

Department of Surgery
School of Medicine

20th Annual

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

Wednesday, May 11, 2022

The Oaklander Hotel



University of
Pittsburgh



Richard L. Simmons, MD

Chair Emeritus, Department of Surgery
Distinguished Service Professor of Surgery

Richard L. Simmons 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 R01 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 1,000 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.



Ronald P. DeMatteo, MD, FACS

John Rhea Barton Professor and Chair,
Department of Surgery, Perelman School of Medicine,
University of Pennsylvania

Dr. Ronald DeMatteo is a renowned, expert surgical oncologist who specializes in treating diseases of the liver, bile duct, gallbladder, and pancreas, as well as abdominal sarcomas. His clinical research focuses on cancers of the liver, bile duct, gallbladder, and pancreas. He has spent 23 years studying gastrointestinal stromal tumors (GIST), rare, soft tissue tumors found in the gastrointestinal tract and the most common human sarcoma. He has been continuously funded by the National Institutes of Health for the last 20 years and has led several national trials testing the benefit of imatinib mesylate (Gleevec) following surgery for GIST, including the American College of Surgeons Oncology Group Z9001 (Alliance) study.

Dr. DeMatteo’s academic training includes a BA from Johns Hopkins University and an MD from Weill Cornell Medical College. He completed his surgery residency at the Hospital of the University of Pennsylvania and completed a postdoctoral surgical oncology fellowship at Memorial Sloan Kettering Cancer Center. Over the course of his career, Dr. DeMatteo has achieved many honors, including recognition as one of Castle Connolly’s Top Cancer Doctors in America every year from 2013 to present. He is currently Treasurer of the Society of Surgical Oncology and a member of the Association of American Physicians, the National Academy of Medicine, the Society of Clinical Surgeons, and the American Society of Clinical Investigation and serves on the National Comprehensive Cancer Network GIST Guidelines Committee. Dr. DeMatteo has trained over 40 individuals in his lab and over 100 clinical fellows and has authored or co-authored over 500 scientific publications, including many featured in top tier journals such as *The Lancet*, *The Journal of Clinical Investigation*, and *Journal of Experimental Medicine*.

Schedule

7-8 a.m.	Breakfast
7:30-8 a.m.	Poster Viewing 1
8-9 a.m.	Richard L. Simmons Lecture in Surgical Science
	“Chasing Cure of a GI Cancer”
	Ronald P. DeMatteo, MD, FACS John Rhea Barton Professor of Surgery Chair, Department of Surgery Penn Medicine
9-9:30 a.m.	Poster Viewing 2 / Break
9:30-10:45 a.m.	Oral Presentations, Session 1
10:45-11:15 a.m.	Poster Viewing 3 / Break
11:15 a.m.-12:30 p.m.	Oral Presentations, Session 2
12:30 p.m.	Closing Remarks Timothy R. Billiar, M.D.
12:30-2 p.m.	Lunch

Session 1

Long Oral Presentations (10-minute talk followed by 5 minutes for discussion)

Moderator: **Timothy Billiar, MD**

- 9:30-9:45 a.m. Sidrah Khan, MD**
Cyclic GMP-AMP Synthase (cGAS) is a Key Regulator of Mitochondrial Dynamics in the Intestinal Epithelium
Mentor: **Kevin P. Mollen, MD**
- 9:45-10 a.m. Christof Kaltenmeier, MD**
Surgical Stress Promotes Long-Term Transcriptomic and Epigenetic Changes in the Bone Marrow Derived Cells
Mentor: **Samer Tohme, MD**
- 10-10:15 a.m. Shravan Leonard-Murali, MD**
The Metastatic Transcriptome Predicts Response to Adoptive Transfer of Tumor Infiltrating Lymphocytes in Uveal Melanoma
Mentor: **Udai S. Kammula, MD**
- 10:15-10:30 a.m. Andrew-Paul Deeb, MD**
Time to Critical Intervention: Pushing Advanced Resuscitation into the Prehospital Setting
Mentor: **Joshua B. Brown, MD**
- 10:30-10:45 a.m. Jillian Bonaroti, MD**
Circulating Immune Cells Show Changes by Single Cell Transcriptomic Analysis in Response to Major Elective Surgery
Mentor: **Timothy R. Billiar, MD**

Session 2

Long Oral Presentations (10-minute talk followed by 5 minutes for discussion)

Moderator: **Timothy Billiar, MD**

- 11:15-11:30 a.m. Katie Reitz, MD**
The Association Between Time to Source Control in Sepsis and 90-Day Mortality
Mentors: **Chris Seymour, MD and Edith Tzeng, MD**
- 11:30-11:45 a.m. Amudan "Jay" Srinivasan, MD**
Waste Not, Want Not: Evaluating the Hemostatic and Thrombogenic Properties of Novel Plasma Supernatants Produced from Late-Storage Low-Titer Type O Whole Blood
Mentor: **Susan Shea, PhD**
- 11:45-noon Elizabeth Andraska, MD**
Red light Exposure Reduces Thrombosis
Mentor: **Matthew D. Neal, MD**
- noon-12:15 p.m. Neil Carleton**
Investigating the Aged Systemic and Breast Environment in Older Women (≥ 70 yo) with ER+ Breast Cancer
Mentors: **Priscilla F. McAuliffe, MD and Adrian Lee, MD**
- 12:15-12:30 p.m. Caroline Rieser, MD**
Treatment Within a Multidisciplinary Clinic Increases Treatment and Eliminate Socioeconomic Survival Disparities for Pancreatic Cancer: A Regional Hospital System Analysis
Mentor: **Amer Zureikat, MD**

