

McGowan Institute Retreat-2014

March 9-11, 2014

Nemacolin Woodlands Resort

Sunday March 9:

3:00 PM	Hotel check-in available (Self-park, or valet park at participant's expense)	Main Lobby
5:00– 8:30 PM	Meeting Registration	Marquis Foyer
5:30–7:30 PM	Poster Session and Informal Mixer / Networking	Marquis Ballroom

Posters must be in place by 5:30 PM Sunday Poster sessions will be held March 9 and 10, 2014. Posters must be in place both days. Posters will be selected for presentation on a single session. Presenters will be notified upon check-in at the registration table on March 9th which day they are scheduled to present.

7:30- 7:45 PM	“Welcome to the MIRM Annual Retreat and to the University of Pittsburgh” Arthur S. Levine, MD Senior Vice Chancellor and Dean-School of Medicine	
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7:45- 8:45 PM	“New Clinical Applications” J. Peter Rubin, MD UPMC Endowed Professor and Chair of Plastic Surgery Professor of Bioengineering University of Pittsburgh Peter Wearden, MD, PhD Surgical Director, Pediatric Heart and Lung Transplantation Director, Pediatric Mechanical Cardiopulmonary Support Program Assistant Professor of Cardiothoracic Surgery University of Pittsburgh School of Medicine	
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Monday March 10:

7:00-8:00 AM	Meeting Registration	Marquis Foyer
	Breakfast	Marquis Ballroom
8:00 AM	Plenary Session • The McGowan Institute: Past, Present and Future William Wagner, PhD Professor-Surgery and Bioengineering Director-McGowan Institute for Regenerative Medicine	Lecture Hall

- **Opportunities for Collaboration with the Military**

Rear Admiral Bruce Doll
Chief of Navy Medical Research and Development

and

Ronald Poropatich, MD
Executive Director-Center for Military Medicine Research,
Health Sciences
University of Pittsburgh

9:00 AM

Working Session 1

Lecture Hall

Chronic Pain and Neuroinflammation

Session Chairs: Jelena M. Janjic, PhD

Assistant Professor Pharmaceutics
Graduate School of Pharmaceutical Sciences,
Duquesne University and Founder and Co-Director
Chronic Pain Research Consortium,
Duquesne University

John A. Pollock, PhD
Associate Professor of Biological Sciences,
Co-Director of the Chronic Pain Research Consortium,
Duquesne University

“Inflammation, Afferent Sensitization, Hyperalgesia and Pain”

G.F. Gebhart, PhD
Professor and Director
Center for Pain Research-University of Pittsburgh

“Theranostic Pain Nanomedicine: Entry to the New Era of Inflammatory Pain Research?”

Jelena M. Janjic, PhD
Founder and Co-Director, Chronic Pain Research Consortium-Duquesne University

“Ouch, Let Me See Where it Hurts: Acute to Chronic Pain Transition in Neuroinflammatory Pain of Chronic Constriction Injury”

John Archie Pollock, PhD-Co-Director of the Chronic Pain Research Consortium
Associate Professor of Biological Sciences-Duquesne University

“A Systems Approach to Inflammation: Possible Applications to Pain Research”

Yoram Vodovotz, PhD
Director, Center for Inflammation and Regenerative Modeling
Professor of Surgery, Immunology, Computational and Systems Biology, Clinical and Translational Science, and Communication Science and Disorders-University of Pittsburgh

Working Session 2

Grand Ballroom

Cell and Gene Therapies

Session Chair: Bing Wang, MD, PhD

Associate Professor
Director, Molecular Therapy Lab
Stem Cell Research Center
Department of Orthopaedic Surgery and Neurology
University of Pittsburgh School of Medicine

"Stem Cell and Biomimetic Materials for Skeletal Regeneration"

Rocky S. Tuan, PhD
Director, Center for Cellular and Molecular Engineering
Professor and Executive Vice Chair for Orthopaedic Research
Arthur J. Rooney, Sr. Professor in Sports Medicine
Department of Orthopaedic Surgery
Director, Center for Military Medicine Research, Health Sciences
Associate Director, McGowan Institute for Regenerative Medicine
University of Pittsburgh School of Medicine
Professor, Department of Bioengineering and Mechanical Engineering and Materials
Science, Swanson School of Engineering
University of Pittsburgh

"Muscle Derived Stem Cells Mediated Gene Therapy for the Musculoskeletal System"

Johnny Huard, PhD
Henry J. Mankin Professor
Director, Stem Cell Research Center
Vice Chair for Musculoskeletal Cellular Therapeutics,
Department of Orthopaedic Surgery, University of Pittsburgh, School of Medicine
Professor of Pediatrics, Microbiology & Molecular Genetics, Physical Medicine &
Rehabilitation
UPMC Sports Medicine

"Gene Therapy for Regenerative Medicine"

