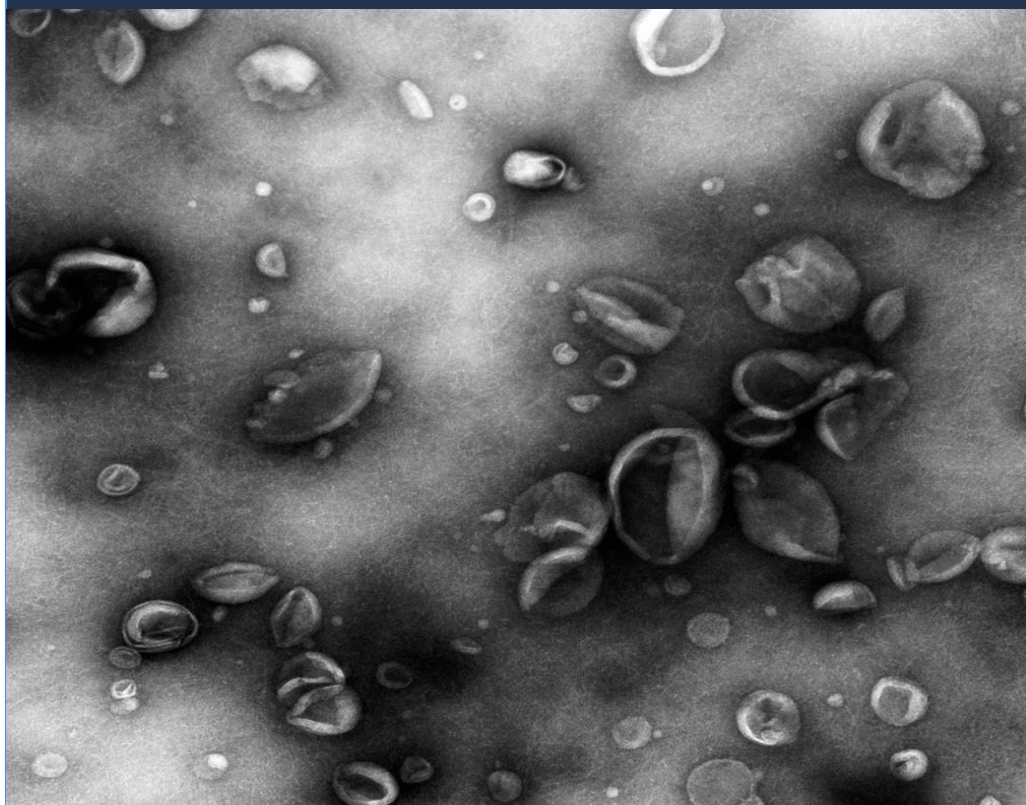


9th Symposium on Biologic Scaffolds for Regenerative Medicine

*Napa, CA
April 28-30, 2016*





*Letter from the
Symposium Chair*

April 27, 2016

Welcome to the 9th Symposium on Biologic Scaffolds for Regenerative Medicine at the Silverado Resort and Spa!

The scientific program has been designed to include presentations of relevance and interest to basic scientists, clinicians, and industry alike. We have a superb line-up of speakers that should stimulate all of us interested in biologic scaffold materials, whether it be from the clinical application perspective, fundamental concepts of cell:scaffold interactions which in turn affect the clinical outcome, or the manufacturing and delivery of such scaffolds. The format encourages open dialogue, especially dialogue that relates basic science concepts to clinical outcomes. The mixture of individuals and specialties at this meeting is quite unique and I strongly encourage you to actively participate and make the most of the next couple of days.

Enjoy the science, the venue and the wine.

