

DIVISION OF

# PULMONARY ALLERGY AND CRITICAL CARE MEDICINE

*Mark E. Scurla, M.D.  
Pulmonary and  
Critical Care Medicine*



University of  
Pittsburgh

DEPARTMENT OF MEDICINE

**ANNUAL REPORT | FY20**



DIVISION OF  
**PULMONARY, ALLERGY AND  
CRITICAL CARE MEDICINE**  
**ANNUAL REPORT**

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## DIVISION OF **PACCM**

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**U**PMC 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.

We successfully recruited 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**, became a full-time faculty member as Assistant Professor
- **Matthew Camiolo, MD, PhD**, joined as T32 fellow, and Clinical Instructor
- **Erin Nuzzo, MD**, former PACCM Fellow, joined as Clinical Instructor
- **Eleanor Valenzi, MD**, joined as T32 fellow, and Clinical Instructor

Our division had 109 academic faculty members at the end of FY 2020. In the past year, we initiated a sleep clinic at UPMC Mercy, continued to pursue and grow our endobronchial valve program, and grew our outpatient practices in Monroeville, at UPMC Jameson, and in the CLC. However, this growth was stymied in the third quarter due to COVID-19. Due to the pandemic, priorities shifted for several months as the division rose to the challenge presented by the COVID-19 pandemic, reorganizing workflows, shifting to telemedicine, and preparing our inpatient and outpatient services to take care of COVID-19 patients.



*Alison Morris, MD, MS* Chief



### **PACCM responded to the COVID-19 pandemic in the clinic and in the lab.**

We convened a COVID-19 response team that served to assist divisional planning with staffing, PPE supply, clinical guidelines, and education. Notable efforts include:

- **Ian Barbash, MD**, worked with the CCM department to establish and deploy a telemedicine program to assist UPMC affiliate hospitals, as well as New York city hospitals, that were overwhelmed with COVID-19 patients. Faculty from PACCM staff the telemedicine center to provide care to many hospitals.
- **Bryan McVerry, MD**, worked with members of CCM to participate as the first US REMAP-COVID trial. This unique trial structure allows for rapidly changing information and “learning by doing” in incorporating multiple therapy domains that evolve to reflect known evidence. The trial has been enacted remotely across all UPMC hospitals and has enrolled over 100 people to date.
- **John McDyer, MD** established an investigational convalescent plasma protocol to create a blood bank of donor plasma and treatment program for COVID-19 patients. The convalescent plasma protocol has been embedded within the REMAP structure and will move to a randomized trial of plasma versus placebo to assess impact of this therapy. Dr. McDyer has been awarded approximately \$750,000 for support of this program.
- **Alison Morris, MD, MS; Marc Gauthier, MD**; and **Daniel Kass, MD**, have served as the Pittsburgh site PI and co-investigators, respectively, for the HERO registry that surveys health care workers about the impacts of COVID-19 and for the HERO HQ study that is testing hydroxychloroquine as pre-exposure prophylaxis in health care workers.



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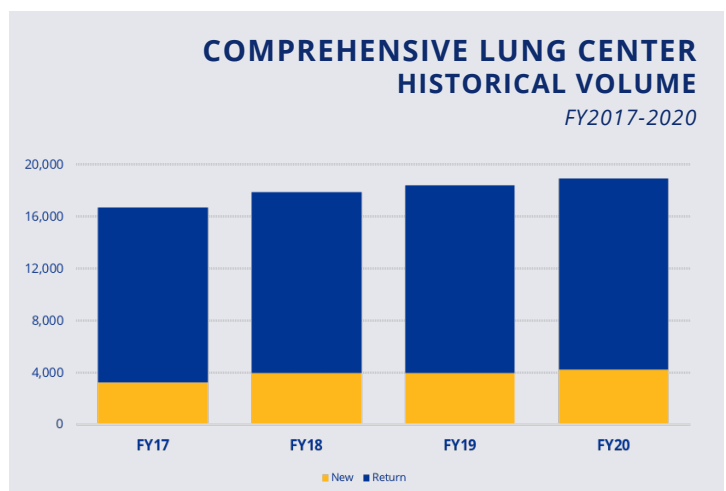
Clinical Assistant Professor of  
Medicine

# CLINICAL ACTIVITIES

The clinical pulmonary programs of UPMC have been widely recognized as a leader in pulmonary, allergy, and sleep medicine expertise.

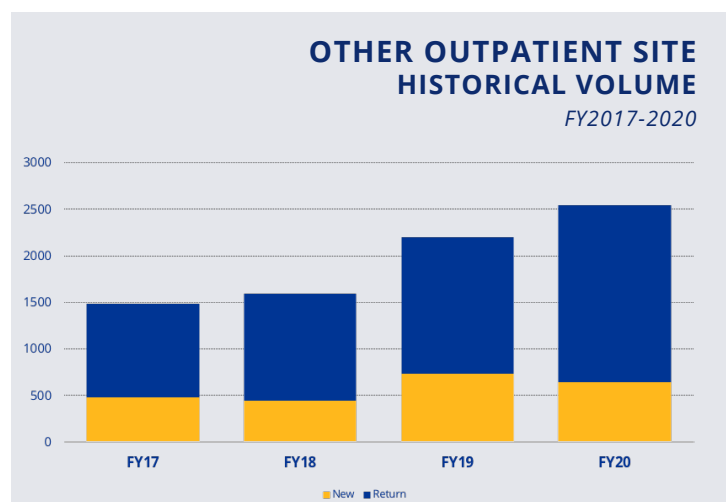
## Comprehensive Lung Center (CLC)

The Comprehensive Lung Center (CLC) is a multidisciplinary diagnostic center that serves as a hub for expertise in pulmonary, allergy, and sleep medicine. 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 an increase in our outpatient book of business even with a significant drop in volume in March and April due to COVID-19. 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

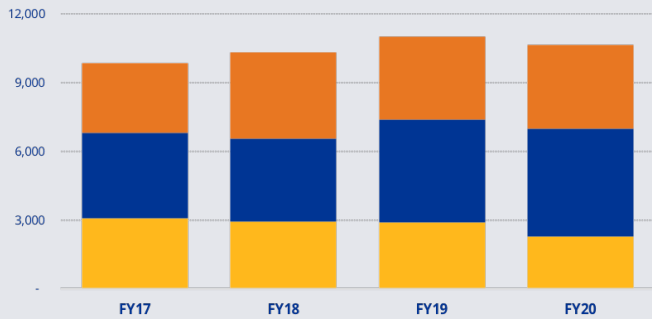
The Division also sees outpatients at sites outside of the Oakland-based CLC. These sites include the Monroeville Comprehensive Lung Center Clinic (Sleep Medicine and General Pulmonary), the Mercy HBC (General Pulmonary), and Jameson HBC (General Pulmonary). The continued increase can in part be attributed to growth at our Monroeville clinic as well as further growth at our Jameson clinic.



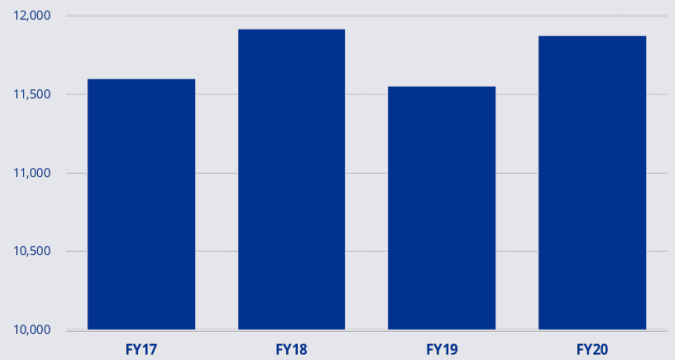
## Inpatient Programs

The inpatient efforts of the PACCM division

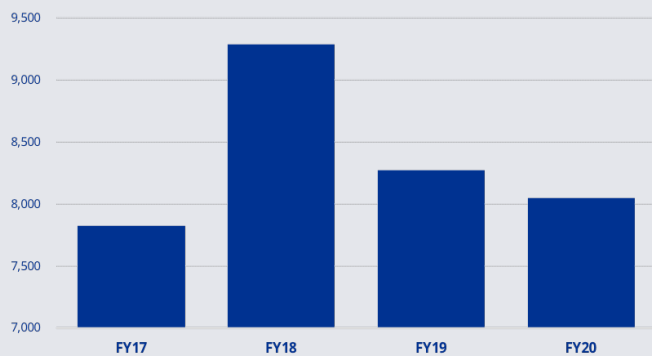
**UPMC PRESBYTERIAN  
HISTORICAL INPATIENT VOLUME**  
FY2017-2020



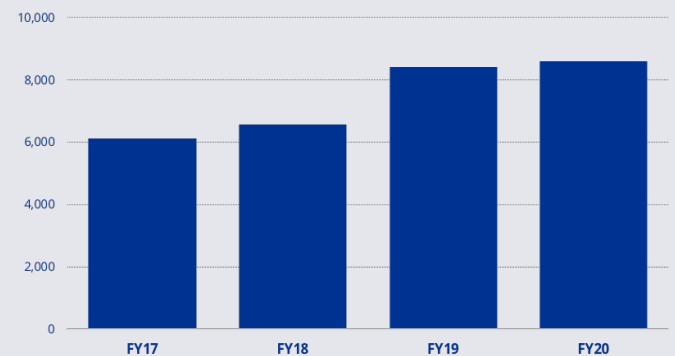
**UPMC PRESBYTERIAN MICU  
HISTORICAL INPATIENT VOLUME**  
FY2017-2020



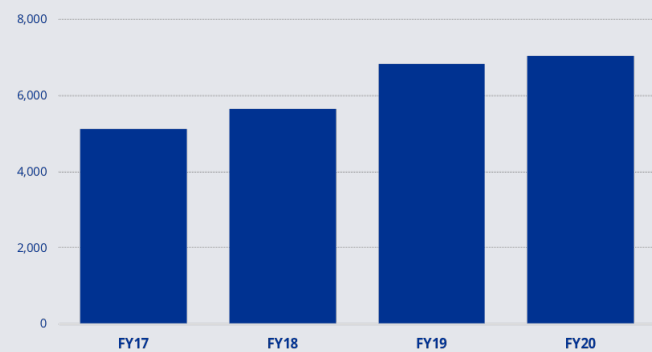
**UPMC PULMONARY TRANSPLANT  
HISTORICAL VOLUME**  
FY2017-2020



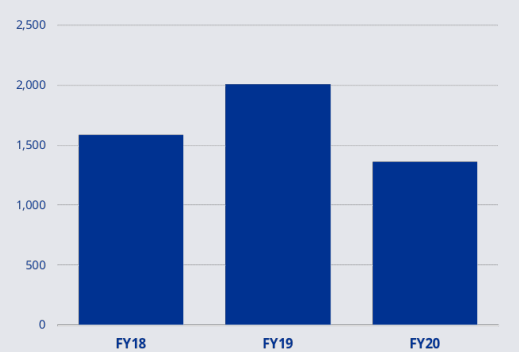
**SELECT SPECIALTY  
HISTORICAL INPATIENT VOLUME**  
FY2017-2020



**UPMC EAST  
HISTORICAL INPATIENT VOLUME**  
FY2017-2020



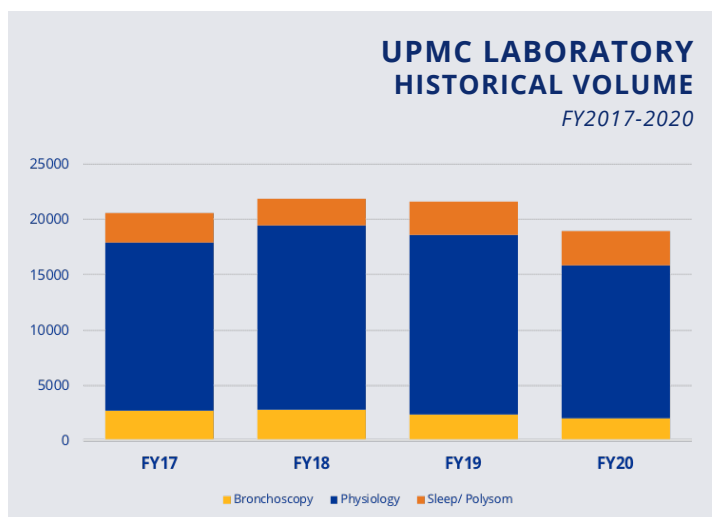
**UPMC MERCY  
HISTORICAL INPATIENT VOLUME**  
FY2018-2020



are focused on four services at UPMC Presbyterian: the Advanced Lung Disease (ALD) Service (Step-down and Select Specialty), the Pulmonary Transplant Service, the Medical ICU, and the Pulmonary Consultation Service; two services at UPMC Shadyside: Medical/Surgical and Cardiothoracic ICUs and pulmonary consult services; a pulmonary consult service at UPMC Mercy; an ICU and Pulmonary Consult services at UPMC East. Distinct consultation and Medical ICU services at the Oakland VA Medical Center provide a full range of pulmonary and critical care services for this location. Of note, in FY20 the division stopped providing daylight inpatient coverage at UPMC McKeesport.

### Laboratory Programs

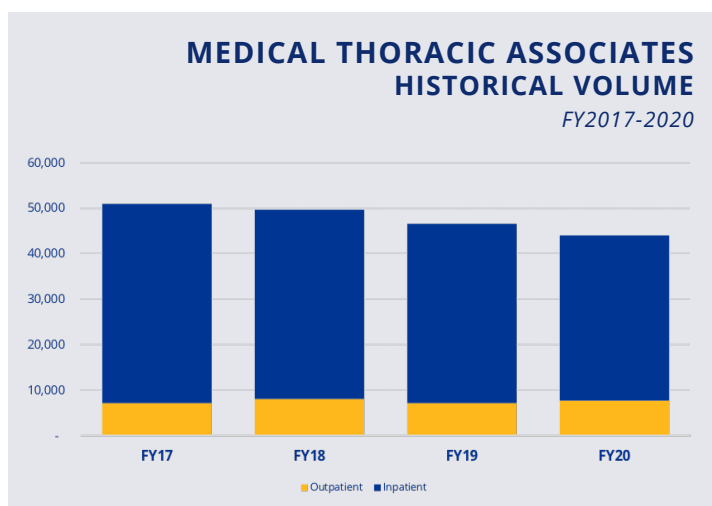
The PACCM Division supports clinical laboratories for the evaluation of patients with lung disease, including a comprehensive pulmonary physiology laboratory (with exercise testing and inhalation challenge), two dedicated bronchoscopy rooms with fluoroscopy and when needed, anesthesia support, and the sleep and control of breathing laboratory. Figure 10 below summarizes the PACCM laboratory volume activity this year. Bronchoscopies and PFT (physiology) testing were significantly reduced due to the impacts of COVID-19, however, sleep studies increased slightly with growth of home sleep studies in the face of pandemic-related sleep lab closures.



### 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. A Pulmonary Hypertension outpatient clinic continues at the Shadyside MTA office. A summary of the Shadyside volume is included in Figure 11.

The division also has a presence at UPMC Shadyside through **Dr. David Wilson's** practice. Dr. Wilson sees outpatients at the Hillman Cancer Center.



### Telemedicine

In FY20, the Division continued to offer telemedicine services. We continue our telemedicine services at UPMC Horizon and UPMC Northwest. We offer general pulmonary service with UPMC Bedford (Christopher Faber MD) and UPMC Cole (**Christopher Faber, MD**).

### Divisional Physician Productivity Improvements

A focus of the last year has been improving patient access to our physicians. Due to the COVID-19 pandemic, we shifted much of our outpatient volume to telemedicine. In addition, we had a dramat-

ic decrease in visits during March, April, and into part of May. In the last 6 weeks of FY20, we nearly met pre-COVID19 volumes, and re-focused on access for our patients, while also maintaining a large component of the outpatient practice as telemedicine visits.



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## QUALITY IMPROVEMENT INITIATIVES

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During FY20, 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 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.
- ✦ **Central line minimization project** to utilize peripheral catheter and reduce Catheter-Associate Bloodstream Infections

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 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. The new system is a portal for both quality improvement and research within the Simmons Center. This collaboration also serves as a model for data management in other PACCM clinical centers.

In collaboration with **Dr. Dana Ascherman**, Interim Chief of the Division of Rheumatology, the Simmons Center has also developed a “joint clinic” where patients see a pulmonologist and a rheumatologist simultaneously, as many patients with autoimmune disease develop interstitial lung disease. This joint visit allows coordination of care between the two disciplines and promotes “one-stop shopping” for the patients, many of whom live more than two hours away. These visits have been in-person and through telemedicine. The feedback from the patients has been very positive. This also serves as an important training vehicle to train fellows in Pulmonary and Rheumatology.

The **Cystic Fibrosis (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.

Our **lung transplant program** has continued with our current project with improving access to transplant for patients with Cystic Fibrosis. We continue our partnership with Rochester Medical Center and also serve as a mentor for Geisinger Medical Center and our own UPMC CF center to improve their referral process. We also are starting a new project to improve the patient experience by soliciting surveys from our patients who come to clinic. These will be reviewed and analyzed to determine areas of improvement.

