PROGRAM
Biennial Meeting of the American Society for Matrix Biology

◆

October 24-27, 2010
Francis Marion Hotel
Charleston, South Carolina
Organizers: **Bill Parks, Jean Schwarzbauer**

All Abstracts Published ONLINE – www.asmb.net
(Cyber café/abstract viewing room located in Pickney)

(Note: First number denotes abstract number where applicable)

Sunday, October 24th

12:00-6:00 pm **Registration** *(Upper Lobby)*

12:00-7:00 pm **Exhibits**
(Mezzanine Level)

1:00-3:00 pm **Guest Symposium I**

Presented by TERMIS (Tissue Engineering & Regenerative Medicine International Society)

(Carolina A/B)
Chair: Robert Sah, UCSD

1:00 pm **Mimicking ECM Regulation of Growth Factor Signaling**
William Murphy, University of Wisconsin, WI

1:30 pm **Dynamic Shear-influenced Collagen Self-Assembly and Corneal Tissue Engineering**
Jeffrey Ruberti, Northeastern University, MA

2:00 pm **How the Matrix Controls the Myofibroblast to Control the Matrix**
Boris Hinz, University of Toronto, ON

2:30 pm **Tooth Tissue Engineering**
Pam Yelick, Tufts University, MA

3:00-3:30 pm **Coffee Break**
(*Prefunction A and B)*

3:30-5:30 pm **Guest Symposium II**

Presented by SFG (The Society for Glycobiology)

(Carolina A/B)
Chair: Robert Haltiwanger, Stony Brook University

1 **3:30 pm** **Glycosylation of Thrombospondin Type 1 Repeats**
Robert Haltiwanger, Stony Brook University, NY

4:00 pm **Proteoglycans in Vascular Biology**
Jeff Esko, UCSD, CA

4:30 pm **Novel Post-Translational Processing of Dystroglycan: Insights from Muscular Dystrophy Patients**
Kevin Campbell, University of Iowa, IA

5:00 pm **Proteoglycan Codes in Embryonic Development**
Joseph Yost, University of Utah School of Medicine, UT

6:00-7:00 pm **Opening Reception**
(Francis Marion Lobby)

7:00-7:15 pm **President's Welcome**
(Carolina A/B)
Bill Parks, University of Washington, WA

7:15-8:00 pm **Keynote Lecture:**
Stem Cells, Extracellular Matrix, Tissue Morphogenesis and Cancer in Skin
(Carolina A/B)
Elaine Fuchs, Rockefeller University, NY

Monday, October 25th

7:30-8:30 am **Breakfast**
(*Prefunction A and B)*

7:30 am-5:30pm **Registration**
(Upper Lobby)

7:30 am-5:30 pm **Exhibits**
(Mezzanine Level)

8:30-10:00 am **Plenary I**
ECM-Cell Interactions and Signaling *(Carolina A/B)*
Session Chair: *Ambra Pozzi*

8:30 am **Cell-Matrix Interactions in Tumor Progression**
Richard Hynes, MIT, MA

9:00 am **Dynamic Reciprocity Between the ECM and DNA Machinery: A Progress Report**
Mina Bissell, Lawrence Berkeley National Laboratory, CA

9:30 am **Tetraspanin CD151 Facilitates Laminin-Specific Tumor Cell Behavior**
Martin Hemler, Harvard, MA

10:00-10:30 am **Coffee Break**
(*Prefunction A and B)*

10:30-12:00 pm **Plenary II**
ECM in Development
(Carolina A/B)
Session Chair: *Kevin Campbell*

10:30 am **Transcriptional Control of Cartilage and Bone Homeostasis**
Senior Investigator Awardee: *Benoit de Crombrugghe,* U.T.M.D. Anderson Cancer Center, TX

11:00 am **Matrix, Mechanical Forces and Morphogenesis**
Doug DeSimone, University of Virginia, VA

11:30 am **Regulation of Cell Fate in the Skeleton**
Rosa Serra, University of Alabama at Birmingham, AL

12:00-12:30 pm **Scientist Solutions Forum Demonstration and ASMB Business Meeting**
(Carolina A/B)

12:30-2:30 pm **Poster Session I Lunch**
(Colonial and Gold Ballrooms)

*Please join us for lunch while you browse the **odd** numbered boards of poster presentations (B1, B3, B5…).*

2:30-4:00 pm **Concurrent Sessions**

Concurrent A: Basement Membranes

(Carolina A)
Session Chair: *Jeff Miner*

2:30 pm **Basement Membranes and Kidney Function: Laminin Rules**
Jeff Miner, Washington University School of Medicine, MO

2 **3:00 pm** **A ROCK-Mediated, Myosin-Independent Pathway Regulates Par Protein Localization and Basement Membrane Integrity during Branching Morphogenesis**
***Travel Award Winner**: William Daley,* University at Albany, State University of New York, NY

3 **3:20 pm** **The C-terminal Disulfide Bond between Beta and Gamma Chains Ensures the High-Affinity Interaction of Laminin-511 with Integrins**
Yukimasa Taniguchi, Osaka University, Japan

4 **3:40 pm** **Determination of the Pathogenic Mechanisms Underlying Cerebrovascular Diseases associated with COL4A1 Mutations**
Marion Jeanne, UCSF, CA

Concurrent B: Wound Repair, Regeneration, and Fibrosis

(Carolina B)
Session Chair: *Maria Trojanowska*

2:30 pm **Molecular Control of Stromal Remodeling**
Maria Trojanowska, Boston University, MA

5 **3:00 pm** **PAI-1 Deficiency Promotes Age-Dependent Cardiac-Selective Fibrosis and Augments Endothelial to Mesenchymal**
Asish Ghosh, Northwestern University, IL

6 **3:20 pm** **Reduced ADAMTS5 Proteolysis of Versican is Associated with Accumulation of Pericellular Matrix in Fibroblasts and Transition to a Myofibroblastic Phenotype**
Noriko Hattori, Cleveland Clinic Foundation, OH

7 **3:40 pm** **Inhibition of Extracellular Granzyme B Activity Reduces Aortic Rupture in a Mouse Model of Abdominal Aortic Aneurysm**
Lisa Ang, University of British Columbia, Canada

Concurrent C: Cardiovascular Disease

(Calhoun)
Session Chair: *Scott Argraves*

2:30 pm **Fibulin-1 in the Development of Arterial Stiffness and Hypertension in Diabetes**
Scott Argraves, Medical University of South Carolina, SC

8 **3:00 pm** **Targeting fibrosis by targeting scleraxis**
Michael Czubryt, University of Manitoba

9 **3:20 pm** **Modifier Genes Indirectly Influence Cardiovascular Phenotypes Caused by Elastin Haploinsufficiency**
Beth Kozel, Washington University School of Medicine

10 **3:40 pm** **Trypanosoma cruzi regulates the extracellular matrix interactome to facilitate the early process of infection**
FASEB MARC Winner: *Candice Johnson,* Meharry Medical College

4:00-4:30 pm **Coffee Break**
(*Prefunction A and B)*

4:30-6:00 pm **Concurrent Sessions**

Concurrent D: Receptors

(Carolina A)
Session Chair: *Ken Yamada*

4:30 pm **Dynamics of Integrin-Based Migration**
Ken Yamada, NIH, MD

11 **5:00 pm** **Syndecan-1 Couples the Insulin-like Growth Factor-1 Receptor to Inside-out Activation of the αvβ3 Integrin**
DeannaLee Beauvais, Wisconsin Institutes for Medical Research, WI

12 **5:20 pm** **Trafficking of Cell Adhesion Receptors and Tumor Invasion**
Xin Zhang, University of Tennessee Health Science Center, TN

13 **5:40 pm** **Integrin α3β1 Binds Fibronectin and is Dependent on the 9th Type III Repeat**
Ashley Brown, Georgia Institute of Technology, GA

Concurrent E: Proteases and Inhibitors

(Carolina B)
Session Chair: *Suneel Apte*

4:30 pm **ADAMTS Proteolysis of Versican**
Suneel Apte, Cleveland Clinic Foundation, OH

14 **5:00 pm** **MMP-Resistant Isoform of Type I Collagen may Exert Selective Support to Cancer Invasion**
Elena Makareeva, NICHD, National Institutes of Health, MD

15 **5:20 pm** **Fibulin-1 Regulates Trabecular Cardiomyocyte Proliferation by Acting as a Cofactor for ADAMTS-1-Mediated Versican Cleavage**
Marion A. Cooley, Medical University of South Carolina, SC

16 **5:40 pm** **Syndecan-1 Shedding and Neutrophil Activation**
Samuel Nadler, University of Washington, WA

Concurrent F: ECM Proteins and the Musculoskeletal System

(Calhoun)
Session Chair: *Marian Young*

4:30 pm **Key Roles of Proteoglycans and their Partners in Skeletal Homeostasis and Disease**
Marian Young, NIH, MD

17 **5:00 pm** **Fibrillin-1 and -2 Differentially Regulate TGFβ and BMP Signaling During Osteogenic Differentiation**
Silvia Smaldone, Mount Sinai School of Medicine, NY

18 **5:20 pm** **Microfibril Disruption, Through MAGP1 Deficiency, Results in Osteopenia via Enhanced Osteoclastogenesis**
Clarissa S. Craft, Washington University in St. Louis, Medical School, MO

19 **5:40 pm** **Caveolin-1 is a Negative Regulator of MMP1 Gene Expression in Human Dermal Fibroblasts**
Andreea Bujor, BUMC, MA

Tuesday, October 26th

7:30-8:30 am **Breakfast**
(*Prefunction A and B)*

7:30-8:30 am **Career Mentoring Breakfast**
(Calhoun)

Confused about how to transition from a post-doc to a faculty position, how to balance work and family issues, when to submit your first R01, what other grant options are out there, or what to look for in a faculty position? Then you should attend the breakfast roundtable discussions! Experienced scientists will be on hand to discuss career options, professional issues, and more. Conversations in small groups over breakfast will cover topics of importance as you are developing your career and/or getting established as an independent investigator.

