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The Division of Pulmonary, Allergy and Critical Care Medicine (PACCM) is widely recognized as a perennial leader in the treatment of respiratory disease. Our subspecialty programs in asthma, cystic fibrosis, pulmonary fibrosis, sleep medicine, and pulmonary hypertension are regional and national leaders in patient care and research. For patients with advanced lung disease, our collaboration with transplant surgery provides opportunities for improvements in quality of life and survival offered by life-saving lung transplantation. The program continues to lead the field in transplantation by offering transplants to high risk patients, as up to 30% of our patients have been declined for transplant at other transplant centers prior to being successfully transplanted at UPMC.

At the end of FY 2019, our division had 106 academic faculty members after successfully recruiting a number of faculty to meet clinical needs and expand our research programs. Below are some of the notable additions
to our faculty:

- **William Bain, MD**, F32 Fellow, joined as Clinical Instructor
- **Dongshi Chen, PhD**, from the Department of Pharmacology and Chemical Biology, joined as Research Assistant Professor
- **John Evankovich, MD**, K08 recipient, joined as Assistant Professor
- **Corrine Kliment, MD, PhD**, from Johns Hopkins, and recipient of a K08, Parker B. Francis Fellowship, and Burroughs Wellcome Fund, joined as Assistant Professor
- **Adriana Leme, PhD**, from UPMC, joined as Research Assistant Professor
- **Quyen Nguyen, MD**, F32 Fellow, joined as Assistant Professor
- **Riham Sharara, MD**, from Allegheny Health Network, joined as Clinical Assistant Professor (recruited for UPMC Jameson)
- **Mark Snyder, MD**, from Columbia University, and recipient of a Parker B. Francis Fellowship, joined as Assistant Professor
- **Tomeka Suber, MD, PhD**, F32 Fellow, joined as Assistant Professor
- **Daniel Zank, MD**, Fellow, joined as Clinical Instructor

In the past year, we initiated a consult and critical care service via telemedicine at UPMC Northwest and began an endobronchial valve program for patients with severe emphysema. Our plan for FY20 is to continue to expand our clinical operation, particularly with outpatient services and potential additional telemedicine sites. We have seen great success with expanding our outpatient volume through the Same Day Clinic Access Initiative and continue to grow the Interventional Pulmonary program through an expanded pulmonary consult services at UPMC Presbyterian and UPMC Mercy.
FACULTY

Alison Morris, MD, MS
Chief, Division of Pulmonary, Allergy and Critical Care Medicine
Professor of Medicine, Immunology, and Clinical & Translational Research
Director, Center for Medicine and the Microbiome
Vice Chair of Clinical Research, Department of Medicine
UPMC Endowed Chair in Translational Pulmonary and Critical Care Medicine

Rime Abbas, MD
Clinical Instructor of Medicine

Jonathan K. Alder, PhD
Assistant Professor of Medicine

Charles W. Atwood, Jr., MD
Associate Professor of Medicine
Assistant Chief of Medicine, VAPHS
Director, Sleep Disorders Program, VAPHS
Director, UPMC Sleep Medicine Fellowship

Kavitha Bagavathy, MBBS
Clinical Assistant Professor of Medicine
Director, Critical Care Unit-UPMC Jameson

William G. Bain, MD
Clinical Instructor of Medicine

Ian J. Barbash, MD, MS
Assistant Professor of Medicine

Annerose Berndt, PhD, DVM
Adjunct Assistant Professor of Medicine

Jessica M. Bon, MD, MS
Associate Professor of Medicine

Marta Bueno Fernandez, PhD
Research Assistant Professor of Medicine

Sharon L. Camhi, MD
Assistant Professor of Medicine
Director, VAPHS Medical ICU

Nayra Cardenes, PhD
Research Instructor of Medicine

Divay Chandra, MD, MSc
Assistant Professor of Medicine

Beibei (Bill) Chen, PhD
Associate Professor of Medicine
Director, Small Molecule Therapeutic Center
Principal Investigator, Aging Institute

Dongshi Chen, PhD
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Kong Chen, PhD
Assistant Professor of Medicine

Jared Chiarchiaro, MD, MS
Associate Professor of Medicine
Associate Fellowship Program Director for Clinical Education

Melissa P. Clark, MD
Assistant Professor of Medicine

Timothy E. Corcoran, PhD
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Joy de Luna, MD
Clinical Instructor of Medicine
Michael P. Donahoe, MD  
Professor of Medicine  
Executive Vice Chair of Clinical Affairs, Department of Medicine

Mazen El Ali, MD  
Clinical Assistant Professor of Medicine  
Director, Sleep Lab

John Evankovich, MD  
Assistant Professor of Medicine

Christopher N. Faber, MD  
Associate Professor of Medicine  
Director, Outpatient Services, Comprehensive Lung Center

Merritt L. Fajt, MD  
Assistant Professor of Medicine

Meghan E. Fitzpatrick, MD  
Assistant Professor of Medicine  
Critical Care Medicine Division Chief, UPMC East

Marc C. Gauthier, MD  
Assistant Professor of Medicine

Samit Ghosh, PhD  
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Vascular Medicine Institute

Kevin F. Gibson, MD  
Professor of Medicine  
Medical Director, Dorothy P. & Richard P. Simmons Center for Interstitial Lung Disease

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Assistant Professor of Medicine

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Director, Vascular Medicine Institute

Elena A. Goncharova, PhD  
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Principal Investigator, Vascular Medicine Institute

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Fatima Iqbal, MD  
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Daniel J. Kass, MD  
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Georgios D. Kitsios, MD, PhD  
Assistant Professor of Medicine

Corrine R. Kliment, MD, PhD  
Assistant Professor of Medicine
Carl D. Koch, MD
Clinical Instructor of Medicine

John W. Kreit, MD
Professor of Medicine
Pulmonary Division Chief, UPMC Mercy

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Director, Clinical Services, UPMC Sleep Center
Associate Medical Director, UPMC Sleep Lab

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Vascular Medicine Institute

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Director, Pulmonary & Critical Care Ultrasonography
Medical Director, Select Specialty Hospital
Pittsburgh

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Professor of Medicine

Janet S. Lee, MD
Professor of Medicine
Director, Acute Lung Injury Center of Excellence
T1 Translational Track Director, Institute for Clinical Research Education

Elizabeth A. Lendermon, MD
Clinical Assistant Professor of Medicine

Kathleen O. Lindell, RN, PhD
Associate Professor of Medicine
Clinical Nurse Specialist
Executive Director of the SUPPORT Program
Dorothy P. & Richard P. Simmons Center for Interstitial Lung Disease

Yuan Liu, PhD
Assistant Professor of Medicine
Principal Investigator, Aging Institute

Rama K. Mallampalli, MD*
UPMC Endowed Professor of Medicine, Cell Biology, and Molecular Physiology
Director, Acute Lung Injury Center of Excellence

Stephanie I. Maximous, MD
Assistant Professor of Medicine

John F. McDyer, MD
Associate Professor of Medicine
Director, Lung Transplantation Translational Research Program

Bryan J. McVerry, MD
Associate Professor of Medicine and Environmental & Occupational Health
Director, Pulmonary and Critical Care Medicine Fellowship Program
Director, Translational Research in Acute Lung Injury

Barbara Methé, PhD
Visiting Professor of Medicine
Co-director for Basic Science, Center for Medicine and the Microbiome

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Principal Investigator, Aging Institute

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Medical Director, Lung Transplant Program
Director, Lung Transplant Fellowship Program

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Associate Professor of Medicine
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Assistant Professor of Medicine

Seyed Mehdi Nouraie, MD, PhD
Associate Professor of Medicine

Toru Nyunoya, MD
Associate Professor of Medicine

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Assistant Vice Chancellor for Special Projects, School of Medicine

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Director, Sleep and Cardiovascular Outcomes Center
Medical Director, UPMC Sleep Laboratory

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Subsection Chief of Allergy

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Associate Chief, Division of Pulmonary, Allergy and Critical Care Medicine

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Research Assistant Professor of Medicine

Ronald K. Poropatich, MD
Professor of Medicine
Executive Director, Center for Military Medicine

Research, Health Sciences
Senior Advisor for Telemedicine, UPMC

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UPMC Endowed Chair in Lung Immunology

Prabir Ray, PhD
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UPMC Endowed Chair in Lung Immunology

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Director, Invasive Cardiopulmonary Exercise Testing Program
Head, Clinical Operations for Pulmonary Hypertension

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Assistant Professor of Medicine
Director, UPMC Acute Pulmonary Embolus Program
Director, UPMC Chronic Thromboembolic Pulmonary Hypertension (CTEPH) Program

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Assistant Professor of Medicine
Associate Program Director for Scholarly Activities, Pulmonary Fellowship

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Associate Professor of Medicine
Scientific Director, Dorothy P. & Richard P. Simmons Center for Interstitial Lung Disease

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Assistant Professor of Medicine and Biomedical Engineering
Frank C. Sciurba, MD
Visiting Professor of Medicine
Director, Emphysema Research Center
Director, Pulmonary Function Exercise Physiology Laboratory

Roy Semaan, MD
Assistant Professor of Medicine
Director, UPMC Interventional Pulmonary Program

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Assistant Professor of Medicine

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Executive Vice President, UPMC
Chief Medical and Scientific Officer
President, Health Services Division
Distinguished Professor of Medicine

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Mark E. Snyder, MD
Assistant Professor of Medicine

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Research Assistant Professor of Medicine
Vascular Medicine Institute

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Vice President Medical Service Line, VAPHS
Professor of Medicine and Clinical and Translational Science

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Assistant Professor of Medicine

Prithu Sundd, PhD
Assistant Professor of Medicine and Bioengineering
Vascular Medicine Institute

Jesus Tejero, PhD
Assistant Professor of Medicine
Pittsburgh Heart, Lung, Blood, and Vascular Medicine Institute

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Assistant Professor of Medicine

Aisha L. Walker, PhD, MPH
Assistant Professor of Medicine
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Research Assistant Professor of Medicine

Xingan Wang, MD, PhD
Assistant Professor of Medicine

Nathan M. Weathington, MD, PhD
Assistant Professor of Medicine

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Professor of Medicine and Environmental & Occupational Health
Acting Director, Asthma Environmental Lung Health Institute
UPMC Endowed Chair in Translational Airway Biology

David O. Wilson, MD, MPH
Associate Professor of Medicine, Cardiothoracic Surgery, and Clinical & Translational Science
Associate Director, Lung Cancer Center, Hillman Cancer Center
Director, Georgia Cooper Memorial Lung Nodule/Lung Cancer Research Registry

* Faculty who left the division over the course of FY 2019.

Medical Thoracic Associates (MTA):
Steve P. H. Clute, IV, MD
Clinical Assistant Professor of Medicine

Paula Jernigan, MD
Clinical Assistant Professor of Medicine

Dong Hoon (Dan) Kim, MD
Clinical Assistant Professor of Medicine

James Lanz, MD
Clinical Assistant Professor of Medicine

Nikolaos Maniatis, MD
Clinical Assistant Professor of Medicine

Jennifer Gonzalez McComb, MD
Clinical Associate Professor of Medicine

Victor K. Okwiya, MD
Clinical Associate Professor of Medicine

Harry Rafkin, MD
Clinical Associate Professor of Medicine

Ariella Reinherz, MD
Clinical Assistant Professor of Medicine

Emily Yee, MD
Clinical Assistant Professor of Medicine
Zeyu Xiong, MD, MS
Research Assistant Professor of Medicine

Joo Heung Yoon, MD
Clinical Instructor of Medicine

Daniel Zank, MD, MS
Clinical Instructor of Medicine

Anna C. Zemke, MD, PhD
Assistant Professor of Medicine

Liyong Zhang, PhD
Research Instructor of Medicine

Yingze Zhang, PhD
Associate Professor of Medicine and Human Genetics
Director, Translational Research Core Laboratory
Director, Cardiology Biobank

Jing Zhao, MD*
Associate Professor of Medicine

Yutong Zhao, MD, PhD*
Associate Professor of Medicine

Chunbin Zou, MD, PhD
Research Assistant Professor of Medicine

* Faculty who left the division over the course of FY 2019.

Medical Thoracic Associates (MTA):

Steve P.H. Clute, IV, MD
Clinical Assistant Professor of Medicine

Paula Jernigan, MD
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Clinical Assistant Professor of Medicine

James Lanz, MD
Clinical Assistant Professor of Medicine

Nikolaos Maniatis, MD
Clinical Assistant Professor of Medicine

Jennifer Gonzalez McComb, MD
Clinical Associate Professor of Medicine

Victor K. Okwiya, MD
Clinical Associate Professor of Medicine

Harry Rafkin, MD
Clinical Associate Professor of Medicine

Ariella Reiner, MD
Clinical Assistant Professor of Medicine

Emily Yee, MD
Clinical Assistant Professors of Medicine
CLINICAL ACTIVITIES

Comprehensive Lung Center (CLC)
The Comprehensive Lung Center (CLC) is a multidisciplinary diagnostic center that serves as a hub for expertise in pulmonary, allergy, and sleep medicine. Figure 1 shows the CLC’s volume trends over the last 4 years. The CLC serves as the clinical home to eight specialty centers: Adult Cystic Fibrosis, Asthma and Airway Inflammation, Diagnostic Pulmonary Medicine, Emphysema and COPD, Interstitial Lung Disease, Advanced Lung Disease and Lung Transplantation, Sleep Disordered Breathing, and Pulmonary Hypertension. The CLC is also home to the Asthma Institute, the Simmons Center for Interstitial Lung Disease, and the UPMC Sleep Medicine Center. During the academic year, the Division continued focused on increasing outpatient access in the CLC. To that end, we saw a 3% increase in total visits to the CLC. A comprehensive outpatient pulmonary medicine clinic at the Oakland VA hospital also provides a full range of pulmonary services for the veteran population and provides a major training ground for the PACCM fellowship program.

Other Outpatient Sites
The Division also sees outpatients at sites outside of the Oakland-based CLC. These sites include the Monroeville Comprehensive Lung Center Clinic (Sleep Medicine and General Pulmonary), the Mercy HBC (General Pulmonary), and Jameson HBC (General Pulmonary). Outpatient activity at these sites is shown in Figure 2. The significant increase is partially attributable to growth at our Monroeville clinic as well as substantial growth at our Jameson clinic following the addition of a new physician.

Inpatient Programs
The inpatient efforts of the PACCM division are focused on four services at UPMC Presbyterian: the Advanced Lung Disease (ALD) Service (Stepdown and Select Specialty), the Pulmonary Transplant Service, the Medical ICU, and the Pulmonary Consultation Service. Over the past year, the cystic fibrosis patient population moved from Shadyside Hospital to Presbyterian resulting in a significant increase in volume in our Stepdown service. Furthermore, our consult service at UPMC Mercy has grown since its inception in 2018. Our volumes at UPMC East have also increased and, when combined with our growth in our Monroeville clinic, suggest a growing market in the eastern suburbs of Pittsburgh. Other inpatient visit volumes have remained relatively steady or increased slightly. Distinct consultation and Medical ICU services at the Oakland VA

Frank Sciurba, MD, FCCP, & Roy Semaan, MD, launched a new endobronchial valve placement program for COPD. The valve can be placed non-operatively and can improve lung function and exercise tolerance.
Medical Center provide a full range of pulmonary and critical care services for this location. Figures 3 through 9 show the trends for our inpatient services.

**Laboratory Programs**
The PACCM Division supports clinical laboratories for the evaluation of patients with lung disease, including a comprehensive pulmonary physiology laboratory (with exercise testing and inhalation challenge), two dedicated bronchoscopy rooms with fluoroscopy and, when needed, anesthesia support, and the sleep and control of breathing laboratory. This year’s PACCM laboratory volume activity is summarized in Figure 10.

In summary, FY19 has seen an overall increase in volume as the Division has seen growth in the eastern suburbs, a commitment to outpatient access, and growth in a handful of its inpatient services.

**Shadyside Operations**
The Medical Thoracic Associates (MTA) group is a section within the PACCM Division. The group of 12 physicians, under the leadership of Jennifer McComb, MD, practices primarily at UPMC Shadyside, with an outpatient presence in Monroeville and Irwin.

Drs. Morris and Pilewski continue to collaborate with Dr. Jennifer McComb on the recruitment of a pulmonologist for the Shadyside location, and have made progress in building a closer relationship between the two sites.

The division also has a presence at UPMC Shadyside through Dr. David Wilson’s practice. Dr. Wilson sees outpatients at the Hillman Cancer
A focus of the last year has been improving patient access to our physicians through both clinic template improvements and the approval of a value project to hire an access lead. Furthermore, we have worked on several wellness initiatives, including reducing unconscious bias and changing call schedules, which the division believes will ultimately pay dividends with respect to physician morale and, by proxy, productivity.

CLINICAL QUALITY IMPROVEMENT INITIATIVES

During FY19, the PACCM Division continued quality improvement initiatives in medical ICU and specialty programs. A selection of current projects is outlined below.

The Respiratory Care Enhancement Program (RCEP) is a program to reduce ER visits and hospitalizations in patients with asthma and other respiratory diseases through dissemination of specialty respiratory care into primary care practices across the UPMC system. The RCEP has now been seeing patients for 2 years and has been broadly accepted into 6 primary care practices. Preliminary data have shown reductions in pharmacy costs and improvement in asthma control with early trends showing reductions in ER visits and hospitalizations.

Projects in the Medical Intensive Care Unit include:

- **Medical ICU Reflection Rounds.** This ongoing project involves a monthly multidisciplinary meeting consisting of residents, fellows, nurses and respiratory therapists where issues are explored regarding emotional interactions, coping mechanisms, and debriefing tough patient/provider relationship issues.

- **Hospital Acquired Pressure Ulcer reduction project.** This project involves automatic air mattress use for all ICU admissions and special surveillance and prevention of heal pressure ulcers.

- **Fentanyl-based sedation protocol for the MICU.** This ongoing project is designed to assess the effectiveness of a bolus fentanyl-based sedation regimen for critically ill patients requiring mechanical ventilation. Efforts to minimize continual infusions and benzodiapines infusions are prioritized in an effort to reduce ventilator days, ICU length of stay, and minimize delirium. Analysis of 200 patients revealed a PRN-based sedation protocol is associated with less sedation, delirium, mechanical ventilation duration, and MICU length of stay without an increase in adverse events.

- **Vasopressin restriction project.** Ongoing surveillance and education of evidenced-based use of the costly vasopressor vasopressin.

- **Analysis of the use of DOACs for patients who received catheter directed thrombolysis (CDT) for submassive pulmonary embolism, as opposed to warfarin therapy.** Among patients with submassive PE, a Pulmonary Hypertension outpatient clinic continues at the Shadyside MTA office. A summary of the Shadyside volume is included in Figure 11.

**Telemedicine**

In FY19, the Division continued to offer telemedicine services. We continue our telemedicine services at UPMC Horizon and UPMC Northwest. In addition, we are providing telemedicine services at UPMC Jameson. We offer general pulmonary service with UPMC Bedford (Christopher Faber, MD) and UPMC Cole (Craig Riley, MD). We also have a Tele-ICU service between UPMC McKeesport and UPMC East, for night time coverage.
Divisional Physician Productivity Improvements
A focus of the last year has been improving patient access to our physicians through both clinic template improvements and the approval of a value project to hire an access lead. Furthermore, we have worked on several wellness initiatives, including reducing unconscious bias and changing call schedules, which the division believes will ultimately pay dividends with respect to physician morale and, by proxy, productivity.

CLINICAL QUALITY IMPROVEMENT INITIATIVES

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Projects in the Medical Intensive Care Unit include:

Medical ICU Reflection Rounds. This ongoing project involves a monthly multidisciplinary meeting consisting of residents, fellows, nurses and respiratory therapists where issues are explored regarding emotional interactions, coping mechanisms, and debriefing tough patient/providere relationship issues.
Hospital Acquired Pressure Ulcer reduction project. This project involves automatic air mattress use for all ICU admissions and special surveillance and prevention of heal pressure ulcers.
Fentanyl-based sedation protocol for the MICU. This ongoing project is designed to assess the effectiveness of a bolus fentanyl-based sedation regimen for critically ill patients requiring mechanical ventilation. Efforts to minimize continual infusions and benzodiazepine infusions are prioritized in an effort to reduce ventilator days, ICU length of stay, and minimize delirium. Analysis of 200 patients revealed a PRN-based sedation protocol is associated with less sedation, delirium, mechanical ventilation duration, and MICU length of stay without an increase in adverse events.
Vasopressin restriction project. Ongoing surveillance and education of evidenced-based use of the costly vasopressor vasopressin.
Analysis of the use of DOACs for patients who received catheter directed thrombolysis (CDT) for submassive pulmonary embolism, as opposed to warfarin therapy. Among patients with submassive PE,
initiation of a DOAC shortly after CDT may result in a decreased hospital LOS compared to parenterally bridged warfarin.

The division has also worked to improve training for medical students, residents, and fellows. A central venous catheter insertion curriculum for MICU/CICU residents and medical students is provided as a monthly course partnered with WISER and cardiology. This course consists of web-based pre-course material, didactic session, hands on ultrasound training and simulation task trainers. During orientation, pulmonary and critical care fellows receive a four-day simulation-based course focusing on patient safety focusing on airway management, central venous catheter insertion, pleural drainage, critical care Ultrasonography, and safe bronchoscopy practices.

To allow comparative efficacy research, the Acute Pulmonary Embolus Team Patient Registry has been continued. Its goal, as described in terms of patient outcomes, is to 1) Describe the natural history of acute pulmonary embolus; 2) Determine effectiveness of medical and surgical management in pulmonary embolus; 3) Assess the safety of medical and surgical management in acute pulmonary embolus; and 4) Improve quality of care by standardizing care towards patients with acute pulmonary embolus.