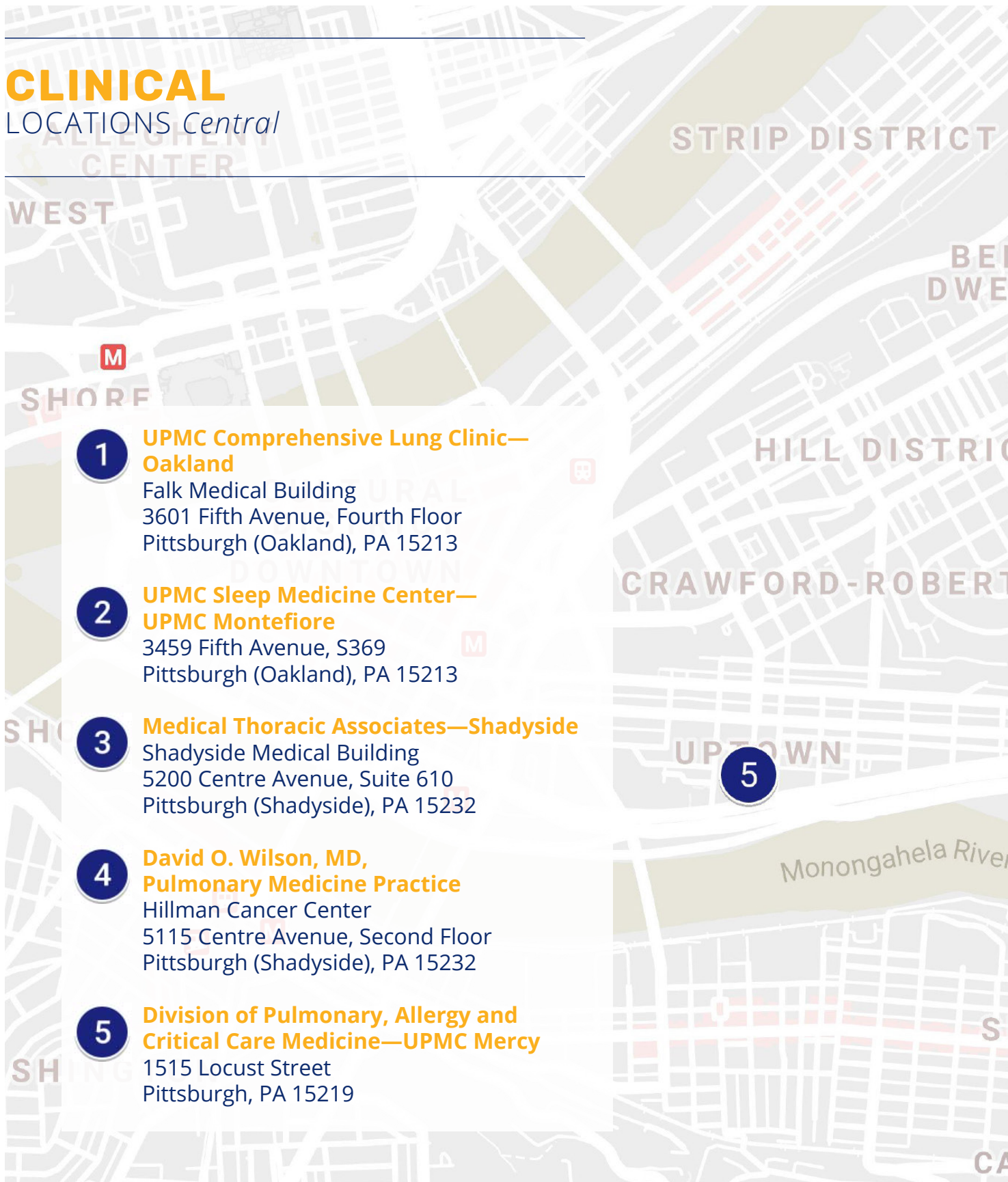
Projects in the **Sleep Center** include:

- **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.

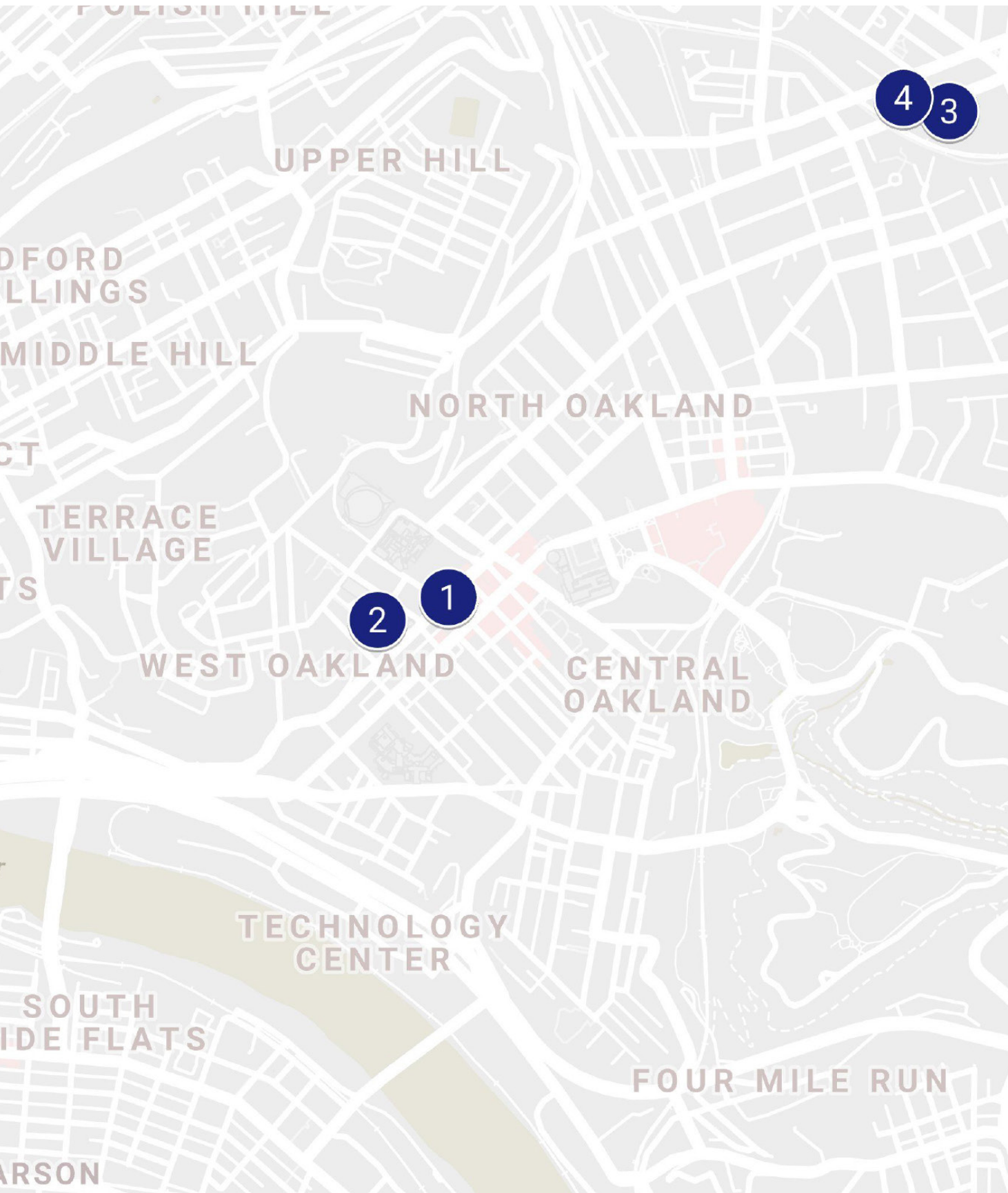


# CLINICAL

## LOCATIONS *Central*



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- 2 UPMC Sleep Medicine Center—UPMC Montefiore**  
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- 3 Medical Thoracic Associates—Shadyside**  
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- 4 David O. Wilson, MD, Pulmonary Medicine Practice**  
 Hillman Cancer Center  
 5115 Centre Avenue, Second Floor  
 Pittsburgh (Shadyside), PA 15232
- 5 Division of Pulmonary, Allergy and Critical Care Medicine—UPMC Mercy**  
 1515 Locust Street  
 Pittsburgh, PA 15219

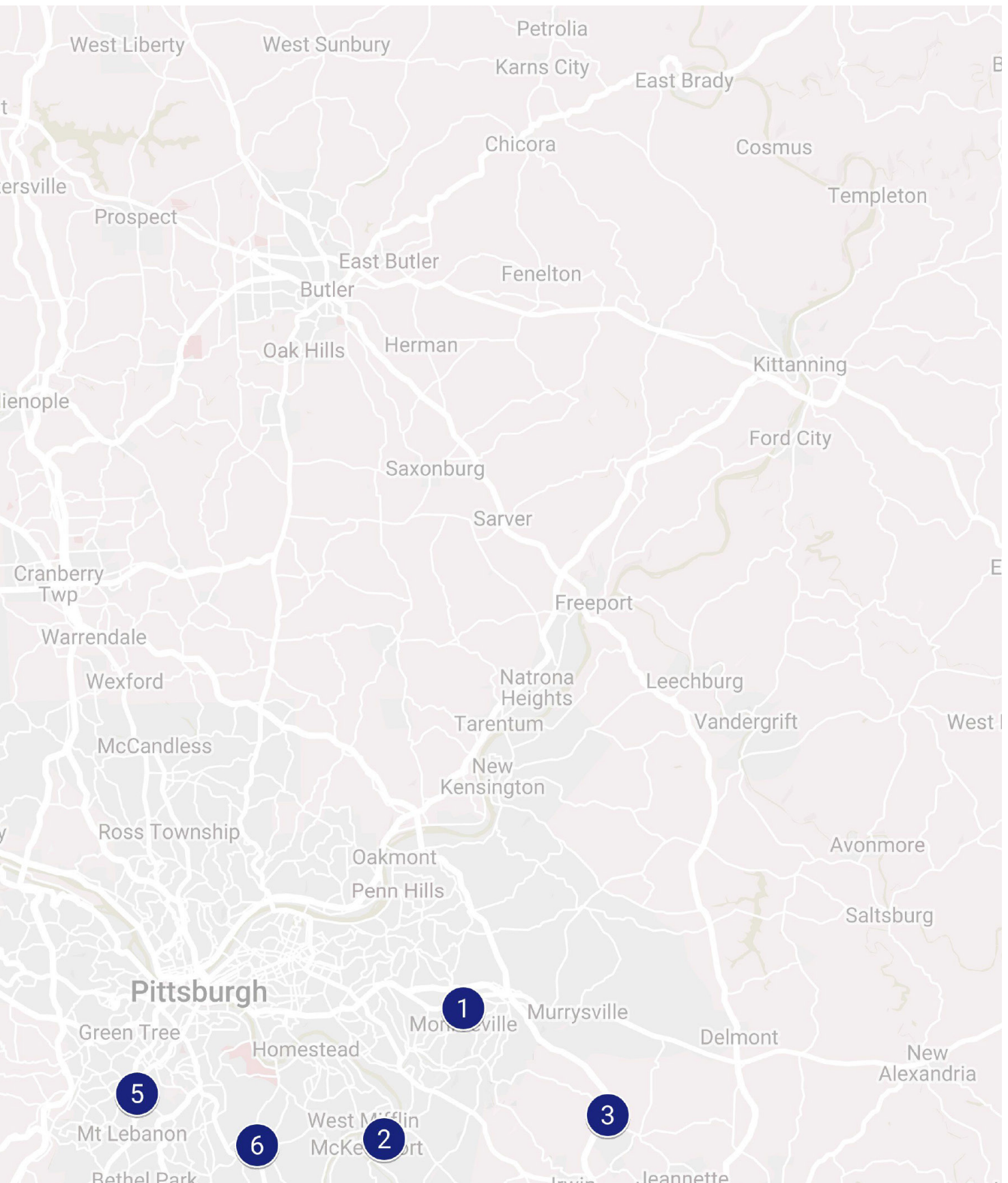


# CLINICAL LOCATIONS *Peripheral*



- 1 UPMC Comprehensive Lung Center—Monroeville**  
*Includes Medical Thoracic Associates and UPMC Sleep Medicine Center*  
 400 Oxford Drive, Suite G-65  
 Monroeville, PA 15146
- 2 UPMC Comprehensive Lung Center—UPMC McKeesport**  
 Painter Building  
 500 Hospital Way, Suite 6  
 McKeesport, PA 15132
- 3 Medical Thoracic Associates—Irwin**  
 3520 Route 130  
 Irwin, PA 15624
- 4 UPMC Division of Pulmonary, Allergy and Critical Care Medicine—UPMC Jameson**  
 1211 Wilmington Avenue  
 New Castle, PA 16105
- 5 UPMC Comprehensive Lung Center—South Hills**  
 733 Washington Road, Suite 204  
 Mt. Lebanon, PA 15228
- 6 Medical Thoracic Associates—West Mifflin**  
 1907 Lebanon Church Road  
 West Mifflin, PA 15122





## RESEARCH ACTIVITIES

The Division of Pulmonary, Allergy, and Critical Care Medicine is focused around the development of nine core programs of research excellence.

The Division has shown a sustained 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 FY19 departure of several key faculty, including Rama Mallampalli, MD, and Yutong Zhao, MD, PhD, but expect to experience new growth in FY21 with faculty recruitment.

### Research Centers

The **Acute Lung Injury Center of Excellence** 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, John Evankovich, MD, PhD, Will Bain, MD, Tomeka Suber, MD, PhD, Prabir Ray PhD, Bill Chen PhD, and Michael Donahoe, MD. Dr. Janet Lee** assumed leadership of the Center last year.

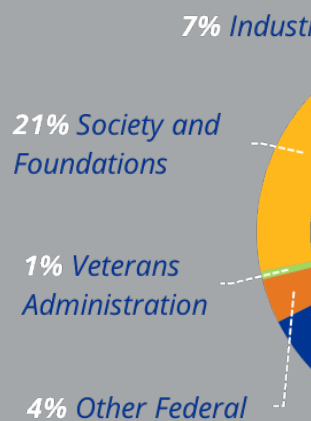
The **Adult Cystic Fibrosis and Host Defense Research Program** operates under the goal of providing improved treatments and ultimately, a cure for Cystic Fibrosis. The program is directed by **Joseph Pilewski, MD**, with involved PACCM faculty including **Michael Myerburg, MD; Keven Robinson, MD; and 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 tri-

## RESEARCH

### BY THE NUMBERS

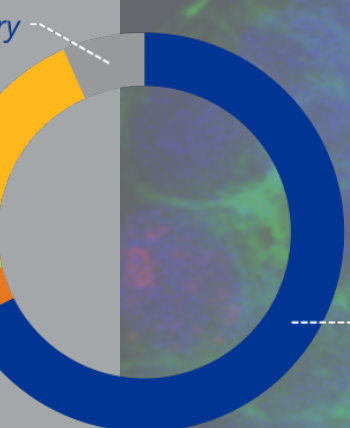
In FY20, PACCM received over \$26.8m in research funding from the Public Health Service and other federal agencies, industry, and various societies and foundations. Research expenditures exceeded \$20.7m.

### GRANTS & CONTRIBUTIONS FY20



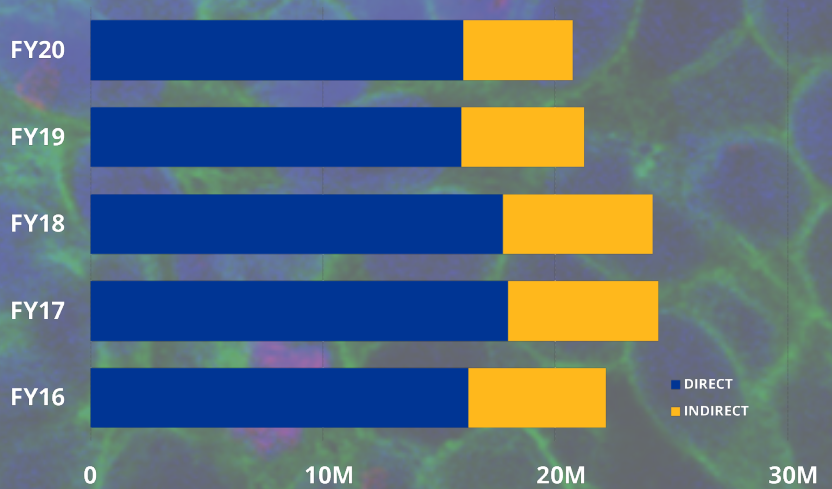


## TRACTS AWARDED



## RESEARCH EXPENDITURES

FY16-FY20



als of new CF therapies as a member of the CF Therapeutics Development Network.

The Asthma and Allergic Inflammation Program at the **Asthma Institute** is focused on investigating fundamental biologic mechanisms in asthma and allergic inflammation. 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. **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 **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 Sciruba, MD**, as the Director, working in association with **Janet Lee, MD; Michael Donahoe, MD; Jessica Bon, MD; 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.

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 1,000 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 carfilzomib (PI: **John McDyer, MD**), photopheresis (Site PI: **Matthew Morrell, MD**), inhaled cyclosporine, and a novel JAK-1 inhibitor (Site PI: **Joseph Pilewski, MD**); quality of life following lung transplantation; and treatment strategies for high-risk recipient populations. Over the last three 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. Also, the transplant program has been an active participant in the Cystic Fibrosis Foundation Lung Transplant Consortium, with **Dr. Pilewski** as Co-Executive Director. 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**.

The **Dorothy P. and Richard P. Simmons Center for Interstitial Lung Disease** is 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.

The **UPMC 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, MD; Phillip Lamberty, MD; Christopher O'Donnell, PhD; Charles Atwood, MD; Rachel Givelber, MD; David Kristo, MD;** and **Mazen El-Ali, MD**.