7:30 am-5:30 pm **Registration**
(Registration Booth on Meeting Room Level)

7:30 am-5:30 pm **Exhibits**
(Mezzanine Level)

8:30-10:00 am **Plenary III**

ECM Disease Mechanisms

(Carolina A/B)
Session Chair: *Elaine Davis*

8:30 am **Junior Investigator Awardee:**
Syndecan-Pathogen Interactions in Infectious Diseases
Pyong Woo Park, Children's Hospital, Harvard Medical School, MA

20 **9:00 am** **New Functions of Thrombospondin-1 and its Receptor CD47 in Responses to Stress**
David Roberts, NIH, NCI, MD

9:30 am **Matricellular Proteins in Cellular Senescence and Wound Healing**
Lester Lau, Universityof Illinois at Chicago, IL

10:00-10:30 am **Coffee Break**
(*Prefunction A and B)*

10:30-12:00 pm **Plenary IV**

ISMB Guest Symposium

(Carolina A/B)
Session Chair: *Renato Iozzo,* Thomas Jefferson University

10:30 am **Distinguished Investigator Awardee:**
Matrix-Dependent Regulation of Vascular Endothelial Function
Bjorn Olsen, Harvard School of Dental Medicine, MA

21 **11:00 am** **ISMB Travel Awardee I:**
Functional Interdependence between Fibrillin-1 and Fibronectin
Laetitia Sabatier, McGill University, Canada

22 **11:20 am** **ISMB Travel Awardee II:**
Degradation of Basement Membrane Proteins by Cysteine Cathepsins: Consequences on Protein/Ligand-Binding Activities and BM Architecture
Juliette Sage, Université François Rabelais, France

23 **11:40 am** **ISMB Travel Awardee III:**
Elastin content is a critical determinant for vascular calcification in Matrix gla protein-deficient mice
Hassem Roman, McGill University, Canada

12:00-2:00 pm **Poster Session II Lunch**
(Colonial and Gold Ballrooms)

*Please join us for lunch while you browse the **even** numbered boards of poster presentations (B2, B4, B6…).*

2:00-3:30 pm Concurrent Sessions

Concurrent G: Synthesis and Assembly

(Carolina A)
Session Chair: *Dieter Reinhardt*

2:00 pm Fibrillin Assembly Mechanisms
Dieter Reinhardt, McGill University, Montreal

24 **2:30 pm Prolyl 3-Hydroxylase-2 -Knockout Mouse Model Suggests an Intriguing Function for 3-Hydroxylation**
Elena Pokidysheva, Shriners Hospital for Children, OR

25 **2:50 pm Oxidative and Nitrosative Modifications of Tropoelastin Prevent Elastic Fiber Assembly in vitro**
Kamal Akhtar, Washington University School of Medicine, MO

26 **3:10 pm Osteoblast Plasma Membrane FXIIIA Transglutaminase Activity Regulates Type I Collagen and Fibronectin Matrix Deposition by Affecting Microtubule Dynamics and Secretory Vesicle Transport**
Mari Kaartinen, Faculty of Dentistry, McGill University, Canada

Concurrent H: Development and Disease

(Carolina B)
Session Chair: *Sidney Strickland*

2:00 pm The Role of Laminin in Excitotoxic Neurodegeneration
Sidney Strickland, Rockefeller University, NY

27 **2:30 pm Mechanism of Glomerular Disease Initiation in Alport Syndrome**
Dominic Cosgrove, Boys Town National Research Hospital, NE

28 **2:50 pm DGN-1/Dystroglycan Modulates Response to Dorsal/Ventral and Anterior/Posterior Axon Guidance Pathways in C. Elegans**
Robert P. Johnson, Northwestern University, IL

29 **3:10 pm Role of Laminin Domains in Schwann Cell Myelination**
Peter Yurchenco, Robert Wood Johnson Medical School, NJ

Concurrent I: Angiogenesis

(Calhoun)
Session Chair: *Kayla Bayless*

30 **2:00 pm New Insights into Activation of the Angiogenic Switch**
Kayla Bayless, Texas A&M Health Science Center, TX

31 **2:30 pm Priming of the Vascular Endothelial Growth Factor Signaling Pathway by Thrombospondin-1, CD36, and Spleen Tyrosine Kinase**
Jack Lawler, Beth Israel Deaconess Medical Center and Harvard Medical School, MA

32 **2:50 pm** **A New Human Biogel Culture System for Real-Time Tumor Growth and Angiogenesis Analysis**
Raj Singh, Vivo Biosciences Inc, AL

33 **3:10 pm** **Implication of the Protease ADAMTS1 in Basement Membrane Deposition in Physiological- and Tumor-Associated Vasculature**
Juan Carlos Rodriguez-Manzaneque, Pfizer-University of Granada-Andalusian Government Centre for Genomics and Oncological Research, Granada

3:30-4:00 pm **Coffee Break**
(*Prefunction A and B)*

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

Concurrent J: Growth Factor Regulation

(Carolina A)
Session Chair: *Lynn Sakai*

4:00 pm **Extracellular Interactions that Fine Tune Growth Factor Signaling: Structure/Function Studies Using New Fbn1 Mutant Mouse Models**
Lynn Sakai, Shriner's Research Center, Portland, OR

34 **4:30 pm** **Musladin-Leuke Syndrome, a Canine Connective Tissue Disorder Featuring Fibrosis, is Caused by a Mutation in ADAMTSL2, a Fibrillin 1 and LTBP1 Binding Protein**
Hannah L. Bader, Lerner Research Institute, Cleveland Clinic, OH

35 **4:50 pm** **Activin A Binds to Perlecan through its Pro-Region that has Heparin/Heparan Sulfate-Binding Activity**
Kiyotoshi Sekiguchi, Osaka University, Japan

36 **5:10 pm** **Granzyme B Cleaves Proteoglycans and Releases Sequestered TGF-β from Extracellular Matrix**
Travel Award Winner: *Wendy A. Boivin, University of British Columbia/Providence Heart + Lung Institute, Canada*

Concurrent K: Engineered ECMs

(Carolina B)
Session Chair: *Adam Engler*

37 **4:00 pm** **Engineered Materials with Dynamic Mechanical Properties Improve Cardiomyocyte Differentiation**
Adam Engler, University of California, San Diego, CA

38 **4:30 pm** **Identification of Novel Peptides that Target Fibronectin Fibers under Varying Strain**
Travel Award Winner: *Lizhi Cao,* Georgia Institute of Technology and Emory University, GA

39 **4:50 pm** **Decellularized Tracheal Grafts Support Epithelial Cell Growth and Differentiation**
Thomas Gilbert, University of Pittsburgh, PA

40 **5:10 pm** **Modular Self-Assembling ECMs Enabling Multifactorial Experimentation and Optimization**
Joel Collier, University of Chicago, IL

Concurrent L: Acquired, Acute, and Chronic Diseases

(Calhoun)
Session Chair: *Pyong Woo Park*

41 **4:00 pm** **Role of Hyaluronan in Diabetic Pathologies**
Vincent Hascall, Cleveland Clinic Foundation, OH

42 **4:30 pm** **Serglycin is Protective against Viral Infection**
Michelle Lin, University of Washington, WA

43 **4:50 pm** **Overexpressing V3 Versican by Arterial Smooth Muscle Cells Induces Formation of an Extracellular Matrix that Resists Monocyte Adhesion**
Travel Award Winner: *Inkyung Kang,* Benaroya Research Institute, WA

44 **5:10 pm** **Ablation of α3(V) Collagen Induces Diabetes-related Symptoms via Effects on Pancreatic Islets and Peripheral Tissues**
Dan Greenspan, University of Wisconsin-Madison, WI

7:00-10:00 pm **Banquet**
(South Carolina Aquarium)

Please join us for a fun evening at the beautiful South Carolina Aquarium located a short walk from the Francis Marion and directly on the water. Travel Awards for both pre-selected talks and on-site poster selections will be presented at the banquet. Full Dinner and Open Bar provided. Tickets are REQUIRED and available for pre-purchase during online registration or onsite. Attendees - $25, Guests - $50.

