

2012 McGowan Institute Retreat

March 4-6, 2012

Student Focused Sessions

March 7, 2012

March 4, 2012-Sunday:

4:00 PM	Hotel check-in available (Self-park, or valet park at participant's expense)	Main Lobby
6– 9 PM	Meeting Registration	Marquis Foyer
6– 6:30 PM	Poster Set-up	Marquis Ballroom

Posters must be in place by 6:30 PM Sunday to be eligible for the poster session judging. Judging will be Sunday and Monday evening. This will allow the presenters to visit the other posters as well as give flexibility to our judges. At check in, poster session participants will be advised if their poster will be judged on Sunday or Monday evening. This arrangement will facilitate all authors visiting the other posters. All trainees are required to have a poster.

Four categories: Tissue Engineering, Cellular Therapies, Medical Devices, and Modeling

6:30 – 8 PM	Poster Session and Informal Buffet Reception Poster Session Chair-Kacey Marra, PhD	Marquis Ballroom
8:00 – 9 PM	Real Lives Changed: Regeneration in Action Organized by J. Peter Rubin, MD <ul style="list-style-type: none">• Dr. Gorantla/Sheila Advento• Dr. Rubin/Robert Strang• Dr. Gerlach/Matt Uram	Marquis Ballroom Hand/Arm Transplant Fat Grafting for Facial Reconstruction Skin Gun/Burn Therapy

March 5, 2012-Monday:

7:00 AM	Breakfast	Marquis Ballroom
8:00 AM	Plenary Session <i>State of the Institute</i> William R. Wagner, PhD Interim Director, McGowan Institute of Regenerative Medicine University of Pittsburgh	Lecture Hall

McGowan Distinguished Lecture-Pathways Regulating Stem Cell Self-Renewal and Differentiation

Leonard I. Zon, MD
Grousbeck Professor in Hematology/Oncology
Director, Stem Cell Research Program
Children's Hospital-Boston

10:15 AM **Break** **Lecture Hall and Grand Ballroom Lobbies**

10:30 AM **Session 1- Rehabilitation and Regenerative Medicine** **Lecture Hall**

Organizers:

Anthony Delitto PhD, PT, FAPTA
Professor and Associate Dean for Research in the School of Health and Rehabilitation Sciences
Director of Research Comprehensive Spine Center
Vice President for Education and Research Centers for Rehabilitation Services
University of Pittsburgh Medical Center

Alan Russell, PhD
Distinguished University Professor
University of Pittsburgh
Founding Director-McGowan Institute for Regenerative Medicine

Session Chairs:

Kelley Fitzgerald PT, PhD, FAPTA
Associate Professor in the School of Health and Rehabilitation Sciences
University of Pittsburgh

Alan Russell, PhD
Distinguished University Professor
University of Pittsburgh
Founding Director-McGowan Institute for Regenerative Medicine

Speakers:

- *Hand Transplantation-Clinical Update*
Robert J. Goitz, MD
Department of Orthopaedic Surgery
University of Pittsburgh
- *Capacity of Paralyzed Tissues: Influence of Strategically Dosed Stress*
Richard K. Shields, PT, PhD, FAPTA
Professor and Chair
Physical Therapy and Rehabilitation Science
Carver College of Medicine
University of Iowa

- *Role of Tissue Mobilization for Reduction of Acute Vocal Fold Inflammation*
Katherine Verdolini Abbott, PhD
Professor- Communication Science and Disorders
Department of Otolaryngology, University of Pittsburgh
- *Rehabilitating Stem Cells: Implications for Regenerative Medicine*
Fabrisia Ambrosio, PhD
Assistant Professor
Department of Physical Medicine & Rehabilitation
University of Pittsburgh

Session 2-Systems Biology Insights on the Dynamics of Inflammation, Healing, and Regeneration

Grand Ballroom

Organizer:

Yoram Vodovotz, PhD
Professor, Departments of Surgery, Immunology, and Communications Science and Disorders-University of Pittsburgh

Speakers:

- *A Translational Systems Biology Approach to Inflammation and Wound Healing*
Gary An, PhD
Adjunct Associate Professor in Surgery-Trauma/Critical Care
Northwestern University Feinberg School of Medicine
- *The Dynamic Transcriptome of Fetal and Adult Wound Healing*
Pat Hebda, PhD
Professor of Otolaryngology and Pathology
Adjunct Professor of Speech and Communication Disorders
University of Pittsburgh
Director, Otolaryngology Wound Healing Research Program
Children's Hospital of Pittsburgh
Associate Faculty Member, Pittsburgh Tissue Engineering Initiative
- *Dynamic Gene Networks and the Control of Liver Regeneration in Advanced Liver Disease*
Ira Fox, MD
Director, Center for Innovative Pediatric Regenerative Therapies
University of Pittsburgh School of Medicine Department of Surgery
Children's Hospital of Pittsburgh
- *From Networks to Computational Models of Inflammation, Healing, and Cancer*
Yoram Vodovotz, PhD
Professor, Departments of Surgery, Immunology, and Communications Science and Disorders
University of Pittsburgh

12:30 PM **Lunch** **Marquis Ballroom**

2:00 PM **Session 3- The Fox Center OTERO Program: Mentorship, Innovation and Restoration** **Grand Ballroom**

Organizer:

Joel S. Schuman, MD, FACS
Interim Director, Louis J. Fox Center for Vision Restoration
Eye & Ear Foundation Professor and Chairman, Department of Ophthalmology
Director, UPMC Eye Center

Speakers:

- *Welcome and Introduction: Fox Center and OTERO Program*
Joel S. Schuman, MD, FACS
Interim Director, Louis J. Fox Center for Vision Restoration
Eye & Ear Foundation Professor and Chairman, Department of Ophthalmology
Director, UPMC Eye Center
- Key note address: *Cell-Based Treatment Modalities for Blinding Retinal Neurodegenerative Diseases*
Anand Swaroop, PhD
Senior Investigator and Chief,
Neurobiology Neurodegeneration and Repair Laboratory
National Eye Institute
National Institutes of Health

Reports on the 2011 OTERO Projects (20 minutes each)

- *Engineered Basement Membranes for Regeneration of the Corneal Endothelium*
Rachelle Palchesko, PhD
Postdoctoral Fellow
- *Combating Blindness with Convenient and Comfortable Glaucoma Treatments*
Morgan Fedorchak, PhD
Postdoctoral Fellow
- *Bioengineered Human Corneal Stromal Tissue: Microintegration of Human Corneal Stromal Cells with Multilayered Biodegradable Matrix Constructed with Oriented Nanofibers*
Jian Wu, PhD
Research Assistant Professor
Department of Surgery
University of Pittsburgh

- *Regenerative Medicine Strategies for Optic Nerve Regeneration with the Use of Biologic Scaffolds*
Peter Crapo, PhD
Postdoctoral Fellow

Invited Presentation:

- *Stem Cell Transplantation into Mammalian Retina*
Igor Nasonkin, PhD
Senior Research Fellow, National Eye Institute

Session 4-Stem Cells and Potential Regenerative Therapies

Lecture Hall

Organizer:

Johnny Huard, PhD
Professor and Henry J. Mankin Endowed Chair-Orthopaedic Surgery
Professor, Departments of Molecular Genetics, Biochemistry,
Bioengineering, and Pathology
Director, Stem Cell Research Center
University of Pittsburgh

Speakers:

- *Multipotent Stem Cells in Adult Tissues: A Perivascular Legacy*
Bruno Péault, PhD
Professor, Orthopaedic Surgery
UCLA
Professor and Chair of Vascular Regeneration
Edinburgh University
- *Enhancing the Stemness of Tendon Stem Cells for Tissue Engineering of Injured Tendons*
James H-C Wang, PhD
Associate Professor and Director of the MechanoBiology Laboratory,
Department of Orthopaedic Surgery
University of Pittsburgh
- *Regenerative Medicine Based on Adult Stem Cells for Tissue Repair after Injury, Disease, and Aging*
Johnny Huard, PhD
Professor and Henry J. Mankin Endowed Chair-Orthopaedic Surgery
Professor, Departments of Molecular Genetics, Biochemistry,
Bioengineering, and Pathology
Director, Stem Cell Research Center
University of Pittsburgh

- *Development of Transgenic Canine Models for Preclinical Studies*
Alexander J. Travis, VMD, PhD
Associate Professor of Reproductive Biology
Baker Institute for Animal Health
College of Veterinary Medicine
Cornell University

4:00 PM **Open Time**

4:30 PM **Reception and Poster Session** **Marquis Ball Room**

6:00 PM **Dinner** **Marquis Ball Room**

Innovator Elevator Pitch Contest
(Sponsored by the Office of Enterprise Development)

March 6, 2012-Tuesday:

7:00 AM **Breakfast** **Marquis Ball Room**

8:00 AM **Session 5- Kidney and Regenerative Medicine** **Grand Ballroom**

Organizers:

Ron Shapiro, MD
Professor of Surgery
University of Pittsburgh

John A. Kellum, MD, FACP, FCCM
Professor of Critical Care Medicine
University of Pittsburgh

Transplant Physician – Anesthesiology
Thomas E. Starzl Transplantation Institute
Co-Director, Mechanisms and Novel Therapies for Resuscitation and
Acute Illness

Speakers:

- *Rationale for the Development of an Implantable Bioartificial Kidney (Inadequacy of Chronic Dialysis, Insufficient Organs, etc.)*

William Fissell, MD
Associate Staff
Departments of Biomedical Engineering and of Nephrology and
Hypertension
Cleveland Clinic Foundation

- *Bioartificial Kidneys as a Bridge To Recovery In Acute Kidney Injury*

Kai Singbartl, MD, MPH
Associate Professor of Critical Care Medicine & Anesthesiology
University of Pittsburgh

- *Bioengineering the Lung*
Daniel J. Weiss, MD, PhD
Associate Professor, Pulmonary and Critical Care Division
Department of Medicine
University of Vermont College of Medicine
- *Development and Evaluation of a Cytokine Filter for the Control of SEPSIS*
William J. Federspiel, PhD
William Kepler Whiteford Professor
Departments of Chemical Engineering, Surgery, and Bioengineering; and

John A. Kellum, MD, FACP, FCCM
Professor of Critical Care Medicine
University of Pittsburgh
Transplant Physician – Anesthesiology
Thomas E. Starzl Transplantation Institute
Co-Director, Mechanisms and Novel Therapies for Resuscitation and Acute
Illness

Presented by Erin Nichols

Session 6- Vascular Regeneration and Remodeling

Lecture Hall

Sponsored By: Center for Vascular Remodeling & Regeneration

Organizer:

David Vorp, PhD
William Kepler Whiteford Professor
Professor of Bioengineering, Cardiothoracic Surgery, and Surgery
University of Pittsburgh

Speakers:

- *Introduction*
David A. Vorp, PhD
William Kepler Whiteford Professor
Professor of Bioengineering, Cardiothoracic Surgery, and Surgery
University of Pittsburgh
- *Aortopathy Associated with Bicuspid Aortic Valve*
Tom Gleason, MD
CT Surgery, University of Pittsburgh
Associate Professor of Surgery, Division of Cardiothoracic Surgery
Director, Center for Thoracic Aortic Disease
Co-Director of the Center for Heart Valve Disease at the Heart, Lung and
Esophageal Surgery Institute
University of Pittsburgh School of Medicine

- *Methods to Investigate Mg Corrosion in-vivo*
Dr. Frank Witte, MD, PhD
Associate Prof. Exp. Orthopedics
Manager Implant Immunology, Hannover Medical School
- *Overview of the ERC Clinical/Device Activities*
Prashant Kumta, PhD
Charles Sfeir, DDS, PhD

**Session 8- Regenerative Medicine and
the Central Nervous System**

Lecture Hall

Organizer:

Stephen F. Badylak, DVM, PhD, MD
Professor, Department of Surgery
Deputy Director and Director-Preclinical Studies, McGowan Institute
for Regenerative Medicine-University of Pittsburgh

Speakers:

- *Advances in Regenerative Medicine for Traumatic Brain and Spinal Cord Injury*
Kristen E. Jones, MD
Resident, Department of Neurological Surgery-University of Pittsburgh
- *Can We Regenerate Brain Tissue after a Stroke?*
Michel Modo, PhD
Associate Professor, Department of Radiology
University of Pittsburgh
- *The Role of Extracellular Matrix and Stem Cells in Regeneration Following CNS Injuries*
Mark S. Kindy, PhD
Professor, Department of Neurosciences
Medical University of South Carolina
- *Neurosurgical Neuroregenerative Strategies*
Mark Richardson MD, PhD
Director, Adult Epilepsy Surgery
Co-Director, Functional Neurosurgery
University of Pittsburgh
- *The Need for a Regenerative Approach to Restore Laryngeal Function*
Jonathan Cheetham, VetMB, PhD, DACVS
Research Scientist
Department of Clinical Sciences
Cornell University, College of Veterinary Medicine

12:15 PM

Lunch

Marquis Ballroom

1:30 PM

Session 9- Cardiovascular Issues and Solutions

Lecture Hall

Organizers:

Peter Wearden, MD, PhD
Assistant Professor of Cardiothoracic Surgery
Children's Hospital of Pittsburgh