The **Pulmonary Vascular Disease Center**, developed under the leadership of **Mike Mathier, MD**, and **Mark Gladwin, MD**, aims to build 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)**.

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. The center's cardiologists and pulmonologists are investigating several promising new therapies for patients with PAH. These therapies include the oral prostanoid treprostinil, the selective endothelin antagonists, and combinations of available agents. Under the leadership of **Dennis M. McNamara, MD; Michael Risbano, MD;** and **Belinda Rivera-Lebron, MD**, 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).

The mission of the University of Pittsburgh **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 Center also provides an intellectual and core resource for investigators performing microbiome research. It is led by Drs. **Alison Morris** and **Barbara Methé**. The Center is funded by grants from NIH, industry, and UPMC. The influence of the microbiome of the lung as well as of the oral cavity and gut on lung disease is a major focus. The Center also 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.

The mission of the **Pulmonary Translational Research Core (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 of Pulmonary, Allergy, and Critical Care Medicine (PACCM). 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. This Core is Co-directed by **Dr. Janet Lee** and **Dr. Timothy Corcoran**. The Core houses several research coordinators, regulatory personnel, and data analysts.

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 which hopefully can lead to novel treatments for patients with pulmonary diseases.

## Grants

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

- **Kong Chen, PhD**, was awarded a Cystic Fibrosis Foundation grant titled “Pitt CF Research Development Program” (2019-2023)
- **Janet Lee, MD**, was awarded an NIH P01 subcontract (OSU) titled “Immunosuppression in Acute Lung Injury, Project 4” (2019-2024)
- **Janet Lee, MD**, was awarded an NIH R01 grant titled “The Role of ACOD1 in Immunomodulation in Intrapulmonary *Klebsiella Pneumoniae* Infection” (2019-2022)
- **John McDyer, MD**, was awarded an NIH U01 grant titled “Long Term Follow Up of the Lung Transplant Outcomes Group Cohort” (2019-2026)
- **Bryan McVerry, MD**, was awarded an NIH P01 subcontract (OSU) titled “Immunosuppression in Acute Lung Injury – Core B” (2019-2024)
- **Barbara Methé, PhD**, was awarded an NIH R33 grant titled “Impact of Virome on Microbial Communities in the Respiratory Tract” (2019-2022)

- **Alison Morris, MD, MS**, was awarded an NHLBI U01 grant titled “University of Pittsburgh MACS-WIHS Combined Cohort Study” (2019-2026)
- **Michael Myerburg, MD**, was awarded a Cystic Fibrosis Foundation grant titled “The Role of RAGE in Mucus Production in Cystic Fibrosis” (2019-2021)
- **Michael Myerburg, MD**, was awarded a Cystic Fibrosis Foundation grant titled “Pitt CF Research Development Program” (2019-2023)
- **Seyed Mehdi Nourai, PhD**, was awarded a Center for Advancing Translational Sciences grant titled “Computational Repurposing of Chemotherapeutics for Pulmonary Hypertension” (2019-2020)
- **Seyed Mehdi Nourai, PhD**, was awarded an NHLBI R01 subaccount titled “Progressive Degenerative Role of NOX and Thrombospondin-1 in Aging” (2019-2023)
- **Toru Nyunoya, MD**, was awarded an American Heart Association grant titled “Molecular Mechanisms Underlying Smoking-Induced Emphysema” (2019-2022)
- **Christopher O’Donnell, PhD**, was awarded an NIH P01 subcontract (OSU) titled “Immunosuppression in Acute Lung Injury, Project 2” (2019-2024)
- **Sanjay Patel, MD, MS**, was awarded an NIH R01 subaccount titled “The Effect of Reducing Sedentary Behaviour on Sleep and Cardiovascular Health” (2019-2023)
- **Joseph Pilewski, MD**, was awarded a Cystic Fibrosis Foundation grant titled “Measuring and Improving Co-Production Using CoopeRATE: A Before-and-After Study in Adult Cystic Fibrosis Care” (5/1/19 through 9/30/19)
- **Joseph Pilewski, MD**, was awarded a Cystic Fibrosis Foundation grant titled “Pitt CF Research Development Program (2019-2023)
- **Prabir Ray, PhD** was awarded an NIH P01 subcontract (OSU) titled “Immunosuppression in Acute Lung Injury, Project 2” (2019-2024)
- **Frank Sciorba, MD**, was awarded a Fisher & Paykel Healthcare grant titled “Study of Humidified Air to Improve Mucociliary Clearance (MCC) in COPD” (2019-2020)
- **Frank Sciorba, MD**, was awarded an NIH PCORI subcontract titled “Roflumilast or Azithromycin to Prevent COPD Exacerbations (RELIANCE) Phase 2” (2019-2023)
- **Tomeka Suber, MD, PhD**, was awarded a Samuel and Emma Winters Foundation grant titled “A Role for Itaconate in Host Defense Against *Klebsiella Pneumoniae* Infection” (2019-2020)
- **Chunbin Zou, PhD**, was awarded an NIH R01 grant titled “Epigenetic Modulation in Septic Immunosuppression” (2019-2023)

We continue to be excited about our involvement in the UPMC Immune Transplant and Therapy Center (ITTC):

- **John McDyer, MD**, continues 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.
- **Alison Morris, MD, MS**, 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.
- **Alyssa Gregory, PhD**, received an ITTC grant titled “Neutrophil Elastase and Aging” (2018-2019)

## 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:

1. Role of the microbiome in HIV-associated lung disease
2. Understanding and manipulating the respiratory and gut microbiota in the ICU
3. The role of nitrate-reducing bacteria in pulmonary hypertension
4. HIV-associated emphysema and pulmonary hypertension
5. Role of Pneumocystis and other fungi in COPD and HIV

#### **Study Sections**

- Reviewer, University of Pittsburgh Center for AIDS Research, 2010-present
- Reviewer, American Lung Association, 2011-present
- Ad hoc reviewer, NIH/NHLBI/NIAID, 2013-present
- Member, NIH/NHLBI Mentored Patient-Oriented Research review panel, 2016-present

#### **Advisory Committee Memberships and Leadership Positions**

- Member, Long-range Planning Committee, MTPI Assembly, ATS, 2003-present
- Member, Program Committee, MTPI Assembly, ATS, 2004-present
- Member, Nominating Committee, MTPI Assembly, ATS, 2007-present
- Applicant Interviewer, International Scholars Program, Department of Medicine, 2015-present
- Member, ATS Program Review Subcommittee, 2019-present
- Professional Affiliations and Society Memberships
- Member, American Thoracic Society, 1998-present
- Member, American College of Chest Physicians, 1999-present

#### **Editorships**

- Reviewer, Multiple journals (*AIDS, Medical Science Monitor, Emerging Infectious Diseases, Intensive Care Medicine, Chest, Journal of the Acquired Immunodeficiency Syndrome, Clinical Infectious Diseases, American Journal of Respiratory, Cell and Molecular Biology, American Journal of Respiratory and Critical Care Medicine, Thorax*), 2004-present

#### **Honors and Awards**

- Fellow, Association of American Physicians, 2018-present

### **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

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

Working closely with Dr. Patrick Stollo, 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 longterm 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, Multiple journals (*Chest, Sleep, American Journal of Respiratory and Critical Care Medicine, Journal of General Internal Medicine, Journal of Applied Physiology, Journal of Clinical Sleep Medicine*), 1998-present
- Editor-in-Chief, *ACCP SEEK for Sleep Medicine*, 2008-present

## William G. Bain, MD

Dr. Bain's research goal is to improve understanding of how the lung interacts with and employs cellular and humoral elements of innate immunity to combat pathogens and manage injury. He is currently focused upon two research questions: 1) how platelets and platelet factors attenuate lung injury during pathogen-mediated lung injury with particular attention to the role of platelet released factors in providing protection to alveolar epithelium and 2) mechanisms by which alternative complement pathway function supports host defense and patient survival during critical illness with acute respiratory failure.

### Honors and Awards

- Awardee, Abstract Scholarship Award, American Thoracic Society, 2019
- First Place, National Jewish 15th Annual Respiratory Disease Young Investigator's Forum, 2019

## 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, Multiple journals (*American Journal of Respiratory and Critical Care Medicine*, *Annals of the American Thoracic Society*, *Journal of Critical Care*, *Canadian Journal of Anesthesia*, *Mayo Clinic Proceedings*), 2016-present



Photo

As Associate Medical Director of the UPMC Presbyterian MICU, Dr. Barbash has been on the front lines of the pandemic attending to COVID+ patients, as well as helping organizing remote care for patients in New York City.

## Jessica M. Bon (Field), 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

- Educational Review Working Group Member, COPD Foundation, 2013-present
- Associate Program Director of Research, Internal Medicine Residency, University of Pittsburgh, 2016-present
- Director, Research Pathway Track, Internal Medicine Residency, University of Pittsburgh, 2016-present
- Member, Program Committee, Clinical Problems Assembly, American Thoracic Society,



2016-present

- Director, VA Pittsburgh Healthcare System Pulmonary Function Laboratory, 2017-present
- Co-Chair, Women's Working Group, Clinical Problems Assembly, American Thoracic Society, 2018-present

#### ***Professional Affiliations and Society Memberships***

- Member, American Thoracic Society, 2004-present
- Member, American College of Chest Physicians, 2004-present
- Member, American Society of Bone and Mineral Research, 2009-present

#### ***Editorships***

- Associate Editor, *BMC Pulmonary Medicine*, 2016-present

### **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 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, American Thoracic Society RCMB Web Committee, 2018-present

#### ***Major Lectureships and Seminars***

- Invited Speaker, McGowan Institute Annual Scientific Retreat, March 2020
- Panelist, DOM PhD Committee Twitter Retreat, Department of Medicine, University of Pittsburgh, May 2020

### **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**

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, 2008-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***

- 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
- Member, American Thoracic Society, 2012-present

#### ***Editorships***

- Ad hoc reviewer, Multiple journals (American Journal of Respiratory Cell and Molecular Biology, Journal of Medicinal Chemistry, Journal of Biological Chemistry, Molecular Cancer Therapeutics, PLOS One, Journal of Clinical Investigation, Laboratory Investigation, American Journal of Respiratory and Critical Care Medicine, Nature Communication, BBA Molecular Cell Research, Cell Chemical Biology), 2009-present
- Editorial Board, Journal of Allergy and Therapy, 2010-present
- Editorial Board, American Journal of Respiratory Cell and Molecular Biology, 2016-present

#### ***Major lectureships and seminars***

- Invited Speaker, Department of EOH, University of Pittsburgh, January 2020

### **Dongshi Chen, PhD**

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

## **Jared Chiarchiaro, MD, MS**

Dr. Chiarchiaro's current research interests are medical education and curriculum development. He has developed a new, active teaching format for the pulmonary and critical care fellows' core curriculum and is evaluating its implementation and efficacy. He is also very involved in clinical research through his pulmonary clinic at the Simmons Center for Interstitial Lung Disease. Dr. Chiarchiaro is a co-investigator in several clinical trials evaluating novel therapeutics for idiopathic pulmonary fibrosis. He is also working to create and analyze the largest known case-series of hard metal pneumoconiosis. In addition to his role in the Simmons Center clinical trials, Dr. Chiarchiaro is Co-Investigator for the PETAL network's ROSE trial, which is evaluating early neuromuscular blockade for acute respiratory distress syndrome. Additionally, he remains active in several quality improvement initiatives within the hospital, helping, for example, to create and evaluate the protocol for prone positioning in the Medical Intensive Care Unit.

### ***Advisory Committee Memberships and Leadership Positions***

- Member, PACCM Fellowship Committee, University of Pittsburgh, 2012-present
- Member, University of Pittsburgh Medical Center Patient Safety Peer Review Committee, 2014-present
- Member, Executive Committee, Select Specialty Hospital Medical, 2016-present
- Member, Section on Medical Education Programming Committee, American Thoracic Society, 2016-present
- Member, Behavioral Science and Health Services Research Assembly Executive Committee, American Thoracic Society, 2017-present
- Member, Section on Medical Education Extended Executive Committee, American Thoracic Society, 2017-present

### ***Editorships***

- Ad hoc Reviewer, Multiple journals (*Annals of the American Thoracic Society*, *Chest*, *Critical Care Medicine*, *Progress in Palliative Care*, *COPD*, *Asthma Research and Practice*, *Mayo Clinic Proceedings*, *Heart and Lung*, *BMJ Open*, *JAMA Internal Medicine*, *Practical Reviews in Critical Care Medicine*), 2014-present

### 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 has 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 Aerosol Medicine and Pulmonary Drug Delivery*, 2005-present
- 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, Multiple journals (*Chest, American Journal of Respiratory and Critical Care Medicine, Respiratory Medicine*), 1999-present

#### ***Honors and Awards***

- Honoree, PACCM Legacy Award, Department of Medicine, University of Pittsburgh, June 2020

### John Evankovich, MD

Dr. Evankovich studies the molecular biology of lung injury. His laboratory is interested in the intersection of three molecular systems in the innate immune system, and how they influence inflammation and cell death pathways in the lung. The molecular systems are Damage Associated Molecular Patterns (DAMPs), DAMP Receptors, and the Ubiquitin/Proteasome System (UPS).

Dr. Evankovich's prior work has identified how several novel DAMP/DAMP receptor pairs are processed for disposal in the UPS, and how this process can be manipulated to change subsequent cellular responses. For damaging responses, increasing targeted DAMP receptor disposal through the UPS could lessen organ damage; likewise, for protective DAMP/DAMP receptor pairs, reducing disposal in the UPS could be therapeutic to reduce injury.

Teaming with the Small Molecule Therapeutics Center, Dr. Evankovich's future work aims to discov-



er novel small molecules to disrupt these pathways and test in preclinical models of lung injury. He is also an Associate Member of the Aging Institute, where he focuses on the contribution of aging to innate immune responses in the lung.

***Professional Affiliations and Society Memberships***

- Member, American Thoracic Society, 2016-present
- Member, American College of Chest Physicians, 2016-present

**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**

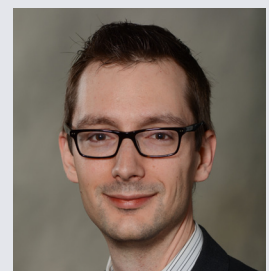
Dr. Gauthier's research focuses on identifying steroid resistant pathways of inflammation in severe asthma. He has previously identified Type 1 inflammation, manifested by Interferon-gamma elevation in the lung, as a phenotype of severe asthma. His current work seeks to better understand the immune mechanisms 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, 2012-present
- Member, American Thoracic Society, 2013-present
- Member, Pennsylvania Medical Society, 2014-present
- Member, Allegheny County Medical Society, 2014-present
- Member, American College of Chest Physicians, 2015-present
- Member, Society of Critical Care Medicine, 2016-present

***Honors and Awards***

- Honoree, Bernie Pennock Outstanding Young Investigator Award, Division of Pulmonary, Allergy and Critical Care Medicine, University of Pittsburgh, June 2020



*Photo*  
Dr. Gauthier is the 2020 Bernie Pennock Outstanding Young Investigator Award winner, presented annually to junior faculty in PACCM.

### 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

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 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 vasodilation. 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 hemo-

lytic 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
- 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
- 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

#### ***Professional Affiliations and Society Memberships***

- Member, American Thoracic Society, 1998-present
- Member, American Society of Hematology, 2002-present
- Member, Society for Free Radical Biology and Medicine, 2002-present
- Member, American Heart Association, 2008-present
- Member, American Association of Blood Banks, 2012-present
- Member, American Association for the Advancement of Science (AAAS), 2012-present
- Member, American Society for Pharmacology and Experimental Therapeutics (ASPET), 2013-present
- Fellow, Pulmonary Vascular Research Institute (PVRI), 2013-present
- Member, Pulmonary Hypertension Association, 2013-present
- American Physiological Society, 2017-present

#### ***Editorships***

- Editorial Board, *Journal of Hematology*, 2007-present
- Editorial Board, *Society for Free Radical Biology and Medicine*, 2007-present
- Editorial Board, *Haematologica*, 2008-present
- Editorial Board, *American Physiology Journal, Lung Cellular and Molecular Physiology*, 2011-present
- Associate Editor, *American Journal of Respiratory and Critical Care Medicine*, 2015-2020

#### ***Honors and Awards***

- Member, Alpha Omega Alpha, 1995-present
- Fellow, American Society of Clinical Investigations (ASCI), 2006-present
- Fellow, American College of Physicians, 2008-present

### **Elena A. Goncharova, PhD**

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.

#### ***Advisory Committee Memberships and Leadership Positions***

- Member, ATS International Conference Committee, 2019-present
- Member, Women In Academic Leadership, 2019-present
- Professional Affiliations and Society Memberships
- Member, American Thoracic Society, 2007-present

#### ***Editorships***

- Reviewer, Multiple journals (*American Journal of Physiology: Lung Cellular and Molecular Physiology*, *PLOS One*, *Thorax*, *Circulation Research*, *Scientific Reports: Cancer Research*, *Cardiovascular Research*, *Circulation: Heart Failure*), 2010-present
- Editorial Board, *American Journal of Physiology: Lung Cellular and Molecular Physiology*, 2018-present

#### ***Honors and Awards***

- Eminent Reviewer Award, AJRCCM, 2019

### **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 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.

#### ***Professional Affiliations and Society Memberships***

- Member, American Thoracic Society, 2013-present

### **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.

#### ***Advisory Committee Memberships and Leadership Positions***

- Board Member, CG Jung Educational Center, 2006-present



### **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 transplant—and was the first to report a case series of recurrence of pre-transplant disease in the allograft.