Wednesday, October 27th

7:30-8:30 am **Breakfast**
(*Prefunction A and B)*

7:30 am-12:00 pm **Registration**
(Registration Booth on Meeting Room Level)

7:30 am-12:00 pm **Exhibits**
(Mezzanine Level)

8:30-10:00 am **Concurrent Sessions**

Concurrent M: Invasion and Migration

(Carolina A)
Session Chair: *Steve Weiss*

8:30 am **3-D Extracellular Matrix Remodeling and the Linked Control of Nuclear Function**
Steve Weiss, University of Michigan, MI

45 **9:00 am** **Intracellular Signaling Reveals that Matrix Rigidity Governs Two Modes of 3D Cell Migration**
Ryan Petrie, National Institute of Dental and Craniofacial Reserach, NIH, MD

46 **9:20 am** **Dynamic Membrane Remodeling at Invadopodia Defines Invadopodia as a Micro-Scale Invasive Leading Edge of the Cancer Cell**
Vira Artym, LCDB/NIDCR/NIH, MD

47 **9:40 am** **Regulation of MT1-MMP and Invadopodia Assembly by Emmprin (CD147)**
Daniel Grass, Medical University of South Carolina, SC

Concurrent N: Proteoglycans and Glycobiology

(Carolina B)
Session Chair: *Tom Wight*

8:30 am **Versican: A Key ECM Regulator of Cellular Phenotype**
Tom Wight, Benaroya Research Institute, WA

48 **9:00 am** **Control of Endothelial Progenitor Cell Differentiation on Fibronectin by Heparin/Heparan Sulfate**
Matthew A Nugent, Boston University School of Medicine, MA

49 **9:20 am** **Chondroitin Sulfate Proteoglycan Modulation of Growth Factor Gradients in the Growth Plate**
Miriam Domowicz, The University of Chicago, IL

50 **9:40 am** **The C-Terminus of Decorin Regulates Matrix Assembly in the Corneal Stroma**
Shoujun Chen, University of South Florida, FL

Concurrent O: Development and Morphogenesis

(Calhoun)
Session Chair: *Christine Kern*

8:30 am **ADAMTS Cleavage of Versican is Critical for Cardiac Valve Morphogenesis**
Christine Kern, Medical University of South Carolina, SC

51 **9:00 am** **Site-1 Protease is Essential for Maintenance of the Growth Plate in Postnatal Mice**
Debabrata Patra, Washington University School of Medicine, MO

52 **9:20 am** **Fibulin-4 in Necessary for the Development of the Notochord and the Cardiovascular System**
Zsolt Urban, Washington University School of Medicine, MO

53 **9:40 am** **Epithelial-Neuronal Communication Regulates Submandibular Gland Development through Neurturin-GFRa2-Perlecan Signaling**
Sarah Knox, National Institute of Dental and Craniofacial Research, MD

10:00-10:30 am **Coffee Break**
(*Prefunction A and B)*

10:30-12:00 pm Concurrent Sessions

Concurrent P: Genetic Diseases

(Carolina A)
Session Chair: *Hans Peter Bächinger*

10:30 am Genetic Diseases Caused by Defects in the Collagen Folding Machinery
Hans Peter Bächinger, Shriner's Research Center, Portland, OR

54 **11:00 am A Novel Genetic Pathway Underlies Weill-Marchesani Syndrome**
Gerhard Sengle, Oregon Health & Science University, OR

55 **11:20 am GLUT10 is required for the Development of the Cardiovascular System and the Notochord and Connects Cellular Metabolism to TGFβ Signaling**
Zsolt Urban, Washington University School of Medicine, MO

56 **11:40 am Using Genotype–Phenotype Correlation to Understand the Mechanism(s) of COL4A1–Related Pathology**
Doug Gold, UCSF School of Medicine, CA

Concurrent Q: Matricellular Proteins

(Carolina B)
Session Chair: *Amy Bradshaw*

10:30 am SPARC: A Critical Player in ECM Assembly
Amy Bradshaw, Medical University of South Carolina, SC

57 **11:00 am Functions of Thrombospondin-4 in Cardiovasaclur System**
Olga Stenina, Cleveland Clinic, OH

58 **11:20 am The Calreticulin-Binding Sequence of Thrombospondin1 Regulates Collagen Expression and Organization during Tissue Remodeling**
Joanne Murphy-Ullrich, University of Alabama at Birmingham, AL

59 **11:40 am Two Distinct Molecular Weight Species of Thrombospondin-2 are Present in Murine Long Bone and in Primary Osteoblast Lineage Cells Undergoing Matrix Mineralization in vitro**
Andrea Alford, University of Michigan, MI

Concurrent R: Microenvironment in Stem Cell Biology and Cancer

(Calhoun)
Session Chair: *Ralph Sanderson*

10:30 am Heparanase Regulation of the Tumor Microenvironment: Mechanism and Therapy
Ralph Sanderson, University of Alabama at Birmingham, AL

60 **11:00 am How Does the Extracellular Matrix Influence Tumor Progression? A Proteomics-Based Approach**
Travel Award Winner: *Alexandra Naba, Massachusetts Institute of Technology, MA*

61 **11:20 am Extracellular Matrix Properties Regulates Cell Fate**
Adam Engler, University of California, San Diego, CA

62 **11:40 am Decorin Antagonizes Met Activity by Downregulating β-Catenin and Myc Levels**
Simone Buraschi, Thomas Jefferson University, PA

POSTER PRESENTATIONS
Biennial Meeting of the
American Society for Matrix Biology

Poster Session

All posters will be displayed for the duration of the meeting in the Colonial and Gold Ballrooms. Please visit the posters during the 2 special lunch sessions to hear presentations by the authors. Note the first number is the abstract number and the second is the board number for easy location in the program book and poster display room respectively.

Poster Session I:
Monday, October 25th
12:30-2:30pm
Presentation of all odd numbered boards

Poster Session II:
Tuesday, October 26th
12:00-2:00pm
Presentation of all even numbered boards

Basement Membranes

63 **B1 Insights into laminin polymerisation from the structure of a short arm fragment**
Erhard Hohenester, Sadaf-Ahmahni Hussain*; Imperial College London*

64 **B2 Expression of a Human Laminin γ2 Transgene Under a Keratinocyte-specific Promoter Rescues the Skin Blistering and Early Lethality of Laminin γ2 KO Mice**
Tracy Adair-Kirk, Gail Griffin, Michelle Meyer*; Washington University School of Medicine*
J. Michael Ruppert*; University of Alabama at Birmingham,* Jouni Uitto*; Jefferson Medical College,* Robert Senior*; Washington University School of Medicine*

65 **B3 Lung Laminin (Lm)-332 Deficiency Enhances Engraftment of Tumor Cells into the Lung but Retards Tumor Cell Growth**
Tracy Adair-Kirk, Jay Tichelaar, Erin Smith, Michelle Meyer*; Washington University School of Medicine,* J. Michael Ruppert*; University of Alabama at Birmingham,* Jouni Uitto*; Jefferson Medical College,* David Piwnica-Worms*; Washington University School of Medicine,* Robert Senior*; Washington University School of Medicine*

66 **B4 Epitope mapping of anti-lutheran monoclonal antibody that can inhibit the binding of laminin alpha5**
Yamato Kikkawa, Takahiro Miwa, Yukiko Tohara, Motoyoshi Nomizu*; Laboratory of Clinical Biochemistry, Tokyo University of Pharmacy and Life Sciences*

67 **B5 Impaired integrin α8β1 binding to basement membranes in Fraser syndrome model mice**
Daiji Kiyozumi, Makiko Takeichi, Yuya Sato, Itsuko Nakano, Kiyotoshi Sekiguchi*; Institute for Protein Research, Osaka University*

68 **B6 Interactions of basement membrane networks at the supramolecular level: Relation to epidermolysis bullosa**
Peter Bruckner, Daniel Timo Behrens, Daniela Villone*; University Hospital of Muenster/Germany, Department of Physiological Chemistry and Pathobiochemistry,* Manuel Koch*; Universoity of Cologne/Germany, Institute of Biochemistry II,* Leena Bruckner-Tuderman*; University Hospital of Freiburg/Germany, Department of Dermatology,* Uwe Hansen*; University Hospital of Muenster/Germany, Department of Physiological Chemistry and Pathobiochemistry*

Wound Repair, Regeneration, and Fibrosis

69 **B7 Using the microenvironment to modulate fibrogenic potential in human mesenchymal stem cells**
Henry Hsia*; Robert Wood Johnson Medical School, Princeton University,* Vivek Desai, Jean Schwarzbauer*; Princeton University*

70 **B8 The Effects of Chronic Alcohol Consumption on Fibrosis and Inflammation in the Heart**
Brittany Law, Wayne Carver*; University of South Carolina School of Medicine*

71 **B9 Requirement for Akt1 in the regulation of anti-bacterial effects of poly-N-acetyl glucosamine (pGlcNAc) nanofibers in cutaneous wound healing**
Haley Lindner*; Medical University of South Carolina,* Aiguo Zhang*; Sunnybrook Research Institute,* Juanita Eldridge*; Medical University of South Carolina,* Marina Demcheva*; Marine Polymer Technologies, Inc.,* Ioanna Maroulakou; Philip Tsichilis*, Tufts University,* Arun Seth*; Sunnybrook Research Institute,* John Vournakis*; Marine Polymer Technologies, Inc.,* Robin C. Muise-Helmericks*; Medical University of South Carolina*

72 **B10 Conditionally Active rHuCAT-L as a Potential Drug for the Treatment of Dermal Fibrosis**
Rudolph Paladini, Anirban Kundu, Louis H. Bookbinder, Panneer Selvam, Qiping Zhao, Tara A. Nekoroski, Jesse D. Bahn, Sinisa Nadjsombati, Gregory I. Frost, Gilbert A. Keller*; Halozyme Therapeutics, Inc.*

73 **B11 Diminished Type III Collagen Expression Increases Cutaneous Wound Scar Formation by Promoting Myofibroblast Differentiation**
Sherrill Adams*; University of Pennsylvania School of Dental Medicine,* Yanjian Wang, Elizabeth Mauldin, Susan Volk*; University of Pennsylvania School of Veterinary Medicine*

74 **B12 The Role of Mechanical Loading in Mast Cell Degranulation**
Vennece Fowlkes, Christopher Wilson, Wayne Carver, Edie Goldsmith*; University of South Carolina*

75 **B13 Extracellular Matrix Powder Protects Against Bleomycin-Induced Pulmonary Fibrosis**
Michelle Manni, Caitlin Czajka, Tim Oury, Thomas Gilbert*; University of Pittsburgh*

76 **B14 Rac-1 Modulates Expression of MMP-1 in Keratiocytes in Contact with Type I Collagen**
Maryam G. Rohani, Peter Chen, William C. Parks*; University of Washington*