Regards,



Stephen F. Badylak, DVM, PhD, MD
Professor, Department of Surgery
Professor, Department of Bioengineering
Deputy Director, McGowan Institute for Regenerative Medicine

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Ninth Symposium on Biologic Scaffolds for Regenerative Medicine

*** Final Program ***

Day 1: April 28, 2016 (Thursday)

6:00 –
8:00 pm Registration Silverado East Foyer

Reception Fairway Deck

Day 2: April 29, 2016 (Friday)

7:00 –
8:00 am Breakfast Fairway Deck

Welcome

8:00 – Stephen F. Badylak, DVM, PhD,
MD
8:05 am *University of Pittsburgh* Silverado East

Keynote Address

8:05 – Robert M. Nerem, PhD
8:40 am *Georgia Institute of Technology* Regenerative Medicine:
Harnessing the Intrinsic Power of
the Human Body

Session I: **Chair:** Karen L. Christman, PhD, FAHA (*University of California, San Diego*)

8:40 – Frederick J. Schoen, MD, PhD
9:15 am *Brigham and Women's Hospital and Harvard Medical School* Role of Matrix and Cell Dynamics
in Heart Valve Health and
Disease

9:15 – Robert Matheny, MD, FACS
9:45 am *CorMatrix Cardiovascular, Inc.* Development of a SIS
Regenerative Heart Valve; From
Benchtop to Clinical Trial

9:45 – Dan T. Simionescu, PhD
10:05 am *Clemson University* Development of Chemically
Stabilized Acellular Cardiac Valve
Scaffolds and in Vivo Testing in a
Sheep Right Ventricular Outflow
Tract Model

10:05 – Lauren D. Black III, PhD
10:25 am *Tufts University* Acellular Cardiac Extracellular
Matrix-Silk Patches for Cardiac
Repair Post-Myocardial Infarction

10:25 –
10:45 am Break Fairway Deck

Ninth Symposium on Biologic Scaffolds for Regenerative Medicine

*** Final Program ***

Session II: **Biologic Scaffolds for Plastic and Reconstructive Surgery** **Chair:** George Hussey, PhD (*University of Pittsburgh*)

10:45 – 11:05 am	Robert G. Martindale, MD, PhD <i>Oregon Health & Science University</i>	Metabolic End Products of Absorbable Bioscaffolds in Soft Tissue Repair; Are They Helping or Hurting Us?
11:05 – 11:25 am	Olof Holmquist, MD <i>Queen Silvias Childrens Hospital</i>	Use of Biodesign® after Chest Wall Resection in Children: Our Experience in Two Cases
11:25 – 11:45 am	D. Adam Young, PhD <i>ACell, Inc.</i>	The Use of Urinary Bladder Matrix for Body Wall Repair in Multiple Preclinical Models
11:45 – 12:05 pm	Nicholas C. Pashos, BS <i>Tulane University School of Medicine</i>	Characterization of a Biologically Derived Graft for Nipple-Areolar Complex Reconstruction
12:05 – 12:25 pm	Kristen Jones, MD <i>University of Minnesota</i>	Neuroprotective Potential of Biologic Scaffolds in Acute Stroke and Human Translational Feasibility: A Neurosurgeon's Perspective
12:25 – 1:45 pm	Lunch	Fairway Deck
Session III:	Mechanisms by Which ECM Scaffolds Influence Cell Behavior and the Associated Clinical Implications Chair: Arnold I. Caplan, PhD (<i>Case Western Reserve University</i>)	
1:45 – 2:05 pm	Karen L. Christman, PhD, FAHA <i>University of California, San Diego</i>	Mechanisms of Action of a Myocardial Matrix Hydrogel for Treating Myocardial Infarction
2:05 – 2:25 pm	Inkyung Kang, PhD <i>Benaroya Research Institute at Virginia Mason</i>	A Role for Versican in Engineered Tissues: Modulating Elasticity and Inflammation
2:25 – 2:45 pm	David M. Adelman, MD, PhD, FACS <i>The University of Texas MD Anderson Cancer Center</i>	Defining the Device to Tissue Transition in Fetal Bovine Acellular Dermal Matrix
2:45 – 3:05 pm	George S. Hussey, PhD <i>University of Pittsburgh</i>	A Novel Bioactive Component of Biologic Scaffolds: Implications for Tissue Repair and Regeneration
3:05 – 3:25 pm	Break	Fairway