### **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.

### **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 bio-samples 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

### **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.

#### **Professional Affiliations and Society Memberships**

- Member, American Thoracic Society, 2013-present
- Member, American College of Chest Physicians, 2018-present

### **John W. Kreit, MD**

Dr. Kreit's main academic focus is the education of medical students, residents, and fellows. His teaching methods include lectures, conferences, and workshops that cover a wide variety of pulmonary and critical care topics, as well as bedside, patient-based teaching. He is particularly interested in pulmonary physiology and pathophysiology and mechanical ventilation. Dr. Kreit is the editor of "The Clinical Physiologist" in the *Annals of the American Thoracic Society* and is the author of a book on mechanical ventilation published by Oxford University Press. He has also written many review articles and book chapters.

#### **Professional Affiliations and Society Memberships**

- Member, American Thoracic Society, 1988-present
- Member, American College of Chest Physicians, 1988-present

### **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 patho-

biology 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**

Dr. Lamberty has developed a passion for the teaching point of care ultrasonography, airway management, pleural procedures, and the management of shock. Dr. Lamberty leads the PACCM's commitment to the training and implementation of point of care ultrasonography. He directs a course for ICU physicians and hospitalists entitled "Introduction to Emergency and Critical Care Ultrasound" that is held regularly at The Peter M. Winter Institute for Simulation, Education, and Research (WIS-ER). He contributes to the Emergency Medicine residency as one of their ultrasound faculty. He teaches ultrasonography in school of medicine courses and has initiated a curriculum for global health track medicine residents. He maintains pacmus.com, an ultrasound education portal used on the wards to facilitate ultrasound teaching. He is a proponent of "in-situ" simulation, and actively seeks ways to introduce simulation experiences in the ICU and other settings for trainees, students and faculty members.

#### ***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

### **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, American Thoracic Society, 2000-present
- Member, R1 & 2, Immunology and Virology Committee, American Heart Association, 2009-present
- Member, Respiratory Cell and Molecular Biology, American Thoracic Society, 2000-present
- Member, ATS Research Advisory Committee, 2010-present
- T1 Translational Track Director, Master of Science in Clinical Research Program, ICRE, 2014-present



*Photo*

*Dr. Lee is the 2020 recipient of the ATS Recognition Award for Scientific Accomplishments.*

- Director, Pulmonary Translational Research Core, University of Pittsburgh, 2016-present

#### **Editorships**

- Ad hoc Reviewer, Multiple journals (*American Journal of Respiratory Critical Care Medicine*, *American Journal of Respiratory Cell and Molecular Biology*), 2006-present

#### **Honors and Awards**

- Honoree, ATS Recognition Award for Scientific Accomplishments, American Thoracic Society, American Thoracic Society Conference, Virtual, May 2020

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

#### **Professional Affiliations and Society Memberships**

- Member, Respiratory Nursing Society, 1993-present
- Member, Pulmonary Fibrosis Foundation, 2013-present
- Member, American Academy of Nursing, 2007-present

#### **Editorships**

- Editorial Board, *American Journal of Respiratory and Critical Care Medicine*, 2012-present
- Section Editor, Respiratory Nursing Society, Core Curriculum, 1999-present

#### **Honors and Awards**

- Awardee, Lorenzetty Outstanding Nursing Award, Division of Pulmonary, Allergy and Critical Care Medicine, University of Pittsburgh, June 2020



## 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**

- Reviewer, American Heart Association, 2017-present

### **Advisory Committee Memberships and Leadership Positions**

- Member, University of Pittsburgh Competitive Medical Research Fund Committee, 2019-present

### **Editorships**

- Ad hoc reviewer, Multiple journals (*The Journal of Biological Chemistry*, *The Journal of Allergy & Therapy*, *The Journal of Anesthesia & Clinical Research*, *American Journal of Respiratory Cell and Molecular Biology*, *Journal of Diabetes & Metabolism*, *PLOS One*, *Journal of Clinical Investigation*, *The American Journal of Physiology*), 2014-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

### **Editorships**

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

## 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

### **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

### **Editorships**

- Ad hoc Reviewer, Multiple journals (*Microvascular Research*, *American Journal of Respiratory Cell and Molecular Biology*, *Journal of Applied Physiology*, *American Journal of*

*Physiology, Lung Cellular Molecular Physiology, Nature Reviews Drug Discovery, American Journal of Respiratory and Critical Care Medicine, American Journal of Physiology, Renal Physiology*), 2005-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 Biotechnology, Microbial Ecology, Microbiome, PLOS Biology, PLOS One, Science*), 2015-present

### **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**

- Permanent member, LIRR Study Section NIH, 2019-2025
- Ad hoc Reviewer, French National Research Agency (ANR), 2019-present

#### **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, DOM PhD Task Force, 2019-present
- Chair, Cellular Aging in Lung Disease Seminar, Experimental Biology International Conference, 2020
- Member, Leadership Council, Vascular Medicine Institute, 2020-present

#### **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
- Member, European Respiratory Society, 2019-Present

#### **Editorships**

- Academic Editor, *PLOS One*, 2012-present
- 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, Symposium on Pulmonary Fibrosis, Henan Center of Pulmonary

Fibrosis, China, 2019

- Invited Speaker, Physiology and Pharmacology Seminar Series, University of West Virginia, 2020
- Invited Speaker, Division of Pulmonary Seminar Series, Ohio State University, 2020

### **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, Multiple journals (*American Journal of Respiratory Cell and Molecular Biology, The American Journal of Physiology, 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.

**Professional Affiliations and Society Memberships**

- Member, American Association for Cancer Research, 2007-present
- Member, American Society of Hematology, 2010-present

**Editorships**

- Ad hoc Reviewer, Multiple journals (*Alimentary Pharmacology & Therapeutics Journal, Mediterranean Journal of Hematology and Infectious Diseases, The Lancet: Infectious Diseases, EBioMedicine, Turkish Journal of Gastroenterology, The Lancet: Haematology, Journal of Racial and Ethnic Health Disparities*), 2009-present
- Editorial Board Member, *Digestive Disease and Sciences*, 2013-present

**Honors and Awards**

- Honoree, Outstanding Mentorship Award, Division of Pulmonary, Allergy and Critical Care Medicine, University of Pittsburgh, June 2020

*Photo*

*Dr. Nouraie was named the Outstanding PACCM Mentor at this year's Rogers Day.*

**Toru Nyunoya, MD**

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.

**Study Sections**

- Ad hoc Grant Reviewer, VASN 18 New Investigator Grant Program, 2014-present

**Professional Affiliations and Society Memberships**

- Member, American Medical Association, 2001-present
- Member, American Thoracic Society, 2001-present

**Christopher P. O'Donnell, PhD**

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 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**

- Ad hoc reviewer, Multiple journals (*American Journal of Respiratory and Critical Care Medicine, Journal of Applied Physiology, Journal of Sleep Research, Sleep Medicine Reviews, Sleep, Obesity, European Respiratory Journal, Diabetes*), 2005-present

### **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, 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

### Andrej A. Petrov, MD

Dr. Petrov's research interests focus on conditions that mimic asthma, hypogamma-globulinemia in lung transplant patients, and allergic drug reactions. Vocal Cord Dysfunction (VCD) is often misdiagnosed and mistreated 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.

#### *Professional Affiliations and Society Memberships*

- Member, American College of Allergy, Asthma, and Immunology, 2005-present

### 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.

#### *Advisory Committee Memberships and Leadership Positions*

- Member, Lung Transplant Candidate Selection Committee, 1996-present
- Member, Steering Committee, Cystic Fibrosis Research Development Center, 1999-present
- Member, Board of Directors, Cystic Fibrosis Foundation, Western Pennsylvania Chapter, 2006-present
- Member, Executive Committee, Clinical Research, Cystic Fibrosis Foundation, 2015-present
- Member, Advisory Board, Cystic Fibrosis Foundation, Clinical Research, 2016-present

#### *Editorships*

- Ad hoc Reviewer, Multiple journals (*Pediatric Pulmonology, Journal of Investigative Medicine, Journal of Allergy and Clinical Immunology, American Journal of Respiratory Cell and Molecular Biology, American Journal of Respiratory and Critical Care Medicine, American Journal of Pathology, Gene Therapy, Human Gene Therapy, Chest, American Journal of Physiology-Lung Cellular Molecular Physiology*), 1999-present
- Ad hoc Reviewer, *Annals of Internal Medicine*, 2010-present

### 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. "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.

### *Professional Affiliations and Society Memberships*

- Fellow, American College of Physicians, 1985-present
- Member, Metropolitan D.C. Thoracic Society, 1989-present
- Fellow, American College of Chest Physicians, 1994-present
- Member, American Telemedicine Association, 1995-present

### *Editorships*

- Editorial Board Member, Associate Editor, *Telemedicine Journal*, 1996-present

## Shulin Qin, MD, PhD

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- $\kappa$ B 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- $\beta$  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- $\gamma$  (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 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

**Advisory Committee Memberships and Leadership Positions**

- Member with four-year term, NIAID Council, 2019-present
- Professional Affiliations and Society Memberships
- Member, American Association of Immunologists, 1995-present
- Member, American Thoracic Society, 1997-present
- Member, New York Academy of Sciences, 1999-present
- Member, American Association for the Advancement of Science, 1990-present

**Editorships**

- Ad hoc Reviewer, Multiple journals (*Immunity, Journal of Experimental Medicine, Nature Immunology, Nature Medicine, Journal of Immunology, Immunology Today, Trends in Cell Biology, Journal of Clinical Investigation, Journal of Biological Chemistry*), 1993-present
- Editorial Board, *American Journal of Physiology, Lung Cellular and Molecular Physiology*, 1999-present
- Editorial Board Member, *American Journal of Respiratory, Cell and Molecular Biology*, 2007-present
- Editorial Board, *Mucosal Immunology*, 2010-present

**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.

**Study Sections**

- Ad hoc Reviewer, NIH, 2000-present
- Professional Affiliations and Society Memberships
- Member, American Association of Immunologists, 1995-present
- Member, American Thoracic Society, 1999-present

**Editorships**

- Ad hoc Reviewer, Multiple journals (*Journal of Biological Chemistry, Journal of Clinical Investigation, Journal of Immunology, Circulation*), 1993-present
- Editorial Board, *American Journal of Respiratory Cell and Molecular Biology*, 2007-present
- Reviewer, *Science*, 2008-present



## **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, American Medical Association, 1995-present
- Member, American Thoracic Society, 1998-present
- Member, FASEB, 2013-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

## **Belinda N. Rivera Lebron, MD, MSCE**

Dr. Rivera-Lebron's clinical interests are primarily focused on the diagnosis, management and treatment of pulmonary hypertension. She is an attending physician in the Comprehensive Pulmonary Hypertension Program. She works with patients with all forms of pulmonary hypertension, including pulmonary arterial hypertension, pulmonary hypertension related to chronic lung disease (emphysema and pulmonary fibrosis), and pulmonary hypertension related to chronic blood clots (chronic thromboembolic pulmonary hypertension). Dr. Rivera-Lebron also specializes in acute and chronic pulmonary embolism. She also works as attending intensivist physician at Shadyside-UPMC.

### ***Professional Affiliations and Society Memberships***

- Member, American Thoracic Society, 2009-present
- Member, American College of Chest Physicians, 2011-present
- Member, International Society for Heart and Lung Transplant, 2012-present
- Member, Pulmonary Hypertension Association, 2013-present
- Member, Pulmonary Embolism Response Team Consortium, 2015-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 diseases. This protocol, in combination with the collection of tissues samples from explanted lungs, has allowed his laboratory to build a program of organ/tissue collection from normal and diseased lungs, including scleroderma.

#### *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, Multiple journals (*PLOS One*, *Annals of the American Thoracic Society*, *American Journal of Applied Physiology*, *American Journal of Physiology*, *Pediatrics International*, *American Journal of Respiratory and Critical Care Medicine*, *Journal of Critical Care*, *Intensive Care Medicine Experimental*, *Annals of Intensive Care*), 2015-present

### Frank C. Sciruba, MD

Dr. Sciruba's long-term research interest includes volume-reduction strategies in patients with ad-

vanced 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***

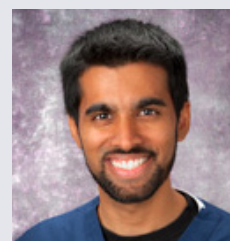
- Member, American Thoracic Society, 1987-present
- Member, Pennsylvania Thoracic Society, 1987-present
- Fellow, American College of Chest Physicians, 1992-present

#### ***Editorships***

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

### **Faraaz A. Shah, MD, MPH**

A K23 recipient, 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.



*Photo*  
Dr. Shah is a 2020 Nestlé  
Nutrition Institute Clinical  
Nutrition Fellow

#### ***Professional Affiliations and Society Memberships***

- American Thoracic Society, 2011-present
- Association of Physicians of Pakistani Descent of North America, 2011-present

#### ***Honors and Awards***

- Accepted into the Nestlé Nutrition Institute Clinical Nutrition Fellowship for Physicians Program, 2020

### **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.

#### ***Professional Affiliations and Society Memberships***

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

### **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 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

### **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, American Thoracic Society, 2015-Present
- Member, American College of Chest Physicians, 2016-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**

- Member, Society for Leukocyte Biology, 2012-present
- Member, American Society for Hematology, 2014-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.

#### **Professional Affiliations and Society Memberships**

- Member, Spanish Society for Biochemistry and Molecular Biology, 2000-present
- Member, Society for Free Radical Biology and Medicine, 2010-present
- Member, American Society for Pharmacology and Experimental Therapeutics, 2020-present

### **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.

#### **Professional Affiliations and Society Memberships**

- Member, Society of Critical Care Medicine, 2007-present
- Member, American Thoracic Society, 2007-present
- Fellow, American College of Chest Physicians, 2008-present

#### **Editorships**

- Ad hoc Reviewer, Multiple journals (*PLOS One*, *The Open Rheumatology Journal*, *American Journal of Respiratory Cell and Molecular Biology*), 2001-present

### **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.

***Professional Affiliations and Society Memberships***

- Member, American Society of Hematology, 2012-present
- Member, Foundation for Sickle Cell Disease Research, 2016-present

**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.

***Professional Affiliations and Society Memberships***

- Member, American Thoracic Society, 2007-present
- Member, Society for Free Radical Biology and Medicine, 2010-present
- Member, American Heart Association, 2016-present
- Member, Chinese-American Lung Association, 2016-present

**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 (EVLV) in mice. This would accelerate the translational study on EVLP and the non-heart-beating donor lung, alleviating the donor shortage.

***Professional 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 inflam-

matory 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 nitrate 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 Allergologicum, 2004-present

#### ***Editorships***

- Ad hoc Reviewer, Multiple journals (*Chest, Journal of Allergy & Clinical Immunology, Annals of Internal Medicine, Journal of Immunology, American Journal of Respiratory & Critical Care Medicine, European Respiratory Journal, International Archives of Allergy and Immunology*), 1990-present
- Contributing Editor, *Annals of Asthma, Allergy and Immunology*, 1998-present
- Editorial Board, *Clinical and Experimental Allergy*, 2000-present
- Reviewer, Multiple journals (*Journal of Clinical Investigation, New England Journal of Medicine, Clinical and Experimental Allergy*), 2000-present
- Deputy Editor, *American Journal Respiratory and Critical Care Medicine*, 2004-present

### **David O. Wilson, MD, MPH**

Dr. Wilson's research interests include lung cancer screening and chemoprevention, diagnosis, stag-

ing 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***

- Member, Physicians for Social Responsibility, 1980-present
- Member, American College of Physicians, 1981-present
- Member, American Thoracic Society, 1983-present
- Member, American College of Chest Physicians, 1983-present
- Member, American College of Environmental and Occupational Medicine, 1995-present

#### ***Editorships***

- Reviewer, *Chest*, 1989-present
- Reviewer, *American Journal of Respiratory and Critical Care Medicine*, 2007-present

### **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 NFκB 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.

#### ***Professional Affiliations and Society Memberships***

- Member, American Society for Biochemistry and Molecular Biology, 2015-present

### **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- $\beta$  synthesis through iNOS/PKR/Src axis in hepatocytes and Prohibitin 1 associates with iNOS to regulate TNFR1 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- $\beta$  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

### **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 diseases.

#### ***Professional Affiliations and Society Memberships***

- Member, American Society for Biochemistry and Molecular Biology, 2004-present
- Member, American Thoracic Society, 2012-present