77 **B15 Characterization of fibrotic tissue regions within the lung: A measure of cellular-level stiffness and translation to in vitro culture models**
Vincent Fiore, Ashley Brown, Wenwei Xu, Todd Sulchek, Thomas Barker*; Georgia Institute of Technology*

78 **B16 Decellularized SIS to regenerate vessel wall after vascular reconstruction in an ovine model**
Anna Fallon*; CorMatrix Cardiovascular, Alpharetta, Georgia,* Traci Goodchild, Irena Brants*; Saint Joseph's Translational Research Institute, Atlanta, Georgia,* Robert Matheny*; CorMatrix Cardiovascular, Alpharetta, Georgia*

79 **B17 The Myocardin Related Transcription Factor A (MRTF-A) Transactivates Collagen Genes in Lung Myofibroblasts**
Larry Luchsinger, Mattthew D. Layne, Barbara D. Smith*; Boston University School of Medicine*

80 **B18 Collagen Triple Helix Repeat Containing-1's Interaction with Canonical and Noncanonical Wnt Signaling Reduces Collagen Deposition**
Ryan Miller, Megyn Beyer, Renee LeClair*; University of New England, College of Osteopathic Medicine*

Proteases and Inhibitors

82 **B20 Regulation of anti-angiogenic properties of human collagen XVIII-derived endostatin by cysteine cathepsins**
Florian VEILLARD, Ahlame SAIDI, Fabien LECAILLE, Gilles LALMANACH*; INSERM U618, Protéases et Vectorisation Pulmonaires, Equipe Protéases et Pathologies Pulmonaires, & IFR 135, Imagerie Fonctionnelle Université François Rabelais, Faculté de Médecine, France, corresponding author: gilles.lalmanach@univ-tours.fr*

83 **B21 Structural Analysis of Cathepsin K-Chondroitin 4-Sulfate Interactions**
Fabien LECAILLE*; INSERM U618, Protéases et Vectorisation Pulmonaires, Equipe Protéases et Pathologies Pulmonaires, & IFR 135, Imagerie Fonctionnelle Université François Rabelais, Faculté de Médecine, Tours, France,* Maia, M. CHERNEY*; Group in Protein Structure and Function, Department of Biochemistry, School of Molecular and Systems Medicine, University of Alberta, Canada,* Martin KIENITZ*; Group in Protein Structure and Function, Department of Biochemistry, School of Molecular and Systems Medicine, University of Alberta, Edmonton, Canada,* Ferez NALLASETH*; Mount Sinai School of Medicine, Department of Human Genetics, NY, USA, Michael,* N.G. JAMES*; Group in Protein Structure and Function, Department of Biochemistry, School of Molecular and Systems Medicine, University of Alberta, Canada,* Dieter BROMME*; The University of British Columbia, Department of Oral Biological and Medical Sciences, Canada. corresponding author: dbromme@interchange.ubc.ca*

84 **B22 MT1-MMP is a potent regulator of malignant progression in tumor microenvironment**
Naohiko Koshikawa, Motoharu Seiki*; Division of Cancer Cell Research, Institute of Medical Science, University of Tokyo*

85 **B23 Sulfated maltoheptaose is a potential therapeutic in reducing neutrophilic inflammation in a cigarette smoke-induced rat model of chronic obstructive pulmonary disease**
Chi Hang Chan, Valeria On Yue Leung*; Department of Biochemistry, The University of Hong Kong, HKSAR, China,* David Chi Leung Lam, Judith Choi Wo Mak, Mary Sau Man Ip*; Department of Medicine, The Universitry of Hong Kong, HKSAR, China,* Craig Freeman*; Division of Immunology and Genetics, John Curtin School of Medical Research, Australian National University, Canberra, Australia,* Daisy Kwok Yan Shum, *Department of Biochemistry; The University of Hong Kong, HKSAR, China*

86 **B24 Oxidative Stress Increases Susceptibility of Elastic Fibers to Degradation by Neutrophil Elastase**
Kamal Akhtar, Tracy Adair-Kirk*; Washington University School of Medicine, St. Louis, MO*

87 **B25 Functional Characterization of rHuMMP1 for the Treatment of Fibrotic Skin Conditions**
Ge Wei, Qiping Zhao, Louis H. Bookbinder, Rudolph D. Paladini, Anirban Kundu, Tara Nekoroski, Gilbert-A. Keller, Philip L. Sheridan, H. Michael Shepard , Gregory I. Frost*; Halozyme Therapeutics, Inc.*

88 **B26 MMP expression by intervertebral disc cells is responsive to changes in extracellular osmolarity.**
Ying Cui, Sheena Lee, Jing Yu, Jill Urban*; Department of Physiology, Anatomy and Genetics, University of Oxford, Oxford, United Kingdom*

89 **B27 Mice Deficient in the Extracellular Matrix Protease ADAMTS5 Undergo Abnormal Endocardial Cushion Remodeling**
Deidra Weber*; College of Charleston Honors College,* Loren Danese*; Medical University of South Carolina,* Suneel Apte*; Cleveland Clinic, Lerner Research Institute,* Christine Kern*; Medical University of South Carolina*

ECM Proteins and the Musculoskeletal System

90 **B28 Scanning electron microscopy and elemental analysis of human costal cartilage from patients with chest wall deformities.**
Michael Stacey*; Center for Bioelectrics, Old*

Dominion University, Norfolk VA, Wei Cao*; Applied Research Center, Old Dominion University, Norfolk VA,* Hani Elsayed-Ali*; Applied Research Center, Old Dominion University, Norfolk VA,* Dennis Darby*; Oceanography and Earth Sciences, Old Dominion University, Norfolk VA,* David Gauthier*; Department of Biology, Old Dominion University, Norfolk VA,* Ann Kuhn*; Department of Surgery, Eastern Virginia Medical School and Pediatric Surgery Division, Children's Hospital of The King's Daughters, Norfolk, VA,* Donald Nuss*; Department of Surgery, Eastern Virginia Medical School and Pediatric Surgery Division, Children's Hospital of The King's Daughters, Norfolk, VA, Annie Fecteau; Division of General Surgery, Hospital for Sick Children, Toronto, Canada,* Robert Kelly Jr; *Department of Surgery, Eastern Virginia Medical School and Pediatric Surgery Division, Children's Hospital of The King's Daughters, Norfolk, VA*

91 **B29 Type III Collagen Deficient Mice Exhibit Decreased Trabecular Bone Density and Decreased Differentiation of Mesenchymal Cells into Skeletal Lineages**

Sherrill L. Adams, Shalin R. Shah, Arthur J. Cohen*; University of Pennsylvania School of Dental Medicine,* Susan W. Volk*; University of Pennsylvania School of Veterinary Medicine*

92 **B30 Constellations of ligand bindings sites from collagen packing may provide deep insight into tissue organization at the molecular level.**

Joseph Orgel; *Illinois Institute of Technology,* James San Antonio*; Orthovita Inc,* Olga Antipova*; Illinois Institute of Technology*

93 **B31 Macromolecular Packing Structure of Type II Collagen and its interactions with biglycan**

Olga Antipova, Joseph Orgel, *Illinois Institute of Technology*

94 **B32 Bovine ACL Fibroblast and MSC Aggregates Upregulate Aggrecan Expression on Aggrecan-Coated Surfaces for Regeneration of the Ligament-Bone Insertion**

Jeremy Lim, Larry Scott, Jr., Johnna Temenoff*; Georgia Institute of Technology and Emory University*

95 **B33 Collagen XXIV null mice have less dense trabecular bone than wild type mice**

Marion Gordon, Hongmei Zhang*; Pharmacology and Toxicology, Ernest Mario School of Pharmacy, Rutgers University,* Bo Feng*, Center for Advanced Reproductive Medicine & Fertility,* Friedrich Laub*; Kenyon and Kenyon LLP,* Patricia Buckendahl*; Center of Alcohol Studies, Rutgers University,* Donald Gerecke*; Pharmacology and Toxicology, Ernest Mario School of Pharmacy, Rutgers University,* Kathy Svoboda*; Texas A&M Health Science Center,* Manuel Koch*; Institute for Biochemistry II, University of Cologne, Germany,* Francesco Ramirez*; Pharmacology and Systems Therapeutics and the Cardiovascular Institute, Mount Sinai School of Medicine, NY*

96 **B34 Novel 3-hydroxyproline molecular sites in chicken fibrillar collagens**

David Hudson, MaryAnn Weis, David Eyre*; University of Washington*

97 **B35 Abnormal Processing of Type II Collagen in S1Pcko Mice**

Debabrata Patra, Elizabeth DeLassus, Jennifer Bryan, Linda Sandell*; Washington University School of Medicine*

98 **B36 Transgenic mice overexpressing ADAMTSL-6 in cartilage exhibit dwarfism and craniofacial abnormalities**

Ko Tsutsui*, Institute for Protein Research, Osaka University, Osaka, Japan, Department of Biochemistry and Molecular Biology, Oregon Health & Science University, Portland, OR, and Shriners Hospital for Children, Portland OR,* Eric J. Carlson*, Department of Biochemistry and Molecular Biology, Oregon Health & Science University, Portland, OR,* Douglas R. Keene*, Shriners Hospital for Children, Portland OR,* Lynn Y. Sakai*, Department of Biochemistry and Molecular Biology, Oregon Health & Science University, Portland, OR and Shriners Hospital for Children, Portland OR,* Kiyotoshi Sekiguchi*, Institute for Protein Research, Osaka University, Osaka, Japan*

99 **B37 Mutant-COMP retention stimulates the apoptotic unfolded protein response in rat chondrosarcoma cells.**