Ninth Symposium on Biologic Scaffolds for Regenerative Medicine

*** Final Program ***

Session IV: Some Basic Concepts of ECM and ECM Bioscaffolds

Chair: Laura E Niklason, MD, PhD (*Yale University*)

3:25 – 3:45 pm	Robert Mecham, PhD <i>Washington University School of Medicine</i>	Extracellular Matrix Organization and Function
3:45 – 4:05 pm	Cyrus Ghajar, PhD <i>Fred Hutchinson Cancer Research Center</i>	Where the Wild Things Are: Perivascular Regulation of Disseminated Tumor Cell Dormancy and Chemoresistance
4:05 – 4:25 pm	Matthew T. Wolf, PhD <i>Johns Hopkins University</i>	Urinary Bladder Extracellular Matrix Inhibits Tumor Formation
4:25 – 4:45 pm	Arnold I. Caplan, PhD <i>Case Western Reserve University</i>	MSCs: How They Work and Why (Some Surprises)
4:45 – 5:05 pm	Nikhil Gheewala, PhD <i>ACell, Inc.</i>	Developing a Standard Approach to Evaluating the Decellularization of Biomaterial ECMs
5:05 pm	Adjourn	
6:00 – 7:30 pm	Poster Session & Wine Reception	Fairway Deck

Day 3: April 30, 2016 (Saturday)

7:00 – 8:00 am	Breakfast	Fairway Deck
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Welcome

8:00 – 8:05 am	Stephen F. Badylak, DVM, PhD, MD <i>University of Pittsburgh</i>	Silverado East
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Keynote Address

8:05 – 8:40 am	Laura E Niklason, MD, PhD <i>Yale University</i>	The Agony and the Ecstasy of Getting into the Clinic
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Cell:Matrix Interactions and Clinical Relevance

Session V: **Chair:** Robert Mecham, PhD (*Washington University School of Medicine*)

8:40 – 9:05 am	Nadia Rosenthal, PhD, FMedSci, FAAHMS <i>The Jackson Laboratory, Bar Harbor; Imperial College London, UK</i>	Immune Control of Cardiac Repair
9:05 – 9:30 am	Jeffrey M. Davidson, PhD <i>Vanderbilt University Medical Center</i>	Multiscale Properties of ECM Scaffolds

Ninth Symposium on Biologic Scaffolds for Regenerative Medicine

*** Final Program ***

C. James Kirkpatrick MD,
PhD, DSc, FRCPath
*Johannes Gutenberg
University, Germany &
University of Gothenburg,
Sweden*

Developing in Vitro & in Vivo Models
to Study Tissue Reactions to
Biologic Scaffolds

9:30 –
9:55 am

9:55 –
10:30 am

Break

Fairway Deck

Session VI:

Role of the Macrophage in Bioscaffold Induced Tissue Reconstruction

Chair: Charles D. Mills, PhD (*BioMedical Consultants*)

10:30 –
10:50 am

Charles D. Mills, PhD
BioMedical Consultants

Macrophages. The Chicken and the
Egg in Immune Responses to Injury
or Biologic Scaffolds

10:50 –
11:10 am

Kaitlyn Sadtler, BS
Johns Hopkins University

Th2 T Cells are Required for
Extracellular Matrix-Mediated
Functional Muscle Regeneration

11:10 –
11:30 am

Hui Li, PhD
Life Cell Corporation-Acelity

Macrophage Phenotype Profile
Regulated by Tissue Matrices for
Screening of Biomaterials

11:30 –
11:50 am

Samuel T. LoPresti, BS
University of Pittsburgh

Effect of Source Animal Age upon
Macrophage Response to ECM
Scaffolds

11:50 –
12:10 pm

Wendy F. Liu, PhD
*University of California,
Irvine*

Regulation of Macrophage Function
by Engineered Biopolymer Scaffolds

12:10 –
1:20 pm

Lunch

Fairway Deck

Session VII:

Biologic Scaffolds for CNS, Whole Organ, Skin, and Cartilage Reconstruction

Chair: Bryan N. Brown, PhD (*University of Pittsburgh*)

1:20 –
1:40 pm

Jenna Dziki, BS
University of Pittsburgh

Biologic Scaffold Treatment for
Volumetric Muscle Loss: Results of a
Thirteen Patient Cohort Study

1:40 –
2:00 pm

Hilton Kaplan, MBBCh,
FCSSA, PhD
Rutgers University

Decellularized Allogeneic
Neurovascular Bundles for
Reinnervation and Revascularization
in Soft and Hard Tissue
Reconstruction, the Rehabilitation of
Massive Scarring, and Engineered
Tissues

2:00 –
2:20 pm

Jeff Ross, PhD
Miromatrix Medical Inc.

Engineering a Clinically Relevant
Transplantable Liver with Sustained
In-Vivo Perfusion

Ninth Symposium on Biologic Scaffolds for Regenerative Medicine

*** Final Program ***

2:20 – 2:40 pm	Karthikeyan Narayanan, PhD <i>Institute of Bioengineering and Nanotechnology, Singapore</i>	Decellularized Organs: Whole Organ Construction with Stem Cells
2:40 – 3:00 pm	Ian L. Valerio, MD, MS, MBA <i>Ohio State University Wexner Medical Center</i>	Application of Bioartificial Dermal Regeneration Templates for Skin Restoration in Combat Casualty Injuries
3:00 – 3:20 pm	Byoung-Hyun Min, MD, PhD <i>Ajou University Hospital</i>	Biomembrane from Porcine Cartilage Extracellular Matrix Contributes Enhancement of Efficacy of Microfracture for Cartilage Repair- Clinical Results Followed up 1 Year Postoperatively
3:20 – 3:45 pm	Break	Fairway Deck
Session VIII:	ECM Structure-Function Relationships and Clinical Implications of the Immune Response Chair: C. James Kirkpatrick MD, PhD, DSc, FRCPath (<i>Johannes Gutenberg University, Germany & University of Gothenburg, Sweden</i>)	
3:45 – 4:05 pm	Kenneth Burhop, PhD <i>Integra LifeSciences</i>	Collagen Matrix: Structure & Function - Translating to New Opportunities in Regenerative Medicine
4:05 – 4:25 pm	Inna Kornienko, MS <i>Moscow Institute of Physics and Technology</i>	Low-Immunogenic Matrix Suitable for Transplantation
4:25 – 4:50 pm	Bryan N. Brown, PhD <i>University of Pittsburgh</i>	A Macrophage Centric Approach to the Evaluation of ECM Scaffolds for Tissue Reconstruction
4:50 – 5:00 pm	Stephen F. Badylak, DVM, PhD, MD <i>University of Pittsburgh</i>	Closing Remarks & Adjourn