The Simmons Center has worked with UPMC Enterprises Data Services and ISD to replace the old CTX database which housed the Simmons Center clinical data warehouse for research. The new system, which just went live, allows data entry via the Pulmonary Information Managements System (PIMS) and interfaces with Epic for integration of clinical data. This system is protected by the UPMC firewall. Old CTX data were seamlessly integrated into the new system. The new system is a portal for both quality improvement and research within the Simmons Center. This collaboration should also serve as a model for data management in other PACCM clinical centers.

The CF program initiated a quality improvement project focused on improving nutritional outcomes through analysis of root causes and focused interventions to reduce the percentage of patients with nutritional failure.

The lung transplant program initiated a project to improve the lung transplant and referral processes for individuals with Cystic Fibrosis. In a partnership with a referring CF center and direction from the Dartmouth Microsystem Academy, the QI team seeks to improve the timeliness of referral for transplant and improve the patient care experience.

Projects in the Sleep Center include:

American Academy of Sleep Medicine (AASM) Interscorer Reliability. Metric assesses all sleep scorers for accuracy against established sleep scoring experts consensus score in scoring an unknown sleep study record to insure uniformity in sleep study scoring.

Sleep Study Lab Bed Utilization. Metric assesses for percentage sleep study beds filled nightly in effort to maximize access and decrease wait times for sleep studies.
**Sleep Study Ordered and Protocol Followed.** Metric assesses technician adherence to physician orders and Sleep Center Policy and Procedures reviewing 10 charts in each center monthly.

**Patient Evaluation of Sleep Lab Services.** Metric assessing patient satisfaction after sleep study and degree of patient positivity to UPMC sleep evaluation.

**Remote monitoring of positive airway pressure (PAP) therapy.** Monitoring of use at day 7, 21, 30, 45, and 90 after initiating PAP therapy and calling patients with poor adherence to troubleshoot problems.
CLINICAL ACTIVITIES
The Pulmonary, Allergy and Critical Care Medicine Division provides educational programs in lung disease and critical care medicine for trainees, physicians, and patients throughout the region. It directs the 2nd-year medical student course with an integrated curriculum, focused on the pathophysiology of pulmonary disease, and supports 22 fellowship positions on a yearly basis, through 3 NHLBI training (T32) awards for the career development of young investigators. Other teaching activities include weekly, quarterly, and annual conferences, as well as Pulmonary Grand Rounds.

CLINICAL LOCATIONS—Central

[Image of a map showing clinical locations in Central Pittsburgh, including addresses for various medical facilities.]
CLINICAL ACTIVITIES

The Pulmonary, Allergy and Critical Care Medicine Division provides educational programs in lung disease and critical care medicine for trainees, physicians, and patients throughout the region. It directs the 2nd-year medical student course with an integrated curriculum, focused on the pathophysiology of pulmonary disease, and supports 22 fellowship positions on a yearly basis, through 3 NHLBI training (T32) awards for the career development of young investigators. Other teaching activities include weekly, quarterly, and annual conferences, as well as Pulmonary Grand Rounds.

UPMC Comprehensive Lung Clinic—Oakland
Falk Medical Building, 3601 Fifth Avenue, Fourth Floor Pittsburgh (Oakland), PA 15213

UPMC Sleep Medicine Center—UPMC Montefiore
3459 Fifth Avenue, S369 Pittsburgh (Oakland), PA 15213

Medical Thoracic Associates—Shadyside
Shadyside Medical Building 5200 Centre Avenue, Suite 610 Pittsburgh (Shadyside), PA 15232

David O. Wilson, MD, Pulmonary Medicine Practice
Hillman Cancer Center 5115 Centre Avenue, Second Floor Pittsburgh (Shadyside), PA 15232

Division of Pulmonary, Allergy and Critical Care Medicine—UPMC Mercy
1515 Locust Street Pittsburgh, PA 15219
CLINICAL LOCATIONS—Peripheral
CLINICAL ACTIVITIES

The Pulmonary, Allergy and Critical Care Medicine Division provides educational programs in lung disease and critical care medicine for trainees, physicians, and patients throughout the region. It directs the 2nd-year medical student course with an integrated curriculum, focused on the pathophysiology of pulmonary disease, and supports 22 fellowship positions on a yearly basis, through 3 NHLBI training (T32) awards for the career development of young investigators. Other teaching activities include weekly, quarterly, and annual conferences, as well as Pulmonary Grand Rounds.

UPMC Comprehensive Lung Center—Monroeville
Includes Medical Thoracic Associates and UPMC Sleep Medicine Center
400 Oxford Drive, Suite G-65
Monroeville, PA 15146

UPMC Comprehensive Lung Center—UPMC McKeesport
Painter Building
500 Hospital Way, Suite 6
McKeesport, PA 15132

Medical Thoracic Associates—Irwin
3520 Route 130
Irwin, PA 15624

UPMC Division of Pulmonary, Allergy and Critical Care Medicine—UPMC Jameson
1211 Wilmington Avenue
New Castle, PA 16105

UPMC Comprehensive Lung Center—South Hills
733 Washington Road, Suite 204
Mt. Lebanon, PA 15228

Medical Thoracic Associates—West Mifflin
1907 Lebanon Church Road
West Mifflin, PA 15122
RESEARCH AND OTHER SCHOLARLY ACTIVITIES

With more than $20M in annual research expenditures, the Division of Pulmonary, Allergy, and Critical Care Medicine has a research enterprise spans the continuum of pulmonary disease and critical care medicine with more than 20,000 square feet of state-of-the-art laboratory space to support scientific training initiatives. The Division itself is focused around the development of nine core programs of research excellence, with strong translational programs of clinical and research excellence in asthma, chronic obstructive pulmonary disease, acute lung injury, interstitial lung disease, sleep medicine, cystic fibrosis, lung transplantation, pulmonary vascular disease, HIV associated lung disease, critical care medicine and the functional genomics of lung diseases.

Acute Lung Injury Center of Excellence
The Acute Lung Injury/Adult Respiratory Distress Syndrome Research Program is focused on the investigation of fundamental mechanisms in lung injury and repair. The program utilizes advanced tools in molecular, biochemical, and clinical investigation to work toward basic and translational discoveries that can lead to novel treatments for patients with severe acute lung injury. Program faculty have fostered extensive collaborations with the Departments of Surgery, Anesthesiology, Pathology, and Environmental Health. The primary program faculty include: Janet S. Lee, MD; Bryan McVerry, MD; Prabir Ray, PhD; Bill Chen, PhD; and Michael Donahoe, MD. Dr. Janet Lee assumed leadership of the Center this year.

Adult Cystic Fibrosis Program
The Adult Cystic Fibrosis and Host Defense Research Program operates under the goal of providing improved treatments and, ultimately, a cure for Cystic Fibrosis. The program is directed by Joseph Pilewski, MD, with involved PACCMM faculty including Michael Myerburg, MD; Keven Robinson, MD; and Timothy Corcoran, PhD. In addition to co-directing the Cystic Fibrosis Center at UPMC Children’s Hospital of Pittsburgh and UPMC Presbyterian, Dr. Pilewski serves as the director for the translational studies component of the Cystic Fibrosis Research Center, led by Ray Frizzell, PhD; Jennifer Bomberger, PhD; Michael Myerburg, MD; and Joseph Pilewski, MD. Dr. Myerburg directs the cell and tissue core for the University of Pittsburgh CF Research Development Program. The cell and translational cores provide procedures for identifying functional outcomes, monitored in terms of lung function, ion transport, or gene expression for investigators involved with CF research across the University of Pittsburgh. The program actively participates in investigator-initiated and industry-sponsored clinical trials of new CF therapies as a member of the CF Therapeutics Development Network.

Using an animal model of lung-specific telomere dysfunction, Jonathan Alder, PhD, identified GDF15 as a protein secreted by lung epithelial cells under stress—a finding that could be be translated to treat IPF.
Therapeutics Development Network.

**Asthma Institute**
The Asthma and Allergic Inflammation Program is focused on investigating fundamental biologic mechanisms in asthma and allergic inflammation. Sally Wenzel, MD, spearheads both clinical and bench research projects in the area of asthma and allergic inflammatory disorders of the lung. Additional faculty in this program include Andrej Petrov, MD; Prabir Ray, PhD; Anuradha Ray, PhD; and Xiuxia Zhou, PhD. The Institute is supported by a program project (P01) grant from the NIH.

The program combines advanced principles in basic bench investigation with a comprehensive translational research program. Clinical research efforts focus on better definition of severe asthma phenotypes to better understand disease pathogenesis, and to improve treatment of severe asthma patients. Bench research projects focus on the molecular mechanisms of inflammation in allergy and asthma and mechanisms that induce tolerance to antigens, as well as approaches to severe asthma using cellular biology and genetics tools.

**COPD and Emphysema Research Center**
The COPD and Emphysema Research Center (ERC) investigates fundamental biologic concepts in advanced chronic obstructive lung disease, particularly emphysema. The program employs advanced tools in molecular, biochemical, physiologic, and radiographic assessment for research investigations. The primary program faculty includes Frank Sciurba, MD, as the Director, working in association with Janet Lee, MD; Michael Donahoe, MD; Jessica Bon Field, MD, MS; Divay Chandra, MD, MSc; Corrine Kliment, MD, PhD; Toru Nyunoya, MD; Alyssa Gregory, PhD; and Steven D. Shapiro, MD. The ERC has been a national leader in the field of lung reduction surgery, pulmonary rehabilitation, and transtracheal oxygen therapy, and relies on successful basic science collaborations with the departments of clinical pharmacology and biochemistry, and with other local and international collaborators. The ERC maintains an active registry for patient participation in clinical research trials of novel treatments for patients with advanced COPD. The Emphysema program is a member of the NHLBI Lung Tissue Research Consortium and the COPD Clinical Research Network and is additionally supported by the NIH Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC) (U01) grant.

**Pulmonary Transplantation and Advanced Lung Disease Program**
The Pulmonary Transplantation and Advanced Lung Disease Program is dedicated to a greater understanding of the basic biology of lung transplantation. This multidisciplinary program incorporates surgical, immunologic, and medical expertise in the care and research of patients with end-stage lung disease who undergo lung transplantation. The growth of this program has been remarkable, with more than 1000 lung or heart-lung transplants over the last 10 years, and more than 700 patients being actively followed for post lung transplant care in the outpatient comprehensive lung program. Translational research programs focus on clinical trials of novel immunosuppressive regimens, including carflizomib (PI: John McDyer, MD), quality of life following lung transplantation, and treatment strategies for high-risk recipient...
populations. Over the last two years, a longitudinal biorepository of clinical data and patient samples was created to facilitate discovery of novel biomarkers of allograft dysfunction and tolerance. Evaluation of lung transplant followed by bone marrow transplant for advanced lung disease associated with immunodeficiencies is one example of innovative approaches in the lung transplant program. The transplant program has also been an active participant in the Cystic Fibrosis Foundation Lung Transport Consortium. The program faculty, under the medical leadership of Matthew Morrell, MD, includes John McDyer, MD; Cody Moore, PharmD; Bruce Johnson, MD; Timothy Corcoran, PhD; Joseph Pilewski, MD; Silpa Kilaru, MD; Elizabeth Lendermon, MD; Mark Snyder, MD; and Keven Robinson, MD.

**Simmons Center for Interstitial Lung Disease**
The Dorothy P. and Richard P. Simmons Center for Interstitial Lung Disease establishes the university as a premier center for the investigation and clinical care of patients with idiopathic pulmonary fibrosis. The Simmons Center is a comprehensive multidisciplinary program incorporating research scientists, clinicians, nurse specialists, and rehabilitation medicine staff. Division faculty involved with the center include Daniel Kass, MD (Director); Kevin Gibson, MD; Mauricio Rojas, MD; Jared Chiarchiaro, MD; Kathleen Lindell, PhD; Luis Ortiz, MD; and Kristen Veraldi, MD, PhD. Current research efforts include basic investigations focused on the mechanisms of the lung fibrosis, injury and repair, genomics and proteomics of lung fibrosis, and the role of genetics in determining the fibrotic phenotype. The Center’s research programs are structured to facilitate the rapid translation from bench investigation to clinical medicine, with scientists maintaining an active role in patient sample collection, studies of biomarkers of disease progression, and the development of new therapeutic drug targets. Center faculty are funded by the NIH and enjoy a strong collaborative relationship with investigators in the departments of Pathology and Surgery, and with multiple investigators all around the world.

**UPMC Sleep Medicine Center**
The Sleep Medicine Center is a multidisciplinary program incorporating respiratory medicine, psychiatry, otolaryngology, and bariatric surgery specialists. Center research focuses on the pathophysiology of sleep-disordered breathing in patients with advanced cardiomyopathy, as well as clinical research in the medical therapy of obstructive sleep apnea and hypoventilation syndromes. The Center utilizes advanced tools in molecular, physiologic, and clinical investigation. Extensive additional collaborative interactions exist with the Heart and Vascular Institute, the Department of Otolaryngology, and the Graduate School of Public Health. The Sleep Medicine Center is under the direction of Sanjay R. Patel, MD, MS, and program faculty include Patrick Strollo, Jr., MD; Phillip Lamberty, MD; Christopher O’Donnell, PhD; Charles Atwood, MD; Rachel Givelber, MD; David Kristo, MD; and Mazen El-Ali, MD.
Pulmonary Vascular Disease Center
This program was developed under the leadership of Michael A. Mathier, MD, and Mark Gladwin, MD. The aim is to develop a high-volume referral clinic, right-heart catheterization diagnostic program, and multidisciplinary research programs. In addition to human translational and clinical research studies, the Center performs basic studies of right-ventricular dysfunction, including the genetic modifiers influencing the severity of pulmonary hypertension and right-heart failure; nitric oxide and reactive oxygen species signaling; and right-ventricular–pulmonary artery coupling. A translational vascular unit as part of the CTSI is now being led by Marc Simon, MD, MS. The Pulmonary Vascular Disease Center is the home to a NIH P01 grant titled “Vascular Subphenotypes of Lung Disease” awarded to Mark Gladwin, MD. A broad base of basic, small, and large animal and human clinical trials will be conducted to examine the significance, cause, and treatment of pulmonary vascular disease as a unique phenotype in patients with COPD, ILD, and HIV. The Pulmonary Vascular Disease Center has extensive links to the Vascular Medicine Institute (VMI). Elena Goncharova, PhD, a Pulmonary Division researcher with an appointment in the VMI, focuses her research on vascular disease.

Pulmonary Hypertension
The Pulmonary Hypertension Research Center was developed to provide clinical research and basic research that advances clinical care and treatment of patients with cardiopulmonary disease. Pulmonary arterial hypertension (PAH) is a complex disease characterized by inappropriate cellular hypertrophy and proliferation of the pulmonary vasculature that results in increased vascular resistance, elevated pulmonary artery pressure, and eventually right-heart dysfunction. It is often unrecognized in its early stages because of its nonspecific presenting symptoms, which include dyspnea, fatigue, and chest discomfort. The disease may be idiopathic, familial, or associated with underlying rheumatologic, cardiac, hepatic, or pulmonary disease. While the diagnostic evaluation of affected patients is complex, numerous proven therapies are now available. PAH affects a range of patient populations with a variety of disease states: idiopathic pulmonary arterial hypertension, COPD, interstitial lung disease, heart failure/diastolic dysfunction, valvular disease, hemoglobinopathies, connective tissue disease, liver disease, and HIV infection to name a few.

Led by Mark Gladwin, MD; Stephen Chan, MD, PhD; and Michael A. Mathier, MD, the Pulmonary Hypertension Research Center is one of the largest programs in the country, offering patients full access to state-of-the-art diagnostics, therapeutics, and opportunities to participate in clinical research. Our cardiologists and pulmonologists are investigating several promising new therapies for patients with PAH. These therapies include the oral prostanooid treprostinil, the selective endothelin antagonists, and combinations of available agents. Under the leadership of Dennis M. McNamara, MD (Cardiology faculty), researchers are also investigating the relationship between genetic variations and clinical outcomes in patients with cardiopulmonary disease. Understanding this relationship may help individualize treatments for these patients in the future. The program is also researching new technologies to evaluate right heart function and new strategies to identify risk factors that portend a poor outcome in patients with pulmonary hypertension. Of particular interest to center physician-investigators are exercise right heart catheterization, pulmonary embolism, and use of catheter angioplasty for Chronic Thromboembolic Pulmonary Hypertension (CTEPH).

Center for Medicine and the Microbiome
The mission of the Center for Medicine and the Microbiome is to perform innovative basic, translational, and clinical research to understand the role of the microbiome in health and disease and to apply this knowledge to develop novel diagnostic and treatment strategies. The influence of the microbiome of the lung, as well as
of the oral cavity and gut, on lung disease is a major focus. Co-led by Alison Morris, MD, MS, and Barbara Methé, PhD, the Center also provides an intellectual and core resource for investigators performing microbiome research. The Center is funded by grants from NIH, industry, and UPMC, and provides support for processing microbiome samples to extract DNA and/or RNA, DNA/RNA sequencing, bioinformatics analyses, and design of human studies and collaborates with numerous investigators throughout the Medical Center and University.

Pulmonary Translational Research Core (PTRC)
The mission of the PTRC is to foster excellence in research from the lab bench to patient bedside to clinical practice and to advance patient care and health outcomes in the field of pulmonary medicine. The PTRC aims to provide resources, services, operations, and training to support and promote the planning and implementation of translational and clinical research in the Division. Under the direction of co-leaders Janet Lee, MD, and Timothy Corcoran, PhD, the PTRC offers a broad range of consultations and key regulatory support at all stages throughout the research project life cycle from grant writing, developing a protocol, through recruiting participants to closing the research project and analyzing the results. The Core also houses several research coordinators, regulatory personnel, and data analysts.

PACCM Small Molecule Therapeutics Center
The PACCM Center for Small Molecule Therapeutics (SMTC) was established in 2015 to increase the scientific understanding and collaborative efforts on developing small molecules that target various pulmonary diseases including ARDS, Asthma, IPF, COPD, and Lung Transplant rejection. The mission of the SMTC is to provide expertise in protein modeling, target validation, small molecule screening, “hits” identification and optimization, in vitro ADME and referrals for additional medicinal or synthetic chemists to the appropriate facilities within PACCM and the Department of Medicine. The center continues to provide an excellent platform for faculty collaboration that will hopefully lead to novel treatments for patients with pulmonary diseases.

The Division has shown a sustained and unparalleled record of peer-reviewed extramural support during the recent ten-year interval as indicated in the Pulmonary Research Expenditures graph. We experienced a reduction of total costs with the departure of several key faculty, including Rama Mallampalli, MD, and Yutong Zhao, MD, PhD.

Key grants awarded in the division in the past year include the following:

- **Jonathan Alder, PhD**, was awarded a Samuel and Emma Winters Foundation grant titled “The Role of GDF15 in Lung Disease,” with annual direct cost of $10,600 from July 1, 2018, through June 30, 2019.
- **Divay Chandra, MD, MSc**, was awarded a Samuel and Emma Winters Foundation grant titled “The Ubiquitin Proteasome System Regulates Atherosclerosis in COPD,” with annual direct cost of $10,600 from July 1, 2018, through June 30, 2019.
- **Divay Chandra, MD, MSc**, was also awarded a subcontract from Temple University for a grant titled “Losartan Effects on Emphysema,” with annual direct cost of $6,000, from August 1, 2018, through July 31, 2019.
- **John Evankovich, MD**, was awarded an NIH K08 grant titled “Toll-Like Receptor 8 Degradation by E3-Ligase RNF216 Regulates Inflammation in Acute Lung Injury,” with annual direct cost of $150,499, from January 1, 2019, through December 31, 2023.
• **Marc Gauthier, MD,** was awarded a Parker B. Francis fellowship titled “The XCCL10-CXCR3 Axis in the Pathogenesis of Steroid Refractory Severe Asthma,” with an annual direct cost of $50,000 from July 1, 2018, through June 30, 2021.

• **Daniel Kass, MD,** was awarded an NIH grant titled “University of Pittsburgh International Lung Conference 2018: Pulmonary Medicine: Basic Biologies and Novel Therapeutics,” with annual direct cost of $32,640, for the 2018 Pittsburgh International Lung Conference.

• **Georgios Kitsios, MD, PhD,** was awarded a grant from Karius, Inc., titled “Rapid Etiologic Diagnosis of Severe Pneumonia with Plasma cfDNA Sequencing,” with annual direct cost of $50,000 from December 18, 2018, through December 17, 2021.

• **Corrine Kliment, MD, PhD,** was awarded a Parker B. Francis fellowship titled “Role of Adenine Nucleotide Translocase in Chronic Obstructive Pulmonary Disease,” with annual direct cost of $50,000, from July 1, 2018 through June 30, 2019.

• **Corrine Kliment, MD, PhD,** was also awarded an NIH K08 grant titled “The Role of Adenine Nucleotide Translocase in the Protection of Airway Epithelial Cells in Chronic Obstructive Pulmonary Disease (COPD),” with annual direct cost of $150,500, from August 16, 2018, through July 31, 2023.

• Former Division Chief, **Rama Mallampalli, MD,** saw his NIH P01 renewal funded, with two projects and one core returning to Pulmonary as subcontracts. **Janet Lee, MD,** will lead a project titled “Mechanisms Of Impaired Macrophage Function in Lung Injury,” with annual direct cost of $250,000; **Prabir Ray, PhD,** will lead a project titled “Immunosuppression by Myeloid Cells in Pneumonia,” with annual direct cost of $310,500; and **Bryan McVerry, MD,** will lead the Clinical Translational Core, with annual direct cost of $166,176—all from May 1, 2019 through April 30, 2024.