Françoise Coustry, Karen Posey, Huiqiu Wang, Joseph Alcorn, Jacqueline Hecht*; University of Texas Medical School at Houston, TX and Shriners Hospital for Children, Houston, TX*

100 **B38 Cartilage from Newborn Mice Effectly Induceses Chondrosarcoma Cell Death and Inhibits Angiogenesis**
Zhepeng Wang, Jennifer Bryan, Linda Sandell*; Washington University School of Medicine*

101 **B39 Regulation of Bone Formation Involves Changes in Osteoblast Polarity and Communication Mediated by Collagen Type XII**
Yayoi Izu, Mei Sun *Department of Pathology and Cell Biology, College of Medicine, University of South Florida,* Daniela Zwolaneck, Guido Veit, *Center for Biochemistry, University of Cologne, Germany,* Valerie Williams, Karl J. Jepsen , *Leni and Peter W. May Department of Orthopaedics, Mount Sinai School of Medicine, New York,* Manuel Koch, *Center for Biochemistry, University of Cologne, Germany,* David E. Birk, *Department of Pathology and Cell Biology, College of Medicine, University of South Florida*

102 **B40 Loss of tissue remodeling at birth canal of mouse pubic symphysis on multiparous senescent females at retirement age**
Silvio Roberto Consonni, Giardini Rosa, Amália Cavinato Nascimento, Cristiane Mendes Vinagre, Pinto Joazeiro*; State University of Campinas (Unicamp)*

103 **B41 Role of fibronectin in chondrogenic differentiation of mesenchymal stem cells**
Purva Singh, Jean E. Schwarzbauer; *Princeton University*

104 **B42 Transglutaminse 2 modifies collagen type XI to regulate chondrogenesis in human bone marrow stem cells.**
Kailtin Burgos , *University of Maryland School of Medicine,* Sheila Logan , *Tufts University,* Maria Nurminskaya, *University of Maryland School of Medicine*

105 **B43 Functional disparity between fibrillin-1 mutations causing classical and neonatal Marfan syndrome**
Dirk Hubmacher, Ryan Kirschner, Garud Iyengar*; McGill University, Montreal, Canada,* Dieter Bromme, *University of British Columbia, Vancouver, Canada,* Rainer Bartels, *Forschungszentrum Borstel, Germany,* Dieter P. Reinhardt, *McGill University, Montreal, Canada*

106 **B44 Biochemical and mechanical cues tune fibronectin conformation**
Brant Hubbard, *Boston University,* Jo Ann Buczek-Thomas, *Boston University Medical School,* Matthew Nugent, *Boston University Medical School,* Michael Smith, *Boston University*

107 **B45 Prediction of Aggrecan Osmotic Pressure Accounting for CS:KS ratio and Collagen Extrafibrillar Water Content**
EunHee Han, Albert C. Chen, Robert L. Sah; *University of California - San Diego*

Synthesis and Assembly

108 **B46 A Novel Anti-Aging Mechanism for Retinol: Induction of Dermal Elastin Synthesis and Elastin Fiber Formation**
Dianne Rossetti, *The Johnson & Johnson Skin Research Center, Consumer Products Worldwide, a unit of Johnson & Johnson Companies, Inc.,* Merav G. Kielmanowicz, Sharon Vigodman, *Former Johnson & Johnson employees,* Yaping Hu, *The Johnson & Johnson Skin Research Center, Consumer Products Worldwide, a unit of Johnson & Johnson Companies, Inc.,* Nannan Chen, *Former Johnson & Johnson employee,* Alex Nkengne, Thierry Oddos, *Johnson & Johnson Consumer France, Pharmacology & Skin Care Research Center Campus de Maigremont,* Miri Seiberg, Connie B. Lin, *The Johnson & Johnson Skin Research Center, Consumer Products Worldwide, a unit of Johnson & Johnson Companies, Inc.*

109 **B47 Cotinus Coggygria Extracts Upregulate Dermal Extracellular Matrix Prouduction and Reduce Pigment Deposition**
Dianne Rossetti, Yaping Hu, *The Johnson & Johnson Skin Research Center, Consumer Products Worldwide, a unit of Johnson & Johnson Companies, Inc.,* Nannan Chen, Renbin Zhao, *Former Johnson & Johnson employees,* Elizabeth Bruning, *The Johnson & Johnson Skin Research Center, Consumer Products Worldwide, a unit of*

Johnson & Johnson Companies, Inc., Violetta Iotsova-Stone*, Former Johnson & Johnson employee,* Connie B. Lin, Miri Seiberg*, The Johnson & Johnson Skin Research Center, Consumer Products Worldwide, a unit of Johnson & Johnson Companies, Inc.*

110 **B48 Implications of Assembly and Degradation of Elastic Fibers in Development of Pelvic Organ Prolapse: Regulation of MMP-9 by Fibulin-5 and RGD-dependent integrins**
Madhusudhan Budatha, Shayzreen Roshanravan, Qian Zheng*, Department of Molecular Biology, Obstetrics and Gynecology, University of Texas Southwestern Medical Center,* Elaine C Davis*, Department of Anatomy and Cell Biology, McGill University,* Barry Starcher, *Department of Biochemistry, University of Texas Health Center,* Word RA, Hiromi Yanagisawa*, Department of Molecular Biology, Obstetrics and Gynecology, University of Texas Southwestern Medical Center*

111 **B49 Do molecular chaperones require other molecular chaperones to fold properly?**
Yoshihiro Ishikawa*, Research Department, Shriners Hospital for Children, Portland, Oregon, USA,* Kazuhiro Nagata*, Laboratory of Molecular and Cellular Biology, Faculty of Life Sciences, Kyoto Sangyo University, Kyoto, Japan,* Hans Peter Bächinger*, Research Department, Shriners Hospital for Children, Portland, Oregon, USA*

112 **B50 Chain Selection and Trimerization in Multiplexins and FACITs**
Sergei P. Boudko, Hans Peter Bächinger*, Research Department of Shriners Hospital for Children*

113 **B51 Dysfunctional Regulation of Corneal Collagen Fibrillogenesis: Abnormal Stromal Structure and Function in a Stroma-Specific Col5a1 Conditional Knockout Mouse Model**
Mei Sun*, Department of Pathology & Cell Biology, University of South Florida,* Jane B. Florer*, Department of Human Genetics, Cincinnati Children's Hospital Research Foundation,* Sheila M Adams, Shoujun Chen*, Department of Pathology & Cell Biology, University of South Florida,* Hongshan Liu, Winston W.-Y. Kao*, University of Cincinnati, Ophthalmology,* Richard J. Wenstrup*, Myriad Genetic Laboratories, Inc.,* David E. Birk*, Department of Pathology & Cell Biology, University of South Florida*

114 **B52 Oxidative Modifications of the C-Terminal Domain of Tropoelastin Prevent Cell Adhesion**
Kamal Akhtar, Thomas Broekelmann, Robert Mecham, Tracy Adair-Kirk*, Washington University School of Medicine, St. Louis, Missouri*

115 **B53 Time-lapse video microscopy of Elastin and MAGP1 assembly**
Thomas Broekelmann, Beth Kozel, Jessica Wagenseil, Robert Mecham; *Washington University in Saint Louis*

116 **B54 Lysyl oxidase controls collagen organization at the tissue level in embryonic cornea and tendon**
Uwe Hansen, Lei Wang, Peter Bruckner*; Dept. Physiol. Chem. & Pathobiochem., University Hospital of Muenster, Muenster, Germany*

117 **B55 Comparison of fibronectin type III module unfolding in vitro and in silico**
Mark Bradshaw, Michael Smith*; Boston University*

118 **B56 Endogenous and exogenous ECM contributions to the structure and biomechanics of cell-derived engineered tissue**
Marsha Rolle, Olufunmilayo Adebeyo, Jason Hu, Tracy Gwyther, Kristen Billiar*; Worcester Polytechnic Institute*

Angiogenesis

119 **B57 Regulation of Thrombospondin-1 Expression and its Therapeutic Potential in Uveal Melanoma**
Nader Sheibani, Shoujian Wang, Daniel Albert, Christine Sorenson*, University of Wisconsin School of Medicine and Public Health*

120 **B58 Opposing Effects of Bim and Bcl-2 on Lung Endothelial Cell Migration**
Christine Sorenson, Nader Sheibani*, University of Wisconsin School of Medicine and Public Health*

121 **B59 ADAMTS-2 functions as anti-angiogenic and anti-tumoral molecule independently of its catalytic activity**
Johanne Dubail, Frédéric Kesteloot, Christophe Deroanne, Patrick Motte, Vincent Lambert, Jean-Marie Rakic, Betty Nusgens, Alain Colige, *University of Liège, Belgium*

122 **B60 Mechanics of Developing Arteries with Reduced Elastin Amounts**
Victoria Le, Jessica Wagenseil; *Saint Louis University*

123 **B61 Fbln7-d3, a fragment of the extracellular matrix protein fibulin-7, binds to endothelial cells through integrin α5β1 and inhibits cell proliferation and migration**
Susana de Vega, Yoshihiko Yamada, *NIDCR/NIH*

124 **B62 Role of Fli1 in proliferation and differentiation of human dermal microvascular endothelial cells**
Lukasz Stawski, Maria Trojanowska, *Boston University School of Medicine*

125 **B63 Decorin is a negative regulator of tumor angiogenic signaling**
Thomas Neill, Simone Buraschi, *Thomas Jefferson University, Philadelphia, PA, United States,* Rick Owens, David McQuillan *LifeCell Corporation, Branchburg, NJ, United States,* Liliana Schaefer, *Goethe University, Frankfurt, Germany,* Renato Iozzo, *Thomas Jefferson University, Philadelphia, PA, United States*