Poster Session

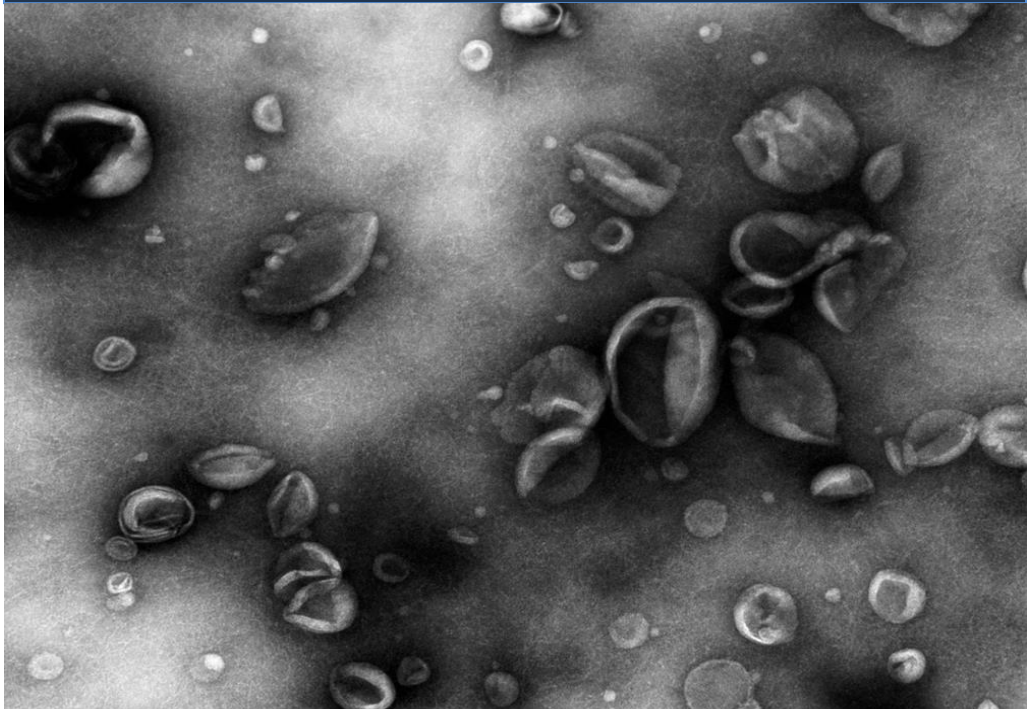
1	Michael J. Buckenmeyer, BS <i>University of Pittsburgh</i>	The Effect of ECM Stiffness on Ovarian Follicle Development
2	Rachelle H Crosbie-Watson, PhD <i>University of California, Los Angeles</i>	Effects of Dystrophin Loss on the Biophysical Properties of Skeletal Muscle ECM
3	Willeke Daamen, PhD <i>Radboud University</i>	Shrinking Collagen Scaffolds to Modulate Mechanical Properties
4	Jenna Dziki, BS <i>University of Pittsburgh</i>	Biologic Scaffold Treatment for Volumetric Muscle Loss: Results of a Thirteen Patient Cohort Study
5	Kelly Guthrie, MS <i>United Therapeutics</i>	Automated Porcine Lung Decellularization System for Pulmonary Tissue Engineering
6	Rebecca M. Horn, BS <i>University of California, Davis</i>	Effect of Urea and Thiourea on Structure-function Properties in Xenogeneic Scaffold Generation
7	Luai Huleihel, PhD <i>University of Pittsburgh</i>	Microvesicles Within ECM Bioscaffolds as a Modulator of Cell Behavior
8	George S. Hussey, Ph.D. <i>University of Pittsburgh</i>	Development of Biologic Scaffolds from Human Glioma Tumors as an Organotypic Model to Study Disease Pathogenesis
9	Tim Keane, BS <i>University of Pittsburgh</i>	Restoring Mucosal Barrier Function and Mediating Inflammation with an Extracellular Matrix Hydrogel: Potential Therapy for Ulcerative Colitis
10	Seung-Hyun Kim, BS <i>Yonsei University</i>	Self-assembled and Three-dimensional Multilayered Electrospun Nanofibrous Scaffold for Biomedical Applications
11	John C. Lantis II, MD, FACS <i>Mt Sinai St Luke's and West Hospitals; Icahn School of Medicine</i>	Acellular Fish Skin Graft's Structure and Bioactivity is Better Preserved Compared to Mammalian Derived Scaffolds due to Less Harsh Processing
12	Slgirim Lee, PhD <i>Yonsei University</i>	Electrospun Clay: Three-dimensional, Macroscopic, and Macroporous Electrospun Sponges with High Moldability and Flexibility for Stem Cell and Adeno-associated Viral Vector Delivery
13	Simone Liebscher, MSc <i>University Hospital Tuebingen</i>	Omics Analyses of Islet-1+ Clusters Identify ECM Proteins for Biomaterial Functionalization
14	Thais Polanco, MD <i>Mount Sinai St. Luke's - West Hospitals</i>	Tissue Generation with Acellular Dermal Collagen Matrices: Clinical Comparison of Human and Fetal Bovine Matrices
15	Travis A. Prest, MS <i>University of Pittsburgh</i>	Peripheral Nerve-Specific Extracellular Matrix Hydrogel Supports Repair After Peripheral Nerve Injury

