

# Richard L. Simmons Lecture in Surgical Science and Department of Surgery Research Day

Wednesday, May 8, 2019 University Club Ballrooms A and B





Richard L. Simmons, MD
Chair Emeritus, Department of Surgery
Distinguished Service Professor of Surgery

Richard L. Simmons, MD, graduated magna cum laude in biochemical sciences from Harvard University and was elected to Phi Beta Kappa. He earned his MD at Boston University, graduating summa cum laude, and was elected to AOA. He completed his surgical residency at New York Presbyterian Hospital, where he was a National Institutes of Health (NIH) postdoctoral fellow, a

visiting fellow in surgery at Columbia University, and an American Cancer Society (ACS) clinical fellow. During this time, he also won the Mead Johnson Award of ACS and was a clinical and research fellow in surgery at Massachusetts General Hospital and a research fellow at Harvard Medical School. He became principal investigator of an RO1 grant as a resident and was NIH funded for more than 40 consecutive years thereafter.

After heading the surgical research team of the U.S. Army in Vietnam in 1967, Simmons joined the surgical faculty of the University of Minnesota, where he was a Markle scholar in academic medicine and held professorships in both surgery and microbiology. Between 1987 and 1998, Simmons served as chair of the Department of Surgery at the University of Pittsburgh School of Medicine, and in 1996, he became the medical director of UPMC—a position he held until 2015.

During his tenure at Pitt, Simmons has received many honors. Locally, he was given the annual award from the Southwestern Pennsylvania Chapter of ACS and the Gift of Life Award from the National Kidney Foundation of Western Pennsylvania and was named Man of the Year (1998) in Science by Vectors of Pittsburgh. He was selected by Archives of Surgery as one of two dozen 20th-century surgeons who have made significant contributions to surgery, and in 2001, ACS dedicated the Surgical Forum to Simmons. In 2004, Simmons received the Medawar Prize for his work in transplantation immunology and infectious disease. He was awarded the Thomas E. Starzl Prize in Surgery and Immunology in 2005 and the Lifetime Achievement Award from the Society of University Surgeons in 2010. The Allegheny County Medical Society Foundation honored Simmons with the Ralph C. Wilde Leadership Award in March 2014. Most recently, Simmons was awarded the Pioneer Award from the American Society of Transplant Surgeons and the Scientific Medallion from the American Surgical Association, Simmons is past chair of the Surgical Forum and past president of the Society of University Surgeons, American Society of Transplant Surgeons, and Surgical Infection Society. Simmons also has served as a member of the Board of Directors of the American Board of Surgery. He has authored or edited 15 books and more than 1,300 articles. In 1994, he was elected to the Institute of Medicine of the National Academies.

Simmons continues to serve the Department of Surgery as chair emeritus and as an advisor and mentor.



George Miller, MD
H. Leon Pachter Professor
Departments of Surgery and Cell Biology
Leader, Cancer Immunology Program
New York University (NYU) School of Medicine

George Miller, MD, is a highly experienced hepatobiliary surgeon and physician-scientist with an extensive background in the evaluation and treatment of people with liver, bile duct, and pancreatic tumors. In addition

to his appointments as H. Leon Pachter Professor of Surgery and Cell Biology, he is Vice Chair of Research in the Surgery Department and director of the T32 training program in gastrointestinal oncology at NYU School of Medicine. Miller also is the leader of the Laura and Isaac Perlmutter Cancer Center Immunology Program.

After receiving his BA from Columbia University and his MD from McGill University, Miller completed a general surgery residency at NYU School of Medicine. He completed a postdoctoral research fellowship studying cancer immunology and immunotherapy and clinical fellowships in surgical oncology and hepatobiliary and pancreatic surgery at Memorial Sloan Kettering Cancer Center.

Miller directs the S. Arthur Localio Laboratory where he investigates the immunologic regulation of liver and pancreatic cancers. The lab has been supported by more than 40 federal and nonfederal grants since 2009. His lab's work has been published in high-impact journals that include *Nature*, *Cell*, *Nature Medicine*, *Cancer Discovery*, and *Cancer Cell*. The lab's findings are being translated to four separate clinical trials in pancreatic cancer and three new innovative therapeutics. Miller's lab has filed 10 patent applications based on its discoveries.