Xiao Xiao, PhD
Fred Eshelman Distinguished Professor of Gene Therapy
Vice Chair, Division of Molecular Pharmaceutics
UNC Eshelman School of Pharmacy

"Tendon Stem Cells, Tendon Injury, and Tendon Regeneration"

James H-C. Wang, PhD
Professor and Director MechanoBiology Laboratory
Department of Orthopaedic Surgery
University of Pittsburgh School of Medicine

11:00 AM

Break

11:15 AM

Working Session 3

Grand Ballroom

Regenerative Rehabilitation

Session Chair: Fabrisia Ambrosio, PhD, MPT
Assistant Professor,
Department of Physical Medicine & Rehabilitation,
University of Pittsburgh

"Neuroprotective Effects of Physical Activity"

Judy Cameron, PhD
Professor of Psychiatry and Director of Pitt Science Outreach,
University of Pittsburgh

"A Connection-Free Translational Analysis Platform for Neuromotor Disease Research and Therapeutic Validation"

David Allenson Borton, PhD
Assistant Professor of Neuroengineering, Brown University
Marie Curie Fellow, Swiss Federal Institute of Technology,
Lausanne, Switzerland

"Stem Cell Therapeutics for Volumetric Muscle Loss"
Thomas Rando, MD, PhD
Professor of Neurology and Neurological Sciences,
Stanford University

"Role of the Extracellular Matrix in Age-Related Declines of Skeletal Muscle Regeneration"
Fabrisia Ambrosio, PhD, PT
Assistant Professor, Department of Physical Medicine & Rehabilitation,
University of Pittsburgh

Working Session 4

Lecture Hall

Imaging Living Systems from Single Molecules to Whole Animals

Session Organizers: Simon Watkins, PhD
Director Center for Biologic Imaging,
Professor, Cell Biology and Immunology
University of Pittsburgh

and

Donna Stolz, PhD
Associate Director
Center for Biologic Imaging
Associate Professor-Department of Cell Biology and
Physiology
University of Pittsburgh.

Moderator: Donna Stolz, PhD

This symposium will provide an overview of a few of the approaches available within the Center for Biologic Imaging (CBI) to study the behavior of molecules, cells and tissues in living systems. The presentations include work at the absolute limit of light microscopy to study cytoskeletal dynamics (Kwiatkowski), the use of high resolution single photon (Watkins) and multi photon imaging (Camarind) to study fluorescently labelled cells in living systems in multiple colors, and how one can derive specific structural and biomechanics parameters with no labeling in living systems using optical approaches (Tsamis). The ultimate goal of the symposium is to highlight capabilities and potential of the CBI which is home to one of the largest and most well equipped microscopy resources in the world with the idea of increasing collaborative grant funding with the Center.

"Novel Fluorescent Probes for Living Systems"
Simon Watkins, PhD, Director Center for Biologic Imaging,
Professor, Cell Biology and Immunology

"Imaging the Dynamic Cytoskeleton"
Adam Kwiatkowski, PhD, Assistant Professor, Cell Biology

"Aortic Valve Morphology Predicts Spatially-Distinct Fiber Architecture in Ascending Aorta Aneurysm"
Alkiviadis Tsamis, PhD, Senior Postdoctoral Researcher, Bioengineering

"Intravital Microscopy: Applications in Transplantation"
Geoffrey Camirand, PhD, Research Assistant Professor of Surgery

1:15 PM Buffet Lunch Marquis Ballroom

2:15 PM Working Session 5 Grand Ballroom

Musculoskeletal Tissue Engineering

Session Chair: Savio L-Y. Woo, PhD, DSc, DEng

“Biological and Mechanical Augmentations for Ligament Healing”

Savio L-Y. Woo, PhD, DSc, DEng

Distinguished University Professor of Bioengineering

Founder and Director, Musculoskeletal Research Center

Swanson School of Engineering, University of Pittsburgh

and

Kwang E. Kim, BS

Ph.D. Candidate, Musculoskeletal Research Center

Department of Bioengineering, Swanson School of Engineering,

University of Pittsburgh

“Development of a Trajectory-Based Tissue Engineering Approach for Cartilage Repair”

Matthew Fisher, PhD

Assistant Professor-Joint Department of Biomedical Engineering,

North Carolina State University and the University of North Carolina-Chapel Hill

“Breakthroughs in Improving Collagen Hydrogels for Strength and Materials Testing”

Albert J. Banes, PhD

Professor – Joint Department of Biomedical Engineering, North Carolina State

University and the University of North Carolina-Chapel Hill

President, Flexcell International Corporation

“Towards Tissue Engineering of the TMJ Disc with ECM Bioscaffolds”

Alejandro Almarza, PhD

Assistant Professor- Oral Biology, School of Dental Medicine,

University of Pittsburgh

Working Session 6

Lecture Hall

Fox Center-Vision Restoration Research

Session Chairs:

Joel S. Schuman, MD

Eye & Ear Foundation Professor

Chairman, Department of Ophthalmology

Director of UPMC Eye Center

Director, Louis J. Fox Center for Vision Restoration

Professor of Bioengineering

University of Pittsburgh

and

Igor Nasonkin, PhD

Dr. E. Ronald Salvitti Assistant Professor

Department of Ophthalmology

Assistant Director, Fox Center for Vision Restoration

University of Pittsburgh

“Therapy for Corneal Scarring With Autologous Stem Cells” (25 minutes)

James Funderburgh, PhD

Professor of Ophthalmology

University of Pittsburgh

“A Neurobehavioral Perspective on the Ideal Candidate for Sensory Substitution Use” (20 minutes)
 Amy Nau, OD
 Assistant Professor-Department of Ophthalmology-University of Pittsburgh
 Director of Optometric and Low Vision Services, UPMC Eye Center

‘OTERO: Dental Pulp Stem Cells for Corneal Stroma Regeneration’ (15 minutes)
 Fatima N. Syed-Picard, PhD
 OTERO Fellow-McGowan Institute and Department of Ophthalmology
 University of Pittsburgh

“OTERO: Extracellular Matrix Strategies for Promoting Optic Nerve Repair”
 Fanwei Meng, PhD (15 minutes)
 OTERO Fellow-McGowan Institute and Department of Ophthalmology
 University of Pittsburgh

“Induced to Cure: Using iPS Cell Derived RPE to Treat Degenerative Eye Diseases” (30 minutes)
 Kapil Bharti, PhD
 Ophthalmic Genetics and Visual Function Branch
 National Eye Institute, National Institutes of Health

4:15 PM Poster Session and Networking Reception (Reception 5:15-6:15 PM) Marquis Ballroom

6:15 PM Dinner Welcome
 Kacey Marra, PhD-Program Chair Marquis Ballroom

7:30 PM Innovator Elevator Pitch Contest
 Sponsored by the Office of Enterprise Development
 Session Chair: Paul Petrovich, CPA

Tuesday March 11:

7:00-8:00 AM Breakfast Marquis Ballroom

Meeting Registration Marquis Foyer

8:00 AM Plenary Session Lecture Hall
McGowan Institute Distinguished Lecture
“The Critical Role of Extracellular Matrix and Microenvironment in Metastasis and Dormancy”
 Mina Bissell, PhD
 Distinguished Scientist
 Life Sciences Division
 Lawrence Berkeley National Laboratory

9:00 AM Working Session 7 Lecture Hall
CNS Damage and Repair
 Session Chair: Michel Modo, PhD
 Associate Professor
 Department of Radiology
 University of Pittsburgh

"Mitochondrial Protein Import Dysfunction in Huntington's Disease"

Robert M. Friedlander, MD
Chairman, Walter E. Dandy Professor of Neurological Surgery
Head of Cerebrovascular Neurosurgery
University of Pittsburgh & UPMC

"Discovery and delivery of drugs to motor neurons for treatment of ALS"

Robert Bowser, PhD
Chairman, Division of Neurobiology
John and Betty VanDenburgh Chair of Neuromuscular Disease Director,
Gregory W. Fulton ALS and Neuromuscular Research Center
Director of Neurology
Research Professor of Neurology and Neurobiology
Barrow Neurological Institute & St. Joseph's Hospital-Phoenix

"The UK Regenerative Medicine Platform and Technologies to Enhance CNS Repair Technologies"

Kevin Shakesheff, PhD
Professor of Advanced Drug Delivery and Tissue Engineering,
Faculty of Science
University of Nottingham

"Neural Stem Cells at the Biomaterial-Neural Tissue Interface"

Xinyan Tracy Cui, PhD
Associate Professor
Bicentennial Alumni Faculty Fellow
Department of Bioengineering
University of Pittsburgh

Working Session 8

Grand Ballroom

Translation (Select Examples)

Session Chair: Newell R. Washburn, PhD
Associate Professor of Chemistry,
Biomedical Engineering and Materials Science & Engineering
Carnegie Mellon University

"Commercialization of an Ocular Sealant: The HyperBranch Medical Technology Story"

Mark W. Grinstaff, PhD
Professor- Biomedical Engineering
Professor- Chemistry
Boston University

"Heart Valve Replacement and Regeneration: Status, Challenges and Opportunities"

Frederick J. Schoen, MD, PhD
Professor of Pathology and Health Sciences and Technology, Harvard Medical School
Executive Vice Chairman, Department of Pathology, Brigham and Women's Hospital

"From Quantitative Phase Microscopy to Nanovision Diagnostics"