Poster Session

16	Mónica Romero-López, MS <i>University of California Irvine</i>	Recapitulates Tumor Vasculature compared with Human Normal-Derived Colon Matrix in a Three-Dimensional Model
17	Anders Sandin, MD <i>Queen Silvias Childrens Hospital</i>	Epithelial Regrowth Prevents Reconstructive Remodeling of the Muscle Wall in the Porcine Esophagus after Replacement with Biomatrix
18	Kimberley C. Sannajust <i>University of California, Davis</i>	Effect of Donor Age on Extracellular Matrix Composition in Xenogeneic Scaffold Generation
19	Michelle Scarritt, PhD <i>University of Pittsburgh</i>	Toward Whole Liver Engineering: Liver Extracellular Matrix Promotes the Phenotype and Function of Human Induced Pluripotent Stem Cell (iPSC)-derived Hepatocytes and Endothelial Cells
20	Michael Sikorski, BS <i>Universidad Carlos III de Madrid</i>	Mechanical Modulation of a Human Plasma-based Skin Scaffold via Reactive Multi-arm Polyethylene Glycols
21	Agneta Simionescu, PhD <i>Clemson University</i>	Mitral Valve Tissue Engineering – A Model for Investigating Valve Degeneration
22	Kristen M. Stearns-Reider, PhD, PT <i>University of California, Los Angeles</i>	Electrodiagnostic Evaluation of Individuals Implanted with Extracellular Matrix for the Treatment of Volumetric Muscle Injury
23	Ornella Tempo <i>University of Connecticut</i>	In Vitro Evaluation of Calcium Peroxide Release from Composite Poly(lactico-glycolic acid) Microsphere Scaffolds
24	Neill Turner, PhD <i>University of Pittsburgh</i>	Emerging Implications of Ineffective Biologic Scaffold Decellularization upon the Host Response
25	Jessica L. Ungerleider, BS <i>University of California, San Diego</i>	Extracellular Matrix Hydrogel Promotes Tissue Remodeling, Arteriogenesis, and Perfusion in a Rat Hindlimb Ischemia Model
26	Ian L. Valerio, MD, MS, MBA <i>The Ohio State University</i>	Application of Urinary Bladder Matrix (UBM) in the Treatment Algorithms for Traumatic and Combat Casualty Extremity Wound Care
27	Lisa J. White, PhD <i>University of Nottingham</i>	Detergent Decellularization Methods Affect the Surface Molecular Functionality of Biologic Scaffolds
28	Derek Woloszyn, BS <i>New Jersey Center for Biomaterials</i>	Techniques for Harvesting and Decellularizing Neurovascularized Muscle to Replace Autologous Free Flaps: A Comparison Between Immersion and Perfusion Decellularization
29	Gabriel Merizalde, BS <i>Antioquia University</i>	Platelet Rich Fibrin with Autologous Oral Mucosal Fibroblasts: Dental Applications
30	Pavan M Hallur, BSc, MSc <i>Yonsei University</i>	3D Hydrogel as a Model to Understand Breast Cancer Metastasis
31	Gilson Khang, PhD <i>Chonbuk National University</i>	Natural/Synthetic Hybrid Scaffolds for Tissue-Engineered Organ

“Transmission Electron Microscope image of Matrix Bound Nano Vesicles (MBV). Porcine urinary bladder matrix digested by proteinase K shows the presence of embedded MBVs within the Extracellular Matrix. MBVs range in size from 10 to 550 nm”.

Symposium image courtesy of Theresa Rausch, MSc, (Badylak Laboratory).





Thank you for attending!

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