# **SCHEDULE**

7:30–8 a.m. Poster Viewing

Ballrooms A and B

8-9 a.m. Richard L. Simmons Lecture

in Surgical Science

Ballroom A

"New Approaches to Pancreatic Cancer

Immunotherapy"

George Miller, MD

H. Leon Pachter Professor

Departments of Surgery and Cell Biology Leader, Cancer Immunology Program

New York University (NYU) School of Medicine

9–9:30 a.m. Poster Viewing/Break

Ballrooms A and B

9:30-10:45 a.m. Oral Presentations

Session 1 Ballroom A

10:45–11:15 a.m. Poster Viewing/Break

Ballrooms A and B

11:15 a.m.-12:30 p.m. Oral Presentations

Session 2 Ballroom A

12:30-2 p.m. Buffet Luncheon

Ballroom B



# 7:30-8 a.m. Poster Viewing, Ballroom A

### BASIC SCIENCE I (Left Station)

**Tianmeng Chen**, Single Cell RNA Sequencing Reveals A New Monocyte Trajectory in Mouse Polytrauma Model (Advisor: Timothy R. Billiar, MD)

**Shuai Liu**, Mechanical Ventilation with Moderate Tidal Volumes Aggravates Extrapulmonary Sepsis-Induced Lung Injury via IL33-WISP1 Signaling Pathway (Advisor: Liming Zhang, MD)

Rafael Ramos-Jimenez, Traumatic Brain Injury in Adult Mice Results in Decreased Gut Commensals and Microbiome Diversity

(Advisors Michael Marquitz, MD)

(Advisor: Michael Morowitz, MD)

**Jurgis Alvikas**, Novel Platelet-Targeted Nanotechnology to Target Deep Venous Thrombosis (DVT)

(Advisor: Matthew Neal, MD)

**Nandan Nath**, Novel Graft Topography: Arterial Wrinkling to Prevent Platelet Aggregatior (Advisor: Edith Tzeng, MD)

### EPIDEMIOLOGY/CLINICAL OUTCOMES (Right Station)

**Maria Cohen**, Sevoflurane is Associated with Worse Clinical Outcomes and Altered Inflammatory Markers in Blunt Trauma Patients: Pharmacogenomic Association with Single Nucleotide Polymorphisms rs4715332 and rs1695 (Advisor: Yoram Vodovotz, PhD)

**Kristina Nicholson**, Microscopic Extrathyroidal Extension of BRAFV600E Status Improve PTC Recurrence Prediction by AJCC 8th Edition Staging (Advisor: Linwah Yip, MD)

**Osama Shah**, Identifying Genomic Alterations in Stage IV Breast Cancer Patients Using MammaSeq: An International Collaborative Study (Advisor: Adrian Lee, PhD)

**Pranav Murhy**, Prognostic Value of Systemic Immune-Inflammatory Index (S II) After Neoadjuvant Therapy in Patients with Pancreatic Cancer (Advisor: Michael Lotze, MD)

**Katrina Morgan**, Successful Pre-operative CT-Guided Localization of Pulmonary Nodules Using Microcoils and Methylene Blue Dye Prior to Thoracoscopic Resection in Pediatric Patients (Advisor: Marcus Malek, MD)

**Sidrah Khan**, Long-Term and Oncologic Outcomes of Robotic versus Laparoscopic Liver Resection for Metastatic Colorectal Cancer: A Multicenter, Propensity Score Matching Analysis (Advisor: Allan Tsung, MD)

# 7:30-8 a.m. Poster Viewing, Ballroom B

### BASIC SCIENCE II (Left Station)

**Yue Wang**, Deep Serial Analysis of the TCR/BCR CDR3 Adaptome Repertoire in Peripheral Blood of Pancreatic Cancer Patients in a Randomized Study of Neoadjuvant Chemotherapy with or without Autophagy Inhibition (Advisor: Michael Lotze. MD)

**Daqiang Zhao**, Role of innate Allorecognition Pathways in Mouse Renal Allograft Rejection (Advisor: Fadi Lakkis, MD)

**Khodor Abou-Daya**, Tertiary Lymphoid Organs in Renal Chronic Allograft Rejection (Advisor: Martin Oberbarnscheidt. MD. PhD)