# GRANTS AND CONTRACTS

## AWARDED

July 1, 2019 to June 30, 2020

### PUBLIC HEALTH SERVICE

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Alder, Jonathan	Mechanisms of Telomere-Mediated Lung Disease	NHLBI	\$273,471	\$113,535
Alder, Jonathan	Telomeres and Telomerase in Cancer	NCI/Johns Hopkins University	\$34,737	\$19,626
Bain, William	Mechanisms of Platelet Protection in Pathogen-Triggered Lung Injury	NHLBI	\$65,250	\$0
Barbash, Ian	Understanding Sepsis Policy Using the Electronic Health Record	AHRQ	\$137,002	\$10,900
Camiolo, Matthew J.	IL-18 Signaling and Lung Epithelial Cell Barrier Integrity in Severe Asthma	NHLBI	\$72,032	\$0
Chandra, Divay	Autoimmunity as a Mechanism for Atherosclerosis in COPD	NHLBI	\$153,489	\$12,160
Chen, Beibei	New Mechanisms for Modulating the MALT1 Oncoprotein	NCI	\$7,788	\$4,368
Chen, Kong	Epigenetic Regulation of Chemokines in Lung Inflammation	NHLBI	\$247,118	\$135,411
Chen, Kong	Role of Toll-like Receptor 9 in Fibroblastic Reticular Cell-based Therapy for Intra-abdominal Sepsis	NIAID	\$7,794	\$1,536
Corcoran, Timothy E.	Building Multilevel Models of Therapeutic Response in the Lungs	NHLBI	\$141,631	\$71,816
Evankovich, John	Toll-Like Receptor 8 Degradation by E3-Ligase RNF216 Regulates Inflammation in Acute Lung Injury	NHLBI	\$149,801	\$11,984
Field, Jessica M.	Autoimmunity and Emphysema and Risk of Osteoporosis in Smokers	NHLBI	\$228,225	\$123,242
Field, Jessica M.	Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC)	NHLBI	\$24,932	\$0
Gregory, Alyssa	Targeting Underlying Pathophysiological Mechanisms to Develop Novel Therapies for Chronic Obstructive Lung Disease	NHLBI	\$43,202	\$24,409
Kass, Daniel J.	Translational Studies for Identifying and Targeting Novel Pathways in Systemic Sclerosis Pathogenesis (Project 3)	NIAMS	\$134,937	\$76,240
Kass, Daniel J.	Idiopathic Pulmonary Fibrosis, a Disease Initiated by Mucociliary Dysfunction	NHLBI/University of Colorado	\$11,457	\$6,473
Kitsios, Georgios	Microbiome-Based Diagnosis of Pneumonia in the Acute Respiratory Distress Syndrome	NHLBI	\$149,490	\$11,792
Kliment, Corrine R.	The Role of Adenine Nucleotide Transocase in the Protection of Airway Epithelial Cells in Chronic Obstructive Pulmonary Disease (COPD)	NHLBI	\$150,088	\$12,007

## PUBLIC HEALTH SERVICE

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Lee, Janet S.	Mechanisms of Host Protection Against Pathogen-Secreted Proteases in Acute Lung Injury	NHLBI	\$253,407	\$142,142
Lee, Janet S.	Host Control Mechanisms Against K. Pneumoniae Infection in the Lungs	NHLBI	\$385,900	\$218,034
Lee, Janet S.	Omics, Mice and Men: Development of Precision Transfusion Medicine	NHLBI	\$11,067	\$6,253
Lee, Janet S.	The role of ACOD1 in immunomodulation in intrapulmonary Klebsiella pneumoniae infection	NHLBI	\$135,900	\$76,784
Lee, Janet S.	Patient-Oriented Research in Acute Lung Injury and Host Defense in the ICU	NHLBI	\$108,419	\$8,674
Lee, Janet S.	Pittsburgh Innovation in Collaborative Training of Residents Alliance	NHLBI	\$220,408	\$87,211
Lee, Janet S.	Understanding mechanisms of vaping-associated lung injury	NHLBI	\$181,131	\$100,644
Lee, Janet S.	Immunosuppression in Acute Lung Injury - Proj 4	NHLBI/Ohio State University	\$240,630	\$131,447
Lindell, Kathleen O.	Integrating Palliative Care for Patients with Idiopathic Pulmonary Fibrosis and their Caregivers	NINR	\$70,352	\$5,629
McDyer, John F.	Role of F-Box Proteins in Lung Transplantation	NHLBI	\$340,635	\$192,459
McDyer, John F.	Cadaveric Donor Lung and Bone Marrow Transplantation in Immunodeficiency Diseases	NIAID	\$213,808	\$120,802
McDyer, John F.	Long Term Follow up of the Lung Transplant Outcomes Group Cohort	NHLBI/University of Pennsylvania	\$39,676	\$22,417
McVerry, Bryan	Epigenetic Changes and Delirium After Intensive Care Unit Admission	NIA	\$4,035	\$2,280
McVerry, Bryan	Core B-Immunosuppression in acute lung injury	NHLBI/Ohio State University	\$165,721	\$93,632
Méthé, Barbara	Impact of Virome on Microbial Communities in the Respiratory Tract	NHLBI	\$21,304	\$12,002
Méthé, Barbara	Fecal Microbiota Transplant and Immune Checkpoint Blockade in Melanoma	NCI	\$11,972	\$6,764
Méthé, Barbara	Determination of Immunogenic Microbiota in the Lung: Leveraging the Lung HIV Microbiome Project	NHLBI	\$74,795	\$42,259
Méthé, Barbara	Impact of virome on microbial communities in the respiratory tract	NHLBI	\$11,990	\$6,774
Méthé, Barbara	Mechanisms of maternal Immunoglobulin A control over the neonatal microbiota and the development of Necrotizing Enterocolitis.	NIDDK	\$11,171	\$6,312
Morris, Alison	Vascular Subphenotypes of Lung Disease (Project 3)	NHLBI	\$199,065	\$71,800
Morris, Alison	Dysbiosis Impact on Lung Disease in HIV (Dimpl) Study – WIHS Admin Supplement	NHLBI	\$230,639	\$108,400
Morris, Alison	Dysbiosis Impact on Lung Disease in HIV (Dimpl) Study	NHLBI	\$326,043	\$127,890
Morris, Alison	Molecular Drivers of Vascular Stiffness and Metabolic Dysfunction in HIV-Induced Pulmonary Arterial Hypertension	NHLBI	\$2,379	\$1,345
Morris, Alison	Systems Biology of Diffusion Impairment in HIV	NHLBI	\$296,990	\$163,528
Morris, Alison	University of Pittsburgh MACS-WIHS Combined Cohort Study	NHLBI	\$48,049	\$27,148
Morris, Alison	University of Pittsburgh MACS/WIHS CCS- Supplement Funds from NHLBI	NHLBI	\$12,105	\$6,839

## PUBLIC HEALTH SERVICE

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Morris, Alison	Translational Training Program in Pulmonary Biology and Medicine	NHLBI	\$737,000	\$48,030
Morris, Alison	Pittsburgh HIV Mentored Training for Investigation of Co-morbidities and Cure (HIV MeTriCC)	NHLBI	\$384,439	\$14,961
Morris, Alison	Sphingolipids in HIV-associated Chronic Obstructive Pulmonary Disease	NHLBI/University of Minnesota	\$11,646	\$6,580
Myerburg, Michael M.	Exploring Stability of Influenza Viruses in Droplets and Aerosols	NIAID	\$14,049	\$7,938
Nourai, Seyed Mehdi	A Phase II Trial of Metformin for Pulmonary Hypertension in Heart Failure with Preserved Ejection Fraction	NIA	\$43,115	\$24,360
Nourai, Seyed Mehdi	Progressive Degenerative Role of Nox and Thrombospondin-1 in the Aging	NHLBI	\$4,765	\$2,692
Nourai, Seyed Mehdi	Leading Emerging and Diverse Scientists to Success (LEADS)	NIGMS	\$9,301	\$744
Nourai, Seyed Mehdi	Computational Repurposing of Chemotherapeutics for Pulmonary Hypertension	NCATS	\$9,347	\$5,281
Nyunoya, Toru	Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC)	NHLBI	\$22,078	\$11,923
Nyunoya, Toru	Role of TACC2 in smoking-induced COPD	NHLBI	\$236,525	\$133,636
O'Donnell, Christopher P.	Vascular Subphenotypes of Lung Disease	NHLBI	\$36,198	\$20,452
O'Donnell, Christopher P.	Myocardial Infarction and Mechanisms of Impaired Sleep and Breathing	NHLBI	\$250,000	\$141,250
O'Donnell, Christopher P.	Regulation of Fuel Utilization by Lysine Acetylation in the Failing Heart	NHLBI	\$24,145	\$13,642
O'Donnell, Christopher P.	Antidote for Inhaled CO Poisoning Based on Mutationally Engineered Neuroglobin	NHLBI	\$40,047	\$22,627
O'Donnell, Christopher P.	Cell-Type Specific Role of Circadian-Dependent Transcription in Fentanyl-Induced Synaptic and Behavioral Plasticity	NHLBI	\$24,211	\$13,679
O'Donnell, Christopher P.	Immunosuppression in Acute Lung Injury-Project 2	NHLBI/Ohio State University	\$5,237	\$2,959
Oriss, Timothy B.	Immune Airway-Epithelial Interactions in Steroid-Refractory Severe Asthma - Core B	NIAID	\$123,962	\$66,940
Patel, Sanjay R.	Mentored Patient Oriented Research in Sleep and Metabolic Disease	NHLBI	\$106,533	\$8,523
Patel, Sanjay R.	University of Pittsburgh Multicenter AIDS Cohort Study (MACS)	NIAID	\$5,944	\$3,348
Patel, Sanjay R.	Impact of Poor Sleep on Inflammation and the Adenosine Signaling Pathway in HIV Infection	NHLBI	\$225,041	\$121,301
Patel, Sanjay R.	The Effect of Reducing Sedentary Behavior on Sleep and Cardiovascular Health	NHLBI	\$9,803	\$5,539
Patel, Sanjay R.	Sleep and Cardiometabolic Health Disparities at US/Mexico Border: The Nogales Cardiometabolic health and Sleep (NoChES) Study	NIMHD/ University of Arizona	\$16,304	\$9,212
Patel, Sanjay R.	Sleep Apnea Treatment with Positive Airway Pressure for Prevention of Diabetes Mellitus	NIDDK/Johns Hopkins University	\$6,338	\$3,581
Patel, Sanjay R.	Impact of Low Flow Nocturnal Oxygen Therapy On Hospital Readmission/Mortality in Patients with Heart Failure and Central Sleep Apnea (LOFT-HF)	NHLBI/Ohio State University	\$49,961	\$14,989



## PUBLIC HEALTH SERVICE

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Patel, Sanjay R.	Sleep Reading and CPAP Monitoring Center (SCC) to support the Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network Trial of Continuous Positive Airway	NICHD/George Washington University	\$230,795	\$34,423
Ray, Anuradha	Immune Airway-Epithelial Interactions in Steroid-Refractory Severe Asthma	NIAID	\$123,725	\$52,887
Ray, Anuradha	Immune Airway-Epithelial Interactions in Steroid-Refractory Severe Asthma - Core A	NIAID	\$30,392	\$13,773
Ray, Anuradha	Mechanisms of Antigen-Induced Tolerance in the Lung	NIAID	\$233,851	\$123,815
Ray, Anuradha	Understanding Severe Asthma Using an Experimental Model	NHLBI	\$296,865	\$167,729
Ray, Anuradha	Protein-Oxidized Phospholipid Interactions Determine Epithelial Cell Fate and Asthma Control	NIAID	\$98,538	\$55,699
Ray, Prabir	Immunosuppression in Acute Lung Injury-Project 2	NHLBI/Ohio State University	\$27,538	\$15,559
Ray, Prabir	Proj 3 - Immunosuppression in Acute Lung Injury	NHLBI/Ohio State University	\$414,891	\$234,412
Reddy, Raju	PPAR-delta as a Novel Therapeutic Target in Asthma	NIAID	\$249,315	\$140,863
Reddy, Raju	Airway epithelial Cell Farnesoid X Receptor in COPD Pathophysiology	NHLBI	\$249,315	\$140,863
Robinson, Keven	The Role of IL-33 During Influenza and Staphylococcus Aureus Co-Infection	NHLBI	\$147,595	\$11,871
Rojas, Mauricio	Aging of Mesenchymal Stem Cells Missing Link in IPF	NHLBI	\$272,333	\$147,060
Rojas, Mauricio	The Anti-Aging Role of Klotho in Skeletal Muscle Regeneration	NIA	\$27,669	\$15,633
Rojas, Mauricio	Translational Studies for Identifying and Targeting Novel Pathways in Systemic Sclerosis Pathogenesis (Lung Tissue)	NIAMS	\$83,360	\$47,098
Rojas, Mauricio	Mapping Age-Related Changes in the Lung	NHLBI	\$202,400	\$114,356
Rojas, Mauricio	Role of Skeletal Muscle in Pulmonary Vascular Remodeling	NHLBI/Indiana University	\$11,118	\$6,282
Rojas, Raul	GATA6 in pulmonary arterial hypertension	NHLBI/Boston University	\$9,527	\$5,383
Rosborough, Brian	Immune mechanisms of acute respiratory distress syndrome	NHLBI	\$69,306	\$0
Rose, Jason J.	Discovering and Developing Recombinant Molecular Scavenging Agents for the Treatment of Carbon Monoxide Induced Cardiovascular Dysfunction	NHLBI	\$149,489	\$11,863
Scirba, Frank C.	Vascular Subphenotypes of Lung Disease (Project 1)	NHLBI	\$12,066	\$6,817
Scirba, Frank C.	An Integrative Radiogenomic Approach to Design Genetically-Informed Image Biomarker for Characterizing COPD	NHLBI	\$12,073	\$6,821
Scirba, Frank C.	Lung Transplant Go (LTGO): Improving Self-Management of Exercise after Lung Transplantation	NINR	\$15,167	\$8,569
Scirba, Frank C.	A Phase II Trial of Metformin for Pulmonary Hypertension in Heart Failure with Preserved Ejection Fraction	NIA	\$13,638	\$7,705
Scirba, Frank C.	Systems Level Causal Discovery in Heterogeneous TOPMed Data	NHLBI	\$90,193	\$50,959

## PUBLIC HEALTH SERVICE

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Scurba, Frank C.	Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC)	NHLBI	\$156,902	\$84,727
Scurba, Frank C.	Genetic Epidemiology of COPD	NHLBI/National Jewish Health	\$62,232	\$31,738
Shah, Faraaz Ali	Metabolic Effects of Early Nutritional Support in Sepsis: A Translational Investigation	NIGMS	\$148,411	\$10,513
Strollo, Patrick J.	Pragmatic Trial of Behavioral Interventions for Insomnia in Hypertensive Patients	NHLBI	\$4,536	\$2,449
Sullivan, Daniel	The role of the epithelial-derived chemokine, CXCL12, in Idiopathic Pulmonary Fibrosis	NHLBI	\$75,930	\$0
Weathington, Nathan M.	Cellular Regulation of the IL-22 Receptor and its Importance in Lung Immunity	NHLBI	\$147,982	\$11,822
Weathington, Nathan M.	Derangement of Alveolar Macrophage Immunometabolism by Prolonged Beta Agonist Therapy: Implications for Host Defense and Tissue Health	NHLBI	\$49,863	\$25,340
Weathington, Nathan M.	Macrophage Immunometabolism Alteration by Intense Beta Agonist Therapy	NHLBI	\$309,165	\$156,760
Wenzel, Sally E.	Immune Airway-Epithelial Interactions in Steroid-Refractory Severe Asthma - Project 2	NIAID	\$134,405	\$60,283
Wenzel, Sally E.	SPLUNC1 in Severe Asthma	NHLBI	\$40,032	\$10,818
Wenzel, Sally E.	Improving Asthma Control using Internet-Based Cognitive-Behavioral Treatment for Insomnia	NHLBI	\$21,396	\$120,888
Wenzel, Sally E.	Immune Mediators of IL-22 Signaling Alter Allergic Airway Disease	NHLBI	\$12,736	\$7,196
Wenzel, Sally E.	Type-2 or Not Type-2: That is the (Therapeutic) Question	NHLBI	\$313,890	\$100,903
Wenzel, Sally E.	Immunometabolic phenotypes in adult severe asthma and disease progression	NHLBI/Brigham and Women's Hospital, Inc.	\$36,427	\$20,581
Wenzel, Sally E.	Severe Asthma Research Program (Supplemental SARP)	NHLBI/Penn State	\$72,752	\$20,371
Wilson, David	Molecular Profiles of Smokers with Subclinical Interstitial Lung Disease	NHLBI/Brigham and Women's Hospital, Inc.	\$70,410	\$39,723
Zemke, Anna	Nebulized Nitrite as a Novel Antimicrobial Therapy in Cystic Fibrosis	NHLBI	\$152,381	\$12,191
Zhang, Yingze	Vascular Subphenotypes of Lung Disease (Core D)	NHLBI	\$76,479	\$43,210
Zhang, Yingze	Neuro-Vascular Determinants of Cognition in Adults with Sickle Cell Disease	NHLBI	\$1,931	\$1,043
Zhang, Yingze	A Phase II Trial of Metformin for Pulmonary Hypertension in Heart Failure with Preserved Ejection Fraction	NIA	\$8,910	\$5,040
Zhang, Yingze	A Novel Approach to Reverse the Ineffectiveness of Relaxin-Based Anti-Fibrotic Therapy in SSC	NIAMS	\$118,500	\$66,953
Zou, Chunbin	Epigenetic Regulation in Acute Lung Injury	NHLBI	\$122,164	\$65,969
Zou, Chunbin	Epigenetic Modulation in Septic Immunosuppression	NHLBI	\$294,483	\$166,383
<b>TOTAL PUBLIC HEALTH SERVICE</b>			<b>\$13,549,102</b>	<b>\$5,614,493</b>

## VETERANS ADMINISTRATION

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Nyunoya, Toru	IPA - Xiuying Li	VAMC	\$46,958	\$0
Nyunoya, Toru	IPA Chunbin Zou	VAPHS	\$83,718	\$0
<b>TOTAL VETERANS ADMINISTRATION</b>			<b>\$130,676</b>	<b>\$0</b>