Growth Factor Regulation

126 **B64 Extracellular regulation of FGF signalling**
Hooi Min Tan, Dobromir Iliev, Edgar Pera, *Lund Stem Cell Center, Lund University*

127 **B65 Emilin-1 controls arterial blood pressure by regulating contractility of vascular smooth muscle cells**
Nicola Facchinello, *Department of Histology Microbiology and Medical Biotechnology, University of Padova,* Carmine Vecchione, *Department of Angiocardioneurology, I.R.C.C.S. Neuromed Institute,* Paola Braghetta, *Department of Histology Microbiology and Medical Biotechnology, University of Padova,* Daniela Carnevale, *Department of Angiocardioneurology, I.R.C.C.S. Neuromed Institute,* Dario Bizzotto, Dino Volpin, Paolo Bonaldo, *Department of Histology Microbiology and Medical Biotechnology, University of Padova,* Giuseppe Lembo, *Department of Angiocardioneurology, I.R.C.C.S. Neuromed Institute,* Giorgio M. Bressan, *Department of Histology Microbiology and Medical Biotechnology, University of Padova*

128 **B66 Nuclear Bmp4 (nBmp4) interacts with SCF E3 ubiquitin ligase**
Trina Loos, Laura Bridgewater, *Brigham Young University*

129 **B67 Fibulin-1 interaction with Fgf8b**
Waleed O. Twal, Victor M. Fresco, Marion A. Cooley, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina,* Moosa Mohammadi, *Department of Pharmacology, New York University School of Medicine, New York,* Jeremy L. Barth, W. Scott Argraves, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina*

130 **B68 Fibulin-1, a regulator of HB-EGF shedding**
Keerthi Harikrishnan, Marion A. Cooley, Victor M. Fresco, Waleed O. Twal, W. Scott Argraves, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina*

131 **B69 Tumor-stromal interaction induces hyaluronan-CD44v6 induced invasiveness in colon tumor cells**
S. MISRA, *MEDICAL UNIVERSITY OF SOUTH CAROLINA,* V.C. HASCALL, *Cleveland Clinic, Cleveland, Ohio, USA,* D.W. POWELL, *University of Texas Medical Branch, Galveston,Texas,* N.T. Karamanos, *University of Patras, Patras, Greece,* T. Bowen, *Cardiff University, Cardiff, Wales, UK,* J. Haier, *The Institute for Molecular Medicine,* T. Nakamura, *The Osaka University, Osaka, Japan,* J. Keski-Oja, *Haartman Institute, University of Helsinki, Finland,* R.R. Markwald, S. GHATAK,

MEDICAL UNIVERSITY OF SOUTH CAROLINA

132 **B70 In Vivo Deletion of the First Hybrid Domain in Fibrillin-1**
Noe L. Charbonneau, Gerhard Sengle, Sara F. Tufa, *Shriners Hospital for Children*, Francesco Ramirez, *Mt. Sinai School of Medicine*, Douglas R. Keene, Lynn Y. Sakai, *Shriners Hospital for Children, and Oregon Health & Science University*

133 **B71 Extracellular regulation of growth factor signaling by fibrillin microfibrils**
Gerhard Sengle, *Department of Biochemistry and Molecular Biology, Oregon Health & Science University,* Valerie M. Carlberg, Noe L. Charbonneau, Sara Tufa, *Shriners Hospital for Children,* Douglas R. Keene, *Shriners Hospital for Children;* Lynn Y. Sakai, *Shriners Hospital for Children; Department of Biochemistry and Molecular Biology, Oregon Health & Sci. Uni.*

Engineered ECMs

134 **B72 Subtype specific integrin crosstalk of fibroblasts on mixed ECM derived integrin binding peptides-chitosan membranes**
Kentaro Hozumi, Chikara Fujimori, Fumihiko Katagiri, Yamato Kikkawa, Motoyoshi Nomizu; Tokyo University of Pharmacy and Life Sciences, School of Pharmacy

135 **B73 TGF-β3 Induction of Human Mesenchymal Stem Cells in the Presence of Poly(ethylene glycol) Microspheres**
Soumya Ravindran, Jacob Roam, Donald Elbert, Audrey McAlinden; Washington Uni., St Louis, MO

136 **B74 Co-culture with elastin-producing fibroblasts increases engineered smooth muscle tissue strength**
Tracy Gwyther, Kristen Billiar, Marsha Rolle; Worcester Polytechnic Institute

137 **B75 Employing fibrin knob peptides as an enabling technology for the modification and design of fibrin-based provisional matrices**
Sarah Stabenfeldt, Allyson Soon, Wendy Brown, Merek Gourley, Nader Aboujamous, Christine Lee, Thomas Barker; Wallace H. Coulter Dept of Biomedical Engineering at GA Tech and Emory Univ.

138 **B76 Overcoming ERK Adaptation to Constant Amplitude Stimulation: Applications for Tissue Engineering**
Justin Weinbaum, Joseph Aamodt, Zeeshan Syedain, Robert Tranquillo; University of Minnesota

139 **B77 Poly (Diol Citrate), a useful substitute for elastin in the production of extracellular matrix nanofibers**
Jie Liu, Louis C Argenta, Michael J Morykwas, William D Wagner; Wake Forest University

140 **B78 Targeting the provisional matrix: Development of fibrin-specific single chain antibodies**
Sarah Stabenfeldt, Wendy Brown, Lizhi Cao, Thomas Barker; Georgia Institute of Technology and Emory University

141 **B79 Injectable, bioresorbable gels with tunable mechanical properties for engineering cell niches**
Aurelien Forget, Simon Tobias, V. Prasad Shastri; University of Freiburg, Centre for Biological Signalling Studies (Bioss) and Institute for Macromolecular Chemistry

Acquired, Acute, and Chronic Diseases

142 **B80 c-Ski mediates myofibroblast phenotype and is associated with elevated Meox2 gene expression**
Ryan Cunnington, Josette Douville, Krista Bathe, Jeffery Wigle, Ian Dixon; University of Manitoba

143 **B81 In Vitro Model of Induced Uterine Fibroids**
Liping Feng, MD, Friederike L. Jayes, DVM, PhD, Lauren NC .Johnson, MD, Tamara R. Greene, MD, Phyllis C. Leppert, MD, PhD; Duke University School of Medicine, Dept. of Ob/Gyn

Invasion and Migration

144 **B82 Transglutaminase linked collagen promotes integrin-mediated**

mechanotransduction in prostate cancer
Jaya Srivastava; University of Texas at Austin, Muhammad Zaman; Boston University

145 **B83 Syndecan-1 regulation of α2β1 integrin affinity governs focal adhesion disassembly in migrating lung epithelium**
Peter Chen, Laura Abacherli, Samuel Nadler, William Parks; Center for Lung Biology; University of Washington

146 **B84 Interaction between Ovarian Cancer Cells and Laminin Nanofibers Fabricated via Multiphoton Excited Photochemistry**
Xiyi Chen; University of Wisconsin-Madison, Madison, WI, Ruei-yu He; National Cheng Kung University,Tainan, Taiwan, Molly Brewer; University of Connecticut Health Center, Farmington, CT, Paul Campagnola; University of Wisconsin-Madison, Madison, WI

147 **B85 The influence of substrate on neutrophil mechanosensing**
Katie Heflin, *Brown University*, Xian O'Brien, *Rhode Island Hospital*, Alexander Loosley, *Brown University*, Patrick Oakes, *University of Chicago*, Dipan Patel, *Rhode Island Hospital*, Jay Tang, *Brown University*, Jonathan Reichner, *Brown University*

148 **B86 Matrix engagement of integrins switches procaspase-8 from death complex signaling to a migration complex adaptor.**
Ryon Graf, *The Sanford-Burnham Institute and UCSD School of Medicine, Departments of Pathology.* Simone Barbero, Shanique Young, *UCSD School of Medicine, Departments of Pathology*, David Schlaepfer, *UCSD School of Medicine, Department Reproductive Medicine*, Dwayne Stupack, *UCSD School of Medicine, Departments of Pathology*

Proteoglycans and Glycobiology

149 **B87 Matrix Remodeling of the Mouse Pubic Symphysis during Pregnancy is Accompanied by an Increase in Hyaluronan Synthesis**
Renata Rosa, *State University of Campinas - UNICAMP/University of Texas - Southwestern Medical Center*, Paulo Joazeiro, *State University of Campinas – UNICAMP*, Anjana Tiwari, Mala Mahendroo, *University of Texas - Southwestern Medical Center*

150 **B88 Heparanase regulates integrin activation and cell spreading: A novel mechanism driving myeloma tumor progression**
Anurag Purushothaman, Brian Ell, Joseph P. Ritchie, Alan C. Rapraeger , Ralph D. Sanderson, *Department of Pathology, Center for Metabolic Bone Disease and the UAB Comprehensive Cancer Center, University of Alabama at Birmingham*

151 **B89 Syndecan-1 shedding is enhanced by heparanase activity in airway fluids of patients with bronchiectasis**
Kenneth LK Wu, Stanley CH Chan, Mary SM Ip, Daisy KY Shum, *Department of Biochemistry, The University of Hong Kong*

152 **B90 Proteoglycans and Cellular Proteolysis as Modulators of Kininogen Activity**
Igor Z. Damasceno, Kátia R. B. Melo, Clovis R. Nakaie, Misako U. Sampaio, Helena B. Nader, *Departamento de Bioquímica, EPM/UNIFESP, São Paulo, Brasil*, Ivarne L. S. Tersariol, *Centro Interdisciplinar de Investigações Bioquímicas, UMC, Mogi das Cruzes, Brasil*, Guacyara Motta, *Departamento de Bioquímica, EPM/UNIFESP, São Paulo, Brasil*