**Kathy Gonzalez**, Inhibition of Xanthine Oxidoreductase Accelerates Diabetic Wound Healing (Advisor: Edith Tzeng, MD)

### QUALITY/EDUCATION/EPIDEMILOGY (Right Station)

**Patrick Varley**, Implementation of the Risk Analysis Index as a Prospective Frailty Screening Tool Within a Multi-Practice, Multi-Hospital Integrated Healthcare System (Advisor: Daniel Hall, MD, MDiv, MHSc)

**Shreyus Kulkarni**, Determinants of Surgeon Decision-Marking in Emergency General Surgery: A Qualitative Analysis

(Advisor: Deepika Mohan, MD)

**Patrick Varley** Cost-Effectiveness of Post-Discharge Thromboprophylaxis Following Resection for Pancreatic Cancer (Advisor: Allan Tsung, MD)

**Elizabeth Andraska**, Mesenteric Venous Thrombosis: Predictors of Anticoagulation Failure (Advisor: Rabih Chaer, MD)

**Kate Dinh**, Chemotherapy Trends for Metaplastic Breast Cancer: A National Cancer Database Review

(Advisor: Emilia Diego, MD)

Kristina Nicholson, Molecular Testing of Bethesda III/IV Thyroid Nodules:

A Cost-Effectiveness Analysis (Advisor: Linwah Yip, MD)

# 9-9:30 a.m. Poster Viewing, Ballroom A

### **BASIC SCIENCE I (Left Station)**

**Xianghong Zhang**, Calcium/Calmodulin Dependent Protein Kinase IV Regulates Mitochondrial Dynamics During Sepsis

(Advisor: Matthew Rosengart, MD)

**Zhongjie Yi**, Itaconate-Activated Nrf2 Antioxidative Response in Hepatocytes Protects Liver from Ischemia and Reperfusion Injury (Advisor: Timothy R. Billiar, MD)

**Tengfan Li**, Local IL-33 Regulates Heart Transplant Infiltrating Myeloid Cells Metabolism and Differentiation to Protect Against Chronic Rejection (Advisor: Heth Turnquist, PhD)

**V. Shaun Siow**, cGAS is Critical in Modulating Intestinal Inflammation and Apoptosis (Advisor: Kevin Mollen, MD)

### EPIDEMIOLOGY/CLINICAL OUTCOMES (Right Station)

Marissa Baron, Do Patient Characteristics Predict Success Following Pedal Soft Tissue Augmentation?

(Advisor: Jeffrey Gusenoff, MD)

Christof Kaltenmeier, Factors Associated with Colon Cancer Patients Refusing Surgery and Their Survival: A National Cohort Study

(Advisors: David Geller, MD and Samer Tohme, MD)

 $\textbf{Conor Donnelly}, \mbox{Risk of Venous Thromboembolism Following Non-Trauma\ Massive Transfusion}$ 

(Advisor: Matthew Neal, MD)

**Amelia Lucisano**, Characterization of Trauma-Induced Coagulopathy in Pediatric Patients with Severe Abusive Compared to Accidental Head Trauma (Advisor: Barbara Gaines, MD)

**Phoebe Lee**, Optimizing Outcomes for Nipple Sparing Mastectomy Patients (Advisor: Michael Gimbel, MD)

# 9-9:30 a.m. Poster Viewing, Ballroom B

### **BASIC SCIENCE II (Left Station)**

Samuel C. Butler, Autophagy Inhibition and Chemotherapy Modulate PD-L1 and PD-L2 in Esophageal Adenocarcinoma Cell Lines

(Advisor: Rajeev Dhupar, MD)

**WeiLin Liu**, IL-2-Expressing Oncolytic Virus in Combination with TLR9 Ligand Elicit Potent Abscopal Effect for Superior Therapeutic Efficacy

(Advisor: David Bartlett, MD)

**Guang Fu**, The Role of TLR9 in Immune Microenvironment Development in the Peritoneal Cavity and Peripheral Blood (Advisor: Timothy R. Billiar, MD)