## OTHER FEDERAL

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Barbash, Ian	Robust emergency critical care telemedicine system for military and civilian use	ARMY	\$1,545	\$873
Methé, Barbara	CAREER: Microbial contributions to host phenotypic flexibility	NSF	\$20,325	\$11,484
Rojas, Mauricio	Combination of Extracorporeal Life Support and Mesenchymal Stem Cell Therapy for Treatment of ARDS in Combat Casualties and Evacuation of Service Members with ARDS	ARMY	\$677,489	\$165,524
Scurba, Frank C.	Beta-Blockers for the Prevention of Acute Exacerbations of COPD	DOD/University of Alabama at Birmingham	\$24,585	\$13,891
<b>TOTAL OTHER FEDERAL</b>			<b>\$723,944</b>	<b>\$191,772</b>

## SOCIETY AND FOUNDATIONS

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Chen, Kong	Pitt CF Research Development Program	Cystic Fibrosis Foundation	\$27,589	\$0
Corcoran, Timothy E.	UHN Amphotericin Study	University Health Network	\$17,028	\$10,472
Gauthier, Marc	he CXCL10-CXCR3 Axis in the Pathogenesis of Steroid-Refractory Severe Asthma	Parker B. Francis Foundation	\$50,000	\$0
Gregory, Alyssa	Neutrophil Regulation of Insulin/IG-Mediated Cellular Senescence in COPD	Flight Attendants Medical Research Institute	\$99,726	\$8,477
Gregory, Alyssa	Neutrophil Elastase and Aging	Aging Institute of UPMC	\$349,020	\$0
Kass, Daniel J.	Pulmonary Fibrosis Foundation Biomarker and/or Patient Registry Protocols	Pulmonary Fibrosis Foundation/ University of Michigan	\$9,503	\$2,661
Kass, Daniel J.	The Genome and Microbiome Repository Project	UPMC Enterprises	\$2,324	\$0
Kliment, Corrine R.	Role of Adenine Nucleotide Translocase in Chronic Obstructive Pulmonary Disease	Parker B. Francis Foundation	\$47,571	\$0
McDyer, John F.	LUNG-BMT INITIATIVE	UPMC Enterprises	\$307,370	\$0

## SOCIETY AND FOUNDATIONS

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
McDyer, John F.	Molecular and Clinical Endotypes in Chronic Lung Allograft Dysfunction	Cystic Fibrosis Foundation	\$81,845	\$6,548
McDyer, John F.	Microbiome and Host Response of CLAD in CF patients	University of Pennsylvania	\$58,446	\$4,676
McDyer, John F.	Assessing the Safety and Efficacy of anti-SARS-COV2 Plasma in Patients with Moderate to Severe Respiratory Failure due to COVID-19	DSF Charitable Foundation	\$100,000	\$0
McVerry, Bryan	The Genome and Microbiome Repository Project	UPMC Enterprises	\$3,917	\$0
Méthé, Barbara	Strategies to Promote Resiliency	University of Pittsburgh Medical Center	\$0	\$0
Méthé, Barbara	Strategies to Promote Resiliency	University of Pittsburgh Medical Center	\$8,669	\$0
Méthé, Barbara	Feasibility of Studying Microbiome in Frozen Saliva and Formalin-Fixed Colon in PD Using Systemic Synuclein Sampling Study (S4) Samples	Michael J. Fox Foundation	\$2,413	\$604
Méthé, Barbara	An integrated platform for investigating metformin-derived alterations of the microbial metabolome to improve healthy aging	UPMC Enterprises	\$326,820	\$0
Méthé, Barbara	Artificial Intelligence (AI) in Gut Microbiome	University of Pittsburgh Medical Center	\$151,843	\$96,922
Morrell, Matthew	Lung Transplant Consortium	Cystic Fibrosis Foundation/ Therapeutics, Inc.	\$100,745	\$8,060
Morrell, Matthew	CFF Lung Transplant Consortium	Cystic Fibrosis Foundation/ Therapeutics, Inc.	\$129,644	\$15,557
Morrell, Matthew	Cystic Fibrosis Lung Transplant Transition - Regional Dissemination Network	Cystic Fibrosis Foundation/ Dartmouth College	\$8,975	\$718
Morris, Alison	The Genome and Microbiome Repository Project	UPMC Enterprises	\$874,561	\$0
Morris, Alison	Healthcare Worker Exposure Response and Outcomes of Hydroxychloroquine Trial (HERO-HCQ Trial)	PCORnet/Duke Clinical Research Institute	\$102,373	\$799
Myerburg, Michael M.	The role of RAGE in mucus production in cystic fibrosis	Cystic Fibrosis Foundation	\$10,116	\$810
Myerburg, Michael M.	Pitt CF Research Development Program	Cystic Fibrosis Foundation	\$140,376	\$0
Nyunoya, Toru	Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC)(RETHINC) Network Management Core (NEMO) for the Pulmonary Trials Cooperative (PTC)	COPD Foundation	\$11,628	\$0
Nyunoya, Toru	Molecular mechanisms underlying smoking-induced emphysema	American Heart Association	\$90,660	\$9,066
Olonisakin, Tolani	Investigating the Role of Thrombospondin-1 in Platelet-Mediated Protection during Pseudomonas Aeruginosa-Induced Injury	American Heart Association	\$26,770	\$0
Pilewski, Joseph M.	Pitt CF Research Development Program	Cystic Fibrosis Foundation	\$84,299	\$0



## SOCIETY AND FOUNDATIONS

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Pilewski, Joseph M.	Cystic Fibrosis Lung Transplant Transition - Regional Dissemination Network	Cystic Fibrosis Foundation/Dartmouth College	\$12,698	\$1,016
Pilewski, Joseph M.	Measuring and Improving Coproduction Using coopeRATE: A Before-and-After Study in Adult Cystic Fibrosis Care	Cystic Fibrosis Foundation/Dartmouth College	\$6,667	\$533
Pilewski, Joseph M.	Inhaled Sodium Nitrate as a New Antibacterial Therapy for Cystic Fibrosis	Cystic Fibrosis Foundation	\$98,862	\$6,470
Pilewski, Joseph M.	Translational Therapeutic Development Center	Cystic Fibrosis Foundation	\$8,697	\$696
Reddy, Raju	Novel Nrf2 Activators for Lung Disease	UPMC Enterprises	\$133,090	\$81,850
Reddy, Raju	Peroxisome Proliferator-activated Receptor Delta as a Therapeutic Target in Smoke-exacerbated Rhinosinusitis	Flight Attendants Medical Research Institute	\$99,726	\$8,477
Rose, Jason J.	Developing an Antidotal Therapy for Carbon Monoxide Poisoning	Parker B. Francis Foundation	\$50,000	\$0
Sciurba, Frank C.	Longitudinal Follow-up to Genetic Epidemiology of COPD	COPD Foundation	\$3,685	\$0
Sciurba, Frank C.	The Genome and Microbiome Repository Project	UPMC Enterprises	\$2,398	\$0
Sciurba, Frank C.	Study of Humidified Air to Improve Mucociliary Clearance (MCC) in COPD	Fisher & Paykel Healthcare	\$123,807	\$30,952
Sciurba, Frank C.	FeNO Study	COPD Foundation	\$6,258	\$0
Sciurba, Frank C.	Roflumilast or Azithromycin to prevent COPD Exacerbations (RELIANCE) Phase 2	PCORI/University of Illinois	\$153,276	\$61,311
Snyder, Mark	The Impact of T Cell Chimerism on Rejection Following Lung Transplantation	Parker B. Francis Foundation	\$25,929	\$0
Suber, Tomeka	Regulation of GSK3beta Degradation and its Role in Acute Lung Injury	Burroughs Wellcome Fund	\$20,000	\$0
Suber, Tomeka	A Role for Itaconate in Host Defense Against Klebsiella Pneumoniae Infection	Samuel and Emma Winters Foundation	\$10,842	\$0
Weathington, Nathan M.	Developing Novel inhibitors of the E3 ligase CHIP to stabilize CFTR mutants	Cystic Fibrosis Foundation	\$39,890	\$3,191
Wenzel, Sally E.	The Genome and Microbiome Repository Project	UPMC Enterprises	\$11,839	\$0
Zemke, Anna	Clinical and microbiological assessment of CFTR modulators on CF Sinus Disease	Cystic Fibrosis Foundation	\$198,380	\$10,166
Zemke, Anna	Nitrite Dispersal of Pseudomonas Aeruginosa Biotic Biofilms	Cystic Fibrosis Foundation	\$40,766	\$0
Zhang, Yingze	Standard vs Ultrasound-assisted Catheter Thrombolysis for Submassive Pulmonary Embolism (SUNSET sPE)	American Venous Forum Foundation	\$21,377	\$0
Zhang, Yingze	CFF Lung Transplant Consortium	Cystic Fibrosis Foundation Therapeutics, Inc.	\$23,185	\$2,782
<b>TOTAL SOCIETY AND FOUNDATIONS</b>			<b>\$4,315,608</b>	<b>\$372,815</b>

## INDUSTRY

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Donahoe, Michael P.	Data Management Support for Research Projects	Bayer Corporation	\$57,518	\$14,379
Kitsios, Georgios	Rapid Etiologic Diagnosis of Severe Pneumonia with Plasma cfDNA Sequencing	Karius, Inc.	\$16,621	\$0
McDyer, John F.	Combination Therapy with the Proteasome Inhibitor Carfilzomib for the Antibody-Mediated Rejection Diagnosis in Lung Transplantation Trial (PICARD-Lung)	ONYX Pharmaceuticals, Inc.	\$101,768	\$24,722
McVerry, Bryan	Acute Respiratory Distress Syndrome Real World Evidence Analysis	Bayer Corporation	\$26,151	\$16,083
Morrell, Matthew	Extracorporeal Photopheresis for the Management of Progressive Bronchiolitis Obliterans Syndrome in Medicare-Eligible Recipients of Lung Allografts	Mallinckrodt/Washington University	\$5,897	\$0
Morris, Alison	Microbiome And Procalcitonin Long term outcomes Epidemiology (MAPLE)	BRAHMS GmbH	\$22,627	\$5,656
Nouraie, Seyed Mehdi	Novel Mechanisms and Biomarkers of COPD/Emphysema	Glaxo, Inc.	\$6,507	\$1,671
Patel, Sanjay R.	Real world care of OSA	Bayer Corporation	\$26,151	\$16,083
Patel, Sanjay R.	Encore Retrospective Review on Sleep Disorder Breathing Users	Respironics	\$15,392	\$9,470
Patel, Sanjay R.	Central Sleep Apnea and Cardiovascular Risk	Respicardia	\$29,404	\$18,083
Ray, Anuradha	Mining of a comprehensive, proprietary asthma patient data set for new target identification	Pieris Pharmaceuticals, Inc.	\$237,422	\$146,015
Risbano, Michael G.	Uric Acid Levels After Phosphodiesterase-5 Inhibition Predict Improved Outcome in Pulmonary Arterial Hypertension	United Therapeutics Corp.	\$7,999	\$800
Rojas, Mauricio	Evaluation of the Role of Gremlin 1, Activin A and PDGFRB in Pulmonary Hypertension	Regeneron Pharmaceuticals, Inc.	\$51,072	\$12,738
Rojas, Mauricio	Understand Unique and Overlapping Pathobiology between SSc ILD and IPF Lung Tissue	Genentech, Inc.	\$8,758	\$5,366
Rojas, Mauricio	Develop a translational model for COPD disease in organoid	MedImmune, Inc.	\$24,856	\$15,287
Rojas, Mauricio	Function of the MUC5B promoter variant in IPF lung tissue	Eleven P15, Inc.	\$93,272	\$57,362
Rojas, Mauricio	Telomeres, Senescence, and Metabolism in AEC2	MedImmune, Inc.	\$65,560	\$40,320
Rojas, Mauricio	Telomeres, Senescence, and Metabolism in AEC2	MedImmune, Inc.	\$26,522	\$16,311
Rojas, Mauricio	Senescence and the validation of new therapeutic concepts for lung fibrosis	Boehringer Pharmaceuticals	\$383,887	\$236,090
Sciurba, Frank C.	Microbiome Analysis as a Baseline Predictor of Clinical Response and Change in Microbiome as a Mechanistic Outcome Measure Following Bilateral Bronchial Mucosal Electroporation Therapy	Gala Therapeutics	\$56,562	\$16,969
Semaan, Roy W.	Multicenter, Prospective Trial of Electromagnetic Bronchoscopic and Electromagnetic Transthoracic Approaches for the Biopsy of Peripheral Pulmonary Nodules	Veran Medical Technologies, Inc.	\$34,697	\$7,904
Zhang, Yingze	N-Terminal-pro-BNP in a Large COPD Cohort: A Potential Biomarker for Pulmonary Artery Hypertension Sub-Phenotype	Roche Pharmaceuticals	\$4,235	\$1,270
Zhang, Yingze	N-Terminal-pro-BNP in Advanced Lung Diseases: A Potential Biomarker for Pulmonary Artery Hypertension Sub-Phenotype	Roche Diagnostics	\$5,735	\$1,721

## INDUSTRY

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Zhang, Yingze	Riociguat Study in SCD	Bayer Corporation	\$18,907	\$4,727
<b>TOTAL INDUSTRY</b>			<b>\$1,327,520</b>	<b>\$669,026</b>

<b>PUBLIC HEALTH SERVICE</b>	<b>\$13,549,102</b>	<b>\$5,614,493</b>
<b>FEDERAL</b>	<b>\$723,944</b>	<b>\$191,772</b>
<b>VETERANS ADMINISTRATION</b>	<b>\$130,676</b>	<b>\$0</b>
<b>SOCIETY AND FOUNDATIONS</b>	<b>\$4,315,608</b>	<b>\$372,815</b>
<b>INDUSTRY</b>	<b>\$1,327,520</b>	<b>\$669,026</b>
<b>TOTAL</b>	<b>\$20,046,849</b>	<b>\$6,848,105</b>

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## TEACHING ACTIVITIES

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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 as well as several F32 awards, for the career development of young investigators. Other teaching activities include weekly, quarterly, and annual conferences, including Pulmonary Grand Rounds, the PACCM Collaborative Research Seminar, Journal Club, and 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 a 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 researcher 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 2019 in Barcelona 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.

During this past year, the **Simmons Center** held the 15th Annual Golf Outing was held August 19, 2019. This event invites patients to golf for free, and if they're not golfers, 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. The 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. In January 2019, we changed the focus for our patient support group from Idiopathic Pulmonary Fibrosis to Pulmonary Fibrosis, to increase access for other patients with scarring lung diseases. In addition, the Simmons Center hosted an all-day PF Education Event for patients, caregivers, and medical team providers who care for these patients on Saturday, September 7, 2019.



Our annual Research Retreat was held in Seven Springs, PA in February 2020. Our featured guest was Dr. Nadia Hansel, Division Chief of Pulmonary & Critical Care Medicine and Associate Dean of Research at Johns Hopkins University School of Medicine. Dr. Hansel's presentation, "The Joy of Medicine: Finding Your Path," provided insight of her own personal journey as a physician scientist, leading to her current research. She also held a roundtable discussion 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.

The **Annual Robert M. Rogers Memorial Lectureship** was held virtually on Friday, June 19, 2020. Patty Lee, MD, Professor of Medicine, Pathology, & Cell Biology and Division Chief of Pulmonary and Critical Care Medicine at Duke University Medical Center was chosen to be this year's special guest speaker. Dr. Lee presented the lecture "Healing Breath" for this annual event. Following the lecture, we recognized the following recipients of the 2020 PACCM Awards:

- The Outstanding Mentorship Award was given to **Seyed Nourai, MD, PhD**.
- **Stephanie Maximous, MD** received the John W. Kreit Outstanding Educator Award.
- **Kathleen Lindell, PhD, RN** received the Lorenzetty Outstanding Nursing Award.
- The Bernie Pennock Outstanding Young Investigator Award was given to **Marc Gauthier, MD**.
- The Robert M. Rogers Outstanding Scholarly Achievement Award was given to both **Eleanor Valenzi, MD**, and **Matthew Camiolo, MD, PhD**.
- **Charles Atwood, MD**, received the inaugural Outstanding Sleep Educator award.
- And, **Michael Donahoe, MD**, was the recipient of the PACCM Legacy Award, in recognition of a PACCM faculty member who has dedicated his life to patient advocacy and care, as well as to the education of future fellows and faculty.

In addition, Brittany Manning received the Outstanding Administration Service Award; the Outstanding Technical Service Award was given to the Mark Miko, our BST Housekeeper, and the Outstanding Clinical Service Award was received by Yvonne Lucas, CRT, RRT in recognition of an outstanding staff member or group who significantly contributes to the clinical program within the Division.