• **John McDyer, MD,** was awarded an NIH U01 grant titled “Cadaveric Donor Lung and Bone Marrow Transplantation in Immunodeficiency Diseases,” with annual direct cost of $214,677 from July 1, 2018 through June 30, 2021.

• **Barbara Methé, PhD,** and **Alison Morris, MD, MS,** were awarded an NIH R21 grant titled “Determination of Immune-relevant Microbiota in the Lung: Leveraging the Lung HIV Microbiome Project,” with annual direct cost of $75,000 from August 1, 2018, through July 31, 2020.

• **Alison Morris, MD, MS,** was awarded an NHLBI R01 grant titled “Systems Biology of Diffusion Impairment in HIV,” with annual direct cost of $500,000 from August 1, 2018, through May 31, 2022.

• **Alison Morris, MD, MS,** was also awarded an NIH K12 grant entitled “Pittsburgh HIV Mentored Training for Investigation of Co-morbidities and Cure (HIV MeTrlCC),” with annual direct cost of $72,732, from August 15, 2018 through June 30, 2023.

• **Alison Morris, MD, MS,** received a subcontract from the University of Minnesota titled “Sphingolipids in HIV-associated Chronic Obstructive Pulmonary Disease,” with annual direct cost of $11,678, from September 1, 2018, through May 31, 2019.

• **Seyed Mehdi Nouraie, MD, PhD,** was awarded a Glaxo, Inc., grant titled “Novel Mechanisms and Biomarkers of COPD/Emphysema,” with annual direct cost of $13,409 from November 19, 2018, through November 18, 2020.

• **Toru Nyunoya, MD,** was awarded a VA IPA grant with annual direct cost of $167,895 from January 1, 2019, through December 31, 2019. In addition, Dr. Nyunoya was awarded a Dean’s bridge funding grant.
Sanjay R. Patel, MD, MS, was awarded an NIH R01 grant titled “Impact of Poor Sleep on Inflammation and the Adenosine Signaling Pathway in HIV Infection,” with annual direct cost of $339,472 from August 1, 2018, through April 30, 2022.

Anuradha Ray, PhD, was awarded an NIH R01 grant titled “Understanding Severe Asthma Using an Experimental Model,” with annual direct cost of $298,133, from August 1, 2018, through June 30, 2022.

Mauricio Rojas, MD, was awarded an NIA P50 grant titled “Translational Studies for Identifying and Targeting Novel Pathways in Systemic Sclerosis Pathogenesis (Lung Tissue),” with annual direct cost of $83,360 from August 1, 2018, through August 31, 2022.

Mauricio Rojas, MD, also received a MedImmune, Inc., grant titled “Develop a Translational Model for COPD Disease in Organoid,” with annual direct cost of $49,848, from September 11, 2018, through September 10, 2020.

Frank Sciurba, MD, was awarded an NHLBI U01 grant titled “Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC) with annual direct cost of $150,716 from August 1, 2018, through July 31, 2020.

Frank Sciurba, MD, was also awarded an NIH U01 grant titled “Systems Level Causal Discovery in Heterogeneous TOPMed Data,” with annual direct cost of $90,441 from April 1, 2019, through March 31, 2020.

Nathaniel Weathington, MD, PhD, was awarded an NIH R03 grant titled “Derangement of Alveolar Macrophage Immunometabolism by Prolonged Beta Agonist Therapy: Implications for Host Defense and Tissue Health,” with annual direct cost of $50,000 from September 23, 2018, through July 31, 2020.

Additionally, we continue to be excited about our involvement in the UPMC Immune Transplant and Therapy Center (ITTC) where John McDyer, MD, has continued his collaboration with Dr. Paul Szabolcs in a project that is executing a single center clinical trial to evaluate the safety and efficacy of performing Lung Transplant followed by CD3+/CD19+-depleted BMT from the same cadaveric, partially HLA-matched donor, in patients with Primary immunodeficiencies and end-stage lung disease. Moreover, through the ITTC, Alison Morris, MD, MS, has received $5,220,000 over five years to generate large numbers of genome and microbiome samples with from the electronic medical record to create a data repository to understand the roles of microbiome and genome in personalized medicine.

### Faculty Research Interests and Activities

**Alison Morris, MD, MS  Division Chief**

Dr. Morris’s research interests include HIV-associated lung disease and the role of the microbiome in disease. Her group works with large cohort epidemiologic studies of HIV and other diseases, as well as in translational studies in which physiologic and molecular techniques are applied to patient populations. As part of her role in the Center for Medicine and the Microbiome, she works with collaborators in diverse areas studying the microbiome.

Dr. Morris’s research interests focus on several overlapping areas including the role of the microbiome in HIV-associated lung disease; understanding and manipulating the respiratory and gut microbiota in the ICU; the role of nitrate-reducing bacteria in pulmonary hypertension; HIV-associated emphysema and pulmonary hypertension; and the role of Pneumocystis and other fungi in COPD and HIV.
Jonathan K. Alder, PhD
Dr. Alder’s research focuses on understanding the role of telomere length in human health and disease. His current interest is exploring the mechanisms by which telomere dysfunction causes age-related lung diseases including pulmonary fibrosis and emphysema. His lab uses a number of approaches to explore that pathogenesis of short-telomere mediated disease including genetics, cell biology, and animal models. He hopes these studies will lead to a deeper understanding of how telomere dysfunction contributes to lung
disease and potentially inform rational therapies.

**Study Sections**
- Member, Grant Review Committee, College of Life Sciences Mentored Experience, Brigham Young University, 2014-present

**Advisory Committee Memberships and Leadership Positions**
- Member, Scholarship Committee, College of Life Science, Brigham Young University, 2014-present
- Member, Advisory Committee, University New Faculty, Brigham Young University, 2015-present

**Professional Affiliations and Society Memberships**
- Member, American Thoracic Society, 2013-present
- Member, Society of Critical Care Medicine, 2012-present
- Member, American College of Physicians, 2010-present
- Member, UPMC ICU Formulary Committee, 2018-present
- Member, Quality Improvement and Implementation Committee, American Thoracic Society, 2016-present

**Charles W. Atwood, Jr., MD**

Working closely with Dr. Patrick Strollo, Dr. Charles Atwood studies home sleep apnea testing and other aspects of sleep apnea diagnosis and therapy. He has also worked with the pacemaker industry (Guidant/Boston Scientific) on studies examining various aspects of pacemaker technology as a possible diagnostic or treatment device in sleep apnea. He is currently collaborating with Dr. John Hotchkiss and others in the Department of Critical Care Medicine on studies looking at new methods of identifying physiological patterns in sleep apnea that may allow for better clinical phenotyping of sleep apnea patients.

Dr. Atwood also collaborates with the Emphysema Research Center on clinical trials focusing on long-term oxygen therapy in COPD. Through the ERC, he is part of the NIH’s COPD clinical research network. Another area of study is the regulation of swallowing and breathing. This work has led to a better understanding of some basic physiological mechanisms with possible practical relevance that may lead to better therapy for dysphagia.

Lastly, Dr. Atwood started a program at the VAPHS for the rapid evaluation of lung nodules referred to the pulmonary division.

**Study Sections**
- Reviewer, VISN 4 Competitive Pilot Study Program, 1998-present
- Reviewer, CNRC–IRB projects, 2002-present
- Reviewer, WPIC Internal Grants, 2005-present

**Advisory Committee Memberships and Leadership Positions**
- Chair, Clinical Informatics Committee, VA Pittsburgh Healthcare System, 2002-present
- Member, Admissions interviewing Committee, 2003-present
- Director, Multidisciplinary Sleep Medicine and Research Conference, 2004-present
- Member, Advisory Committee, Neuroscience-Clinical Translational Science Institute, 2006-present
- Core Member, Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, 2006-present
- Member, Research and Development Committee, VA Pittsburgh Healthcare System, 2007-present
- Member, Adverse Events and Procedure Reporting Committee, 2007-present
- Chair, Veriphy implementation taskforce, 2010-present
- Co-Chair, VAPHS Telehealth Taskforce, 2010-present
- Member, VISN 4 Telehealth Council, 2010-present
- Member, University of Pittsburgh Press Advisory Committee, 2014-present

**Professional Affiliations and Society Memberships**
- Fellow, American College of Chest Physicians, 1992-present


**Editorships**

- Reviewer, Chest, 1998-present
- Reviewer, Sleep, 2001-present
- Reviewer, American Journal of Respiratory and Critical Care Medicine, 2003-present
- Reviewer, Journal of General Internal Medicine, 2005-present
- Reviewer, Journal of Applied Physiology, 2005-present
- Reviewer, Journal of Clinical Sleep Medicine, 2006-present
- Editor-in-Chief, ACCP SEEK for Sleep Medicine, 2008-present

**William G. Bain, MD**

Dr. Bain studies platelet-mediated protective mechanisms during pathogen-triggered lung injury to provide rational therapeutic strategies to improve morbidity and mortality of critically ill patients.

**Ian J. Barbash, MD, MS**

Dr. Barbash’s primary interest is how health policy at multiple levels (local, state, and national) affects critical care delivery and patient outcomes. Inherent in this research is an understanding of health care quality measurement, and this has been a focus of several of his early projects. He is working to use both administrative data and large electronic health record datasets to provide both a broad and deep understanding of the impact of health policy in critical care.

**Advisory Committee Memberships and Leadership Positions**

- Member, Quality Improvement and Implementation Committee, American Thoracic Society, 2016-present
- Member, UPMC ICU Formulary Committee, 2018-present

**Professional Affiliations and Society Memberships**

- Member, American College of Physicians, 2010-present
- Member, Society of Critical Care Medicine, 2012-present
- Member, American Thoracic Society, 2013-present
- Member, Academy Health, 2015-present

**Editorships**

- Ad hoc Reviewer, American Journal of Respiratory and Critical Care Medicine, 2016-present
- Ad hoc Reviewer, Annals of the American Thoracic Society, 2016-present
- Ad hoc Reviewer, Journal of Critical Care, 2017-present
- Ad hoc Reviewer, Canadian Journal of Anesthesia, 2018-present
- Ad hoc Reviewer, Mayo Clinic Proceedings, 2018-present

**Jessica M. Bon, MD, MS**

Dr. Bon’s academic and research interests focus on the investigation of musculoskeletal comorbidities in chronic obstructive pulmonary disease. Dr. Bon’s research has concentrated on the role that inflammation and autoimmunity play in COPD-related bone loss. She has shown that radiographic emphysema independently predicts low bone mineral density in smokers and has identified novel autoimmune responses in smokers that are linked to emphysema-related bone loss.

**Study Sections**

- Permanent member, ENDB study section, VA Merit Review Award, 2016-present

**Advisory Committee Memberships and Leadership Positions**
Marta Bueno, PhD  
Dr. Bueno’s research centers on unraveling the age-related mechanisms involved in the susceptibility to lung diseases, including idiopathic pulmonary fibrosis and pulmonary (arterial) hypertension, in particular. Her lab has a strong record of examining injury and repair mechanisms in the lung, including the responses of the aging lung to endoplasmic reticulum stress, senescence, and loss of mitochondrial homeostasis.

**Advisory Committee Memberships and Leadership Positions**  
- Reviewer, Society for Redox Biology and Medicine Annual Conference, 2017-present  
- Member, Committee, American Thoracic Society Working Group on Lung Aging, 2017-2018  
- Member, Committee, American Thoracic Society Interest Group on Aging in Critical Care, 2019-present

**Professional Affiliations and Society Memberships**  
- Member, Spanish Society of Biochemistry and Molecular Biology, 2000-present  
- Member, American Thoracic Society, 2011-present  
- Member, Society of Redox Biology and Medicine, 2013-present  
- Member, Leadership Academy for Early Career Faculty, University of Pittsburgh Schools of the Health Sciences and University of Pittsburgh Office of Academic Career Development, 2018  
- Member, American Thoracic Society RCMB Web Committee, 2018-present

**Honors and Awards**  
- Recipient, Junior Faculty-Basic Science Research Award, Department of Medicine Research Day, University of Pittsburgh, 2019
Sharon L. Camhi, MD
Dr. Camhi is involved in Divisional research at the VA Pittsburgh Healthcare System (VAPHS). She is the Site PI on a VA Cooperative Studies Program trial investigating the use of steroids in veterans with severe pneumonia. She is also a co-investigator on several other studies within the Pulmonary Division at the VAPHS. On a regional level, Dr. Camhi is leading the initiative to bring Telemedicine Pulmonary services to remote VA facilities lacking Pulmonary physicians. Nationally, she is involved in a project to enhance palliative care in critical care units in Veterans Hospitals across the country.

Advisory Committee Memberships and Leadership Positions
- Member, Patient and Family Support Committee, Society of Critical Care Medicine, 2008-present

Divay Chandra, MD, MSc
Dr. Chandra’s research focuses on three aspects of COPD. The first area focuses on how a disease of the lung (COPD) produces varied systemic comorbidities, such as atherosclerosis and kidney dysfunction. This research uses a translational approach, and focuses on the study of inflammatory and autoimmunity processes as novel mechanisms for systemic vascular injury in COPD. Secondly, he is interested in whether there are as yet undefined systemic manifestations of COPD and how these can be identified. This work includes the first description of a novel emphysema kidney injury phenotype. Finally, Dr. Chandra is investigating how phenomic data on patients with COPD can be analyzed and interpreted using advanced computational methods to understand disease heterogeneity.

Professional Affiliations and Society Memberships
- Member, American Thoracic Society, 2011-present

Beibei (Bill) Chen, PhD
Dr. Chen’s primary research interest involves the study of the molecular mechanisms that control inflammation and cell proliferation via protein ubiquitination. He has identified and characterized more than 10 novel ubiquitin E3 ligases over the last four years. These works have been published in top-tier journals, including Nature Immunology, Nature Medicine, Cell Reports, Science Translational Medicine, and the Journal of Experimental Medicine. Dr. Chen’s second area of research focus is small molecule drug design. Over the past five years, he has submitted 10 provisional patents related to novel anti-inflammatory/cancer compounds. In addition, he has successfully designed and synthesized a novel series of first-in-class small molecule FBXO3 protein inhibitors. One of his lead compounds, BC-1261, has passed preclinical PK/toxicity studies and was discussed at an FDA pre-IND meeting in May 2015. Recently, he has also designed a novel series of potent, selective PDE4, HECTD2, StamBP, Fbxo7, Fbxo48, FIEL1, DCN1 inhibitors that exhibit excellent activities in vivo. His long-term goal is to develop a new class of therapeutics that combat cancer and inflammatory diseases by focusing on novel mechanisms.

Study Sections
- Ad hoc reviewer, AFM Téléthon, 2012-present
- Reviewer, University of Pittsburgh Competitive Medical Research Fund, 2015-present

Advisory Committee Memberships and Leadership Positions
- Member, Pulmonary Medicine (PULM) Panel, Dept. of Veterans Affairs, 2016-present
- Co-Founder/COO, Generian Pharmaceutical, Inc, 2019-present

Professional Affiliations and Society Memberships
- Member, American Society of Biochemistry and Molecular Biology (ASBMB), 2011-present
Dr. Chen’s research focuses on the relationship between lung cancer and aging, and the underlying molecular mechanisms of lung tumorigenesis. The long term goal is to identify novel molecular targets and treatment strategies to improve lung cancer therapy. He is also interested in studying the signaling transduction pathways and functions of inflammation and cell death in the development of cigarette smoke-induced diseases (COPD/emphysema).

Kong Chen, PhD

Dr. Chen’s primary research focuses on studying memory Th17 responses using mouse models of *Klebsiella pneumoniae*, *P. aeruginosa*, and Rhesus macaque models of SIV and Streptococcus pneumoniae. Using the K. pneumoniae model, his group has demonstrated that immunization induced memory Th17 cells provide serotype/antibody independent protection against a variety of strains of *K. pneumoniae* including the recently described multidrug resistant New Delhi metallo-beta-lactamase strain. The data suggesting Th17 cells can provide clade specific immune protection regardless of capsular serotypes. Recently, they have also demonstrated that *P. aeruginosa* antigen inducible proliferation of Th17 with memory cell characteristics is observed in the mediastinal lymph nodes of patients with chronic lung inflammation such as Cystic Fibrosis (CF). Enhanced Th17 responses seem to be responsible for the neutrophilic pathology observed in CF as well as patients with other chronic lung inflammations. They have found both IL-17A and IL-17-driven chemokines can be suppressed by epigenetic inhibition in human cells ex vivo as well as mouse models in vivo. Ongoing research is focusing on defining the epigenetic regulation of IL-17 downstream chemokines specifically produced by epithelial cells in chronic lung inflammations. The group recently carried out in depth transcriptomic analyses including Single-Cell RNA-seq in various tissues and samples from patients with chronic lung inflammation as well as mice using experimental lung inflammation models. Ongoing study also focuses on analyzing the chromatin accessibility landscape in the lung epithelium using an unbiased approach, ATAC-seq.

**Professional Affiliations and Society Memberships**

- Member, American Association of Immunologists, 2012-present
- Member, American Thoracic Society, 2015-Present
ATAC-seq. focuses on analyzing the chromatin accessibility landscape in the lung epithelium using an unbiased chronic lung inflammation as well as mice using experimental lung inflammation models. Ongoing study is focusing on defining the epigenetic regulation of IL-17 downstream chemokines specifically can be suppressed by epigenetic inhibition in human cells ex vivo as well as mouse models in vivo. Ongoing research is also focusing on patients with other chronic lung inflammations. They have found both IL-17A and IL-17-driven chemokines (CF). Enhanced Th17 responses seem to be responsible for the neutrophilic pathology observed in CF as well as P. aeruginosa demonstrated that cells can provide clade specific immune protection regardless of capsular serotypes. Recently, they have also described multidrug resistant New Delhi metallo-beta-lactamase strain. The data suggesting Th17 serotype/antibody independent protection against a variety of strains of including the pneumoniae.
Timothy E. Corcoran, PhD

Dr. Corcoran’s primary research interests include aerosol drug delivery and aerosol-based nuclear imaging of the lung. He has been extensively involved in the development of inhaled medications for lung transplant recipients and cystic fibrosis patients. In addition, he has played an important role in the development of special techniques for improving inhaled drug delivery, such as the use of low-density gases and surfactants to improve drug distribution in the lungs. Dr. Corcoran had developed imaging techniques for quantifying pulmonary physiology, including measurements of mucociliary clearance and liquid absorption in the airways. These techniques have been tested in a series of clinical studies involving adult and pediatric patients and will be used to screen new medications for treating lung diseases such as cystic fibrosis. Dr. Corcoran is currently the Principal Investigator of two NIH R01 grants. He has previously directed research funded by the U.S. Army and the Cystic Fibrosis Foundation.

Advisory Committee Memberships and Leadership Positions
- Imaging Group Chairman, International Society for Aerosols in Medicine, 2009-present
- Director, NRSA Grant-Writing Workshop, Department of Medicine, 2018-present

Professional Affiliations and Society Memberships
- Member, American Association for the Advancement of Science, 2009-present

Editorships
- Editorial Board, Journal of Applied Physiology, 2010-present

Michael P. Donahoe, MD

Dr. Donahoe has a broad range of clinical research interests in the critically ill patient population including the management of chronically critically ill patients, ARDS, and hospital quality improvement. He has additional clinical research interest in clinical trial design and implementation.

Study Sections
- Grant Reviewer, VA Merit Review Consultant, 1999-present

Professional Affiliations and Society Memberships
- Fellow, American College of Chest Physicians, 1999-present

Editorships
- Reviewer, Chest, 1999-present
- Reviewer, American Journal of Respiratory and Critical Care Medicine, 1999-present
- Reviewer, Respiratory Medicine, 1999-present

John Evankovich, MD

Dr. Evankovich’s research seeks to determine how a novel Toll-Like Receptor 8 (TLR8) degradation pathway in monocytes regulates severe lung injury. TLR8 is a pattern recognition receptor that senses immunogenic RNA, including some host-derived plasma microRNAs, and its activation initiates signaling leading to the secretion of cytokines, contributing to excessive inflammation that is characteristic of severe ARDS. With
support from a K08 award, Dr. Evankovich aims to define the mechanism regulating TLR8 protein levels by the ubiquitin/proteasome system in monocytes; to determine if RNF216 modulates inflammatory signaling by directing TLR8 degradation and define RNF216 expression in ARDS; and to examine plasma miRNAs in ARDS subjects as TLR8 ligands.

**Merritt L. Fajt, MD**
Dr. Fajt’s research over the last several years has focused on the pathobiologic mechanisms of severe asthma and the role of mast cells. While mast cells have been reported in the epithelium, both in the GI tract and in the airway, very little is known regarding the epithelial (and even luminal) mast cells, their phenotype, and their function in asthma and severe asthma. Dr. Fajt’s research interest involves determining the location, phenotype, and function of airway mast cells in severe asthma, as compared to milder asthma and normal control subjects. She conducts studies from a range of sources, including endobronchial biopsy, epithelial cells, bronchoalveolar lavage fluid, sputum, and blood samples. Preliminary data strongly suggest that mast cells in severe asthma, rather than being absent, are actually of an altered functional phenotype and directed towards a luminal location. Her studies will continue to focus on the differences in mast cell phenotypes and their modification by epithelial or luminal factors as it relates to the inflammatory and repair processes of asthma. An understanding of the pathobiology of mast cells in severe asthma could lead to new clinical biomarkers and therapeutic targets.