**Ping Sun**, Cell-Specific Roles of Caspase-11 on Liver Injury After Hemorrhagic Shock (Advisor: Melanie Scott, MD, PhD)

**Christof Kaltenmeier**, Neutrophil Extracellular Trap as a Biomarker for Overall and Recurrence-Free Survival in Patients with Primary Hepatic Cancers (Advisors: David Geller, MD and Samer Tohme, MD)

## QUALITY/EDUCATION/EPIDEMILOGY (Right Station)

**Leah Furman**, Characterizing the Transition of Junior to Senior Surgery Resident (Advisors: Giselle Hamad, MD and Eliza Beth Littleton, PhD)

**Joanna NG Glazier**, The Development of Novel Low-Cost, High Impact Models—Can Simulation Survive in Plastic Surgery Education? (Advisor: Jeffrey Gusenoff, MD)

**Caroline Kettering**, Gender Disparities Among Burn Surgery Leadership (Advisor: Jenny Ziembicki, MD)

**Wendy Chen**, National Survey of Plastic Surgery Trainees: Current Status of Gender Bias and Sexual Misconduct

(Advisor: Carolyn De La Cruz MD)

**Sarah Aljaied**, Fronto-Orbital Advancement Techniques for Craniosynostosis:

A Systematic Review

(Advisor: Jesse Goldstein, MD)

**Marissa Baron**, Undiagnosed Normocephalic Pancraniosynostosis Presenting as Bilateral Abducens Nerve Palsy (Advisor: Joseph Losee, MD)

# 10:45-11:15 a.m. Poster Viewing, Ballroom A

### BASIC SCIENCE I (Left Station)

**Chigozirim Ekeke**, Between Push and Shove: Driving Effective Immunity in Malignant Pleural Disease

(Advisor: David Bartlett, MD)

**Andrew Friday**, Identification of Human SIRPa Diversity that Could Regulate Innate Allorecognition (Advisor: Fadi Lakkis, MD)

**Xiao Cui**, Hepatocellular Carcinoma Derived FOXO1 Inhibited Tumor Progression Through Suppressing IL-6 Secretion from Macrophage (Advisor: David Geller. PhD)

**Jingjing Ji**, IL-25 Regulates Alveolar Macrophage Exosome Release in Response to LPS (Advisor: Jie Fan. MD. PhD)

**Khodor Abou-Daya**, Tissue Resident Memory T Cells in Mouse Renal Transplantation (Advisor: Fadi Lakkis, MD)

### EPIDEMIOLOGY/CLINICAL OUTCOMES (Right Station)

**Samer Tohme**, Time to Surgery and Colon Cancer Survival in the United States (Advisor: David Geller. MD)

**Honghao Jiang**, Metabonomic Profiling of Plasma in Polytrauma Patients with TBI Using UPLC-MS

(Advisor: Timothy R. Billiar, MD)

**Yanjun Zhong**, Early Alteration in Amino Acid Metabolic Pathway Associated with Persistent Multi-Organ Dysfunction Syndrome After Trauma in Humans (Advisor: Timothy R. Billiar, MD)

**Sara Myers**, Early Versus Late Venous Thromboembolism: A Secondary Analysis of Data from the PROPPR Trial (Advisor: Matthew Neal. MD)

**Katie Hrebinko**, Young Patients with Rectal Cancer Have More Aggressive Tumor Biology (Advisor: Jennifer Holder-Murray, MD)

**Asmita Chopra**, Impact of Neo-Adjuvant Chemotherapy on Survival in Patients with a Positive Surgical Margin Following Resection of Pancreatic Cancer (Advisor: Joal Beane. MD)

# 10:45-11:15 a.m Poster Viewing, Ballroom B

### **BASIC SCIENCE II (Left Station)**

**Yiming Li**, TLR9 Signaling in Fibroblastic Reticular Cells Regulates Peritoneal Immunity (Advisor: Timothy R. Billiar, MD)

**Nolan Skirtich**, Pattern of Elastic Matrix Degradation Differentiates Adaptive Arterial Diameter Growth in Arteriogenesis From Pathologic Growth in Aneurysm (Advisor: Ryan McEnaney, MD)