## Clinical Fellows

\* Indicates departing fellow

### \*Megan Acho, MD

*Medical School:* New York University School of Medicine  
*Residency:* Icahn School of Medicine, Mount Sinai Hospital  
*Current Position:* Sleep Fellow, UPMC

### Priya Borker, MD

*Medical School:* Case Western Reserve University, School of Medicine  
*Residency:* Beth Israel Deaconess Medical Center

### \*Kimberly DeMerle, MD

*Medical School:* Wayne State University School of Medicine  
*Residency:* University of Michigan  
*Current Position:* T32 Postdoctoral Scholar, University of Pittsburgh

### Christopher Franz, MD

*Medical School:* New York Medical College  
*Residency:* Icahn School of Medicine, Mount Sinai Hospital

### Matthew Gorgone, DO

*Medical School:* Lake Erie College of Osteopathic Medicine  
*Residency:* University of Rochester

### Jason Green, DO

*Medical School:* West Virginia School of Osteopathic Medicine  
*Residency:* SUNY Downstate

**\*Sarah Kiel, MD**

*Medical School:* Michigan State University College of Human Medicine

*Residency:* University of Minnesota Medical Center

*Current Position:* Assistant Professor, University of Minnesota

**Ioannis Konstantinidis, MD**

*Medical School:* Icahn School of Medicine at Mount Sinai

*Residency:* Icahn School of Medicine, Mount Sinai Hospital

**Bowa Lee, MD**

*Medical School:* Wake Forest School of Medicine

*Residency:* Indiana University

**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

**\*Jennifer Newitt, MD Sleep**

*Medical School:* Albany Medical College

*Residency:* Indiana University School of Medicine

*Current Position:* T32 Postdoctoral Scholar, University of Pittsburgh

**Rachel Powell, MD**

*Medical School:* Emory University

*Residency:* University of Michigan

**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

*Current Position:* T32 Postdoctoral Scholar, University of Pittsburgh

**\*Deepti Singhvi, MD**

*Medical School:* Northwestern University Feinberg School of Medicine

*Residency:* McGaw Medical Center of Northwestern University

*Current Position:* Private Practice, Michigan

**\*Daniel Sullivan, MD**

*Medical School:* University of Alabama School of Medicine

*Residency:* University of Texas Southwestern Medical School

*Current Position:* F32 Postdoctoral Scholar, University of Pittsburgh

### **Perry Tiberio, MD, PhD**

*Medical School:* SUNY Downstate Medical Center

*Residency:* Yale University

### **Georgios Triantafyllou, MD**

*Medical School:* Aristotle University of Thessaloniki Medical School

*Residency:* UPMC

### **Richard Zou, MD**

*Medical School:* University of Pittsburgh

*Residency:* UPMC

### **\*Jill Zupetic, MD**

*Medical School:* University of Pittsburgh School of Medicine

*Residency:* University of Pittsburgh Medical Center

*Current Position:* F32 Postdoctoral Scholar, University of Pittsburgh

## **Clinical Fellow Activities**

### **Megan Acho, MD**

#### *Presentations and Abstracts*

- Does Teamwork Make the Dream Work? The Impact of Confidence and Competence on The Collective Intelligence of Learners Enrolled in A Course on Mechanical Ventilation, American Thoracic Society Annual Meeting, Philadelphia, PA, May 2020.
- The Impact of Dedicated Mechanical Ventilation Education on Adherence to Lung Protective Ventilation Strategies, American Thoracic Society Annual Meeting, Philadelphia, PA, May 2020.
- A Pain in the Neck: An Atypical Presentation of Squamous Cell Carcinoma in Double-Lung Transplant, American Thoracic Society Annual Meeting, Philadelphia, PA, May 2020.

#### *Honors and Awards*

- PittMed Professionalism Accolade, University of Pittsburgh School of Medicine, January 2020.

### **Priya Borker, MD**

#### *Publications*

- Scammell TE, Luo G, **Borker P**, Sullivan L, Biddle K, Mignot E. Treatment of narcolepsy with natalizumab. *Sleep*. 2020 Jul 13;43(7):zsaa050.

#### *Presentations and Abstracts*

- Patient Preference for CPAP Initiation Strategies, Annual Sleep and Circadian Science Research Day, Pittsburgh, PA, November 2019.
- Association Between Poor Sleep and Subclinical Atherosclerosis in People Living with HIV Infection., American Thoracic Society, Philadelphia, PA, May 2020.
- Patient Preferences on Initiating Treatment with Continuous Positive Airway Pressure, Annual Meeting of the Associated Professional Sleep Societies, Philadelphia, PA, June 2020.

### **Kimberly DeMerle, MD T32 Scholar**



### **Mentor: Christopher Seymour, MD**

Dr. Demerle's research focuses on sepsis phenotyping using clinical and biomarker data in the ProCESS randomized trial.

#### **Publications**

- **DeMerle KM**, Rudd KE. The Quick Sepsis-related Organ Failure Assessment Score in Brazil: Insights for Future Use in Diverse Settings. *Am J Respir Crit Care Med.* 2020 Apr 1;201(7):755-756.

#### **Presentations and Abstracts**

- Prospective validation of clinical sepsis phenotypes, International Symposium on Intensive Care and Emergency Medicine, Brussels, Belgium, March 2020.
- Prospective validation of clinical sepsis phenotypes, Department of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2020.

### **Christopher Franz, MD T32 Scholar**

**Mentors: Bryan McVerry, MD, and Georgios Kitsios, MD, PhD**

Dr. Franz's research is to study the ICU gut microbiome in the Acute Lung Injury Registry and its effect on disease pathogenesis and clinical outcomes.

#### **Presentations and Abstracts**

- Acute Brain Dysfunction, Host Inflammation, and Gut Dysbiosis During Critical Illness: A Prospective Cohort Study in Mechanically Ventilated Adults, Department of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2020.
- Acute Brain Dysfunction, Host Inflammation, and Gut Dysbiosis During Critical Illness: A Prospective Cohort Study in Mechanically Ventilated Adults, American Thoracic Society International Conference, Philadelphia, PA, May 2020.

### **Matthew Gorgone, MD**

#### **Publications**

- Portuguese AJ, Rothberg A, **Gorgone M**, Strawderman M, Jacob C. Safety of bedside lumbar puncture in adult patients with thrombocytopenia. *Ann Hematol.* 2020 Aug;99(8):1755-1762. Epub 2020 Jun 20.

### **Gavin Harris, MD**

#### **Publications**

- **Harris GH**, Baldisseri MR, Reynolds BR, Orsino AS, Sackrowitz R, Bishop JM. Design for Implementation of a System-Level ICU Pandemic Surge Staffing Plan. *Crit Care Explor.* 2020 Jun 15;2(6):e0136

#### **Presentations and Abstracts**

- The Impact of the 2017-2018 Influenza Season on Acute Care Hospitals in the United States: A Qualitative Evaluation of Immediate Responses and Future Preparedness, ID Week 2019, Washington, DC, October 2019.

### **Sarah Kiel, MD**

#### **Publications**

- Morrell MR, **Kiel SC**, Pilewski JM. Organ Transplantation for Cystic Fibrosis. *Semin Respir Crit Care Med.* 2019 Dec;40(6):842-856.

#### **Presentations and Abstracts**

- ECMO Bridges for CF: To Recovery, Transplant, or Decision?, North American Cystic Fibrosis Conference, Nashville, TN, October 2019.

- Breast Behaving Badly: PTLD Masquerading as Inflammatory Breast Cancer After Lung Transplant, International Society for Heart and Lung Transplantation Conference, Montreal, April 2020.
- Association Between Incidence of Chronic Lung Allograft Dysfunction and MRSA Colonization in Lung Transplantation for Cystic Fibrosis, International Society for Heart and Lung Transplantation Conference, Montreal, April 2020.

### **Ioannis Konstantinidis, MD T32 Scholar**

*Mentor: Alison Morris, MD, MS*

Dr. Konstantinidis is investigating whether HIV is associated with worse pulmonary function.

#### **Publications**

- Lunney M, Ruospo M, Natale P, Quinn RR, Ronksley PE, **Konstantinidis I**, Palmer SC, Tonelli M, Strippoli GF, Ravani P. Pharmacological interventions for heart failure in people with chronic kidney disease. *Cochrane Database Syst Rev.* 2020 Feb 27;2(2):CD012466.

#### **Presentations and Abstracts**

- Trajectories of Pulmonary Function in the Multicenter AIDS Cohort Study: A Latent-class Group Analysis, Department of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2020.
- Trajectories of Pulmonary Function in the Multicenter AIDS Cohort Study: A Latent-class Group Analysis, American Thoracic Society International Conference, Philadelphia, PA, May 2020.

### **Taylor Lincoln, MD**

#### **Publications**

- **Lincoln T**, Shields AM, Buddadhumaruk P, Chang CH, Pike F, Chen H, Brown E, Kozar V, Pidro C, Kahn JM, Darby JM, Martin S, Angus DC, Arnold RM, White DB. Protocol for a randomised trial of an interprofessional team-delivered intervention to support surrogate decision-makers in ICUs. *BMJ Open.* 2020 Mar 29;10(3):e033521.

### **Kevin Misner, MD, MS**

#### **Publications**

- Misner K, Kass DJ. A Plot TWIST in Pulmonary Arterial Hypertension. *Am J Respir Crit Care Med.* 2020 Jul 30. Epub ahead of print.

### **Kaveh Moghbeli, MD**

#### **Publications**

- Bain W, Li H, van der Geest R, Moore SR, Olonisakin TF, Ahn B, Papke E, **Moghbeli K**, DeSensi R, Rapport S, Saul M, Hulver M, Xiong Z, Mallampalli RK, Ray P, Morris A, Ma L, Doi Y, Zhang Y, Kitsios GD, Kulkarni HS, McVerry BJ, Ferreira VP, Nouraie M, Lee JS. Increased Alternative Complement Pathway Function and Improved Survival during Critical Illness. *Am J Respir Crit Care Med.* 2020 Jul 15;202(2):230-240

#### **Presentations and Abstracts**

- Increased Transcription of Proximal Alternative Complement Pathway Regulators is Associated with Improved Survival in Critical Illness, American Thoracic Society Annual Meeting, Philadelphia, PA, May 2020.

### **Niall Prendergast, MD T32 Scholar**

*Mentor: Timothy Girard, MD, MSCI*

Dr. Prendergast's research focuses on delirium during and long-term cognitive outcomes after

critical illness.

#### **Publications**

- **Prendergast NT**, Girard TD. On the Road to a Delirium Assay. Crit Care Med. 2020 Mar;48(3):431-432.

#### **Presentations and Abstracts**

- Treatment of Agitated Delirium at an Academic Medical Consortium: Wide Variation and Little Confidence in Practice, Department of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2020.
- Physician Perceptions Regarding Agitation During Mechanical Ventilation: Variation and Confidence in Treatments, American Thoracic Society International Conference, Philadelphia, PA, May 2020.

### **Brian Rosborough, MD, PhD T32 Scholar**

**Mentors: Prabir Ray, PhD, and Anuradha Ray, PhD**

Dr. Rosborough is studying the single cell RNA sequencing and spectral flow cytometry to study the ARDS response in ICU patients with pneumonia.

#### **Publications**

- Jiang Y, **Rosborough BR**, Chen J, Das S, Kitsios GD, McVerry BJ, Mallampalli RK, Lee JS, Ray A, Chen W, Ray P. Single cell RNA sequencing identifies an early monocyte gene signature in acute respiratory distress syndrome. JCI Insight. 2020 Jul 9;5(13):e135678.

#### **Presentations and Abstracts**

- Single cell RNA sequencing identifies type I interferon signaling and reduced SOCS3 expression in monocytes of ARDS patients, Department of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2020.
- Single cell RNA sequencing identifies type I interferon signaling and reduced SOCS3 expression in monocytes of ARDS patients, American Thoracic International Society, Philadelphia, PA, May 2020.

### **Deepti Singhvi, MD**

#### **Publications**

- **Singhvi D**, Bon J, Morris A. Obstructive Lung Disease in HIV-Phenotypes and Pathogenesis. Curr HIV/AIDS Rep. 2019 Aug;16(4):359-369.

#### **Presentations and Abstracts**

- Influence of Smoking on Intestinal Microbiota Composition and Permeability in COPD, American Thoracic Society Annual Meeting, Philadelphia, PA, May 2020.
- Relationship Between 1,3-beta-D-glucan Levels and Pulmonary Function in COPD, American Thoracic Society Annual Meeting, Philadelphia, PA, May 2020.

### **Daniel Sullivan, MD T32 Scholar**

**Mentor: Jonathan 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.

#### **Publications**

- Jiang M, Roth MG, Chun-On P, **Sullivan DI**, Alder JK. Phenotypic Diversity Caused by Differential Expression of SFTPC-Cre-Transgenic Alleles. Am J Respir Cell Mol Biol. 2020 Jun;62(6):692-698.

#### **Presentations and Abstracts**

- Development of a Human In Vitro Model of Lung Epithelial Senescence Highlights

the Cell-Type Specific Response to Telomere Dysfunction, International Workshop on Translational Research for Precision Respiratory Medicine, Barcelona, Spain, November 2019.

- Transcriptional and Proteomic Analysis of a Human In Vitro Model of Lung Epithelial Senescence, Department of Medicine Research Day, University of Pittsburgh, Pittsburgh, PA, April 2020.
- Transcriptional and Proteomic Analysis of a Human In Vitro Model of Lung Epithelial Senescence, American Thoracic Society International Conference, Philadelphia, PA, May 2020.

#### *Honors and Awards*

- Best Poster Presentation Prize, International Workshop on Translational Research for Precision Respiratory Medicine, Barcelona, Spain, November 2019.

### **Perry Tiberio, MD, PhD**

#### *Publications*

- Triantafyllou GA, **Tiberio PJ**, Zou RH, Lamberty PE, Lynch MJ, Kreit JW, Gladwin MT, Morris A, Chiarchiaro J. Vaping-associated Acute Lung Injury: A Case Series. *Am J Respir Crit Care Med.* 2019 Dec 1;200(11):1430-1431.
- Zou RH, **Tiberio PJ**, Triantafyllou GA, Lamberty PE, Lynch MJ, Kreit JW, McVerry BJ, Gladwin MT, Morris A, Chiarchiaro J, Fitzpatrick ME, Rose JJ. Clinical Characterization of E-Cigarette, or Vaping, Product Use-associated Lung Injury in 36 Patients in Pittsburgh, Pennsylvania. *Am J Respir Crit Care Med.* 2020 May 15;201(10):1303-1306.

### **Georgios Triantafyllou, MD**

#### *Publications*

- **Triantafyllou GA**, Tiberio PJ, Zou RH, Lamberty PE, Lynch MJ, Kreit JW, Gladwin MT, Morris A, Chiarchiaro J. Vaping-associated Acute Lung Injury: A Case Series. *Am J Respir Crit Care Med.* 2019 Dec 1;200(11):1430-1431.
- Zou RH, Tiberio PJ, **Triantafyllou GA**, Lamberty PE, Lynch MJ, Kreit JW, McVerry BJ, Gladwin MT, Morris A, Chiarchiaro J, Fitzpatrick ME, Rose JJ. Clinical Characterization of E-Cigarette, or Vaping, Product Use-associated Lung Injury in 36 Patients in Pittsburgh, Pennsylvania. *Am J Respir Crit Care Med.* 2020 May 15;201(10):1303-1306.

### **Richard Zou, MD**

#### *Publications*

- **Zou RH**, Wallace WD, Nouraie SM, Chan SY, Risbano MG. Lower DLco% identifies exercise pulmonary hypertension in patients with parenchymal lung disease referred for dyspnea. *Pulm Circ.* 2020 Feb 19;10(1):2045894019891912.
- **Zou RH**, Tiberio PJ, Triantafyllou GA, Lamberty PE, Lynch MJ, Kreit JW, McVerry BJ, Gladwin MT, Morris A, Chiarchiaro J, Fitzpatrick ME, Rose JJ. Clinical Characterization of E-Cigarette, or Vaping, Product Use-associated Lung Injury in 36 Patients in Pittsburgh, Pennsylvania. *Am J Respir Crit Care Med.* 2020 May 15;201(10):1303-1306.
- **Zou RH**, Kass DJ, Gibson KF, Lindell KO. The Role of Palliative Care in Reducing Symptoms and Improving Quality of Life for Patients with Idiopathic Pulmonary Fibrosis: A Review. *Pulm Ther.* 2020 Jun;6(1):35-46.

### **Jill Zupetic, MD**

#### *Honors and Awards*

- Abstract Scholarship, Assembly on Allergy, Immunology and Inflammation, American Thoracic Society, April 2020.



- Burroughs Wellcome Physician Scientist Incubator Program, Burroughs Wellcome Fund, Pittsburgh, PA, May 2020.

## Postdoctoral Fellows and Activities

### Jennifer C. Mandal Boatz, PhD T32 Scholar

*Mentor: Corrine R. Kliment, MD, PhD*

Dr. Mandal Boatz investigates aspects of airway epithelial function, mitochondrial biology, confocal microscopy and mouse models of lung disease

#### *Presentations and Abstracts*

- Mitochondrial adenine nucleotide translocases (ANT) regulates cellular senescence in chronic obstructive pulmonary disease, American Thoracic Society International Conference, Philadelphia, PA, May 2020.
- Loss of Mitochondrial Adenine Nucleotide Translocase Worsens Bleomycin-Induced Pulmonary Fibrosis and Inflammation, American Thoracic Society International Conference, Philadelphia, PA, May 2020.

### Matthew J. Camiolo, PhD T32/F32 Scholar

*Mentors: Anuradha Ray, PhD, and Sally Wenzel, MD*

Dr. Camiolo's research uses mass cytometry to characterize the BAL and serum of asthmatics with hopes of applying machine learning algorithms to identify novel subgroups within the umbrella of clinically severe disease. Immune signatures will be matched with paired RNA sequencing results from BAL and epithelial brushings to elucidate potential novel pathways driving chronic inflammation. This data will then inform mechanistic studies in animal models of severe asthma, with the potential to lead towards new models of steroid resistant disease.

### Tamara Cruz Santa Cruz, PhD

*Mentor: Mauricio Rojas, MD*

Dr. Cruz's is isolating and characterizing the primary lung mesenchymal stem cells.