Poster Viewing 1

7:30-8 a.m

Basic Science 1 / Cathedral Room

Justin Curtis

Cationic Antimicrobial Peptide Reduces LPS-mediated Inflammation in Mice
Mentor: Scott

Elisa Ruffo

Universal SNAP CAR T cells show HER2-directed anti-tumor function.
Mentor: Lohmueller

Vrishketan Sethi

A Common Gut Microbe Uses Dietary Tryptophan to Promote Cancer via the Aryl Hydrocarbon Receptor
Mentor: Dudeja lab UAB

Bashar Al Matour

Ethanol Feeding in Mice Significantly Decreases miR-155 Cargo in Liver-Derived Matrix-Bound Nanovesicles (MBV)
Mentor: Scott

Christof Kaltenmeier (*Ronghua Wang presenting*)

NOS/COX2 Inhibition Reverses T-cell Exhaustion and Tumor Growth in Hepatocellular Carcinoma – Analysis of The Cancer Genome Atlas (TCGA) and In Vivo Murine Studies
Mentors: Tohme/Billiar

Clinical Science 1 / Henry Room

Hussein H. Khachfe (*Abdulrahman Hammad presenting*)

Impact of Isolated Positive Vascular Groove Margin on Recurrence and Survival Following Resection for Pancreatic Ductal Adenocarcinoma: A Single Center Experience
Mentor: Paniccia

Samer AlMasri

Adaptive Multimodality Management of Localized Pancreatic Cancer Improves Survival: One Size Does Not Fit All
Mentor: Zureikat

Elizabeth Pace

Antibiotic Management for Infants Requiring Surgery for Necrotizing Enterocolitis: A Scoping Review
Mentor: Morowitz

Insiyah Campwala

Evaluation of Critical Care Burden Following Traumatic Injury from Two Prospective Randomized Controlled Trials
Mentor: Sperry

Muhammad Saad Hafeez

Surgical and Endovascular Assisted Maturation Procedures Improve Maturation After Arteriovenous Fistula Creation, But Not After Arteriovenous Graft Placement
Mentor: You

Translational/Innovation/Disparities / Andrew Room

Hannah Rinehardt

Handheld PET Probe for Pediatric Cancer Surgery
Mentor: Malek

Fuat Baris Bengur

Personalized Approach in the Diagnosis and Treatment of Subclinical Lymphedema (LE): The Role of Indocyanine Green Lymphography (ICG-L)
Mentor: Soran

Alejandro Munoz-Valencia

Identifying Barriers and Facilitators to Improve Blood Transfusion Systems in Kenya: a Multidisciplinary and Stakeholder Driven Innovative Practice.
Mentor: Puyana

Aaron Tarnasky

Trajectory Analysis of Insurance Charges Before and After Major Surgery
Mentor: Hall

Dana Semaan

Racial Disparities in Treatment Indications and Outcomes for Limb Ischemia in Peripheral Vascular Interventions
Mentor: Eslami

Poster Viewing 2

9-9:30 a.m

Basic Science 2 / Cathedral Room

Hussein Baydoun

Effector T cells Potentiate Treg Migration to Allografts
Mentor: Camirand

Hamza Yazdani

Exercise Training Prevents Exosome-mediated Pre-metastatic Niche Formation in the Liver
Mentor: Tohme

Alexander Kreger

Chemical Pancreatectomy improves Glucose Homeostasis Through Supranormal Insulin Secretion
Mentor: Gittes

Rohan Kulkarni

Purinergic Receptor P2Y6 Mediates Arteriogenesis
Mentor: McEnaney

Joud Mulla

Caspase-11 Contributes to Trauma-Induced Coagulopathy (TIC) in a Murine Polytrauma Model
Mentor: Scott

Clinical Science 2 / Henry Room

Callie Hlavin

Reducing Excessive Post-Operative Opioid Prescribing at the Veteran's Affairs Pittsburgh Healthcare System (VAPHS)
Mentor: Dhupar

Abdulrahman Hammad

Adjuvant Chemotherapy in Surgically Resected Pancreatic Carcinoma with Node Negative Disease Following Neoadjuvant Therapy: A Multi-Institutional Analysis
Mentor: Zureikat

Emily Mihalko

Improved Survival in Severely Bleeding Trauma Patients Treated with Low-Titer Group O Whole Blood Compared to Component Therapy
Mentor: Shea

Elissa Abou Khalil

Impact of SARS-COV-2 Infection in Injured Children: A Pennsylvania Trauma Systems Foundation Study
Mentor: Leeper