**Advisory Committee Memberships and Leadership Positions**
- Board Member (Vice President), Greater Pittsburgh Allergy, Asthma & Immunology Society, 2012-present

**Professional Affiliations and Society Memberships**
- Member, American Academy of Allergy, Asthma and Immunology, 2007-present
- Member, American Thoracic Society, 2011-present
- Fellow, American Academy of Allergy, Asthma and Immunology, 2014-present

**Meghan E. Fitzpatrick, MD**
Dr. Fitzpatrick researches the relationships between chronic HIV infection and HIV co-infections with COPD, which develops in an accelerated fashion among persons chronically infected with HIV.

**Marc C. Gauthier, MD**
Dr. Gauthier’s research focuses on identifying steroid resistant pathways of inflammation in severe asthma. He has previously identified Type 1 inflammation, manifested by Interferon-gamma elevation in the lung, as a phenotype of severe asthma. His current work seeks to better understand the immune mechanisms leading to persistence of Type 1 inflammation in severe asthma and how this impacts disease severity and response to currently available asthma therapies.

**Professional Affiliations and Society Memberships**
- Member, American College of Physicians, July 2012-present
- Member, American Thoracic Society, July 2013-present
- Member, Pennsylvania Medical Society, December 2014-present
- Member, Allegheny County Medical Society, December 2014-present
- Member, American College of Chest Physicians, January 2015-present
- Member, Society of Critical Care Medicine, January 2016-present
Samit Ghosh, PhD
Dr. Ghosh’s research goal is to delineate a translational pathway and to design platforms to expedite repair and regenerative therapeutics for the treatment of pulmonary complications of sickle cell disease (SCD). He investigates the underlying mechanisms that lead to acute or chronic pulmonary complications of SCD. His research involves two major components of SCD. One is to determine the role of TLR4 signaling and vascular adhesion machinery in the development of Acute Chest Syndrome in SCD. The other component is to define Nrf2 regulated redox mechanisms that can be targeted therapeutically to prevent chronic disease progression leading to end organ damage in SCD. His research could provide a solid foundation identifying precision drugs for protection and/or attenuation of acute and chronic lung complications in SCD. In addition, his studies offer the potential of identifying the sub-group of SCD patients at higher risk of end-organ damage, who will be more suitable for high-risk experimental therapy.

Kevin F. Gibson, MD
Dr. Gibson investigates clinical pathogenesis interstitial lung diseases, including idiopathic pulmonary fibrosis, Sarcoidosis, autoimmune lung disease, and occupational lung disease. He conducts studies that include early and late phase clinical trials of novel therapeutics in interstitial lung disease, the discovery of biomarkers of disease activity and progression, and clinical translational studies of disease pathogenesis. Dr. Gibson has published a number of translational studies to identify unique biomarkers of disease activity in idiopathic pulmonary fibrosis and other interstitial lung diseases, studies of novel interventions in acute IPF exacerbations, and studies of gene expression profiling in IPF lungs. He has discovered a number of peripheral blood biomarkers that have been useful predicting disease progression in idiopathic pulmonary fibrosis, and he has participated in multinational studies of the genetics of IPF and Sarcoidosis.

Advisory Committee Memberships and Leadership Positions
- Member, Admissions Committee, University of Pittsburgh School of Medicine, 1991-present
- Member, Credentials Committee, University of Pittsburgh Medical Center, 1997-present
- Member, Small Business Innovative Research Committee, NIH, 2004-present
- Medical Director, Dorothy P. and Richard P. Simmons Center for Interstitial Lung Disease,
- University of Pittsburgh School of Medicine, 2006-present

Rachel J. Givelber, MD
Dr. Givelber’s academic focus is in clinical education at the medical student, resident, and fellow level. She teaches critical appraisal of the medical literature and techniques to apply research studies to the care of individual patients.

Professional Affiliations and Society Memberships
- Fellow, American College of Chest Physicians, 1999-present
- Member, Biostatistics and Epidemiology, National Board of Medical Examiners, 2011-present

Mark T. Gladwin, MD Institute Director
The Gladwin lab investigates the role and mechanisms of nitrite in pulmonary and cardiovascular cell signaling, as well as pulmonary hypertension and pulmonary complications of sickle cell disease. Dr. Gladwin’s research activities have led to four fundamental scientific hypotheses: (1) The discovery that the nitrite anion is a circulating storage pool for NO bioactivity (PNAS 2000) that regulates hypoxic vasodilation (Nature Medicine 2003) and the cellular resilience to low oxygen and ischemia (JCI 2005). (2) The discovery of a novel physiological function for hemoglobin as an electronically and allosterically-regulated nitrite reductase (Nature Medicine 2003; Huang JCI 2005). These studies reveal that nitrite is a potent vasodilator in states of resistance to NO in patients with sickle cell disease caused by scavenging of nitric oxide by (JCI 2005). Recently, he has characterized the role of both myoglobin and neuroglobin as functional nitrite reductase (Nature Medicine 2003; Huang JCI 2005). These studies reveal that nitrite is a potent vasodilator in states of resistance to NO in patients with sickle cell disease caused by scavenging of nitric oxide by (JCI 2005). This work has described a novel mechanism of disease, hemolysis-associated endothelial dysfunction (Nature Medicine 2002; JAMA 2005; JCI 2005). This work has described a novel mechanism of disease, hemolysis-associated endothelial dysfunction (Nature Medicine 2002; JAMA 2005; JCI 2005).
reductase (Nature Medicine 2003; Huang JCI 2005). These studies reveal that nitrite is a potent vasodilator in humans and is bioactivated by reaction with deoxyhemoglobin (and myoglobin) to generate NO preferentially under hypoxic conditions; they also suggest that hemoglobin has an "enzymatic" property as a nitrite reductase that participates in hypoxic vasodilatation. In related translational studies, Dr. Gladwin has demonstrated that inhaled nitrite reverses hypoxic neonatal pulmonary hypertension in sheep (Nature Medicine 2004) and that infused nitrite solutions prevent post-subarachnoid hemorrhage-induced vasospasm in primates (JAMA 2005) and prevent hepatic and cardiac ischemia-reperfusion injury and infarction in mice (JCI 2005). Recently, he has characterized the role of both myoglobin and neuroglobin as functional nitrite reductases and "NO synthases." (3) The characterization of a novel mechanism of disease, hemolysis-associated endothelial dysfunction (Nature Medicine 2002; JAMA 2005; JCI 2005). This work has described a state of resistance to NO in patients with sickle cell disease caused by scavenging of nitric oxide by hemoglobin that is released into plasma during hemolysis. (4) The mechanistic, clinical, and epidemiological description of a human disease syndrome, hemolysis-associated pulmonary hypertension (NEJM 2004). He has found that pulmonary hypertension occurs in 10-30% of patients with sickle cell disease, is a major cause of mortality in this population, and is strongly associated with high hemolytic rate, iron overload, and kidney disease.

Study Sections
- Ad hoc Member, NIH MIM Study Section, 2015-present

Advisory Committee Memberships and Leadership Positions
- Elected Council Member, American Society of Clinical Investigations, 2010-present
- Member, LiveLikeLou.Org Advisory Council, 2013-present
- Member, University of Pittsburgh Senior Vice Chancellor for Research Search Committee, 2016-present
- Member, Board of Directors, Beckwith Institute, 2016-present
- Elected Council Member, American Society of Clinical Investigations, 2010-present
- Member, UPSOM Distinguished Professor Nominating Committee, 2016-present
- Member, Science Advisory and Coordinating Committee, American Heart Association, 2017-2019
- Chairperson, 3CPR Nominating & Awards Committee, American Heart Association/American Stroke Association, 2017-2019
- Member, External Advisory Board, University of Pittsburgh Healthy Lifestyle Institute, 2017-present
- Member, Steering Committee, Enhancing Treatments for Pulmonary Vascular Diseases (PVD) Through Precision Medicine, 2017-Present
- Member, Advisory Board, Acceleron PAH (Pulmonary Arterial Hypertension), 2017-present
- Member, Scientific Advisory Board, Complexa Inc., 2017-present
- PVRI Institute Pulmonary Hypertension Precision Medicine Project Steering Committee, 2018-present
- Member, DSMB, BAL for CO ARDS trial, Harvard University, 2018
- American Society of Hematology (ASH) Sickle Cell Disease Clinical Endpoints Workshop Panel on End Organ Considerations, 2018-Present
- Member, UPMC Immune Transplant and Therapy Center (ITTC) Advisory Committee, 2018-present
- Chair, Harvard Medical School committee to review the Department of Medicine at Brigham
The Goncharova Lab continues to pursue the studies on the molecular and cellular mechanisms of pulmonary arterial hypertension (PAH) with long-term goal to dissect novel signaling mechanisms driving PAH.
pathogenesis and identify novel molecular targets for therapeutic intervention. PAH is life-threatening progressive disease with high mortality rates, poor prognosis (2.5-5 years without treatment) and no cure. In PAH, remodeling of small pulmonary arteries (PA) leads to elevated pulmonary arterial (PA) pressure that increases right ventricle (RV) afterload, RV failure and death. Available therapies fail to reverse established pulmonary vascular remodeling or prevent disease progression; and new remodeling-focused disease-modifying therapeutic strategies is an area of unmet important need. Over the past year, the major projects of our lab have been focused on the novel signaling mechanisms of pulmonary vascular remodeling and PAH with specific focus on HIPPO components MST1/2 and Smad 2 as a cross-talk between TGFbeta, Yap/Taz and Akt signaling pathways.

Study Sections

- Reviewer, FWF Austrian Science Fund, 2017-2018

Advisory Committee Memberships and Leadership Positions

- Member, ATS International Conference Committee, 2019-present
- Chair, Mini-symposium “Station to Station: Unraveling the Molecular Pathogenesis of PAH” ATS International Conference, 2019
- Member, 14th Pulmonary Vascular Research Institute (PVRI) Annual Meeting Scientific Organizing Committee, 2019
- Judge, AHA Fellows Research Day, Pittsburgh, PA, 2019
- Abstract Grader, AHA Fellows Research Day, Pittsburgh, PA, 2019

Professional Affiliations and Society Memberships

- Member, American Thoracic Society, 2007-present

Editorships

- Reviewer, American Journal of Physiology: Lung Cellular and Molecular Physiology, 2007-2018
- Reviewer, PLoS One, 2014-2018
- Reviewer, Thorax, 2018
- Reviewer, Circulation Research, 2014, 2017-present
- Reviewer, Scientific Reports, Cancer Research, 2016, 2018
- Reviewer, Cardiovascular Research, 2018
- Reviewer, Circulation: Heart Failure, 2018
- Editorial Board, American Journal of Physiology: Lung Cellular and Molecular Physiology, 2018-present

Major Lectureships and Seminars

- Invited Lecturer, Pulmonary Grand Rounds, University of California San Diego, San Diego, CA, 2018
- Invited Lecturer, American Thoracic Society International Conference, San Diego, CA, 2018
- Invited Lecturer, Pulmonary Vascular Disease Seminar, Brigham and Women’s Hospital, Boston, MA, 2018

Alyssa D. Gregory, PhD

Dr. Gregory’s laboratory studies the contribution of neutrophils to the development of cigarette smoke-induced diseases (COPD/emphysema, lung cancer), with an emphasis on understanding the complex roles of neutrophil-derived serine proteinases. The lab was the first to describe the ability of a secreted proteinase, neutrophil elastase (NE), to gain entry into lung structural cells and to cleave an array of intracellular
Relaxin has been shown to reverse many of the pathologic events associated with myofibroblast differentiation. Second, these patients may be relatively insensitive to the anti-fibrotic effects of relaxin-based therapies. First, IPF patients with the lowest expression of RXFP1 have the most compromised pulmonary function. Dr. Kass and his lab have discovered that the receptor for the hormone relaxin, RXFP1, is decreased in IPF. The loss of this receptor has several implications for patients. First, IPF patients with the lowest expression of RXFP1 have the most compromised pulmonary function. Second, these patients may be relatively insensitive to the anti-fibrotic effects of relaxin-based therapies. Relaxin has been shown to reverse many of the pathologic events associated with myofibroblast substrates. This finding unveils an additional level of regulation beyond the classical matrix-degrading functions of this and other proteinases. Additionally, Dr. Gregory studies the changes in innate immunity that occur with advanced age, which may play causative or contributory roles in pulmonary diseases which exhibit late-life onset. The lab is actively investigating stress granulopoiesis and changes to the bone marrow compartment that occur during chronic lung diseases and also with advanced age.

**Constance A. Jennings, MD**
Dr. Jennings has participated in clinical research and collaborated with basic research throughout her career. Her current interests include patient outcomes in COPD and emphysema. She also has a longstanding interest in the medical humanities related to the impact of the quality of caregiver relationships and the medical environment on the illness experience.

**Bruce A. Johnson, MD**
Dr. Johnson is primarily a lung transplant clinician with clinical research interests in lung transplant therapies. He participated in the first randomized controlled trial in lung transplant—the first and only randomized, placebo controlled trial ever shown to improve survival after lung transplan—and was the first to report a case series of recurrence of pre-transplant disease in the allograft.

**Maria Kapetanaki, PhD**
Dr. Kapetanaki is a molecular biologist with a long-standing interest in the regulation of gene expression in human diseases affecting normal lung function. Her research focuses on identifying the molecular pathways underlying pulmonary hypertension, which is a common complication in the sickle cell patient population. Her current projects include the study of the regulatory mechanism of heme-induced Placenta Growth Factor (PlGF) and the role of heme-induced genes in hematopoietic cells. More specifically, she investigates the role of oxidant response pathways, especially the Nrf-2 transcription factor and its upstream regulators. She employs cell culture and murine models where she applies techniques, such as gene silencing, gene editing and drug treatment to describe the steps of heme activation.

**Daniel J. Kass, MD**
The focus of Dr. Kass’s lab is Idiopathic Pulmonary Fibrosis (IPF), a progressive scarring of the alveolar parenchyma that ultimately leads to respiratory failure and death. Pathologically, this disease is characterized by the unremitting accumulation of fibroblasts. These are the cells responsible for the deposition of extracellular matrix in pulmonary fibrosis. Dr Kass’s research has focused on two critical areas of fibroblast biology. The first is the differentiation of fibroblasts to the highly contractile and synthetic myofibroblast. This fundamental feature of fibrosis leads to the deposition of matrix and the contraction of the gas exchange units in the lung that characterizes IPF. Dr. Kass and his lab have discovered that the receptor for the hormone relaxin, RXFP1, is decreased in IPF. The loss of this receptor has several implications for patients. First, IPF patients with the lowest expression of RXFP1 have the most compromised pulmonary function. Second, these patients may be relatively insensitive to the anti-fibrotic effects of relaxin-based therapies. Relaxin has been shown to reverse many of the pathologic events associated with myofibroblast...
differentiation. Dr. Kass has also focused on the role of fibroblasts as regulators of the degree and extent of inflammation in the lung. To this end, he has focused on the role of twist1, a transcription factor with enriched expression in IPF. Deranged expression of twist1, a well-known inhibitor of NF-kappaB signaling, can lead to dramatic changes in the local inflammatory infiltrate in animal models of pulmonary fibrosis.

Advisory Committee Memberships and Leadership Positions

• Conference Co-Chair, Pittsburgh International Lung Conference, Pittsburgh PA, October 2018

Major Lectureships and Seminars

• Invited Speaker, Cystic Fibrosis Research Conference, Pittsburgh PA, June 2019

Georgios D. Kitsios, MD, PhD

Dr. Kitsios’s translational research focuses on the development of microbial DNA sequencing-based diagnostics for pneumonia and sepsis in the intensive care unit, to improve upon major deficiencies in sensitivity and timeliness of the current culture-dependent diagnostic paradigm. His work further examines the ability to define ARDS subphenotypes from lung microbiome profiles and host innate immune response to explain the clinical heterogeneity of the syndrome and allow for better targeting of interventions. He is also interested in the impact of the gut microbiome on critical illness outcomes and the use of microbial replacement therapies with fecal transplant for the eradication of multidrug-resistant organisms in chronically critically-ill patients.

Professional Affiliations and Society Memberships

• Member, American Thoracic Society, 2014-present
• Member, American College of Physicians, 2011-present
• Member, Massachusetts Medical Society, 2011-present

Corrine R. Kliment, MD, PhD

Dr. Kliment’s laboratory is interested in identifying new molecular pathways in the pathogenesis of tissue remodeling in chronic obstructive lung disease (COPD) and other airway diseases to improve therapeutic options for patients. Dr. Kliment’s lab specifically studies the role of adenine nucleotide translocase (a canonical mitochondrial ADP/ATP transporter) in the airway and alveolar epithelium of the lung in the context of cigarette smoking-related lung disease and airway disease such as cystic fibrosis. She seeks to better understand how, in health and disease, ANT regulates epithelial cell metabolism, airway hydration, and homeostasis through the action of tiny motile cilia in the airway. Her laboratory utilizes a repertoire of relevant murine models of injury, molecular genetic approaches, in vitro biochemical assays, and human biosamples to examine metabolic regulation and airway homeostasis in the lung.

Professional Affiliations and Society Memberships

• Member, American Thoracic Society, 2014-present
• Member, American Society of Cellular Biology, 2014-present

Editorships

• Reviewer, PLOS ONE, 2014 - present

Honors and Awards

• ASCI Young Physician Scientist Award, May 2019

Carl D. Koch, MD

Since beginning his postdoctoral fellowship at the University of Pittsburgh, Dr. Koch has continued to foster
his research into the role of nitric oxide and its metabolites in pulmonary and vascular physiology. He has further developed interest in the role of the microbiome in nitric oxide metabolism as it pertains to the development of pulmonary hypertension and cardiovascular disease.

**David A. Kristo, MD**

Dr. Kristo’s work on the Silent Upper Airways Resistance Syndrome (SUARS) stands as one of the most comprehensive assessments of the incidence of SUARS within a patient population, and it helps explain sleepiness in the absence of obvious sleep disorders. His early work employed the routine use of esophageal manometry, a gold standard but labor intensive and seldom-used diagnostic technique. Dr. Kristo was also the first author of a paper validating the use of telemedicine to transport sleep-study data by Internet, expanding the access to sleep studies in remote areas with interpretation by trained physicians elsewhere. Internet transfer of sleep studies is now a routine part of daily sleep medicine clinical work within the field. Dr. Kristo also co-authored efforts to assess home monitoring of patients on continuous positive airway pressure (CPAP), which proved that patients could be successfully followed on CPAP from remote locations with a home monitoring system. This finding is even relevant in metropolitan areas for those with transportation problems and difficulty in accessing the medical system in person.

*Advisory Committee Memberships and Leadership Positions*

- Member, Board of Directors, American Academy of Sleep Medicine, 2014-present
- President, American Board of Sleep Medicine, 2016-present

*Professional Affiliations and Society Memberships*

- Fellow, American College of Chest Physicians, 1995-present
- Fellow, American College of Physicians, 1996-present
- Fellow, American Academy Sleep Medicine Society, 2001-present

**Tatiana V. Kudryashova, PhD**

Dr. Kudryashova’s research interests are focused on investigation of molecular and cellular mechanisms of pulmonary arterial hypertension (PAH) especially mechanisms of pulmonary vascular remodeling. She is currently studying the impact of HIPPO and mTOR signaling pathways on pathobiology of pulmonary vascular cells from patients with pulmonary arterial hypertension, and her long-standing research interests are Dr. Kudryashova’s research interests are focused on investigation of molecular and cellular mechanisms of pulmonary arterial hypertension (PAH) especially mechanisms of pulmonary vascular remodeling. She is currently studying the impact of HIPPO and mTOR signaling pathways on pathobiology of pulmonary vascular cells from patients with pulmonary arterial hypertension, and her long-standing research interests are focused on potential development of treatment, which can attenuate pulmonary vascular remodeling in PAH.

**Phillip E. Lamberty, MD**

*Professional Affiliations and Society Memberships*

- Member, American Thoracic Society, 2001-present
- Fellow, American College of Chest Physicians, 2004-present
- Member, American Academy of Sleep Medicine, 2011-present
- Member, Society of Critical Care Medicine, 2012-present

**Burton W. Lee, MD**

Dr. Lee is interested in exploring how physicians develop (and potentially lose) mastery of medical
knowledge and skills, especially for complex concepts such as mechanical ventilation, numeracy, and physiology.

**Professional Affiliations and Society Memberships**
- Member, Christian Medical and Dental Society, 1986-present
- Fellow, American Thoracic Society, 1996-present
- Fellow, American College of Physicians, 1996-present
- Fellow, American College of Chest Physicians, 2003-present

**Janet S. Lee, MD**
Dr. Lee’s laboratory studies the biology of critical illness and host determinants of lung injury. This research focuses on the innate arm of immunity, specifically examining how phagocytes, such as macrophages and neutrophils, recognize and respond to exogenous pathogen associated molecular patterns (PAMPs) or endogenous alarmins. The lab’s researchers are interested in probing host-pathogen interactions to examine mechanisms of host protection following pathogen-triggered injury from products of extracellular gram negative pathogens, such as *Pseudomonas aeruginosa* and *Klebsiella pneumoniae*. They are also interested in the factors that shape repair and resolution following injury, specifically factors derived from hematopoietic cells, such as platelets and red blood cells, that can influence the course of inflammation. Dr. Lee’s lab uses a repertoire of relevant murine models of injury, molecular genetic approaches, in vitro biochemical assays, and human bio-samples to examine innate host defenses of the lung.