153 **B91 Serglycin in Neutrophils: Retention of Neutrophil Elastase in Granules and Inhibition of Neutrophil Elastase Activity during Storage**
Samuel CH Ip, Stanley CH Chan, Daisy KY Shum, *Department of Biochemistry, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong, China*

154 **B92 Development of a model to study NG2/CSPG4 roles in human chondrocytes**
Nuor Jamil, Sarah Howie, Donald Salter, *University of Edinburgh*

155 **B93 Sialylation of the Fas Receptor by ST6Gal-I provides protection from Fas-mediated apoptosis.**
Amanda Swindall, Susan Bellis, *University of Alabama at Birmingham*

157 **B95 An Intracellular Role for Versican in Vascular Smooth Muscle Cells**
Jon Carthy, Bruce McManus, *University of British Columbia/The Heart + Lung Institute*

Development and Morphogenesis

158 **B96 Positional Characteristics of Chondrocytic Primary Cilia in Articular Cartilage**
Cornelia Farnum, *Cornell University,* Norman Wilsman, *University of Wisconsin-Madison*

159 **B97 Genomic Analysis of Asymmetric Gut Development**
Natasza Kurpios, Ian Welsh, Aparna Mahadevan, David Gludish, *Cornell University*

160 **B98 In vivo assembly of fibrillin microfibrils into oxytalan fibers in the chick presumptive dermis**
Keitaro Isokawa, *Department of Anatomy, Nihon University School of Dentistry, Japan,* Yosuke Yamazaki, *Division of Microscopic Anatomy and Bio-imaging, Niigata University Graduate School of Medical and Dental Sciences, Japan,* Maki Yuguchi, Sakura Kubota, Taku Toriumi, *Department of Anatomy, Nihon University School of Dentistry, Japan*

161 **B99 A mouse allelic series and combinatorial knockouts highlight multiple, singular and cooperative roles for the metalloprotease ADAMTS9 in mammalian development**
Courtney Nelson, Robert Somerville, Laura Dixon, Suneel S. Apte, *Department of Biomedical Engineering, Cleveland Clinic Foundation*

162 **B100 Snai1 promotes epithelial-to-mesenchymal transformation through MMP15 during heart development**
Ge Tao, Agata Levay, Jacqueline Peacock, *Department of Molecular and Cellular Pharmacology, Leonard M. Miller School of Medicine, University of Miami,* Thomas Gridley, *The Jackson Laboratory,* Joy Lincoln, *Department of Molecular and Cellular Pharmacology, Leonard M. Miller School of Medicine, University of Miami*

163 **B101 Versican facilitates chondrocyte differentiation and regulates joint morphogenesis**
Hideto Watanabe, Kanyamas Choocheep, Sonoko Hatano, *Aichi Medical University, Institute for Molecular Science of Medicine,* Prachya Kongtawelert, *Thailand Excellence Center for Tissue Engineering, Faculty of Medicine, Chiang Mai University,* Koji Kimata, *Aichi Medical University, Institute for Molecular Science of Medicine*

164 **B102 A Novel Murine Model of Preterm Birth Based on the Genetic Ablation of Decorin and Biglycan**
Megan Calmus, Elyse E. Macksoud, *Women and Infant's Hospital of Rhode Island/Brown University,* Renato V. Iozzo, *Thomas Jefferson University, Philadelphia, Pennsylvania,* Beatrice E. Lechner, *Women and Infant's Hospital of Rhode Island/Brown University*

165 **B103 Fibulin-1 regulation of neural crest-dependent morphogenesis**
Victor M. Fresco, Marion A. Cooley, Waleed O. Twal, Jeremy L. Barth, W. Scott Argraves, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina*

166 **B104 Fibulin-1C, a critical regulator of vascular tone**
Marion A. Cooley, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina,* Douglas R. Keene, *Shriners Hospitals for Children,* Waleed O. Twal, Jeremy L. Barth, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina,* Catalin F. Baicu, Amy D. Bradshaw, *Department of Medicine, Division of Cardiology, Medical University of South Carolina,* Michael R. Zile, *Department of Medicine, Division of Cardiology, Medical University of South Carolina and RHJ Department of Veterans Affairs Medical Center,* Lars Melholt Rasmussen, *Clinical Biochemistry, University Hospital of Odense, University of Southern Denmark,* W. Scott Argraves, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina*

167 **B105 New insights into elastogenesis in adult tissue: morphological and biochemical evidences in the mouse pubic symphysis during pregnancy**
Silvio Roberto Consonni, Cláudio Chrysostomo Werneck, *State University of Campinas (Unicamp),* Suzana Guimarães Moraes, *Pontifical Catholic University of Sao Paulo,* Paulo Pinto Joazeiro, *State University of Campinas (Unicamp)*

168 **B106 Structural Determinants of Material Properties of Heart Valves**
Vladimir Kasyanov, *Department of Anatomy and Anthropology, Riga Stradins University, Riga, Latvia, EU,* Agnes Nagy Mehesz , Ricardo Moreno, Thomas Trusk, *Regenerative Medicine & Cell Biology and the Cardiac Developmental Biology Center, Medical University of South Carolina,* Xuejun Wen, *Clemson-MUSC Bioengineering Program, Department of Bioengineering, Clemson University,* Zoltan Hajdu, *Regenerative Medicine & Cell Biology and the Cardiac Developmental Biology Center, Medical University of South Carolina,* Yongren Wu, *Clemson-MUSC Bioengineering Program, Department of Bioengineering, Clemson University,* Yuhua Zhang, *Regenerative Medicine & Cell Biology and the Cardiac Developmental Biology Center, Medical University of South Carolina,* Iveta Ozolanta, Janis Pavars, Peteris Stradins, *Department of Anatomy and Anthropology, Riga Stradins University, Riga, Latvia, EU,* Russell Norris, Amy Bradshaw, *Regenerative Medicine & Cell Biology and the Cardiac Developmental Biology Center, Medical University of South Carolina,* Hai Yao, *Clemson-MUSC Bioengineering Program, Department of Bioengineering, Clemson University,* Richard P Visconti, Roger R Markwald, Vladimir Mironov, *Regenerative Medicine & Cell Biology and the Cardiac Developmental Biology Center, Medical University of South Carolina*

169 **B107 Mohawk is a specific regulator of late phase growth of collagen fibrils in tendon**
Jennifer Houmani, Spencer Watson, *Shriners Hospital for Children, Portland,* Wenjin Liu, Yu Lan, *University of Rochester,* Douglas Keene, *Shriners Hospital for Children, Portland,* Catherine Ovitt, Rulang Jiang, *University of Rochester,* Ronen Schweitzer, *Shriners Hospital for Children, Portland*

170 **B108 Serotonergic Regulation of Cardiac Valve Maturation: Novel Mechanisms Contributing to the Pathogenesis of Human Myxomatous Valvular Dystrophy**
Russell Norris, *Medical University of South Carolina,* Robert Levine, *Mass General Hospital, Harvard Medical School,* Roger Markwald, *Medical University of South Carolina*

172 **B110 Quantification of Procollagen II Alternative Transcripts during ATDC5 Cell Chondrogenesis in vitro**
Thomas Hering, Kyu-Hwan Shim, Audrey McAlinden, *Washington University*

173 **B111 Anthrax Toxin Receptor 2 is Required for Extracellular Matrix Homeostasis in the Female Reproductive Tract**
Claire Reeves, Jan Kitajewski, *Columbia University*

Genetic Diseases

174 **B112 Applying Massive Parallel Sequencing to Molecular Diagnosis of Marfan and Loeys-Dietz Syndrome**
Lut Van Laer, Machteld Baetens, De Leenheer, Hendrik Van De Voorde, Marjolijn Renard, Jan Hellemans, Julie De Backer, Anne De Paepe, Bart Loeys, Paul Coucke, *Department of Medical Genetics, Ghent University Hospital, Ghent, Belgium*

175 **B113 Ehlers-Danlos syndrome type VIB and adducted thumb clubfoot syndrome represent a single clinical entity caused by mutations in the dermatan-4-sulfotransferase 1-encoding CHST14 gene.**
Fransiska Malfait, Delfien Syx, Philip Vlummens, Sofie Symoens, *Center for Medical Genetics, Ghent University Hospital, Belgium,* Sheela Nampoothiri, *Amrita Institute of Medical Sciences and Research Center, Cochin,* Kerala, India, Trinh Hermanns-Lê, *Department of Dermatopathology, University Hospital of Sart-Tilman, Liège, Belgium,*

Lut Van Laer, Anne De Paepe, *Center for Medical Genetics, Ghent University Hospital, Belgium*

176 **B114 Large scale destabilization of type I collagen triple helix may explain increased severity of osteogenesis imperfecta caused by mutations near the collagenase cleavage site**
Elena Makareeva, *NICHD, National Institutes of Health*

177 **B115 Pathogenesis of Hereditary Multiple Exostoses: Modeling Exostosis Formation In Vivo and In Vitro**
Julianne Huegel, Christina Mundy, Eiki Koyama, *Thomas Jefferson University*, Yu Yamaguchi, *Sanford-Burnham Medical Research Institute*, Jeffrey Esko, *University of California, San Diego*, Maurizio Pacifici, *Thomas Jefferson University*

178 **B116 Adamts10 inactivation in mice partially recapitulates human Weill-Marchesani syndrome, but does not improve survival of Fbn1 deficient mice**
Lauren Wang, Shweta Singh, Wendy Kutz, Luis Gabriel, *Cleveland Clinic*, Francesco Ramirez, *Mt. Sinai School Of Medicine*, Suneel Apte, *Cleveland Clinic*