Harvey Borovetz, PhD
Distinguished Professor and Chair, Department of Bioengineering
Professor of Chemical and Petroleum Engineering
Swanson School of Engineering
University of Pittsburgh
Robert L. Hardesty Professor, Department of Surgery
University of Pittsburgh School of Medicine
Deputy Director of Artificial Organs and Medical Devices
McGowan Institute of Regenerative Medicine

Speakers:

- *New Strategies for Treatment of Heart Failure*
Marc Simon, MD
Assistant Professor, Department of Heart Failure and Cardiac Transplantation
Children's Hospital of Pittsburgh
- *Pediatric Repair Devices*
Jacqueline Kreutzer, MD
Associate Professor of Pediatrics
University of Pittsburgh School of Medicine
Director, Cardiac Catheterization Laboratory
Children's Hospital of Pittsburgh
- *Update on Respiratory Support Technologies*
Scott Morley
Vice President
ALung
- *Low Energy Anti-fibrillation Pacing: No Pain, Low Gain*
Robert F. Gilmour, Jr., PhD
Associate Dean for Research and Graduate Education
Professor of Physiology
College of Veterinary Medicine
Cornell University

Session 10- Adipose Stem Cells

Grand Ballroom

Organizers:

Kacey G. Marra, PhD
Associate Professor, Department of Surgery
University of Pittsburgh
Co-Director, Adipose Stem Cell Center
University of Pittsburgh Medical Center

J. Peter Rubin, MD
Chief and Associate Professor, Division of Plastic and Reconstructive
Surgery
University of Pittsburgh
Co-Director, Adipose Stem Cell Center
Co-Director, Aesthetic Plastic Surgery Center
University of Pittsburgh Medical Center

Speakers:

- *ASCs in Tissue Engineering* (30 minutes)
David Kaplan, PhD
Stern Family Professor of Engineering
Professor and Chair, Department of Biomedical Engineering
Professor, Department of Chemical Engineering
Director, Bioengineering and Biotechnology Center
Tufts University
- *Clinical Translation of ASCs* (15 minutes)
J. Peter Rubin, MD
Chief and Associate Professor, Division of Plastic and Reconstructive Surgery
University of Pittsburgh
Co-Director, Adipose Stem Cell Center
Co-Director, Aesthetic Plastic Surgery Center
University of Pittsburgh Medical Center
- *Scientific Studies with ASCs* (15 minutes)
Kacey G. Marra, PhD
Associate Professor, Department of Surgery
University of Pittsburgh
- *ASCs in Ophthalmology* (15 minutes)
Jim Funderburgh, PhD
Professor, Department of Ophthalmology
Director, Gene Expression Core Module
University of Pittsburgh

- *ASCs in Wound Healing* (15 minutes)
Pat Hebda, PhD
Professor of Otolaryngology and Pathology
Adjunct Professor of Speech and Communication Disorders
University of Pittsburgh
Director, Otolaryngology Wound Healing Research Program
Children's Hospital of Pittsburgh
Associate Faculty Member, Pittsburgh Tissue Engineering Initiative
- *Clinical processing of ASCs* (15 minutes)
Albert Donnenberg, PhD
Professor, Department of Infectious Disease and Microbiology, Graduate
School of Public Health
Professor, Department of Medicine
University of Pittsburgh
- *ASCs in Blood Vessel Regeneration* (15 minutes)
David Vorp, PhD
William Kepler Whiteford Professor
Professor of Bioengineering, Cardiothoracic Surgery, and Surgery
University of Pittsburgh

3:30 PM **Break** **Lecture Hall and Grand Ballroom Lobbies**

3:45 PM **Session 11- Reliable Neural Interface** **Lecture Hall**

Organizer:

X. Tracy Cui, PhD
Associate Professor, Bioengineering
University of Pittsburgh

Speakers:

- *Recent Progress toward a High-Performance Neural Prosthetic Arm*
Andrew Schwartz, PhD
Professor of Neurobiology
University of Pittsburgh
- *Reliable Spinal Nerve Interfaces for Restoring Somatosensory, Motor, and Autonomic Functions*
Douglas J. Weber, PhD
Assistant Professor, Department of Physical Medicine and Rehabilitation
University of Pittsburgh
- *Signal Decay and Axon Targeting in Peripheral Nerve Interfaces*
Mario Romero-Ortega, PhD
Associate professor of Bioengineering
University of Texas, Arlington