**Study Sections**
- Standing Section Member, Innate Immunity and Inflammation, NIH Study Section, 2015-present

**Advisory Committee Memberships and Leadership Positions**
- Member, Respiratory Cell and Molecular Biology, American Thoracic Society, 2000-present
- Member, R1 & 2, Immunology and Virology Committee, American Heart Association, 2009-present
- Member, ATS Research Advisory Committee, 2010-present
- T1 Translational Track Director, Master of Science in Clinical Research Program, ICRE, 2014-present
- Director, Pulmonary Translational Research Core, University of Pittsburgh, 2016-present
- Director, Acute Lung Injury Center, Division of PACC, University of Pittsburgh, 2018-present

**Editorships**

**Elizabeth A. Lendermon, MD**
Dr. Lendermon’s research focuses on understanding T cell mechanisms of lung transplant rejection and acceptance. She is particularly interested in understanding the importance of T cell T-bet expression in tolerance, defining the role of IL-17 in chronic rejection, and in better elucidating the effects of immunosuppression on cellular and molecular pathways that characterize the immune response to the transplanted lung.

**Kathleen O. Lindell, RN, PhD**
Dr. Lindell’s research is directed at improving the quality of life for patients with advanced lung disease, specifically Idiopathic Pulmonary Fibrosis (IPF), and their family caregivers. This research focus developed as a
result of Dr. Lindell's experience working to improve the support available to patients with IPF and their caregivers—ensuring that patients and caregivers have the most recent disease information available, and advocating to increase awareness of this disease. Her research has provided seminal findings regarding the need for earlier provision of palliative care and earlier initiation of discussions regarding EOL planning for patients with IPF.

**Advisory Committee Memberships and Leadership Positions**
- Member, Strategic Advisory Board, Coalition for Pulmonary Fibrosis, 2001-present
- Member, Planning Committee, Pennsylvania Thoracic Society, 2003-present
- Attendee, First National Summit, AHRQ Headquarters, Washington, DC, 2004-present
- Inaugural Chair, Patient & Family Education Committee, American Thoracic Society, 2010-present
- Medical Advisory Board, Pulmonary Fibrosis Foundation, 2010-present
- Member, ATS Presidential Commission on Patient Involvement, 2011-present
- Scientific Committee, Respire, 2013-present
- Member, ATS Planning & Evaluation Committee, 2014-present
- Board of Directors, Pulmonary Fibrosis Foundation, 2014-present
- Co-Chair, ATS Nursing Assembly Clinical Research Coordinator Working Group, 2014-present
- Chair, Patient-Related Activities, Board of Directors, Pulmonary Fibrosis Foundation, 2015-present

**Professional Affiliations and Society Memberships**
- Member, Respiratory Nursing Society, 1993-present
- Member, American Academy of Nursing, 2007-present
- Member, Pulmonary Fibrosis Foundation, 2013-present

**Editorships**
- Section Editor, *Respiratory Nursing Society, Core Curriculum*, 1999-present
- Section Editor, Core Curriculum, Respiratory Nursing Society, 1999-present

**Major Lectureships and Seminars**
- Invited Speaker, European Respiratory Society, Paris France, September, 2018
- Invited Speaker, CHEST Annual Meeting, San Antonio TX, October 2018
- Invited Speaker, American Thoracic Society, Dallas TX, May 2019
- Invited Speaker, National Jewish Respiratory Institute, Denver CO, June 2019

**Honors and Awards**
- Fellow, American Academy of Nursing, November 2018

**Yuan Liu, PhD**
Dr. Liu’s research focuses on the mechanistic study of TFEB protein degradation and small molecule TFEB activator development targeting age-related diseases, including neurodegenerative diseases and lung bacteria clearance. In addition, she participates in a joint effort to develop anti-inflammatory small molecules and autophagy activators.

**Study Sections**
Rama K. Mallampalli, MD*

Dr. Mallampalli’s research focuses on pulmonary molecular and cell biology as it relates to acute lung injury (ALI) and the mechanisms of sepsis. He is an internationally recognized investigator in the area of lipid metabolism and ubiquitin-mediated proteolysis as it relates to inflammation and injury. His research program discovered a unique model for the molecular behavior of ubiquitin E3 ligase subunits that control inflammation. Dr. Mallampalli’s laboratory designed, synthesized, and tested the first-in-class genus of ubiquitin E3 ligase (F-box) inhibitors that modulate proteolysis, thereby inhibiting inflammation in preclinical models of ALI and multi-organ failure. He currently leads an NIH Program Project grant in ALI and a Centers for Advanced Diagnostics and Experimental Therapeutics in Lung Diseases Stage II (CADETII) award to develop drug therapies for inflammatory lung illness.

Study Sections

- Member, National Research Grant Review Committee, Lung Study Section B, ALA/ATS, 2000-present

Editorships

- Editorial Board, International Archives of Biosciences, 2001-present
- Editorial Board, Journal of Epithelial Biology & Pharmacology, 2008-present
- Editorial Board, Journal of Biological Chemistry, 2006-present
- Editorial Advisory Panel, Biochemical Journal, 2007-present
- Editorial Board, American Journal of Physiology, 2009-present

John F. McDyer, MD

Cytomegalovirus (CMV) infection remains the most common infection in lung transplant recipients (LTRs) and a major cause of morbidity and mortality. Dr. McDyer’s research investigates T-bet, the T cell transcriptional factor, to determine if it is necessary for protective CMV-specific immunity during acute and chronic CMV infection. To test this, he uses both the murine CMV (MCMV) pulmonary infection model and the LTR cohort to study the role of T-bet in pulmonary and systemic CMV host defense and the development of protective T cell memory.

Professional Affiliations and Society Memberships

- Member, International Society of Heart and Lung Transplantation, 2003-present
- Member, American Thoracic Society, 2003-present
- Member, American Association of Immunologists, 2003-present
Dr. Methé's research focuses on microbial ecology and the relationship of the microbiome to lung disease. She has extensive experience in genomics, metagenomics, microbial ecology and physiology and handling large data sets from high throughput functional 'omics-enabled methodologies. She has led numerous annotation and comparative genome analyses of diverse prokaryotes and has developed and applied multi-omics approaches to the study of microbial communities from diverse environments including freshwater, deep subsea floor and groundwater systems, to plants, animals and humans. She was one of the leaders of the NIH supported Human Microbiome Project (HMP), a multi-organization effort focused on systems biology deep subsea floor and groundwater systems, to plants, animals and humans. She was one of the leaders of the NIH supported Human Microbiome Project (HMP), a multi-organization effort focused on systems biology research and development approaches to study microbes of the adult human body and has continued to study the human microbiome in a variety of contexts including psoriasis and lung disease.

**Editorships**
- Editorial Board, *Transplant Infectious Diseases*, 2006-present

**Major Lectureships and Seminars**
- Invited Speaker, 3rd annual UPMC Lung Transplant conference, Pittsburgh PA, September 2018
- Invited Speaker, Chest Conference, San Antonio, TX, October 2018
- Speaker, University of Pittsburgh Lung Conference, October 2018
- Invited Speaker, University of Colorado, January 2019

**Bryan J. McVerry, MD**
Dr. McVerry's research focuses on basic and translational investigation of the biological mechanisms underlying the development and consequences of sepsis and acute lung injury. His research efforts are designed to span the continuum from the bench to the bedside.

**Advisory Committee Memberships and Leadership Positions**
- Member, International Award Committee, ATS Critical Care Assembly, 2003-present

**Editorships**

**Professional Affiliations and Society Memberships**
- Member, American Medical Association, 1997-present
- Member, Society of Critical Care Medicine, 2001-present
- Member, American Thoracic Society, 2002-present
- Member, American College of Chest Physicians, 2003-present
- Member, Pennsylvania Medical Society, 2005-present
- Member, Allegheny County Medical Society, 2005-present
- Member, American Physiological Society, 2010-present
- Member, Association of Pulmonary and Critical Care Medicine Program Directors, 2014-present

**Barbara Methé, PhD**
Dr. Methé's research focuses on microbial ecology and the relationship of the microbiome to lung disease. She has extensive experience in genomics, metagenomics, microbial ecology and physiology and handling large data sets from high throughput functional ‘omics-enabled methodologies. She has led numerous annotation and comparative genome analyses of diverse prokaryotes and has developed and applied multi-omics approaches to the study of microbial communities from diverse environments including freshwater, deep subsea floor and groundwater systems, to plants, animals and humans. She was one of the leaders of the NIH supported Human Microbiome Project (HMP), a multi-organization effort focused on systems biology approaches to study microbes of the adult human body and has continued to study the human microbiome in a variety of contexts including psoriasis and lung disease.

**Editorships**
- Ad hoc Manuscript Reviewer, Multiple journals (BMC Genomics, Genome Biology, Nature, Nature...
Ana L. Mora, MD
Dr. Mora is a research scientist with a strong record of examining the pathogenic mechanisms involved in the disrepair and fibrosis in the lung, including how aging-related cell perturbations contribute to this pathogenic process. Her group has made seminal contributions to the novel concept that mitochondrial dysfunction and alterations in mitophagy have a key role in idiopathic pulmonary fibrosis pathogenesis. Currently, the Mora lab is studying how mitochondrial dysfunction and metabolic adaptations to stress promote senescence and profibrotic responses.

Study Sections
- Reviewer, NIH NHLBI SEP, 2018
- Reviewer, NIH NHLBI repository RFA, 2018
- Reviewer, NIH NHLBI Physician Scientist RFA, 2018
- Ad hoc reviewer, NIH NHLBI study section Maximizing the Scientific Value of the NHLBI Biorepository: Scientific opportunities for exploratory research (R21), 2018
- Ad hoc reviewer, NHLBI Physician Scientist – Early Stage Investigator, 2018
- Permanent member, LIRR Study Section NIH, 2019-2025

Advisory Committee Memberships and Leadership Positions
- Director, Small Animal Hemodynamic Phenotyping Core, Vascular Medicine Institute, University of Pittsburgh, 2014-present
- Elected member, Nominating committee, RCMB Assembly ATS, 2017-present
- Director of Education, Aging Institute, University of Pittsburgh, 2017-present
- Member, Scientific Committee, ICLAF 2018, 2018
- Member, DOM PhD Task Force, 2019

Professional Affiliations and Society Memberships
- Member, American Thoracic Society, 2002-present
- Member, Aging Committee, RCMB Assembly, ATS, 2012-present
- Member, Society for Free Radical Biology and Medicine, 2013-present

Editorships
- Editorial Board, American Journal Respiratory Cell and Molecular Biology, 2013-present
- Editorial Board, American Journal of Physiology-Lung, 2015-present

Major Lectureships and Seminars
- Invited speaker, ICLAF Summit, San Francisco, CA, 2018
- Invited speaker, European Respiratory Society International Conference, 2018
- Invited speaker, Immunity, Inflammation and Disease Laboratory seminar series, National Institute of Environmental Health Sciences, NIH, Research Triangle Park, NC, 2018
- Invited speaker, Immunity & Fibrosis Symposium, Mayo Clinic, 2019
- Invited speaker, Vascular Medicine Institute Research Seminar series, University of Pittsburgh, 2019
Matthew R. Morrell, MD
Dr. Morrell’s research interests include novel therapies for bronchiolitis obliterans syndrome (BOS), which is the primary limiting factor in survival following lung transplantation. He has published the largest series to date of lung transplant patients treated with extracorporeal photopheresis (ECP) for BOS. His research is currently being utilized to gain approval from the U.S. Food and Drug Administration to use ECP for BOS therapy. Dr. Morrell’s other research interests include acute antibody mediated rejection, a controversial phenomena in lung transplantation; the effectiveness of therapies in reducing the incidence of primary graft dysfunction in the immediate post-operative period; and the improvement of allograft dysfunction.

Michael M. Myerburg, MD
Dr. Myerburg’s primary research interest is to determine the mechanisms and pathological conditions associated with hydration of the airway lumen. He has extensive experience with several techniques to measure the airway surface liquid (ASL) volume, ciliary beat frequency, and airway epithelial ion transport. He has developed novel high-throughput techniques to measure ASL volume and ASL pH. Dr Myerburg’s lab is currently studying the effects of Th2 type cytokines on ASL volume, airway innate immunity, the role of several transport proteins on ASL hydration, and post-translational modifications to the epithelial sodium channel (ENaC). These projects are funded by the NIH and the Cystic Fibrosis Foundation.

Professional Affiliations and Society Memberships
- Member, American Thoracic Society, 2004-present
- Member, American College of Chest Physicians, 2006-present
- Member, The Salt and Water Club, 2008-present

Editorships
- Ad hoc Reviewer, American Journal of Respiratory Cell and Molecular Biology, 2008-present
- Ad hoc Reviewer, The American Journal of Physiology, 2008-present
- Ad hoc Reviewer, The Journal of Biological Chemistry, 2008-present

Quyen L. Nguyen, MD
Dr. Nguyen’s research focuses on how pulmonary hypertension leads to right ventricular failure, which results in death. The subcellular mechanisms underlying right ventricular dysfunction in pulmonary hypertension are incompletely understood. Previous studies have shown derangements in cardiac cellular energy metabolism in human and experimental pulmonary hypertension. Mitochondria play a central role in cellular metabolism, particularly in cardiac muscle cells. Her lab hypothesizes that mitochondrial dysfunction underlies right ventricular failure in pulmonary hypertension. She proposes a comprehensive investigation of mitochondrial function over the time course to right ventricular failure in pulmonary artery banding animal model of pulmonary hypertension.

Seyed Mehdi Nouraie, MD, PhD
Dr. Nouraie’s outstanding skills as a biostatistician helped facilitate the development of several key studies in the area of sickle cell disease, including projects on transition to adult care, predictors of pulmonary hypertension in sickle cell disease, and application of big administrative data in sickle cell disease outcome studies through data management and analysis. His research on the design and analysis of clinical studies in the area of GI benign and malignant disease, sickle cell, and cardiovascular disorders has resulted in over 100 peer reviewed publications. Currently, he is interested in assessing the pulmonary complication of obesity and metabolic syndrome.
Dr. Nouraie's outstanding skills as a biostatistician helped facilitate the development of several key studies in pulmonary hypertension. She proposes a comprehensive investigation of mitochondrial function over the time course to right ventricular failure in pulmonary artery banding animal model of pulmonary hypertension. She hypothesizes that mitochondrial dysfunction underlies right ventricular dysfunction in pulmonary hypertension. Mitochondria play a central role in cellular metabolism, particularly in cardiac muscle cells. Her lab hypothesizes that mitochondrial dysfunction underlies right ventricular failure in pulmonary hypertension. Dr. Nguyen's research focuses on how pulmonary hypertension leads to right ventricular failure, which results in death. The subcellular mechanisms underlying right ventricular dysfunction in pulmonary hypertension are currently being studied.

Dr. Myerburg's primary research interest is to determine the mechanisms and pathological conditions associated with primary graft dysfunction in the immediate post-operative period; and the improvement of allograft dysfunction. His research interests also include phenomena in lung transplantation; the effectiveness of therapies in reducing the incidence of primary graft dysfunction; and the role of immune therapy. Dr. Morrell's research interests include novel therapies for bronchiolitis obliterans syndrome (BOS), which is the primary limiting factor in survival following lung transplantation. He has published the largest series to date of lung transplant patients treated with extracorporeal photopheresis (ECP) for BOS. His research is currently being utilized to gain approval from the U.S. Food and Drug Administration to use ECP for BOS.

Dr. Nyunoya’s research interests include the potential role of DNA repair in the development of Chronic Obstructive Pulmonary Disease (COPD) and novel modulators for smoking-induced COPD. He has an interest in identifying a natural product to protect against cigarette smoke-induced DNA damage and cytotoxicity.

Dr. O’Brien’s current research focuses on the molecular mechanisms of skeletal muscle atrophy in COPD and the role of inflammation on the regulation of myogenesis through ubiquitin proteasome pathway regulation of satellite cell proliferation.

Dr. O’Donnell’s interests are in the pathophysiology of hypoxia and sleep apnea and its relationship to metabolic and cardiovascular dysfunction. His laboratory utilizes murine models of obesity and hypoxia using a variety of chronically instrumented inbred and transgenic mouse strains. In respiratory studies, he has established in the genetically obese ob/ob mouse that leptin deficiency leads to respiratory depression, and that leptin replacement can correct this respiratory depression independent of weight, food intake or metabolism. In metabolic studies, he has demonstrated that lean mice can exhibit insulin resistance and hyperlipidemia during exposure to intermittent hypoxia (simulating sleep apnea) as well as leading to a compensatory increase in pancreatic beta cell replication. More recently, he has shown that long-term exposure to sustained hypoxia (simulating altitude) can lead to compensatory increases in insulin sensitivity. In cardiovascular studies, Dr. O’Donnell and colleagues have studied the impact of heart failure on disruption of the renin-angiotensin system.
of sleep architecture and examined how the upregulation of cardiac leptin signaling plays a crucial role in reducing morbidity and mortality in response to myocardial ischemia. Finally, in collaboration with Dr. Bryan McVerry, Dr. O'Donnell is studying the mechanisms underlying the development of hyperglycemia in critical illness.

**Study Sections**

- Chair, NIH Study Section (RIBT), 2008-present

**Advisory Committee Memberships and Leadership Positions**

- Member, Programming Committee, Respiratory, Neurobiology, and Sleep Section, American Thoracic Society, 2003-present

**Professional Affiliations and Society Memberships**

- American Physiological Society, 1992-present
- American Thoracic Society, 1995-present

**Editorships**


**Timothy B. Oriss, PhD**

Dr. Oriss has focused on many aspects of dendritic cell biology in lung disease, particularly asthma. He developed a murine model of experimental airway inflammation utilizing direct sensitization to allergens via the airways which has facilitated the study of DC-mediated priming events in the lung-draining lymph nodes. This basic methodology has been adapted for other experimental systems by a number of others in the laboratory. He received a Dalsemer Award from the American Lung Association in 2007 to study effects of agonists of PPAR-g on DC migration in vivo and is a co-investigator on a number of grants involving DC biology. Dr. Oriss has collaborative efforts with the laboratory of Sally Wenzel, MD, to study the basic biology of severe asthma in humans. Moreover, Dr. Oriss has a long-standing interest in flow cytometry and he is primarily responsible for the operation and maintenance of two flow cytometers. His expertise with flow cytometry has led to a number of collaborative efforts with investigators within, as well as outside of, PACCM.

**Sanjay R. Patel, MD, MS**

Dr. Patel's research interests focus on understanding the epidemiology of sleep disorders with particular emphasis on chronic partial sleep deprivation and obstructive sleep apnea and the potential effects of these disorders on metabolism. He has published extensively on the subject of obesity management and glucose metabolism with sleep apnea, as well as on the association between curtailed sleep and long term health effects. He has been one of the first to identify long sleep as a predictor of adverse health outcomes and is currently conducting a clinical trial evaluating the cardiovascular impact of treating sleep apnea in a diabetic population. Other interests include identifying genetic risk factors for obstructive sleep apnea, understanding disparities in sleep disorders and their contribution toward cardiovascular health disparities, and identification of clinical and public health interventions to improve sleep.

**Advisory Committee Memberships and Leadership Positions**

- Member, Planning Committee, American Thoracic Society, 2010-present
- Member, Executive Committee, American Thoracic Society, 2012-present
- Assembly Chair Elect, American Thoracic Society, SRN Section, 2016-present
- Member, Quality Improvement and Implementation Committee, American Thoracic Society, 2016-present
- Member, International Scientific Advisory Committee, Canadian Sleep and Circadian Network, 2016-present

**Professional Affiliations and Society Memberships**
- Member, Member American Thoracic Society, 2002-present
- Member, American Academy of Sleep Medicine, 2002-present
- Member, Sleep Research Society, 2008-present
- Member, The Obesity Society, 2014-present

**Editorships**
- Editorial Board, Deputy Editor, *Sleep*, 2012-present
- Editorial Board, *Sleep Health*, 2014-present
- Editorial Board, *Chest*, 2015-present

**Major Lectureships and Seminars**
- Speaker, American Thoracic Society International Conference, Dallas TX, May 2019
- Speaker, SLEEP Annual Meeting, San Antonio TX, June 2019

**Sanjay R. Patel, MD, MS**
Sanjay R. Patel, MD, MS specializes in pulmonary, critical care, and sleep medicine. His research interests include understanding the epidemiology of sleep disorders, with a particular emphasis on chronic partial sleep deprivation and obstructive sleep apnea, as well as the association between curtailed sleep and long-term health effects. He has been one of the first to identify long sleep as a predictor of adverse health outcomes and is currently conducting a clinical trial evaluating the cardiovascular impact of treating sleep apnea in diabetic patients. Dr. Patel has published extensively on the subject of obesity management and glucose metabolism with sleep apnea, as well as the association between curtailed sleep and long-term health outcomes. He has been a member of the American Thoracic Society and睡眠研究学会, and has served as an advisor to several committees, including the Planning Committee and the Education Committee. He is a member of the editorial board of several journals and has been an ad hoc reviewer for multiple journals. Dr. Patel's research interests focus on understanding the epidemiology of sleep disorders, with a particular emphasis on chronic partial sleep deprivation and obstructive sleep apnea, as well as the association between curtailed sleep and long-term health outcomes. He has been one of the first to identify long sleep as a predictor of adverse health outcomes and is currently conducting a clinical trial evaluating the cardiovascular impact of treating sleep apnea in diabetic patients. Dr. Patel has published extensively on the subject of obesity management and glucose metabolism with sleep apnea, as well as the association between curtailed sleep and long-term health outcomes. He has been a member of the American Thoracic Society and睡眠研究学会, and has served as an advisor to several committees, including the Planning Committee and the Education Committee. He is a member of the editorial board of several journals and has been an ad hoc reviewer for multiple journals.