Hao Liu

Higher Hepatocellular Carcinoma Tumor Burden is Associated with Greater Liver Transplant Survival Benefit
Mentor: Molinari

Translational Science / Andrew Room

Stephen P. Canton

Circulating Markers of Immune Function and Tissue Damage are Associated with Operative Delay and Mortality Among Severely Injured Orthopaedic Polytrauma Patients
Mentor: Sperry

Sultan Abdelhamid *(no presentation, poster viewing only)*

Multi-Omic Admission-Based Biomarkers Predict 30-Day Survival and Persistent Critical Illness In Trauma Patients After Injury
Mentor: Billiar

Pranav Murthy

Gut Microbiota Composition Predicts Response to Neoadjuvant Therapy in Patients with Localized Pancreatic Cancer: A Prospective Biomarker Study
Mentors: Zureikat/Lotze

Yeahwa Hong

Hemocompatibility Evaluation of a Novel Pulmonary Assist System Using the Lightweight, Axial-Flow CDX Pump During Venovenous ECMO
Mentor: Cook

Jordan Warunek

Recognition of Donor MHCII Disrupts Recipient Reparative Macrophage Differentiation
Mentor: Turnquist

Poster Viewing 3

10:45-11:15 a.m

Basic Science 3 / Cathedral Room

Rassam Rassam

Effect of Novel Thrombolytic Aptamer BB-031 on Microfluidic Thrombolysis and VWF Function Dose-Response
Mentor: Shea

Maryam Mohammed

Metformin Induces Transcriptomic Changes in Immune Cells to Augment Immunometabolic Changes of Aging
Mentor: Zuckerbraun

Zeyu "Ward" Liu

HMGB1 Knockdown Increases Glucose Sensitivity, Decreases Hyperglycemia and Insulin Resistance in Type-2 Diabetes
Mentor: Mota Alvidrez

Nijmeh Alsaadi

Effect of Irrigation Fluid Composition on Hemostasis in Mouse Bleeding Models
Mentor: Neal

Sowmya Narayanan

The Relationship Between Tumor-Associated Microbiome and Tertiary Lymphoid Structures in Colon Cancer
Mentor: Hand

Clinical Science 3 / Henry Room

Tanner Wilson

Elevated Carcinoembryonic Antigen Warrants Adjuvant Chemotherapy in High-Risk Stage II Colon Cancer
Mentor: Lee

Salim Habib

Routine Completion imaging Following Lower Extremity Bypasses and 1-Year Major Adverse Limb Events
Mentor: Eslami

Hira Abidi

Survival Impact of Intervention to Distant Metastatic Lesions in Patients with Breast Cancer
Mentor: Soran

Ahmed Hamed

Development of a Prognostic Nomogram in Patients with Appendiceal Mucinous Carcinoma Peritonei to Optimize Patient Selection for Cytoreductive Surgery Hyperthermic Intraperitoneal Chemotherapy
Mentor: Choudry

Ashti M. Shah

Inferring Tissue-Specific, TLR4-dependent Type 17 Immune Interactions in Experimental Trauma/Hemorrhagic Shock and Resuscitation Using Computational Modeling
Mentor: Vodovotz

Basic Science 4 / Andrew Room

Aishwarrya Arivudainambi

Gasdermin D Inhibitor LDC7559 Reduces the Expression of Activation Markers P-Selectin and GPIIb/IIIa in Murine Platelets
Mentor: Neal

Jennifer Darby

Exercise Protects Against Organ Damage from Trauma/Hemorrhage in Male Mice
Mentor: Billiar

Yusuf Surucu

Allogeneic Adipose Tissue-Derived Matrix Mitigate Radiation-Induced Fibrosis (RIF)
Mentor: Ejaz A

Bowen Xie

Myoblasts from Ischemic Muscle Demonstrate Attenuated HIF1- α Expression and Differentiation Despite Similar Viability to Perfused Cells
Mentor: Sachdev

Lillian Tran (Bowen Xie presenting)

Ferroptosis and Oxidative Stress Inflammation Mediate Myoblast Dysfunction and Altered Differentiation in Peripheral Arterial Disease
Mentor: Sachdev

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, FACS
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

2018

"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

2019

"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

2020

"Bench to Bedside: 1) Congenital Diaphragmatic Hernia; 2) Chronic Pancreatitis; 3) Diabetes Mellitus"

George K. Gittes, MD
Benjamin R. Fisher Chair of Pediatric Surgery,
Professor of Pediatric Surgery and Pediatrics, and
Chief of Pediatric General and Thoracic Surgery,
Department of Surgery, University of Pittsburgh
School of Medicine
Surgeon in Chief Emeritus and Scientific Codirector
of Research, UPMC Children's Hospital of Pittsburgh
Director, Richard King Mellon Foundation Institute
for Pediatric Research

2021

"What We Become"

Yolonda L. Colson, MD, PhD
Hermes C. Grillo Professor of Surgery,
Harvard Medical School
Chief, Division of Thoracic Surgery,
Massachusetts General Hospital



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