179 **B117 Quantitative analysis of skin elasticity in humans and mice with elastin haploinsufficiency.**
Beth Kozel, Russell Knutsen, Susan Bayliss, *David* Berk, *Washington University School of Medicine*, Jessica Waxler, *Massachusetts General Hospital*, Robert Mecham, *Washington University School of Medicine*, Barbara Pober, *Massachusetts General Hospital*

180 **B118 Elastic Fiber Dysregulation in Syndromic and Nonsyndromic Aortic Valve Disease**
Amy Opoka, Hanna Osinska, *Cincinnati Children's Hospital Medical Center*, Amy Juraszek, *University of Texas Southwestern*, Jefferson Doyle, *Johns Hopkins University*, Pirooz Eghtesady, *Cincinnati Children's Hospital Medical Center*, Zsolt Urban, *University of Pittsburgh*, Harry Dietz, *Johns Hopkins University*, Robert Mecham, *Washington University*, Bruce Aronow, Kevin Bove, Robert Hinton, *Cincinnati Children's Hospital Medical Center*

181 **B119 Mutations in TRPV4 cause an inherited arthropathy of hands and feet**
Shireen Lamande, *Murdoch Childrens Research Institute*, Yuan Yuan, *The University of Melbourne*, Irma Gresshoff, Lynn Rowley, Daniele Belluoccio, Kumara Kaluarachchi, *Murdoch Childrens Research Institute*, Christopher Little, *University of Sydney*, Elke Botzenhart, Klaus Zerres, *Aachen University*, David Amor, *Genetic Health Services Victoria*, William Cole, *Stollery Children's Hospital*, Ravi Savarirayan, *Genetic Health Services Victoria*, Peter McIntyre, *The University of Melbourne*, John Bateman, *Murdoch Childrens Research Institute*

182 **B120 Surveying the ECM interactome: What currently available, large-scale datasets tell us about the quality and coverage of information.**
Graham Cromar, John Parkinson, *Department of Molecular Genetics, University of Toronto, Department of Molecular Structure and Function, Hospital for Sick Children, Toronto, and Department of Biochemistry, University of Toronto*

197 **B120A Inducible COMP mouse model recapitulates human PSACH phenotype.**
Karen L. Posey1, Alka C. Veerisetty1, Pieman Liu1, Huiqiu R. Wang1, Brian J. Poindexter2, Roger Bick2, Joseph L. Alcorn1 and Jacqueline T. Hecht1, 3 Departments of Pediatrics1 and Pathology2, University of Texas Medical School at Houston, TX Shriners Hospital for Children, Houston, TX3

198 **B120B RNAi Reduces Expression and Intracellular Retention of Mutant Cartilage Oligomeric Matrix Protein**
Karen L. Posey1, Peiman Liu 1, Huiqiu R. Wang 1, Alka C. Veerisetty 1, Joseph L. Alcorn1, Jacqueline T. Hecht 1, 2, Department of Pediatrics1, University of Texas Medical School at Houston, TX, Shriners Hospital for Children2, Houston, TX

Matricellular Proteins

183 **B121 Elucidation of the Mechanism of Scleraxis- regulated Collagen Gene Expression**
Rushita Adhikari Bagchi, Ian Dixon, Michael Czubryt, *Institute of Cardiovascular Sciences, University of Manitoba*

184 **B122 Syndecan-1 and Syndecan-4 in A431 squamous carcinoma cells and keratinocytes differentially regulate signaling by the α6β4 integrin.**
Haiyao Wang, Alan C Rapraeger, *Wisconsin Institutes for Medical Research, University of Wisconsin-Madison*

185 **B123 Proteomic Identification of a Thrombospondin-1 Matricryptin in the Post-Myocardial Infarction Left Ventricle**
Rogelio Zamilpa, Ying Ann Chiao, Qiuxia Dai, Jianhua Zhang, Kevin Hakala, Seema S. Ahuja, Susan T. Weintraub, Merry L. Lindsey, *University of Texas Health Science Center at San Antonio*

186 **B124 The Absence of SPARC is Associated with Increased Loss of Collagen in a Periodontal Disease Model.**
Jessica M. Trombetta, Hong Yu, Carlos Rossa, Keith L. Kirkwood, Amy D. Bradshaw, *Medical University of South Carolina*

187 **B125 Matricellular Regulation of Mitochondria via CD47**
Elfaridah Frazier, Julie Dimitry, Lei Zhao, Karen Green, *Washington University*, Jeffrey Isenberg, *University of Pittsburgh*, David Roberts, *NIH, NCI*, William Frazier, *Washington University*

188 **B126 Identification of CD47 and amyloid precursor-like protein-2 as heparan sulfate proteoglycan receptors for thrombospondin-1 on human T cells**
Sukhbir Kaur, Svetlana A. Kuznetsova, Michael L. Pendrak, John M. Sipes, Zhuqing Li, David D. Roberts, *Laboratory of Pathology, Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda MD*

189 **B127 A Major Role of the Minor Collagens: Collagen V and Collagen XI Expression and Regulation in Human Uterine Leiomyoma (LEIO) versus Myometrium (MYO)**
Erica Marsh, Ju Wu, Eden Cardozo, *Department of Obstretrics and Gynecology, Feinberg School of Medicine, Northwestern University Chicago*, Arthur Veis, *Department of Cell and Molecular Biology, Feinberg School of Medicine, Northwestern University Chicago*

Microenvironment in Stem Cell Biology & Cancer

190 **B128 The heparanase inhibitor, SST0001, dramatically inhibits myeloma growth and angiogenesis by targeting the tumor microenvironment**
Joseph Ritchie, *Department of Pathology and Center for Metabolic Bone Disease, University of Alabama at Birmingham*, Vishnu Ramani, Yongsheng Ren, *Department of Pathology, University of Alabama at Birmingham*, Annamaria Naggi, Giangiacomo Torri, Benito Casu, *G.Ronzoni Institute for Chemical and Biochemical Research, Milan, Italy*, Claudio Pisano, Paola Carminati, *sigma-tau Research Switzerland SA*, Monica Tortoreto, Franco Zunino, *National Cancer Institute, Foundation IRCCS, Milan, Italy*, Israel Vlodavsky, *Cancer and Vascular Biology Research Center, The Bruce Rappaport Faculty of Medicine, Technion, Haifa, Israel*, Ralph D. Sanderson, Yang Yang, *Department of Pathology, University of Alabama at Birmingham, Birmingham, AL; Comprehensive Cancer Center and Center for Metabolic Bone Disease, University of Alabama at Birmingham, Birmingham, AL*

191 **B129 LKB1 inhibits lung cancer progression through lysyl oxidase and extracellular matrix remodeling**
Yijun Gao, Qian Xiao, Huimin Ma, Li Li, Jun Liu, Yan Feng, Zhaoyuan Fang, Jing Wu, *Institute of Biochemistry and Cell Biology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences*, Junhua Zhang, Yihua Sun, *Shanghai Cancer Hospital, Fudan University*, Robert Padera, *Department of Pathology, Brigham and Women's Hospital*, Haiquan Chen, *Shanghai Cancer Hospital, Fudan University*, Kwok-kin Wong, *Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School,*

Hongbin Ji, Gaoxiang Ge, *Institute of Biochemistry and Cell Biology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences*

192 **B130 Intratumoral LOX-PP Injection or Slow Release Inhibits Growth of Pre-existing Murine Breast Cancer Xenografts**
Manish V. Bais, *Boston University Henry M. Goldman School of Dental Medicine,* Matthew A. Nugent, *Boston University School of Medicine,* Danielle N. Stephens, S. Selva Sume, *Boston University Henry M. Goldman School of Dental Medicine,* Kathrin H. Kirsch, *Boston University School of Medicine,* Gail E. Sonenshein, *Tufts University School of Medicine,* Philip C. Trackman, *Boston University Henry M. Goldman School of Dental Medicine*

193 **B131 Role of emmprin (CD147) in malignant and drug-resistant properties of cancer cells**
Lu Dai, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina,* Mark G. Slomiany, *Department of Pediatrics, Medical College of Georgia,* Momka P. Bratoeva, Lauren B. Tolliver, Daniel G. Grass, Maria D.C. Guinea, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina, Bernard L. Maria, Department of Pediatrics, Medical College of Georgia,* Bryan P. Toole, *Department of Regenerative Medicine and Cell Biology, Medical University of South Carolina*

194 **B132 BIGH3 (TGFBI) Promotes Apoptosis in Human Osteosarcoma Cells: A Computational Network Analysis on TGFβ1 Signaling in MG-63 Cells to Link SMAD Signaling with Apoptosis**
Richard LeBaron, Rogelio Zamilpa, Bethaney Watson, Sherin Boctor, Jessica Castaneda-Gill, Clyde Phelix, *University of Texas at San Antonio*

195 **B133 Pluripotent Stem Cell-derived Matrices & Morphogens: Insights from Developmental Biology for Tissue Regeneration**
Todd McDevitt, Rekha Nair, Alyssa Ngangan, *Georgia Insitute of Technology,* Marsha Rolle, *Worcester Polytechnic Institute,* Thomas Wight, *Benaroya Research Institute,* Themis Kyriakides, *Yale University,* Ken Sutha, Robert Guldberg, Zvi Schwartz, Barbara Boyan, *Georgia Institute of Technology*

196 **B134 Extracellular Matrix Proteins Direct the Specification of Endothelial Cells from Embryonic Stem Cells**
Alicia Blancas, Kara McCloskey, *University of California, Merced*