**Dylan McCreary**, Developing Collateral Arteries Unravel Their Internal Elastic Laminae for Diameter Growth

(Advisor: Ryan McEnaney, MD)

**Lauren Huckaby**, A Role for Estrogen in Extracellular Matrix Regulation by Thoracic Aortic Smooth Muscle Cells

(Advisors: Thomas Gleason, MD and Julie Phillippi, PhD)

**Ricardo Ferrari**, Primary Muscle Satellite Cells (MuSC) in Peripheral Artery Disease Demonstrate Attenuated Myogenicity and Markers of Inflammasome Activity (Advisor: Ulka Sachdev, MD)

# QUALITY/EDUCATION/EPIDEMILOGY (Right Station)

**Cindy Teng**, Predicting Postoperative Ileus After Colorectal Surgery in an Enhanced Recovery Protocol

(Advisor: Jennifer Holder-Murray, MD)

**Kate Dinh**, Implementation of an Enhanced Recovery After Surgery (ERAS) Protocol Improves Post-Operative Nausea and Analgesia Following Total Mastectomy (Advisor: Emilia Diego, MD)

**Justin Beiriger**, Improving Free Flap Breast Reconstruction Using 3D Printed Templates to Map Perforator Artery Anatomy
(Advisor: Michael Cimbol, MD)

(Advisor: Michael Gimbel, MD)

**Esmaeel Reza Dadashzadeh**, Machine Learning for Prediction of Pathologic Pneumatosis Intestinalis Using CT Imaging (Advisor: Shandong Wu, MD)

**Vernissia Tam**, Improving Compliance to ERAS Clinical Pathways Using EMR Software (Advisor: Jennifer Holder-Murray, MD)

# **SESSION 1**

9:30–9:45 a.m. Caroline Rieser, MD, Author/David Bartlett, MD, Pl

"Predicting Readmissions Following Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy: Derivation

and Validation of a Risk Prediction Score"

9:45–10 a.m. Ranjeet Kalsi, MD, Author/Gittes Lab, Pl

"Chemical Pancreatectomy as a Revolutionary Treatment for

Chronic Pancreatitis"

**10–10:15 a.m. Hamza Yazdani, MD**, Author/**Samer Tohme, MD**, PI

and David Geller, MD, PI

"Neutrophil Extracellular Traps (NETs) Promote Immune Escape

and Metastatic Growth After Surgical Stress"

10:15-10:30 a.m. Katherine Reitz, MD, Author/Neal Lab, Pl

"Metformin, Preoperative Diseases of Aging, and Postoperative

Survival in Adults with Type II Diabetes"

10:30-10:45 a.m. Anthony Cyr, MD, Author/Zuckerbraun Lab, Pl

"Metformin Rescues Age-Associated Decline in Mitochondrial and Immunologic Function in Murine and Human Lymphocytes"

# **SESSION 2**

11:15-11:30 a.m. Danielle Gruen, MD, Author/Timothy Billiar, MD, Pl,

and Jason Sperry, MD, PI

"Early Circulating Cytokines in Severely-Injured Trauma Patients are Associated with Distinct Clinical Outcomes

and Responsiveness to Prehospital Plasma"

11:30–11:45 a.m. Ashley Lamparello, MD, Author/Timothy Billiar, MD, PI

and Yoram Vodovotz. MD. Pl.

"An Aging-Related Single Nucleotide Polymorphism is Associated with Distinct Inflammatory Profiles in Aged

Blunt Trauma Patients"

11:45 a.m.-Noon Amelia Lucisano, MD, Author/Barbara Gaines, MD, Pl

"Firearm-Related Injury: A Source of Preventable Morbidity

and Mortality in the Pediatric Population"

Noon-12:15 p.m. Catherine Go, MD, Author/Bryan Tillman, MD, PI

"A Three-Tier Rescue Stent as a Comprehensive Solution to

Noncompressible Hemorrhage"

12:15–12:30 p.m. John Griepentrog, MD, Author/Matthew Rosengart, MD, PI

"Blue Spectrum Filtering Cataract Lenses Are Associated

with Reduced Survival"

