a mouse model for human geleophysic dysplasia

Dirk Hubmacher, *Lerner Research Institute, Cleveland Clinic Foundation*

#47 5:20 pm SFG Travel Award Winner Altered Activity and Localization of Cathepsin K Underlies the Cartilage Defects in a Zebrafish Model of Mucopolidosis II

Aaron Petrey, *University of Georgia*

#48 5:40 pm Glycan glucuronylation is essential for female fertility in *Drosophila melanogaster*

Marion Marshall, *Complex Carbohydrate Research Center, University of Georgia*

CS14: Fibrosis, Proteolysis, and Tissue Repair

(Nautilus I)

Chair: Paul Noble

4:30 pm Regulation of Pulmonary Fibrosis by Hyaluronan Synthase 2

Paul Noble, *Duke University*

Selected Talks

#49 5:00 pm ASMB Travel Award Winner Granzyme B-mediated loss of decorin increases collagen fibril irregularity and susceptibility to aortic rupture in a mouse model of abdominal aortic aneurysm

Lisa Ang, *University of British Columbia*

#50 5:20 pm ASMB Travel Award Winner Calreticulin is required for TGF-beta stimulation of extracellular matrix

Kurt Zimmerman, *University of Alabama at Birmingham*

#51 5:40 pm Restoring laminin polymerization by transgenic expression of α LNND in skeletal muscle improves muscle integrity of laminin- α 2-deficient mice

Stephanie Crosson, *Robert Wood Johnson Medical School*

CS15: Glycomics/Chemical Biology II: Analytical Methods

(Grande Ballroom B)

Chair: Anne Dell

**4:30 pm Glycomics and Glycoproteomics:
status quo and quo vadis**

Anne Dell, *Imperial College*

Selected Talks

#52

5:00 pm SFG Travel Award Winner
Detailed structural investigation of beta-glucans from yeast cell walls by electron-transfer dissociation

Liang Han, *Boston University*

#53

5:20 pm SFG Travel Award Winner
MS based insight in glycobiology: tyrosine kinase inhibitors alter the cell surface glycosylation patterns of lung cancer cell lines

L. Renee Ruhaak, *University of California, Davis*

#54

5:40 pm Il-6 Induction By Lipoteichoic Acids of the Immuno-Protective Lactococcus Lactis G121 is Tlr2 Independent

Kathleen Fischer, *Division of Structural Biochemistry-Research Center Borstel*

CS16: Host-Pathogen Interactions

(*Nautilus II*)

Chair: Lora Hooper

4:30 pm Lectin-Mediated Defense of the Intestinal Epithelial Surface

Lora Hooper, *UT Southwestern*

Selected Talks

#55

5:00 pm Mucosal immunity mediated by antibody-mucin crosslinking

Samuel Lai, *University of North Carolina, Chapel Hill*

#56

5:20 pm A new model for T cell dependent immune activation by glycoconjugate vaccines

Fikri Y. Avci, *Harvard Medical School*

#57

5:40 pm Group B Streptococcus uses Sialic Acid Mimicry to Subvert Host Innate Immune Responses Through Engagement of Inhibitory Leukocyte Receptor Siglec-E

Yung-Chi Chang, *Glycobiology Research and Training Center, University of California, San Diego*

7:00-10:00 pm Banquet (ticketed event)

(Grande Ballroom C)

Wednesday, November 14th

7:00 am -12:00 pm Registration

(Grande Foyer)

7:30 -8:30 am Continental Breakfast

(Grande Foyer and Grande Ballroom A)

7:30-8:30 am Special Guest Lecture: Jennifer Zeitzer, Director of Legislative Relations FASEB Office of Public Affairs Biomedical Research: A Perspective from Washington, DC

(Grande Ballroom B & C)

7:30am -12:00 pm Exhibits

(Grande Ballroom A)

8:30-10:00 am Plenary V: Rare Glycosylation and Matrix Diseases

(Grande Ballroom B & C)

Chair: Elaine Davis, *McGill University*

8:30 am The Physiological Function of Heparan Sulfate: Insights that can be gained from the study of multiple hereditary exostoses

Yu Yamaguchi, *Sanford Burnham Medical Research Institute*

9:00 am Matrix-Cell Interactions and Ascending Aortic Aneurysms

Hiromi Yanigasawa, *University of Texas Southwestern Medical Center*

9:30 am Exome Sequencing for Novel Disease Gene Discovery in Families with Rare Mendelian Phenotypes

Sessions Cole, *Washington University, St. Louis*

10:00-10:30 am Coffee Break

(Grande Foyer and Grande Ballroom A)

**10:30-12:00 pm Plenary VI: Development
and Morphogenesis**

(Grande Ballroom B & C)

Chair: Roy Zent, *Vanderbilt Medical Center*

**#45 10:30 am Roles for Glycans in
Mammalian Development and
Spermatogenesis**
*Pamela Stanley, Albert Einstein College of
Medicine*

**11:00 am Protein Glycosylation in ECM
formation and Organogenesis**
Kelly TenHagen, NIH

**11:30 pm The Role of MMP-17 Ortholog
in Embryonic Zebrafish Development**
*Raman Ramachandran, Children's Hospital
of Wisconsin*