**Andrei A. Petrov, MD**
Dr. Petrov's research interests focus on conditions that mimic asthma, hypogammaglobulinemia in lung transplant patients, and allergic drug reactions. Vocal Cord Dysfunction (VCD) is often misdiagnosed and treated as asthma, leading to increased asthma medication use and healthcare utilization. While laryngoscopy remains the gold standard for VCD diagnosis, it is often not readily available or practiced by many physicians who may encounter this disorder. Additionally, laryngoscopy may be normal if performed when a patient is asymptomatic. Dr. Petrov and co-inventors developed the Pittsburgh VCD Index, a simple, valid, and easy-to-use tool for diagnosing VCD. This novel scoring system identified features of VCD that distinguish it from asthma. Symptoms of throat tightness and dysphonia, absence of wheezing, and the presence of odors as a symptom trigger were found to be key features of vocal cord dysfunction that distinguish it from asthma. Using the appropriate cut-off, the index had a sensitivity and specificity of 83% and 95% respectively, and its utility was confirmed in a population of patients with laryngoscopy-proven VCD. Pittsburgh VCD Index may decrease health care costs, unnecessary medication use and healthcare utilization by making a timely diagnosis of VCD in a patient mistreated for asthma.

**Joseph M. Pilewski, MD**
Dr. Pilewski's research interests mirror his clinical interest and expertise. He directs a research program in epithelial cell biology focused on ion transport and mucin structure and function in normal and Cystic Fibrosis airways. He also leads translational research projects focused on development of new therapies for CF and other diseases of mucus obstruction, and on identification of biomarkers of disease activity. He is a Co-Investigator on NIH- and CF Foundation-sponsored center grants focused on CF, and a Co-Investigator in the Cystic Fibrosis Foundation Therapeutics Development Network.
Ronald K. Poropatich, MD

Dr. Poropatich is a Co-Investigator on four DoD-funded research projects at the University of Pittsburgh. "Targeted Evaluation, Action, & Monitoring of Traumatic Brain Injury (TEAMTBI)" is a clinical trial that brings together civilian and military TBI patients, advanced evaluation methods, and world class experts in a monitored, multiple interventional trial. The study is designed to address the heterogeneity of TBI and to identify evidence-based treatment protocols. The goal is to confirm efficacious targeted therapies for TBI and to provide deployable protocols and technology for large-scale cost-effective diagnosis and management.

"Advanced Longitudinal Diffusion Imaging for TBI Diagnosis of Military Personnel" is a project will develop and advance MRI-based diffusion technology to quantify white matter loss in Traumatic Brain Injury (TBI) by using MRI-based High Definition Fiber Tracking (HDFT) developed by this group. The project will implement, rigorously test, push through regulatory submission, and deploy this technology to DoD/VA hospitals.

"Combination of Extracorporeal Life Support and Mesenchymal Stem Cell Therapy for Treatment of ARDS in Combat Casualties and Evacuation of Service Members with ARDS" is a research project that aims to determine the best way to treat acute lung injury with and without intra-bronchial mesenchymal stem cells administered with low flow extra-corporeal membrane oxygenation (ECMO). Lastly, his study, "Oral Nitrite Therapy to Improve Physical Performance at High Altitude and to Prevent High Altitude Pulmonary Edema and High Altitude Cerebral Edema," is designed to see if an FDA-approved nitrite pill can be used to prevent HAPE/HACE in a low-oxygen environment.

Iulia-Dana Popescu, PhD

Dr. Popescu has a solid academic background in immunology, cancer, virology and transplantation, and a keen interest in research and clinical trials. Among her other research interests are immunology and translational science, new drug discovery and technology, the evaluation of potential new targets in proof-of-concept studies, the pre-clinical/clinical stage of drug development, and clinical biomarker research and development.

Ronald K. Poropatich, MD

Dr. Poropatich is a Co-Investigator on four DoD-funded research projects at the University of Pittsburgh. "Targeted Evaluation, Action, & Monitoring of Traumatic Brain Injury (TEAMTBI)" is a clinical trial that brings together civilian and military TBI patients, advanced evaluation methods, and world class experts in a monitored, multiple interventional trial. The study is designed to address the heterogeneity of TBI and to identify evidence-based treatment protocols. The goal is to confirm efficacious targeted therapies for TBI and to provide deployable protocols and technology for large-scale cost-effective diagnosis and management.

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Dr. Qin focuses on the pathogenesis of chronic pulmonary diseases in HIV-infected individuals. He is also interested in the role of the microbiome in the chronic obstructive pulmonary disease in HIV-infected persons.

Anuradha Ray, PhD
Dr. Ray’s overall research interest is to understand mechanisms of immune tolerance versus inflammation in the lung as they relate to pulmonary diseases, such as severe asthma and host-pathogen interactions. Early research from her lab led to the identification of NF-kB as a target for glucocorticoid-mediated repression of gene expression and the discovery of GATA-3 as a master regulator of Th2 cells, which promote allergic diseases including asthma. Her laboratory also identified a key role for Tregs expressing membrane-bound TGF-β with cross-talk with Notch in promoting immune tolerance in the airways. The primary goal of Dr. Ray’s current research is to understand the immunological and molecular differences between severe and milder asthma and the mechanisms underlying poor response to corticosteroids in severe disease. A study published recently by her group has demonstrated an IFN-γ (Th1) immune bias in more than 50% of severe asthmatics. This study also utilized a newly developed animal model of severe asthma established in her lab, which can be used to test novel therapeutics for severe asthma. This bedside-bench study identified a detrimental role of IFN-γ in downregulating expression of the protease inhibitor, SLPI, in the airways of both humans and mice. In the context of immune tolerance, her recently published study has identified an important role of mitochondrial metabolism in lung dendritic cells in the maintenance of immune tolerance in the airways. Studies in her laboratory employ animal models of disease and human samples, which are analyzed using immunological, molecular, biochemical, physiological and imaging techniques.

Study Sections
- External Reviewer, International Human Frontiers Science Program, 1996-present
- Ad hoc Member, Multiple Study Sections for NIH Institutes NIAID, NHLBI, NINDS, 2003-present
- Invited Reviewer, NIH Innovator Grants, 2016-present
- Appointed to four year term of NIAID Council, May 2019

Advisory Committee Memberships and Leadership Positions
- Session Chair, American Academy of Allergy Asthma & Immunology, February 2019

Professional Affiliations and Society Memberships
- Member, American Association for the Advancement of Science, 1990-present
- Member, American Association of Immunologists, 1995-present
- Member, American Thoracic Society, 1997-present
- Member, New York Academy of Sciences, 1999-present

Editorships
Prabir Ray, PhD
Dr. Ray is interested in immunoregulatory mechanisms of lung inflammation as they relate to disease inception and resolution. He pioneered the development of inducible cell-specific transgenic mice in the early years of his career at Yale University and demonstrated an important role of the growth factor KGF in protection from lung injury. More recently, his group identified a central role of the c-kit-PI3 kinase axis in promoting Th17 and Th2 differentiation and asthma using an experimental model. This work was chosen for the Year in Immunology 2010 publication of the New York Academy of Sciences. His current research is focused on immune responses to pulmonary infections. His work has shown an important role of lung myeloid cells resembling MDSCs in the resolution of lung inflammation during bacterial pneumonia. His group is also studying immune responses to infection by respiratory syncytial virus (RSV). RSV infection is common in infants and can cause severe bronchiolitis requiring hospitalization. Currently, there is no effective vaccine against RSV. Epidemiological studies have associated severe RSV-mediated illness with asthma development in later life, and recent work from his lab suggests impairment of Treg function by RSV as one underlying mechanism. This study received significant attention nationally and internationally. Ongoing research in his lab is directed at understanding interactions between cells of the innate immune system and airway epithelial cells during RSV infection. Both human samples and animal models are used, and the research may lead to new approaches to defend against RSV.

Professional Affiliations and Society Memberships
• Member, American Association of Immunologists, 1995-present
• Member, American Thoracic Society, 1999-present

Editorships
• Reviewer, Journal of Biological Chemistry, 1993-present
• Reviewer, Journal of Clinical Investigation, 1993-present
• Reviewer, Journal of Immunology, 1993-present
• Reviewer, Circulation, 1993-present
• Editorial Board, American Journal of Respiratory Cell and Molecular Biology, 2007-present
• Reviewer, Science, 2008-present

Honors and Awards
• ATS Recognition Award for Scientific Accomplishments, American Thoracic Society, May 2019

Raju C. Reddy, MD
Dr. Reddy’s research interests include orphan nuclear receptors, PPARs and orphan nuclear receptors in lung disease, PPAR ligand characterization, and pulmonary drug discovery.

Professional Affiliations and Society Memberships
• Member, FASEB, 2013-present
• Member, American Medical Association, 1995-present
• Member, American Thoracic Society, 1998-present

Editorships
• Academic Editor, PLOS One, 2001-present
• Associate Editor, Gene Therapy and Molecular Biology, 2009-present
• Editorial Board, American Journal of Pathology, 2013-present
• Associate Editor, Journal of Pharmaceutical Sciences and Pharmacology, 2013-present
• Editorial Board, Journal of Lung, Pulmonary & Respiratory Research, 2014-present
• Ad hoc Reviewer, Multiple journals, (Journal of Biological Chemistry, PLOS One, American Journal of Pathology, PPAR Research, American Journal of Physiology, Lung Cellular and Molecular Physiology, FASEB Journal, Experimental Lung Research), 2015-present

Michael G. Risbano, MD, MA
Dr. Risbano is interested in the hemodynamic evaluation of subjects with pulmonary hypertension and the correlation of hemodynamic values with biomarkers for the early diagnosis of pulmonary hypertension. He is directly involved in the clinical and research exercise right heart catheterization efforts, in which patients are identified with various forms of exercise pulmonary hypertension. Dr. Risbano has worked closely with Dr. Mark Gladwin in the study of endothelial function in response to the infusion of aged red cells. Most recently, he has published the study, “Effects of Aged Stored Autologous Red Blood Cells on Human Endothelial Function,” in the American Journal of Respiratory and Critical Care Medicine. This study demonstrated that intra-arterially infused red blood cells at the upper limits of storage impaired endothelial function, as measured by the reduced forearm blood flow responses to acetylcholine, an endothelium NO synthase-dependent vasodilator. Dr. Risbano is also the PI for a number of investigator-initiated and Pharma-related research clinical trials.

Professional Affiliations and Society Memberships
• Member, American Thoracic Society, 2006-present
• Member, American College of Chest Physicians, 2006-present
• Member, PH Clinicians and Researchers network, Pulmonary Hypertension Association, 2008-present
• Member, American Heart Association, 2016-present

Keven M. Robinson, MD
Dr. Robinson's research interests include pulmonary host defense, immunology of acute respiratory infections, and immunology of chronic respiratory infections. Her current projects examine influenza and bacterial super-infection.

Mauricio Rojas, MD
Being trained as a MD doing basic and translational research on immunology, Dr. Rojas has a complete perspective to understand the importance of translational medicine. His basic research is on the biology of lung injury and repair, especially in models of pulmonary fibrosis, acute lung injury, and radiation. Dr. Rojas's laboratory has produced pioneer work on the development of pre-clinical models for the use of bone marrow derived-MSC on acute and chronic injury. His novel area of research is the human ex vivo perfusion program, using human normal lungs and diseased lungs, studying the effect of novel therapies like stem cells, non-coding RNAs, and small molecules as pre-clinical models for the implementation of new therapies for lung
Dr. Rojas's novel area of research is the human ex vivo perfusion program, in which novel therapies are studied in normal and diseased lungs.

Professional Affiliations and Society Memberships
- Member, American Association for the Advancement of Science, 1997-present
- Member, New York Academy of Sciences, 2002-present
- Member, American Thoracic Society, 2002-present
- Member, American Association of Immunologists, 2002-present
- Member, The Science Advisory Board, 2004-present
- Member, International Society of Stem Cell Research, 2004-present
- Member, Southern Society of Clinical Investigation, 2007-present

Jason J. Rose, MD, MBA
Dr. Rose's research interests focus on discovering and developing new human therapeutics. His group is working to identify and develop a novel carbon monoxide poisoning antidote. They are also characterizing the mechanisms of severe CO poisoning from a molecular basis and in novel animal models. Dr. Rose's research focuses on studying the mitochondrial effects of carbon monoxide and the ability to reverse the toxicity of carbon monoxide in vitro. He is interested in the drug development process, including nonclinical toxicology, pharmacodynamic and pharmacokinetic assessment, drug manufacturing, and clinical study design.

Professional Affiliations and Society Memberships
- Member, American Mensa, 2006-present
- Member, American College of Physicians, 2010-present
- Member, American College of Chest Physicians, 2010-present
- Member, Alpha Omega Alpha, 2010-present
- Member, American Thoracic Society, 2013-present
- Member, Undersea and Hyperbaric Medical Society, 2014-present
- Member, American Heart Association, 2016-present
- Member, American College of Medical Toxicology, 2017-present
- Member, Central Society for Clinical & Translational Research, 2018-present

Editorships
- Ad hoc Reviewer, PLOS One, 2015-present
- Ad hoc Reviewer, Journal of Critical Care, 2017-present
- Ad hoc Reviewer, Intensive Care Medicine Experimental, 2017-present
- Ad hoc Reviewer, Annals of Intensive Care, 2018-present

Major Lectureships and Seminars
- Oral Presentation, American College of Medical Toxicology Grand Rounds National Webinar,
Dr. Rose's research interests focus on discovering and developing new human therapeutics. His group is working to identify and develop a novel carbon monoxide poisoning antidote. They are also characterizing the mechanisms of severe CO poisoning from a molecular basis and in novel animal models. Dr. Rose's research focuses on studying the mitochondrial effects of carbon monoxide and the ability to reverse the toxicity of carbon monoxide in vitro. He is interested in the drug development process, including nonclinical research.

Major Lectureships and Seminars
- Invited Lecturer, Johns Hopkins Pulmonary, Critical Care and Sleep Medicine Lung Research Conference, Baltimore, MD, October 2018
- Oral Presentation, American Thoracic Society International Conference, Dallas TX, May 2019

Honors and Awards
- ASCI Young Physician Scientist Award, May 2019

Frank C. Sciurba, MD
Dr. Sciurba’s long-term research interest includes volume-reduction strategies in patients with advanced emphysema and the use of exercise testing as a diagnostic and outcome tool in lung disease. Additional research interests and topics of published work include the assessment of new concepts related to patterns of pulmonary and systemic inflammation associated with COPD, the impact of therapy on dynamic hyperinflation, the role of quantitative imaging in the assessment and reclassification of COPD, the design of the VENT endobronchial valve trial and role of valves in relieving native lung hyperinflation following lung transplantation, the retinoic acid FORTE trial, gender differences in COPD, assessment of methodology of pulmonary exercise testing and activity monitoring in COPD, and the important role of autoimmunity in the progression of COPD.

Advisory Committee Memberships and Leadership Positions
- Member, Exercise Testing Sub-Committee, National Institutes of Health, 1996-present
- Presenter, Co-Author, National Emphysema Treatment Trial, 1999-present
- Member, Steering Committee, COPD-Clinical Research Network, 2004-present
- Member, Steering Committee, Lung Tissue Research Consortium, 2004-present
- Member, Steering Committee, Long-term Oxygen Treatment Trial, 2007-present
- Vice Chair, Steering Committee, Function and Rehabilitation Network, ACCP Pulmonary Physiology, 2007-present
- Member, Steering Committee, Molecular Phenotyping (MP7) of Lung Disease, 2008-present

Professional Affiliations and Society Memberships
- Member, American Thoracic Society, 1987-present
- Member, Pennsylvania Thoracic Society, 1987-present
- Fellow, American College of Chest Physicians, 1992-present

Editorships
- Editorial Board, Respiration, 2005-present
- Editorial Board, American Journal of Respiratory and Critical Care Medicine, 2010-present

Major Lectureships and Seminars
- Lecturer, Grand Rounds, VAMC, 2018

Faraaz A. Shah, MD, MPH
Dr. Shah is an assistant professor studying the impact of early nutritional support on the development of metabolic dysfunction and hyperglycemia in mouse models of sepsis, with a particular focus on the role of intestinal derived incretin hormones. He maintains an interest in the long-term cognitive impact of critical illness with an eye toward understanding the mechanisms underlying this complication for future translational studies.

Professional Affiliations and Society Memberships
- American Thoracic Society, 2011-present
Steven D. Shapiro, MD
Dr. Shapiro’s laboratory focuses on the role of inflammatory cell derived proteinases in the progression of COPD/emphysema and lung cancer. He originally cloned and knocked-out macrophage elastase (MMP-12) to demonstrate that MMP-12 deficient mice are completely protected from the development of cigarette smoke-induced emphysema. Dr. Shapiro’s lab has continued to study the contribution of numerous inflammatory cell derived proteinases in emphysema and lung cancer progression using gene targeting in mice. More recently, his lab has begun to study the role of repair (or lack thereof) in the progression of emphysema by using lineage-tagging approaches to study putative stem cell populations residing within the lung.

Mark E. Snyder, MD
The focus of Dr. Snyder’s research is on the role of the adaptive immune system in the development of chronic rejection after lung transplantation. Chronic rejection is a progressive airway disease which remains a major limiting factor to long term survival following lung transplantation. Imbalances in the suppression of the adaptive immune system, leading to acute rejection or infection, have been implicated in the pathogenesis of chronic rejection. Recently, Dr. Snyder identified that lung donor memory T cells, the predominant cell in the adaptive immune system, survive following transplantation and persist for weeks to months in the recipient. Furthermore, this survival of donor T cells is associated with improved short-term outcomes. Additionally, his group showed that lung allograft-infiltrating, recipient-derived T cells that migrate to the lungs following transplantation take up residency within the lung. His lab is focusing on determining the function and specificity of these tissue-resident memory T cells and if they are contributing to chronic rejection. In addition to lung transplantation, the Snyder lab is actively investigating the role of tissue resident memory T cells on pulmonary fibrosis and chronic airway inflammation.

Courtney E. Sparacino-Watkins, PhD
Dr. Sparacino-Watkins’s research seeks to elucidate the role of novel molybdenum-dependent oxidoreductase enzymes in human physiology and pathophysiology with particular emphasis on vascular-related diseases of the lung and liver. Current research centers on the role of mitochondrial amidoxime reducing component (mARC) enzymes in pulmonary arterial hypertension pathophysiology, the role of mARC-2 nitrite reduction to nitric oxide (NO) on PAH Nitrite therapy using several models, and the role of mARC enzymes in liver disease.

Professional Affiliations and Society Memberships
- Member, American Thoracic Society, 2016-present
- Member, International Society of Heart and Lung Transplantation, 2017-present

Professional Affiliations and Society Memberships
- Member, American Heart Association, 2015-present
- Member, Society for Free Radical Biology in Medicine (SFRBM), 2015-present
Patrick J. Strollo, Jr., MD
Dr. Strollo’s projects have examined the utility of portable monitoring for the diagnosis of sleep apnea, the novel treatment of sleep apnea, and the impact of sleep apnea on cardiovascular risk.

Advisory Committee Memberships and Leadership Positions
- Sleep Medicine Consultant, National Football League Cardiovascular Health Committee, 2005-present

Professional Affiliations and Society Memberships
- Fellow, American Sleep Disorders Association, 1991-present
- Fellow, American College of Chest Physicians, 1998-present

Honors and Awards
- Nathaniel Kleitman Distinguished Service Award, American Academy of Sleep Medicine, March 2019

Tomeka L. Suber, MD, PhD
Dr. Suber studies host defense mechanisms in intrapulmonary bacterial infections that lead to acute respiratory distress syndrome. She has also studied how regulation of protein stability by the ubiquitin-proteasome pathway modulates lung epithelial responses during inflammation.

Professional Affiliations and Society Memberships
- Member, Chest, 2016-Present
- Member, American Thoracic Society, 2015-Present

Prithu Sundd, PhD
The Sundd lab aspires to elucidate the molecular and biophysical mechanism of leukocyte-platelet-endothelium interaction during inflammation and how these events contribute to Vaso-Occlusive Crisis (VOC) and ACS in SCD. To achieve this, we are using a multi-scale integrative physiologic approach, which involves in vivo Multi-Photon Excitation (MPE) fluorescence microscopy in transgenic and knock-in mice, microfluidic assays with patient blood, total internal reflection fluorescence (TIRF) microscopy, structured illumination microscopy (SIM), laser confocal microscopy, electron microscopy and various biochemical approaches. This multi-scale approach enables us to address the link between the pathophysiology of ACS affecting the lung (macro-level response) to the aberrant cellular events (micro-level response) driving the vaso-occlusion and the molecular interactions (nano-level response) enabling those cellular events. Identifying the molecular mechanism of vaso-occlusion in the lung will inspire therapeutics to prevent ACS in SCD patients.

Study Sections
- Reviewer, Immunology Basic Science Grants Committee, American Heart Association, 2014-present

Advisory Committee Memberships and Leadership Positions
- Panelist, Physiology, Organismal & Developmental Biology Panel, National Science Foundation Graduate Research Fellowship Program, 2017

Professional Affiliations and Society Memberships
- Fellow, American Sleep Disorders Association, 1991-present
- Fellow, American College of Chest Physicians, 1998-present
- Member, University of Pittsburgh Institutional Biosafety Committee, 2015-present
- Member, American Thoracic Society, 2015-present
Jesus Tejero, PhD
Dr. Tejero’s research is focused on the biology of heme proteins. His main research goals include: 1) to understand and characterize the chemical and kinetic features of the reactions of nitrite with hemoglobin, myoglobin, cytoglobin and neuroglobin; 2) to elucidate the cytoprotective mechanisms of the six-coordinate globins neuroglobin and cytoglobin; and 3) the development of heme-based antidotes for carbon monoxide poisoning.