# **PAST LECTURERS**

### 2003

### "Hyperosmolar Solutions for Fluid Resuscitation During Critical Illness"

Ori D. Rotstein, MD

Professor of Surgery, Department of Surgery University of Toronto

#### 2004

### "The Inflammatory Reflex"

Kevin J. Tracey, MD

Professor and Director, Center for Patient-Oriented Research

Program Director, General Clinical Research Center North Shore-LIJ Research Institute

#### 2005

### "Why Are You Killing My Patient?"

Michael B. Yaffe, MD, PhD Associate Professor of Biology Massachusetts Institute of Technology

#### 2006

# "Reparative and Regenerative Medicine: A Surgeon's Perspective"

Michael T. Longaker, MD, MBA, FACS Deane P. and Louise Mitchell Professor Director, Children's Surgical Research Program Deputy Director, Institute of Stem Cell Biology and Regenerative Medicine

Director, Program in Regenerative Medicine Stanford University School of Medicine

### 2007

# "How Microbial Pathogens Sense Host Stress and Respond Accordingly"

John C. Alverdy, MD, FAČŚ Professor of Surgery Director, Minimally Invasive/Bariatric Surgery University of Chicago

### 2008

### "VEGF and VEGF Receptors in CRC: Beyond Angiogenesis"

Lee M. Ellis, MD. FACS

Professor of Surgery and Cancer Biology William C. Liedtke Jr. Chair in Cancer Research Chair, Ad Interim, Department of Cancer Biology University of Texas MD Anderson Cancer Center

### 2009

### "Liver Translational Research: The Bench Work Does Matter"

David A. Geller, MD Professor of Surgery Codirector, UPMC Liver Cancer Center University of Pittsburgh

### 2010

### "Enhancing Vein Graft Patency: From the Molecular to the Obvious"

Colleen M. Brophy, MD Professor of Surgery Division of Vascular Surgery Vanderbilt University

### 2011

### "Memory, Surgery, and Surgical Research"

Daniel R. Meldrum, MD, FACS, FAHA Professor of Surgery and Physiology Section of Cardiothoracic Surgery Indiana University School of Medicine

#### 2012

### "Advancing Translational Research in Pancreatic Cancer"

Diane M. Simeone, MD Lazar J. Greenfield Professor of Surgery and Molecular and Integrative Physiology Chief, Division of HPB and Advanced Gastrointestinal Surgery

University of Michigan Health System

#### 2013

# "Regenerative Medicine: Current Concepts and Changing Trends"

Anthony Atala, MD

Director, Wake Forest Institute for Regenerative Medicine

W.H. Boyce Professor and Chair, Department of Urology-Wake Forest School of Medicine

### 2014

### "Small Molecules for Small Patients: A Surgical Journey into the Pathogenesis and Treatment of Necrotizing Enterocolitis"

David J. Hackam, MD, PhD, FACS Watson Family Professor of Surgery Associate Dean for Medical Student Research Professor of Surgery and Cell Biology and Physiology, University of Pittsburgh School of Medicine

Codirector, Fetal Diagnosis and Treatment Center, Children's Hospital of Pittsburgh of UPMC

### 2015

# "The Challenges and Rewards of Translational Research—One Surgeon's Journey"

Melina R. Kibbe, MD, FACS, FAHA Professor and Vice Chair of Research Edward G. Elcock Professor of Surgical Research Department of Surgery, Northwestern University

### 2016

### "Trauma Care: A Case Study in Translating Research into Policy"

Avery B. Nathens, MD, PhD, FRCS(C) Surgeon-in-Chief, Sunnybrook Health Sciences Centre

Professor of Surgery, University of Toronto DeSouza Chair in Trauma Research

### 2017

### "Gut Integrity in Sepsis"

Craig M. Coopersmith, MD, FACS, FCCM Professor and Vice Chair, Surgery Emory University School of Medicine Director, 5E Surgical ICU Associate Director, Emory Critical Care Center

### 2010

### "Considerations on the Creative Process in Clinical Problem Solving"

Elliot L. Chaikof, MD, PhD Surgeon in Chief, Beth Israel Deaconess Medical Center Chair, Roberta and Stephen R. Weiner Department of Surgery Johnson and Johnson Professor of Surgery Harvard Medical School