- *Modeling the Brain Tissue Response to Neural Interfaces: Towards Informed Design*
Patrick Tresco, PhD
Professor and Chair of Bioengineering
University of Utah

Session 12- Craniofacial Regeneration

Grand Ballroom

Organizers:

Charles Sfeir, DDS, PhD
Associate Professor, Department of Oral Medicine and Pathology
University of Pittsburgh

Prashant Kumta, PhD
Edward R. Weidlein Chair
Swanson School of Engineering
Professor, Departments of BioEngineering, Chemical and Petroleum Engineering, and Mechanical Engineering and Materials Science
University of Pittsburgh

Speakers:

- *Modular Scaffold Engineering for Craniofacial Reconstruction*
Scott Hollister, PhD
Professor of Bioengineering and Mechanical Engineering
University of Michigan
- *Bone Tissue Engineering; Cell-Based or Cell-Free Scaffold?*
Joelle Amedee, PhD
Research Professor and Director at Inserm
Université Bordeaux Segalen
- *Patient Selection, Procedural Planning And Post-Operative Monitoring After Human Face Transplantation*
Vijay Gorantla, MD, PhD
Associate Professor, Department of Surgery, Division of Plastic Surgery
University of Pittsburgh
Administrative Medical Director, Pittsburgh Reconstructive Transplant Program
University of Pittsburgh Medical Center
- *Calcium Phosphates – Not inert anymore?*
Charles Sfeir, DDS, PhD

6:00 PM

Dinner

Marquis Ballroom

Program:

- Speaker:
 - *Achieving the Full Potential of Regenerative Medicine: The Role of Healthcare Data to Support Commercial Success and Patient Care*
Murray Aitken
Executive Director
IMS Institute for Healthcare Informatics
IMS Health Inc.
- Presentation of Poster Session Awards
Kacey Marra, PhD-Poster Session Chair
- Door Prize Drawings (Winners must be present)

8:30 PM

Professional Development Session for Trainees

Lecture Hall

Organizer:

Sanjeev Shroff, PhD
Director, Cardiovascular Bioengineering Training Program
Professor and McGinnis Chair in Bioengineering
Professor of Medicine
University of Pittsburgh

Theme:

Getting in the Driver's Seat – what can you do to help yourself?

Speakers:

Getting in the Driver's Seat – Academic Career

Steven R. Little, Ph.D.
Assistant Professor and Bicentennial Alumni Faculty Fellow,
Departments of Chemical & Petroleum Engineering, Bioengineering, and
Immunology
University of Pittsburgh

Getting in the Driver's Seat – Entrepreneurial-Academic Career

Alan S. Waggoner, Ph.D.
Professor, Department of Biological Sciences
Director, Molecular Biosensor and Imaging Program
Carnegie Mellon University
Co-Founder: Biological Detection Systems; Cellomics; Sharp Edge Labs

Getting in the Driver's Seat – Opportunities at Pitt for Medical Innovation

Pratap S. Khanwilkar, Ph.D.
Director, Coulter Translational Research Partners II Program at Pitt
Executive-in-Residence, Office of Technology Management
Professor, Department of Bioengineering
University of Pittsburgh

Open Discussion

March 7, 2012-Wednesday:

8:00 AM	Breakfast	Marquis Ballroom
8:55 AM	<u>Trainee Working Session</u>	Lecture Hall
	<u>Organizer:</u> Satdarshan P. Singh Monga, MD Associate Professor, Pathology and Medicine University of Pittsburgh School Assistant Professor, Gastrointestinal Oncology University of Pittsburgh Cancer Institute	
	<u>Participating Training Programs:</u> <ul style="list-style-type: none">• Cellular Approaches to Tissue Engineering and Regeneration (CATER)• Cardiovascular Bioengineering Training Program (CBTP)• Biomechanics in Regenerative Medicine (BiRM)• Angiopathy Training Grant (ATP)	
	<u>Program:</u>	
8:55 AM	<i>Welcome</i> Satdarshan P. Singh Monga, MD	
9:00 AM	<i>Mentor/Mentee Relationships</i> Harry C. Blair, MD	
9:40 AM	Q & A	
10:00 AM	<i>Conflict of Interest (Licensing and Conflict Resolution)</i> Johnny Huard, PhD	
10:40 AM	Q & A	
11:00 AM	<i>No Conflict No Interest</i> Alan J. Russell, PhD	
11:40 AM	Q & A	
12 N	Meeting concludes	
12:00 N	Lunch	Marquis Ballroom
1:00 PM	Departure	