#### *Publications*

- **Cruz T**, López-Giraldo A, Noell G, Casas-Recasens S, Garcia T, Molins L, Juan M, Fernandez MA, Agustí A, Faner R. Multi-level immune response network in mild-moderate Chronic Obstructive Pulmonary Disease (COPD). *Respir Res.* 2019 Jul 12;20(1):152.
- **Cruz T**, López-Giraldo A, Noell G, Guirao A, Casas-Recasens S, Garcia T, Saco A, Sellares J, Agustí A, Faner R. Smoking Impairs the Immunomodulatory Capacity of Lung-Resident Mesenchymal Stem Cells in Chronic Obstructive Pulmonary Disease. *Am J Respir Cell Mol Biol.* 2019 Nov;61(5):575-583.
- Book chapter: "Preclinical evidence for the role of stem/stromal cells in targeting ARDS," in *Stem cell-based therapy for lung disease*, Springer Clinical Medicine Book, 2019.

### Antu Das, PhD

*Mentor: John McDyer, MD*

Dr. Das's projects are related to lung transplant immunobiology. He is working in the mouse system taking advantage of our established mouse lung transplant model, as well as the human system leveraging a large tissue biorepository.

### Hongye Fan, PhD

*Mentor: Janet Lee, MD*

Dr. Fan's research is on macrophage heterotypic receptor signaling in pulmonary host defense against Gram-negative pathogens.

### Yanmei Feng, PhD

*Mentors: Alison Morris, MD, MS, and Georgios Kitsios, MD, PhD*

Dr. Yeng is participating in translational research examining the role of the lung microbiome in HIV lung disease, involving in biospecimen processing, molecule biology experiments and de-identified data analysis. Her primary research involves performing DNA extractions, PCR amplification and next-generation sequencing of microbial DNA with the Illumina NextSeq platform.

### **Maria Teresa Gallego Martin, PhD**

*Mentor: Christopher O'Donnell, PhD*

Dr. Gallego Martin's research project examines the relationship between cardiac ischemia and its impact on sleep and breathing using mouse models.

### **Rui Guo, PhD**

*Mentors: Alison Morris, MD, MS, and Georgios Kitsios, MD, PhD*

Dr. Guo is participating in translational research examining the role of the lung microbiome in HIV lung disease, including biospecimen processing, molecule biology experiments, and de-identified data analysis. His primary research will involve performing DNA extractions, PCR amplification, and next-generation sequencing of microbial DNA with the Illumina NextSeq and Oxford Nanopore MiNION platforms.

### **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.

### **Yandong Lai, MD**

*Mentor: Chunbin Zou, MD, PhD*

Dr. Lai explores the mechanisms of deregulated epigenetic enzymes in acute lung injury.

### **Tiao Li, PhD**

*Mentor: Chunbin Zou, MD, PhD*

Dr. Li research is to dissect the role of histone acetyltransferase in the pathogenesis of COPD.

### **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.

### **Eric Nolley, MD T32 Scholar**

*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 Lee, MD*

Dr. Penaloza studies distinct host-pathogen interactions as the framework for understanding complication and persistence of acute lung injury from severe infection.

### **Craig Riley, MD T32 Scholar**

*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.

## Eleanor Valenzi, MD T32 Scholar

*Mentor: Robert Lafyatis, MD*

Dr. Valenzi is engaged in translational research on the pathogenesis of scleroderma associated interstitial lung disease, utilizing single cell RNA.

### *Publications*

- Morse C, Tabib T, Sembrat J, Buschur KL, Bittar HT, **Valenzi E**, Jiang Y, Kass DJ, Gibson K, Chen W, Mora A, Benos PV, Rojas M, Lafyatis R. Proliferating SPP1/MERTK-expressing macrophages in idiopathic pulmonary fibrosis. *Eur Respir J*. 2019 Aug 22;54(2):1802441.
- **Valenzi E**, Bulik M, Tabib T, Morse C, Sembrat J, Trejo Bittar H, Rojas M, Lafyatis R. Single-cell analysis reveals fibroblast heterogeneity and myofibroblasts in systemic sclerosis-associated interstitial lung disease. *Ann Rheum Dis*. 2019 Oct;78(10):1379-1387. Epub 2019 Aug 12.
- Lear TB, McKelvey AC, Evankovich JW, Rajbhandari S, Coon TA, Dunn SR, Londino JD, McVerry BJ, Zhang Y, **Valenzi E**, Burton CL, Gordon R, Gingras S, Lockwood KC, Jurczak MJ, Lafyatis R, Shlomchik MJ, Liu Y, Chen BB. KIAA0317 regulates pulmonary inflammation through SOCS2 degradation. *JCI Insight*. 2019 Oct 3;4(19):e129110.
- Lear TB, Lockwood KC, Larsen M, Tuncer F, Kennerdell JR, Morse C, **Valenzi E**, Tabib T, Jurczak MJ, Kass DJ, Evankovich JW, Finkel T, Lafyatis R, Liu Y, Chen BB. Kelch-like protein 42 is a profibrotic ubiquitin E3 ligase involved in systemic sclerosis. *J Biol Chem*. 2020 Mar 27;295(13):4171-4180.
- Saygin D, Tabib T, Bittar HET, **Valenzi E**, Sembrat J, Chan SY, Rojas M, Lafyatis R. Transcriptional profiling of lung cell populations in idiopathic pulmonary arterial hypertension. *Pulm Circ*. 2020 Feb 28;10(1).
- Bueno M, Papazoglou A, **Valenzi E**, Rojas M, Lafyatis R, Mora AL. Mitochondria, Aging, and Cellular Senescence: Implications for Scleroderma. *Curr Rheumatol Rep*. 2020 Jun 19;22(8):37.

### *Presentations and Abstracts*

- Fibroblast transformation at single-cell resolution in systemic-sclerosis associated interstitial lung disease., International Workshop on Translational Research for Precision Respiratory Medicine., Barcelona, Spain, October 2019.
- Single-cell analysis reveals fibroblast heterogeneity and myofibroblasts in systemic sclerosis-associated interstitial lung disease, Respiratory Disease Young Investigators Forum, Chicago, IL, October 2019.
- Transcriptional and Epigenetic Investigation of Myofibroblast Transformation in Systemic Sclerosis-associated Interstitial Lung Disease., Scleroderma Foundation Early Career Investigator Workshop, May 2020.

### *Honors and Awards*

- Awardee, Scleroderma Foundation New Investigator Grant, July 2019.
- Award for Outstanding Scholarly Achievement, Robert Rogers Lectureship, Division of Pulmonary, Allergy and Critical Care Medicine, University of Pittsburgh, Pittsburgh, PA June 2020.

## Caylin Gwendylin Winchell, PhD K12 Scholar

*Mentors: JoAnne Flynn, PhD, and Philana Ling Lin, PhD*

Dr. Winchell's research uses an established non-human primate model, investigating the function of donor unrestricted CD8 T cells (DURTs) during SIV/Mtb co-infection. The goal is to establish a correlation between early DURT responses and susceptibility to TB during SIV co-infection.

### *Publications*

- **Winchell CG**, Mishra BB, Phuah JY, Saqib M, Nelson SJ, Maiello P, Causgrove CM, Ameer CL, Stein B, Borish HJ, White AG, Klein EC, Zimmerman MD, Dartois V, Lin PL, Sasseti CM,



Flynn JL. Evaluation of IL-1 Blockade as an Adjunct to Linezolid Therapy for Tuberculosis in Mice and Macaques. *Front Immunol.* 2020 May 12;11:891.

- Ziegler CGK, Allon SJ, Nyquist SK, Mbano IM, Miao VN, Tzouanas CN, Cao Y, Yousif AS, Bals J, Hauser BM, Feldman J, Muus C, Wadsworth MH 2nd, Kazer SW, Hughes TK, Doran B, Gatter GJ, Vukovic M, Taliaferro F, Mead BE, Guo Z, Wang JP, Gras D, Plaisant M, Ansari M, Angelidis I, Adler H, Sucre JMS, Taylor CJ, Lin B, Waghay A, Mitsialis V, Dwyer DF, Buchheit KM, Boyce JA, Barrett NA, Laidlaw TM, Carroll SL, Colonna L, Tkachev V, Peterson CW, Yu A, Zheng HB, Gideon HP, **Winchell CG**, Lin PL, Bingle CD, Snapper SB, Kropski JA, Theis FJ, Schiller HB, Zaragosi LE, Barbry P, Leslie A, Kiem HP, Flynn JL, Fortune SM, Berger B, Finberg RW, Kean LS, Garber M, Schmidt AG, Lingwood D, Shalek AK, Ordovas-Montanes J; HCA Lung Biological Network. Electronic address: lung-network@humancellatlas.org; HCA Lung Biological Network. SARS-CoV-2 Receptor ACE2 Is an Interferon-Stimulated Gene in Human Airway Epithelial Cells and Is Detected in Specific Cell Subsets across Tissues. *Cell.* 2020 May 28;181(5):1016-1035.e19.

#### **Honors and Awards**

- Travel Award, American Association of Immunologists Annual Meeting, May 2020.

### **Che Xu, PhD**

*Mentor: Xingan Wang, PhD*

Dr. Yu is investigating biological repair of extended-criteria donor lungs with an ExVivo Lung Perfusion (EVLV)-based therapy in a mouse lung transplant model.

### **Xia Yang, PhD**

*Mentor: Yingze Zhang, PhD*

Her research is on the molecular pathogenesis of COPD. Standard molecular biology techniques will be utilized in the study including western blot, cell culture, immunohistochemistry, biomarker analysis and DNA genotyping.

### **Joo H. Yoon, MD T32 Scholar**

*Mentor: Gilles Clermont, MD, MSc*

Dr. Yoon's is developing a data-driven prediction model for cardiorespiratory instability using multigranular vital sign signals.

#### **Publications**

- **Yoon JH**, Mu L, Chen L, Dubrawski A, Hravnak M, Pinsky MR, Clermont G. Predicting tachycardia as a surrogate for instability in the intensive care unit. *J Clin Monit Comput.* 2019 Dec;33(6):973-985.

#### **Presentations and Abstracts**

- Artificial Intelligence and history and current applications - focused on critical care medicine, Korean American Medical Association Annual Scientific Symposium, New York, NY, July 2019.

### **Junyi Yu, MD**

*Mentor: Xingan Wang, PhD*

Dr. Yu is investigating biological repair of extended-criteria donor lungs with an ExVivo Lung Perfusion (EVLV)-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.

**Publications**

- Davis D, **Yuan H**, Liang FX, Yang YM, Westley J, Petzold C, Dancel-Manning K, Deng Y, Sall J, Sehgal PB. Human Antiviral Protein MxA Forms Novel Metastable Membraneless Cytoplasmic Condensates Exhibiting Rapid Reversible Tonicity-Driven Phase Transitions. *J Virol*. 2019 Oct 29;93(22):e01014-19.

**Presentations and Abstracts**

- Mitochondrial H<sub>2</sub>O<sub>2</sub> Plays an Important Role in inhaled antigen induced Immune Tolerance in the Airways, University of Pittsburgh Immunology Retreat, Pittsburgh, PA, October 2019.
- Establishment of airway tolerance in early life to inhaled house dust mite involves mitochondrial H<sub>2</sub>O<sub>2</sub>, American Association of Immunologist Annual Meeting, May 2020.

**Wenping Zhang, PhD**

*Mentor: Mauricio Rojas, MD*

Dr. Zhang is performing Idiopathic Pulmonary Fibrosis (IPF) bench research.

**Li Zhang, MD**

*Mentor: Yingze Zhang, PhD*

Dr. Zhang is interested in the molecular pathogenesis of lung disease.

# ONE-YEAR BIBLIOGRAPHY

July 1, 2019 to June 30, 2020

*Non-original research publications are in italics. PACCM faculty are in bold.*

- Aboud RN, McHugh KJ, Rich HE, Ortiz MA, Tobin JM, Ramanan K, **Robinson KM**, Bomberger JM, Kolls JK, Manni ML, Pociask DA, Alcorn JF. IL-22-binding protein exacerbates influenza, bacterial super-infection. *Mucosal Immunol*. 2019 Sep;12(5):1231-1243. Epub 2019 Jul 11.
- Allen RJ, Guillen-Guio B, Oldham JM, Ma SF, Dressen A, Paynton ML, Kraven LM, Obeidat M, Li X, Ng M, Braybrooke R, Molina-Molina M, Hobbs BD, Putman RK, Sakornsakolpat P, Booth HL, Fahy WA, Hart SP, Hill MR, Hirani N, Hubbard RB, McAnulty RJ, Millar AB, Navaratnam V, Oballa E, Parfrey H, Saini G, Whyte MKB, **Zhang Y**, Kaminski N, Adegunsoye A, Streck ME, Neighbors M, Sheng XR, Gudmundsson G, Gudnason V, Hatabu H, Lederer DJ, Manichai-kul A, Newell JD Jr, O'Connor GT, Ortega VE, Xu H, Fingerlin TE, Bossé Y, Hao K, Joubert P, Nickle DC, Sin DD, Timens W, Furniss D, Morris AP, Zondervan KT, Hall IP, Sayers I, Tobin MD, Maher TM, Cho MH, Hunninghake GM, Schwartz DA, Yaspan BL, Molyneaux PL, Flores C, Noth I, Jenkins RG, Wain LV. Genome-Wide Association Study of Susceptibility to Idiopathic Pulmonary Fibrosis. *Am J Respir Crit Care Med*. 2020 Mar 1;201(5):564-574.
- Alsafadi HN, Uhl FE, Pineda RH, Bailey KE, **Rojas M**, Wagner DE, Königshoff M. Applications and Approaches for Three-Dimensional Precision-Cut Lung Slices. Disease Modeling and Drug Discovery. *Am J Respir Cell Mol Biol*. 2020 Jun;62(6):681-691.
- Amdahl MB, DeMartino AW, **Gladwin MT**. Inorganic nitrite bioactivation and role in physiological signaling and therapeutics. *Biol Chem*. 2019 Dec 18;401(1):201-211.
- Amdahl MB, Petersen EE, Bocian K, Kaliszuk SJ, DeMartino AW, Tiwari S, **Sparacino-Watkins CE**, Corti P, **Rose JJ**, **Gladwin MT**, Fago A, **Tejero J**. The Zebrafish Cytochrome b(5)/Cytochrome b(5) Reductase/NADH System Efficiently Reduces Cytochromes 1 and 2: Conserved Activity of Cytochrome b(5)/Cytochrome b(5) Reductases during Vertebrate Evolution. *Biochemistry*. 2019 Jul 23;58(29):3212-3223. Epub 2019 Jul 10.
- Ash SY, Sanchez-Ferrero GV, Schiebler ML, Rahaghi FN, Rai A, Come CE, Ross JC, Colon AG, Cardet JC, Bleecker ER, Castro M, Fahy JV, Fain SB, Gaston BM, Hoffman EA, Jarjour NN, Lempel JK, Mauger DT, Tattersall MC, **Wenzel SE**, Levy BD, Washko GR, Israel E, San Jose Estepar R; SARP Investigators. Estimated Ventricular Size, Asthma Severity, and Exacerbations: The Severe Asthma Research Program III Cohort. *Chest*. 2020 Feb;157(2):258-267. Epub 2019 Sep 12.
- Ashktorab H, Brim H, Hassan S, **Nouraei M**, Gebreselassie A, Laiyemo AO, Kibreab A, Aduli F, Latella G, Brant SR, Sherif Z, Habtezion A. Inflammatory polyyps occur more frequently in inflammatory bowel disease than other colitis patients. *BMC Gastroenterol*. 2020 Jun 5;20(1):170.
- Bain W**, **Lee JS**, Watson AM, Stitt-Fischer MS. *Practical Guidelines for Collection, Manipulation and Inactivation of SARS-CoV-2 and COVID-19 Clinical Specimens*. *Curr Protoc Cyto*. 2020 Jun;93(1):e77.
- Bain W**, Matute-Bello G. Should we shift the paradigm of preclinical models for ARDS therapies?. *Thorax*. 2019 Dec;74(12):1109-1110. Epub 2019 Oct 17.
- Bakker JP, Baltzis D, Tecilizach F, Chan RH, Manning WJ, Neilan TG, Wallace ML, Hudson M, Malhotra A, **Patel SR**, Veves A. The Effect of Continuous Positive Airway Pressure on Vascular Function and Cardiac Structure in Diabetes and Sleep Apnea. A Randomized Controlled Trial. *Ann Am Thorac Soc*. 2020 Apr;17(4):474-483.
- Balkan B, Thunström E, **Strollo PJ Jr**, Peker Y. Determinants of depressive mood in coronary artery disease patients with obstructive sleep apnea and response to continuous positive airway pressure treatment in non-sleepy and sleepy phenotypes in the RICCADSA cohort. *J Sleep Res*. 2019 Aug;28(4):e12818. Epub 2019 Jan 9.
- Banno A, Reddy AT, Lakshmi SP, Reddy RC. Bidirectional interaction of airway epithelial remodeling and inflammation in asthma. Clin Sci (Lond)*. 2020 May 15;134(9):1063-1079.
- Barbash IJ**, Kahn JM. Sepsis quality in safety-net hospitals: An analysis of Medicare's SEP-1 performance measure. *J Crit Care*. 2019 Dec;54:88-93. Epub 2019 Aug 5.
- Barbash IJ**, Davis B, Kahn JM. National Performance on the Medicare SEP-1 Sepsis Quality Measure. *Crit Care Med*. 2019 Aug;47(8):1026-1032.
- Barbash IJ**, Pilewski JM, McVerry BJ. Closing the Loop: Engaging Leaders and Front-Line Physicians to Promote Physician Wellness. *Ann Am Thorac Soc*. 2019 Aug;16(8):970-973.
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