Kristen L. Veraldi, MD, PhD
Dr. Veraldi's research interests center on the molecular underpinnings of fibrosing lung diseases, such as idiopathic pulmonary fibrosis (IPF) and connective tissue disease-related interstitial lung disease. She has a particular interest in the contribution of heat shock proteins to the development and progression of fibrosis.

Aisha L. Walker, PhD, MPH
Dr. Walker's research interests include mechanisms of globin gene switching and pharmacologic reactivation of fetal hemoglobin, assessing perceptions of sickle cell therapies among stakeholders using social media, and differentiation and reparative mechanisms of bone marrow stem cells in sickle cell.

Ling Wang, MD, PhD
Dr. Wang has two main areas of interest. The first focuses on the nitrite and NO signaling pathway in vascular and cardiopulmonary diseases, such as ALI, lung fibrosis, PAH and I/R injury. In particular, he is investigating the downstream signaling pathways regulated by nitrite and NO in cellular and animal models to identify new therapeutic targets and develop nitrite-based therapy. The second research focus centers on mutant human Ngb as an antidote for carbon monoxide poisoning. This research aims to develop a specific antidote using mutationally engineered human Ngb as a “CO trap,” which removes CO from blood, tissue and cells.

Xingan Wang, MD, PhD
Dr. Wang’s research interest is bridging the bench and the bedside in three areas of lung transplantation: donor shortage, ischemia-reperfusion injury, and transplant rejection. As a scientist with 11 years of experience in thoracic surgery, he has taken his surgical skills and medical care from the bedside back to
bench, refining and establishing the mouse models of lung transplantation, intravital Two-photon imaging, and serial intravital imaging. Hyaluronan accumulation and pseudomonas infection were found to be related to clinical lung allograft rejection. The Wang lab’s studies revealed the mechanisms and explored potential prevention with animal models. Neutrophil extracellular traps (NETs) are recently reported to be involved in neutrophil-induced damage. One recent study done by his lab visualized neutrophil extracellular traps (NETs) and revealed their special roles in ischemia reperfusion injury and rejection in the lab’s mouse lung transplant model. Eliminating NETs with such drugs as DNase would worsen the lung injury and rejection. Dr. Wang’s study is expected to provide even greater understanding of the mechanism and will further explore potential therapeutic targets. Collaborating with the specialists in micro positron emission tomography (PET) and micro magnetic resonance imaging (MRI), the lab has explored new non-invasive diagnostic methods for acute rejection in mouse lung transplants. Finally, the Wang lab’s continuing research combines lung transplantation and Ex Vivo Lung Perfusion (EVLP) in mice. This would accelerate the translational study on EVLP and the non-heart-beating donor lung, alleviating the donor shortage.

Professionals Affiliations and Society Memberships

• Member, American Thoracic Association, 2017-present

Nathaniel M. Weathington, MD, PhD

Dr. Weathington’s diverse research interests include the regulation of cytokine receptors in the lung and the impact of that regulation on immunity. Closely related immunoreceptors (e.g., IL-17Ra and IL-17Rb) function as highly divergent drivers of tissue immunity (toward type 17 or type 2, respectively). Dr. Weathington's lab analyzes RNA induction, transcription factor activation, and protein stability to study the induction and maintenance of these and other receptors in lung epithelia and alveolar macrophages across different stimuli paradigms. Another area of interest regards the activity of the ubiquitin system and its regulation of normal and pathological biology. Working within the Center for Acute Lung Injury, the group has pioneered the preclinical development of small molecule anti-inflammatory agents that target critical mediators of protein stability regulating inflammatory pathways. These studies have advanced the understanding of inflammatory signaling and have led to development of first-in-class therapeutic agents that may someday be utilized to combat human inflammatory diseases. Researchers in the Weathington lab have developed a human whole lung perfusion system as a preclinical system to evaluate tissue responses to endotoxemic lung injury.

Advisory Committee Memberships and Leadership Positions

• Member, ATS Assembly on Allergy, Inflammation and Immunology, 2010-present

Professional Affiliations and Society Memberships

• Member, American Association of Immunologists, 2003-present
• Member, American Thoracic Society, 2006-present

Sally E. Wenzel, MD

Having a clinical interest in asthma, Dr. Wenzel has developed a strong translational program to study the pathobiology and mechanisms of the human disease. She is one of seven NHLBI-funded investigators in the Severe Asthma Research Program (SARP) network, and she co-directs a P01 on severe asthma with her collaborator, Dr. Anuradha Ray. Through SARP and her own efforts, Dr. Wenzel has accumulated a clinical database of over 500 subjects with asthma and healthy controls, most of whom have matching airway tissue, cells, and sputum/lavage. Her lab is one of few which is able to match an extensive clinical phenotype of a subject with responses at a cellular/molecular level. She is developing rich databases of gene expression in asthma. Her current bench-lab interests include the role of epithelial cells in controlling airway inflammatory
responses, oxidative and nitrative stress, as well as their interactions with mast cells and Th1 immune
responses. She currently heads the University of Pittsburgh Asthma Institute at UPMC, and holds the UPMC
Chair in Translational Airway Biology.

Study Sections
- Reviewer, Veterans Administration Grants, 1992-present

Advisory Committee Memberships and Leadership Positions
- Member, Long Range Planning Committee, Section on Allergy, Immunology & Inflammation, American Thoracic Society, 1995-present
- Member, Global Initiative for Asthma (GINA) Scientific Counsel, 2003-present

Professional Affiliations and Society Memberships
- Member, American Thoracic Society, 1987-present
- Member, American College of Chest Physicians, 1992-present
- Member, American Academy of Asthma, Allergy & Immunology, 1994-present
- Member, European Respiratory Society, 1995-present
- Member, Western Society for Clinical Investigation, 2001-present
- Member, Collegium Internationale Allergicum, 2004-present

Editorships
- Reviewer, Chest, 1990-present
- Reviewer, Journal of Allergy & Clinical Immunology, 1990-present
- Reviewer, Annals of Internal Medicine, 1995-present
- Reviewer, Journal of Immunology, 1997-present
- Reviewer, American Journal of Respiratory & Critical Care Medicine, 1988-present
- Contributing Editor, Annals of Asthma, Allergy and Immunology, 1998-present
- Reviewer, European Respiratory Journal, 1999-present
- Reviewer, International Archives of Allergy and Immunology, 1999-present
- Reviewer, Journal of Clinical Investigation, 2000-present
- Reviewer, New England Journal of Medicine, 2000-present
- Editorial Board, Clinical and Experimental Allergy, 2000-present
- Reviewer, Clinical and Experimental Allergy, 2000-present
- Deputy Editor, American Journal Respiratory and Critical Care Medicine, 2004-present

Major Lectureships and Seminars
- Keynote Speaker, Keystone Symposia, Tahoe City, CA, March 2019
- Invited Speaker, AAAAI Symposia, Advances in Severe Asthma Pathophysiology, March 2019
- Invited Speaker, Keystone Symposia on Molecular and Cellular Biology, Keystone, CO, April 2019

Honors and Awards
- Trailblazer Award, Ladies Hospital Aid Society, September 2018

David O. Wilson, MD, MPH
Dr. Wilson’s research interests include lung cancer screening and chemoprevention, diagnosis, staging and
treatment; COPD, especially as it relates to lung cancer; occupational lung diseases; general pulmonary
medicine; and nutrition support. His main current focus is the development of predictive tools, beyond
emphysema for risk stratification for lung cancer screening. This work includes risk prediction formulas,
surrogate tissue biomarkers, and imaging biomarkers.

Professional Affiliations and Society Memberships
Zeyu Xiong, MD, MS
The immunosuppressive effects of red cell transfusion has long been clinically recognized, but the underlying mechanisms for this effect remain elusive. Moreover, this effect may modify the outcomes of disease in critically ill patients with infection. Dr. Xiong’s lab is investigating the mechanism of immune suppression in a combined bacterial pneumonia-red cell transfusion study and examining the hypothesis that the red cell microparticles that accumulate within stored transfusates elicit an immunosuppressive phenotype through the suppression of NFkB gene activation. Dr. Xiong’s lab has a great interest in the role of macrophages and neutrophils in innate immune response, especially in bacteria infections. Despite recent advances in understanding macrophage activation, little is known regarding how human alveolar macrophages in health calibrate its transcriptional response to canonical TLR4 activation. With RNA-seq technology, researchers in Dr. Xiong’s lab examined the full spectrum of LPS activation and determined whether the transcriptomic profile of human alveolar macrophages is distinguished by a TIR-domain-containing adapter-inducing interferon-β (TRIF)-dominant type I interferon signature. Also determined was whether IRF-7 and USP-18 can influence downstream macrophage effector cytokine production such as IL-10. Dr. Xiong’s lab showed that IRF-7 siRNA knockdown enhanced LPS-induced IL-10 production in human monocyte-derived macrophages, and USP-18 overexpression attenuated LPS-induced production of IL-10 in RAW264.7 cells. Quantitative PCR confirmed upregulation of USP18, USP41, IL10, and IRF7. These results suggest that IRF-7 and predicted downstream target USP18, both elements of a type I interferon gene signature identified by RNA-Seq, may serve to fine-tune early cytokine response by calibrating IL-10 production in human alveolar macrophages.

Anna C. Zemke, MD, PhD
Pseudomonas aeruginosa forms highly antibiotic resistant biofilms in the airways of people with cystic fibrosis and other lung diseases. Nitrosative stress arrests bacterial respiration, thus researchers in Dr. Zemke’s lab are developing nebulized nitrite as an antimicrobial agent. In the laboratory, a bacterial epithelial co-culture model is used to study how nitrosative stress modulates bacterial respiration and to study the physiology of biofilm dispersal. The lab is conducting a Proof of Concept human subjects study, using nebulized nitrite within the Cystic Fibrosis Center at Pitt in collaboration with Dr. Joseph Pilewski.

Liyong Zhang, PhD
Dr. Zhang’s research interests focus on clarifying the molecular mechanisms underlying human diseases and identifying potential therapeutic targets as well as biomarkers. He studies adipose-derived stem cells (ASCs) and cancer stem cells (CSCs), looking at the isolation, characterization, and tri-differentiation of ASCs; paracrine secretion potency of adipose tissue components, including SVFs, ASCs, fat particles, and adipocytes from breast cancer patients; assessment of the interaction between breast cancer cells and adipose tissue components in vitro and in vivo; and the identification of coactivator activator (CoAA) as CSC
marker. Also investigated in Dr. Zhang’s lab is inflammation and immune regulation by nitric oxide (NO) and the inducible NO synthase (iNOS). Specifically, he is looking at TLR3 tyrosine 759 phosphorylation enhancement of interferon-β synthesis through iNOS/PKR/Src axis in hepatocytes and Prohibitin 1 associates with iNOS to regulate TNFRI shedding in hepatocytes. The role of the ubiquitin-proteasome system (UPS) in genomic stability and tumorigenesis is also being investigated, including how the proteolysis of Rad17 by Cdh1/APC regulates checkpoint termination and recovery from genotoxic stress; the regulation of KLF4 turnover and the unexpected tissue-specific role of pVHL in tumorigenesis; and the involvement of casein kinase II in APC-mediated TGF-β signaling. Finally, Dr. Zhang’s lab is researching molecular mechanism studies that reveal potential therapeutic targets for cancer; the function of stefin A in cancer cells and new tools for angiogenesis drug discovery commercialized by BioMol International; the identification of differentially expressed genes in ESCC and the novel role characterization of stomatin-like protein 2 (SLP-2); and the identification of differentially expressed miRNAs in pancreatic cancer, cervical cancer, prostate cancer, and head and neck cancer, and analysis of the role of miRNA candidates in pancreatic cancer.

**Yingze Zhang, PhD**

Dr. Zhang’s research focuses on the molecular and genetic basis of pulmonary and vascular diseases, including COPD, ILD, sleep apnea, and sickle cell and systemic complications associated with these diseases. She is also actively working on the discovery and validation of prognostic and diagnostic biomarkers related to lung and vascular diseases. In addition, her laboratory is actively investigating the functional significance of disease-associated genetic variants and their roles in disease pathogenesis. Dr. Zhang also directs the translational core lab for the Division of Pulmonary, Allergy and Critical Care Medicine and the Biobank for Cardiology and Vascular Medicine Institute. She has been PI or Co-I on multiple grants funded by NIH and other agencies and has published over 100 peer-reviewed manuscripts.

**Advisory Committee Memberships and Leadership Positions**

- Member, Executive Committee, NHLBI GRADS Study, 2012-present

**Jing Zhao, MD**

Dr. Zhao’s research investigates histone acetyltransferase stability in acute lung injury. The ubiquitin-proteasome system is the major pathway of non-lysosomal intracellular protein degradation and controls pro- and anti-inflammatory responses by modulating immune regulatory signal protein turnover. Dr. Zhao is focusing on the role of de-ubiquitination enzyme USP14 and E3 ubiquitin ligase subunit FBXL19 in the regulation of CBP stability, activity, and histone acetylation in lung injury and sepsis. Dr. Zhao is also investigating how to determine the role of de-ubiquitination enzymes in the regulation of pulmonary endothelial integrity. She has identified that a novel de-ubiquitination enzyme plays a critical role in maintaining pulmonary endothelial barrier function. She is using proteomics tools as well as molecular and cellular biological techniques to reveal the molecular mechanisms by which the de-ubiquitination enzyme regulates VE-cadherin localization and cytoskeletal rearrangement.

**Yutong Zhao, MD, PhD**

The primary goal of Dr. Zhao’s laboratory research is to investigate the role of bio-active phospholipid receptors in the pathogenesis of sepsis and lung inflammatory diseases. His lab has discovered that lysophosphatidic acid (LPA) and its receptors play a critical role in regulating cytokine release and cytokine receptor expression, and the pro-inflammatory effects are mediated by GPCR and cross-talk with LPS co-receptor, CD14. His current project is to reveal the molecular regulation of LPA receptors by ubiquitination
and de-ubiquitination. A second research interest is to understand the role of de-ubiquitination enzymes in the regulation of the interleukin-1 receptor/Toll-like receptors (TLRs). Dr. Zhao’s lab has been investigating the IL-33 receptor ubiquitination, phosphorylation, and internalization. It has uncovered a new ubiquitin E3 ligase that regulates IL-33 receptor stability, and recently, the lab’s research showed that phosphorylation of IL-33 receptor by GSK3β promotes IL-33 receptor internalization. Currently, Dr. Zhao is focusing on molecular regulation of IL-1R8 stability in lung injury and sepsis. The researchers in Dr. Zhao’s lab are also interested in revealing the role of de-ubiquitination enzymes in TGFβ signaling, tumorigenesis, and innate and adaptive immunity. His research shows that TGFRII and Smad2/3 stability are tightly controlled by USP11 and UCHL5, and he is focusing on the molecular regulation of key transcriptional factors stability by novel de-ubiquitination enzymes.

**Professional Affiliations and Society Memberships**
- Member, Central Society of Clinical Research, 2006-present
- Member, American Thoracic Society, 2006-present
- Member, American Federation for Medical Research Society, 2006-present
- Member, American Physiology Society, 2013-present

**Editorships**
- Reviewer, *Expert Opinion on Therapeutic Targets*, 2007-present
- Reviewer, *Microvascular Research*, 2008-present
- Reviewer, *Cytokine*, 2009-present
- Reviewer, *Life Science*, 2009-present
- Reviewer, *Europe Journal of Pharmacology*, 2010-present
- Reviewer, *Current Medicinal Chemistry*, 2011-present
- Reviewer, *PLOS One*, 2012-present

**Chunbin Zou, MD, PhD**
Dr. Zou’s laboratory focuses on epigenetics in the lung and the deregulation of epigenetic enzymes in pulmonary inflammation and infection. The goal of one ongoing study is to understand how histone O-palmitoylation acts as a new epigenetic mark to regulate gene transcription. A related study area is the understanding of the molecular mechanism(s) of deregulation of epigenetic related enzymes at protein level in pulmonary infection, pneumonia, acute lung injury and acute respiratory distress syndrome by utilizing the state-of-the-art molecular, cellular and biochemical approaches and techniques. The research’s long-term goal is to unveil the molecular behavior at the protein level in pathophysiological settings and to identify a epigenetics-oriented therapeutic strategy for multi-drug resistant infectious pulmonary

**Professional Affiliations and Society Memberships**
- Member, American Society for Biochemistry and Molecular Biology, 2004-present
- Member, American Thoracic Society, 2012-present

* Faculty who left the division over the course of FY 2019.
TEACHING ACTIVITIES

The Pulmonary, Allergy and Critical Care Medicine Division provides educational programs in lung disease and critical care medicine for trainees, physicians, and patients throughout the region. The division directs the second-year medical student course with an integrated curriculum, focused on the pathophysiology of pulmonary disease, and supports 22 fellowship positions on a yearly basis, through 3 NHLBI training (T32) awards for the career development of young investigators. Other teaching activities include weekly, quarterly, and annual conferences, including Pulmonary Grand Rounds, the PACCM Basic and Translational Research Seminar, Journal Club, Case Conferences, Sleep Medicine Lectures, Radiology Conferences, the Pittsburgh International Lung Conference, an annual Update in Pulmonary Medicine, and the Robert M. Rogers Lectureship.

The Fundamentals of Bench Research Course is an annual course that provides theoretical and practical training in the basics of bench research for clinical fellows and junior faculty. This program provides trainees with a structured—yet flexible and individualized—experience and the technical and academic skills necessary to become independent investigators in translational research. Training is centered on a dedicated research project mentored by two experienced faculty members from both ends of the translational research spectrum.

In 2014, the Pittsburgh International Lung Conference established a strategic plan to broaden the outreach of collaborations with other top-level universities and centers around the world. Every other (odd number) year, the International Lung Conference would be co-hosted by an international partner, to provide an inclusive environment for basic, translational, and clinical researchers to disseminate and discuss recent scientific advances. In 2015, the conference was hosted by the Comprehensive Pneumology Center, Ludwig-Maximilian-University Munich, Germany (CPC). In 2016, it returned to Pittsburgh with great success. We celebrated the continuation of the conference in 2018 as the Pittsburgh International Lung Conference highlighted the cutting-edge developments in seven core areas of Pulmonary Medicine: Acute Respiratory Distress Syndrome (ARDS), Chronic Obstructive Pulmonary Disease (COPD), Asthma, Interstitial Lung Disease (ILD), Lung Transplant, Interventional Pulmonary, and Obstructive Sleep Apnea.

The Simmons Center’s 14th Annual Golf Outing was held August 20, 2018. This event invites patients to golf for free or, for those less inclined, to play bingo. The day concludes with a dinner. This event gives patients the opportunity to learn ways to live with a serious illness, be with other patients, and participate in activities in a safe environment. The entire medical team attends the event. Proceeds from this event help to
fund the annual Gateway Clipper Cruise for patients and their caregivers and the Simmons Center patient support group meetings. As of January 2019, these patient support group meetings now focus on Pulmonary Fibrosis, instead of the previous, narrower focus on Idiopathic Pulmonary Fibrosis, to increase access for other patients with scarring lung diseases.

The annual PACCM Research Retreat was held in Seven Springs, PA in February, 2019 with a keynote talk from Dr. James Beck, Chair of Medicine at the University of Colorado VA and future president of the American Thoracic Society. Dr. Beck discussed his research in Pneumocystis and the lung microbiome, as well as his career path through leadership and ATS. He held a roundtable with the fellows and attended research talks by our third-year fellows. First-year fellows listened to faculty present research in their labs and centers.

On Friday, June 14, 2019, the Division held its Annual Robert M. Rogers Memorial Lectureship. G.R. Scott Budinger, MD, Ernest S. Bazley Professor of Airway Diseases, and Chief, Division of Pulmonary and Critical Care Medicine at Northwestern University Feinberg School of Medicine was chosen to be this year’s special guest speaker. Dr. Budinger presented the lecture “Understanding Aging Through the Prism of Alveolar Macrophages” for this annual event. During the luncheon following the lecture, we recognized the following recipients of the 2019 PACCM Awards: The Outstanding Mentorship Award was given to Bill Chen, PhD; Jared Chiarchiaro, MD, received the John W. Kreit Outstanding Educator Award; Natalie Covalt, RN, received the Lorenzetty Outstanding Nursing Award; the Bernie Pennock Outstanding Young Investigator Award was given to Faraaz Shah, MD, MPH; The Robert M. Rogers Outstanding Scholarly Achievement Award was given to William Bain, MD. In addition, Mary Pat Rocco received the Outstanding Administration Service Award; the Outstanding Technical Service Award was given to the Translational Research Core Laboratory; and the Outstanding Clinical Service Award was received by the MICU Respiratory Therapy Team, in recognition of an outstanding staff member or group who significantly contributes to the clinical program within the Division. Robert Hoffman, MD, was the recipient of the PACCM Legacy Award, as recognition of a PACCM faculty member who has dedicated his/her life to patient advocacy and care, as well as to the education of future fellows and faculty.