Yang Liu, PhD
Assistant Professor, Department of Medicine, Division of Gastroenterology, Hepatology
and Nutrition
Assistant Professor, Department of Bioengineering
Director, Biomedical Optical Imaging Laboratory (BOIL)
University of Pittsburgh, University of Pittsburgh Cancer Institute

Joint Presentation on Therapies Based on Adipose Derived Fat:
“Harnessing Adipose Biology for Soft Tissue Regenerative Therapies”
J. Peter Rubin, MD
UPMC Endowed Professor and Chair of Plastic Surgery
Professor of Bioengineering
University of Pittsburgh

and

“The Evolution and Applications of Minimally Invasive Autologous Fat Transfer in Clinical Surgery”
Sidney Coleman, MD
TriBeCa Plastic Surgery
New York, NY

11:00 AM

Break

11:15 AM

Working Session 9
Aging and Stem Cells
Session Chair: Johnny Huard, PhD

Lecture Hall

“The Role of Stem Cell Exhaustion in Aging”
Johnny Huard, PhD
Henry J. Mankin Professor,
Vice Chair for Musculoskeletal Cellular Therapeutics,
Department of Orthopaedic Surgery
Professor, Pediatrics, Microbiology and Molecular Genetics, Physical Medicine and
Rehabilitation
Director, Stem Cell Research Center

“Mitochondria-Telomere Cross-Talk: A Unifying Model of Aging?”
Bennett Van Houten, PhD
Professor-Department of Pharmacology and Chemical Biology
University of Pittsburgh

“Developing Stem Cell Based Approaches for Treating Age-Related Pathologies”
Paul Robbins, PhD
Professor, Department of Metabolism & Aging
Florida Campus, The Scripps Institute

“Origin of New Hepatocytes in Liver Homeostasis and Injury”
Holger Willenbring, MD, PhD
Associate Professor, Department of Surgery, Division of Transplantation
Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research
University of California, San Francisco

Working Session 10
Reconstructive Transplantation-State of the Art
Session Chair: Vijay S. Gorantla, MD, PhD

Grand Ballroom

“Reconstructive Transplantation for Devastating Combat Trauma – Translational Insights and Clinical Prospects “
Michael Davis, MD and Dmitry Tudor, MD
SAMMC and ISR
Department of Defense

“Vascularized Composite Tissue Allotransplantation – Progress and Potential”

Mario G. Solari, MD
Assistant Professor
Department of Plastic Surgery
University of Pittsburgh

Whole Eyeball Transplantation

a. *“History, Evolution and Scientific Basis”*

Vijay Gorantla, MD, PhD
Associate Professor
Department of Plastic Surgery
University of Pittsburgh

b. *“From Experimental Model to Clinical Reality”*

Kia Washington, MD
Assistant Professor
Department of Plastic Surgery, University of Pittsburgh

“Reconstructive Transplantation - The Future”

Vijay Gorantla, MD, PhD

1:15 PM

Lunch

Marquis Ballroom

Poster Session Award Presentations

Andrew W. Duncan, PhD
Assistant Professor of Pathology, University of Pittsburgh

CATER Recognition Presentations

Satdarshan (Paul) Singh Monga, MD
Professor and Vice Chair of Pathology, and Professor of Medicine
University of Pittsburgh

Introduction of Elevator Pitch Awardees

Paul J. Petrovich, CPA
University of Pittsburgh Innovation Institute
Office of Enterprise Development

2:15 PM

Trainee Session

Grand Ballroom

Organized by the CATER, BiRM and CBTP training programs;
open to all interested students/faculty

Chairs: Satdarshan (Paul) Singh Monga, MD and Sanjeev Shroff, PhD

How did I choose my career path?”

Welcome and Opening Remarks

Satdarshan (Paul) Singh Monga, MD
Professor and Vice Chair of Pathology, and Professor of Medicine
University of Pittsburgh

Sanjeev Shroff, PhD
Chair and Professor-Bioengineering
University of Pittsburgh

Presentations by Alumni (20 minutes each):

“MD/PhD Track”

Zahida Khan, MD, PhD
Pediatric Gastroenterology Fellow,
Children’s Hospital of Pittsburgh

"Staying in Academia"

Tim Maul, PhD

ECMO Coordinator, Children's Hospital of Pittsburgh, and
Research Assistant Professor, University of Pittsburgh

"Staying in Academia"

Matt Fisher, PhD

Assistant Professor, Joint Department of Biomedical Engineering,
North Carolina State University and
University of North Carolina-Chapel Hill

"From Graduate Training to Postdoc in Academia and Then Industry"

Priya Baraniak, PhD

Director of Business Development, RoosterBio

"From Graduate Training to Industry"

Tiffany Sellaro, PhD

Sr. Product Manager, Omnyx, LLC

Open Discussion / Question and Answer Session (4:00-4:20 PM)

Wrap Up (4:20-4:30 PM)

4:30 PM

Depart