Clinical Fellows, FY2019

Current Fellows

Megan Acho, MD
Medical School: New York University School of Medicine
Residency: Icahn School of Medicine, Mount Sinai Hospital

Priya Borker, MD
Medical School: Case Western Reserve University, School of Medicine
Residency: Beth Israel Deaconess Medical Center

Kimberly DeMerle, MD
Residency: University of Michigan

Christopher Franz, MD
Medical School: New York Medical College
Residency: Icahn School of Medicine, Mount Sinai Hospital

Sarah Kiel, MD
Medical School: Michigan State University College of Human Medicine
Residency: University of Minnesota Medical Center

Ioannis Konstantinidis, MD
Medical School: Stony Brook University School of Medicine
Residency: Icahn School of Medicine, Mount Sinai Hospital

Taylor Lincoln, MD
Medical School: University of Vermont College of Medicine
Residency: University of North Carolina, Chapel Hill

Kevin Misner, MD, MS
Medical School: Georgetown University School of Medicine
Residency: University of Texas Southwestern Medical School

Kaveh Moghbeli, MD
Medical School: Stony Brook University School of Medicine
Residency: University of Pennsylvania

Niall Prendergast, MD
Medical School: Washington University in St. Louis SOM
Residency: Washington University/Barnes-Jewish Hospital

Brian Rosborough, MD, PhD
Medical School: University of Pittsburgh School of Medicine
Residency: Massachusetts General Hospital

Deepti Singhvi, MD
Medical School: Northwestern University Feinberg School of Medicine
Residency: McGaw Medical Center of Northwestern University

Daniel Sullivan, MD
Medical School: University of Alabama School of Medicine
Residency: University of Texas Southwestern Medical School

Jill Zupetic, MD
Medical School: University of Pittsburgh School of Medicine
Residency: University of Pittsburgh Medical Center

Departing Fellows

Samira Bahagry, MD
Medical School: Eastern Virginia Medical School
Residency: University of Pittsburgh Medical Center
Current Position: Physician, VA Medical Center, Richmond, VA

Joseph Bednash, MD
Medical School: University of Pittsburgh School of Medicine
Residency: University of Pittsburgh Medical Center
Current Position: Clinical Instructor, Ohio State University

Matthew Camiolo, MD, PhD
Medical School: Stony Brook University School of Medicine
Residency: University of Pittsburgh Medical Center
Current Position: Postdoctoral Scholar, Division of Pulmonary, Allergy and Critical Care Medicine, Department of Medicine, University of Pittsburgh

Daniel Dunlap, MD
Medical School: Wayne State University School of Medicine
Residency: University of Michigan
Current Position: Interventional Pulmonary Fellowship, University of Pennsylvania

Asad Khan, MD
Medical School: Ross University
Residency: Rush University
Current Position: Physician, Pittsburgh, PA

Jennifer Newitt, MD
Medical School: Albany Medical College
Residency: Indiana University School of Medicine
Current Position: Sleep Fellowship, Division of Pulmonary, Allergy and Critical Care Medicine, Department of Medicine, University of Pittsburgh

Erin Nuzzo, MD
Medical School: University of Pittsburgh School of Medicine
Residency: Beth Israel Deaconess Medical Center

PACCM fellows and faculty leaders at this year’s Rogers Day
Current Position: Clinical Instructor, UPMC Shadyside

Craig Riley, MD
Medical School: University of Pittsburgh School of Medicine
Residency: University of Pittsburgh Medical Center
Current Position: Clinical Instructor, UPMC Presbyterian

Eleanor Valenzi, MD
Medical School: University of Alabama School of Medicine
Residency: University of Chicago
Current Position: Postdoctoral Scholar, Division of Pulmonary, Allergy and Critical Care Medicine, Department of Medicine, University of Pittsburgh

Fellow Activities
Megan Acho, MD

Publications

Presentations and Abstracts

Awards
- Associate Editor for ATS Quick Hits, American Thoracic Society, September 2018
- Best of ATS Video Lecture Series for “Auto-PEEP amd Ineffective Trigger (Maximus S, Acho, M, Lee BW),” American Thoracic Society International Conference, Dallas, TX, May 2019

Joseph Bednash, MD

Publications
- Levine AR, Bain W, Bednash JS, Gladwin MT, McVerry BJ. AMP Kinase Activation Attenuates Cardiac Remodeling in Pulmonary Hypertension due to Heart Failure with Preserved Ejection Fraction; Lung Epithelial Progenitor Cells in Alveolar Regeneration; and Drug Discovery and Novel Therapies for Lung Cancer. Am J Respir Cell Mol Biol. 2019 Feb;60(2):244-247.
Presentations and Abstracts

- **Bednash JS**, Smail TR, Londino JD, Chen BB, Mallampalli RK, “Targeting the Deubiquitinase AMSH to Reduce Inflammasome Activity,” Pittsburgh International Lung Conference, Pittsburgh, PA, October 2018
- **Bednash JS**, Smail TR, Londino JD, Chen BB, Mallampalli RK, “Targeting the Deubiquitinase STAMBP to Reduce NLRP3 Inflammasome Activity,” American Thoracic Society International Conference, Dallas, TX, May 2019

**Priya Borker, MD**

Publications


Awards

- Academic Sleep Pulmonary Integrated Research/Clinical (ASPIRE) Fellowship, ASPIRE, Pittsburgh, PA, December 2018

**Matthew Camiolo, MD, PhD**

Presentations and Abstracts

- **Camiolo M**, Trejo Bittar H, Ray A, Wenzel SE, “Transcriptional Clustering of Asthmatics Identifies IL18R1 Expression as a Risk Factor for Severe Disease,” American Thoracic Society International Conference, Dallas, TX, May 2019

Awards

- Third Place in Basic Science Research, National Jewish Health Young Investigator Forum in Respiratory Disease, Washington, D.C., October 2018
- Young Investigator Forum Award for Best Basic Science Talk, Department of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2019
Kimberly DeMerle, MD

Presentations and Abstracts

- **DeMerle KM**, Angus DC, Chang CH, Delucchi K, Huang DT, Kennedy JN, Shapiro NI, Yealy DM, Calfee CS, Seymour CW. “Sepsis Phenotyping Using Clinical and Biomarker Data in the ProCESS Randomized Trial,” American Thoracic Society International Conference, Dallas, TX, May 2019

Awards

- Clinical Research Award, Department of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2019

Daniel Dunlap, MD

Publications


Presentations and Abstracts

- HIV COPD: Could differential host recognition of the lung microbiome be contributing to pulmonary disease?, International Workshop on Microbiome in HIV, Rockville, MD, October 2018


Sarah Kiel, MD

Presentations and Abstracts

Klebsiella Pneumoniae Model,” American Thoracic Society International Conference, Dallas, TX, May 2019

Kevin Misner, MD, MS

Presentations and Abstracts


Jennifer Newitt, MD

Presentations and Abstracts


Erin Nuzzo, MD

Presentations and Abstracts


Craig Riley, MD

Publications

- Riley CM, Sciaruba FC. Diagnosis and Outpatient Management of Chronic Obstructive Pulmonary Disease: A Review. JAMA. 2019 Feb 26;321(8):786-797.

Presentations and Abstracts

Differentiate Non-Obstructed Smokers with and Without Respiratory Symptoms and Are Associated with Symptom Severity and Functional Exercise Capacity,” American Thoracic Society International Conference, Dallas, TX, May 2019

Brian Rosborough, MD, PhD

Presentations and Abstracts


Deepi Singhvi, MD

Presentations and Abstracts


Daniel Sullivan, MD

Presentations and Abstracts

- Sullivan D, Roth MG, Alder JK, “Development of a Human in Vitro Model of Lung Epithelial Senescence Highlights the Cell-Type Specific Response to Telomere Dysfunction,” American Thoracic Society International Conference, Dallas, TX, May 2019

Eleanor Valenzi, MD

Publications


Presentations and Abstracts

Dallas, TX, May 2019


Awards
• Pitt Lung Conference Poster Award Winner, Pittsburgh International Lung Conference, Pittsburgh, PA, October 2018

Jill Zupetic, MD

Presentations and Abstracts

Awards
• Burroughs Wellcome Physician Scientist Incubator Program, Burroughs Wellcome Fund, University of Pittsburgh, May 2019

Postdoctoral Fellows, FY2019

Xiaojing An, MD
Mentor: Kong Chen, PhD
Dr. An researches the epigenetic regulation of chemokines in the lung epithelium using both in vitro primary human bronchial epithelial cells and in vivo mouse models.

Asoka Banno, PhD
Mentor: Raju C. Reddy, MD
Dr. Banno investigates the roles of PPARs in asthma and other inflammatory lung diseases.

Joseph S. Bednash, MD
Mentor: Rama K. Mallampalli, MD
Dr. Bednash studies the molecular regulation of inflammatory proteins that interact with the endosome-lysosome pathway.

Jennifer C. Boatz, PhD
Mentor: Corrine R. Kliment, MD, PhD
Dr. Boatz investigates aspects of airway epithelial function and mitochondrial biology, using confocal microscopy and mouse models of lung disease.

Matthew J. Camiolo, PhD
Mentors: Anuradha Ray, PhD, and Sally E. Wenzel, MD
Dr. Camiolo is applying machine learning algorithms to identify novel subgroups within the umbrella of clinically severe disease.

Yifan Chen, PhD
Mentor: Beibei Chen, PhD
Dr. Chen researches ubiquitin E3 ligase in inflammation and lung injury.
Sudipta Das, PhD  
Mentor: Prabir Ray, PhD  
Dr. Das is participating in a research project investigating immune-epithelial cell interactions in defense against the respiratory virus, respiratory syncytial virus (RSV).

Diana M. Davidek, MD  
Mentor: Mauricio Rojas, MD  
Dr. Alvarez-Villa is collecting and analyzing data for several projects focusing on the study of ex-vivo lung perfusion and transplantation in human and animal models.

Kimberley DeMerle, MD  
Mentor: Christopher Seymour, MD  
Dr. DeMerle researches sepsis phenotyping using clinical and biomarker data in the ProCESS randomized trial.

Yanhua Deng, PhD  
Mentor: Sally E. Wenzel, MD  
Dr. Deng conducts research on the intersection of autophagy and ferroptosis in human airway epithelial cells, as it relates to 15 Lipoxigenase.

Su Dong, MD  
Mentor: Yuting Zhao, MD, PhD  
Dr. Dong studies protein stability in the regulations of lung cancer cell proliferation.

Hongye Fan, PhD  
Mentor: Janet S. Lee, MD  
Dr. Fan’s research is on macrophage heterotypic receptor signaling in pulmonary host defense against Gram-negative pathogens.

Teresa Gallego Martin, PhD  
Mentor: Christopher P. O'Donnell, PhD.  
Dr. Gallego Martin’s research project examines the relationship between cardia ischemia and its impact on sleep and breathing using mouse models.

Sagar Kale, PhD  
Mentor: Anuradha Ray, PhD  
Dr. Kale’s research project involves studies of immune dysfunction in severe asthma utilizing a newly established model of the disease.

Eun Joo Lee, PhD  
Mentor: Mauricio Rojas, MD  
Dr. Lee studies the use of mesenchymal stem cells as therapy for different types of ILDs.

Andrea Levine, PhD  
Mentor: Mark T. Gladwin, MD  
Dr. Levine studies SIRT3 expression in the skeletal muscle of patients with HFpEF.
Lian Li, PhD  
*Mentor: Yutong Zhao, MD, PhD*  
Dr. Li is investigating the role of de-ubiquiting enzymes in lung inflammation, focusing on lung epithelial and endothelial biology.

Tiao Li, PhD  
*Mentor: Chunbin Zou, MD, PhD*  
The focus of Dr. Li’s research is to dissect the role of histone acetyltransferase in the pathogenesis of COPD.

Zhipeng Li, MD  
*Mentor: Sally E. Wenzel, MD*  
Dr. Li is studying the impact of mast cells and their mediators on human airway epithelial cells from asthmatics, allergic rhinitics, and healthy controls.

Jia Liu, PhD  
*Mentor: Yutong Zhao, MD, PhD*  
Dr. Liu studies protein stability in the regulation of cytokine release in lung epithelial cells.

James D. Londino, PhD  
*Mentor: Rama K. Mallampalli, MD*  
Dr. Londino studies the molecular and biochemical behavior of ubiquitin E3 ligases in acute lung injury.

Chen Long, MD  
*Mentor: Chunbin Zou, MD, PhD*  
Dr. Long’s research focuses on the regulation of pulmonary important factors by the ubiquitin proteasomal degradation.

Jiadi Luo, MD  
*Mentor: Kong Chen, PhD*  
Dr. Luo studies the epigenetic regulation of chemokines in the lung epithelium, using both in vitro primary human bronchial epithelial cells and in vivo mouse models.

Tadao Nagasaki, PhD  
*Mentor: Sally E. Wenzel, MD*  
Dr. Nagasaki studies the mechanisms that control cell survival versus cell death in human asthma.

Eric Nolley, MD  
*Mentors: Matthew R. Morrell, MD; Yael Schenker, MD, MAS; and Bob Arnold, MD.*  
Dr. Nolley is conducting research on how lung transplantation both extends and improves quality of life for transplant recipients.

Hernan Felipe Penaloza Cerda, PhD  
*Mentor: Janet S. Lee, MD*  
Dr. Penaloza’s project is studying distinct host-pathogen interactions as the framework for understanding complication and persistence of acute lung injury from severe infection.

Craig Riley, MD  
*Mentor: Frank C. Sciurba, MD*
Dr. Riley’s research focuses on the use of computational biology techniques—specifically causal modeling—to identify predictors of FEV1 decline in COPD.

**Brian R. Rosborough, MD, PhD**  
*Mentors: Prabir Ray, PhD, and Anuradha Ray, PhD*  
Dr. Rosborough is studying single cell RNA sequencing and spectral flow cytometry in relation to the ARDS response in ICU patients with pneumonia.

**Tamara Santa Cruz, PhD**  
*Mentor: Maurico Rojas, MD*  
As part of Dr. Santa Cruz’s research project, she is isolating and characterizing the primary lung mesenchymal stem cells.

**Daniel Sullivan, MD**  
*Mentor: Jonathan K. Alder, PhD*  
Dr. Sullivan’s research is on the role of senescence in pulmonary disease, specifically, exploring the changes that occur when type 2 alveolar epithelial cells become senescent.

**Daniel Totten, PhD**  
*Mentors: Jessica M. Bon Field, MD, MS, and Yingze Zhang, PhD*  
Dr. Totten is conducting translational research in the area of COPD.

**Eleanor Valenzi, MD**  
*Mentor: Robert Lafyatis, MD*  
Dr. Valenzi is engaged in translational research on the pathogenesis of scleroderma-associated interstitial lung disease, utilizing single cell RNA.

**Ban Wang, MD**  
*Mentor: Yutong Zhao, MD, PhD*  
Dr. Wang investigates the role of deubiquiting enzymes in lung repair after injury.

**Juan Wang, PhD**  
*Mentor: Yingze Zhang, PhD*  
Dr. Wang is conducting collaborative research on the molecular pathogenesis of COPD diagnosis and disease progression.

**Che Xu, PhD**  
*Mentor: Xingan Wang, MD, PhD*  
Dr. Xu focuses on the biological repair of extended-criteria donor lungs with an ExVivo Lung Perfusion (EVLP)-based therapy in a mouse lung transplant model.

**Joo H. Yoon, MD**  
*Mentor: Gilles Clermont, PhD*  
Dr. Yoon is developing a data-driven prediction model for cardiorespiratory instability using multigranular vital sign signals.

**Junyi Yu, PhD**  
*Mentor: Xingan Wang, MD, PhD*
Dr. Yu is doing research on a project titled "Biological repair of extended-criteria donor lungs with an ExVivo Lung Perfusion (EVLP)-based therapy in a mouse lung transplant model."

Huijuan Yuan, PhD  
*Mentor: Anuradha Ray, PhD*  
Dr. Yuan studies mitochondrial metabolism in immune cells in the context of tolerance and inflammation in the lung.

Daniel C. Zank, MD  
*Mentor: Ana L. Mora, MD*  
Dr. Zank is conducting research on the role of PINK1, a serine-threonine kinase with multiple functions in maintaining mitochondrial homeostasis.
THREE-YEAR BIBLIOGRAPHY

Alison Morris, MD, MS  Division Chief


Jonathan K. Alder, PhD


Charles W. Atwood, Jr., MD


William G. Bain, MD


Ian J. Barbash, MD, MS

Darby JL, Davis BS, Barbash IJ, Kahn JM. An administrative model for benchmarking hospitals on their 30-day sepsis mortality. BMC Health Serv Res. 2019 Apr 11;19(1):221.


Barbash IJ, Zhang H, Angus DC, Reis SE, Chang CH, Pike FR, Kahn JM. Differences in Hospital Risk-


Jessica M. Bon, MD, MS


Marta Bueno, PhD


**Sharon L. Camhi, MD**


**Nayra Cardenes, PhD**


molecule testing. JCI Insight. 2018 Oct 4;3(19).


**Divay Chandra, MD, MSc**


Ajala O, Zhang Y, Gupta A, Bon J, Sciurba F, Chandra D. Decreased serum TRAIL is associated with increased


Beibei (Bill) Chen, PhD


Dongshi Chen, PhD


Kong Chen, PhD


Jared Chiarchiari, MD, MS


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Michael P. Donahoe, MD


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Merritt L. Fajt, MD


Meghan E. Fitzpatrick, MD


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Rose JJ, Nouraie M, Gauthier MC, Pizone AF, Saul MI, Donahoe MP, Gladwin MT. Clinical Outcomes and


Samit Ghosh, PhD


Kevin F. Gibson, MD


Mark T. Gladwin, MD


Goncharov DA, Goncharova EA, Tofovic SP, Hu J, Baust JJ, Pena AZ, Ray A, Rode A, Vanderpool RR, Mora
AL, Gladwin MT, Lai YC. Metformin Therapy for Pulmonary Hypertension Associated with Heart Failure with Preserved Ejection Fraction versus Pulmonary Arterial Hypertension. Am J Respir Crit Care Med. 2018 Sep 1;198(5):681-684.


Vanderpool RR, Saul M, Nouraie M, Gladwin MT, Simon MA. Association Between Hemodynamic Markers of Pulmonary Hypertension and Outcomes in Heart Failure With Preserved Ejection Fraction. JAMA Cardiol. 2018 Apr 1;3(4):298-306.


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28;19(10).


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Daniel J. Kass, MD


Georgios D. Kitsios, MD, PhD


Corrine R. Kliment, MD, PhD


Tatiana V. Kudryashova, PhD

Kudryashova TV, Shen Y, Pena A, Cronin E, Okorie E, Goncharov DA, Goncharova EA. Inhibitory antibodies against Activin A and TGF-β reduce self-supported, but not soluble factors-induced growth of human


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Elizabeth A. Lendermon, MD


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Londino JD, Gulick DL, Lear TB, Suber TL, Weathington NM, Masa LS, Chen BB, Mallampalli RK.


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Michael M. Myerburg, MD


**Quyen L. Nguyen, MD**


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Nouraie M, Ashktorab H, Atefi N, Azam S, Tarjoman T, Lee E, Shokrani B, Afsari A, Soleimani A, Laiyemo AO, Singh S, Brim H. Can the rate and location of sessile serrated polyps be part of colorectal Cancer disparity in...


Ashktorab H, Vilmenay K, Brim H, Laiyemo AO, Kibire A, Nouraie M. Colorectal Cancer in Young African


Toru Nyunoya, MD


Michael (Emmet) O’Brien, MD, PhD


Christopher P. O'Donnell, PhD


Timothy B. Oriss, PhD


Adaptation of APCs in the Lung and Controls the Outcome of Allergic Inflammation. Science. 2017 Sep 8;357(6355):1014-1021.


Sanjay R. Patel, MD, MS


Andrei A. Petrov, MD


Joseph M. Pilewski, MD


Petrov AA, Traister RS, Crespo MM, Silveira FP, Xie M, Coffey K, Ensor CR, Landsittel D, Pilewski JM. A


Rosenberger EM, DeVito Dabbs AJ, DiMartini AF, Landsittel DP, Pilewski JM, Dew MA. Long-Term Follow-up


Iulia-Dana Popescu, PhD


1566-1574.


Ronald K. Poropatich, MD


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24;474(9):1531-46.

Michael G. Risban, MD, MA


Belinda Rivera-Lebron, MD, MSCE


Keven M. Robinson, MD


Mauricio Rojas, MD


Frank C. Sciurba, MD


Trait Whole Genome Sequencing Identifies PTPRO as a Novel Candidate Gene in Emphysema with Severe Airflow Obstruction. Am J Respir Crit Care Med. 2017 Jul 15;196(2):159-71.


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Faraaz A. Shah, MD, MPH


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Londino JD, Gulick DL, Lear TB, Suber TL, Weathington NM, Masa LS, Chen BB, Mallampalli RK. Post-


**Bin Sun, MD**


**Prithu Sundd, PhD**


Jimenez MA, Novelli E, Shaw GD, Sundd P. Glycoprotein Ib Inhibitor (CCP-224) Prevents Neutrophil-platelet


**Jesus Tejero, PhD**


**Kristen L. Veraldi, MD, PhD**


Kitsios GD, Rojas M, Kass DJ, Fitch A, Sembrat JC, Qin S, Veraldi KL, Gibson KF, Lindell K, Pilewski JM,


Aisha L. Walker, PhD, MPH

Ling Wang, MD, PhD

Xingan Wang, MD, PhD


Nathaniel M. Weathington, MD, PhD


Li S, Wang D, Zhao J, Weathington NM, Shang D, ZhaoY. The Deubiquitinating Enzyme USP48 Stabilizes...


Sally E. Wenzel, MD


Ray A. Severe Asthma in Humans and Mouse Model Suggests a CXCL10 Signature Underlies Corticosteroid-Resistant Th1 Bias. JCI Insight. 2017 Jul 6;2(13).


David O. Wilson, MD, MPH


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ACKNOWLEDGMENTS

This report was produced by the Office of Academic Affairs in the Department of Medicine.

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