

## 2012 PBF Fellows Survey conducted in October and November, 2020

The 2012 PBF Fellows research and what the PBF Fellowship meant to their careers – in their own words (in response to our survey questions):

**Megan Ballinger, PhD** – Assistant Professor, The Ohio State University,  
Pulmonary & Critical Care Medicine

*Research Focus:* I have continued to use my knowledge and skills gained from the PBF fellowship to shape my research career to understand the role of the immune system in regulating chronic lung disease. I'm interested in the role that macrophages (a circulating white blood cell) can play in both initiating and perpetuating chronic lung disease.

*Role of PBF Fellowship:* I have little doubt in my mind that I would not be in research if it were not for the PBF fellowship. As a PhD researcher, there are very few NIH awards that provide support for basic/translational scientists. Without the generous funding from the PBF foundation, I would not have been able to secure the salary support needed to continue to pursue my research career. The support provided by this award allowed me to secure a new independent position at a large medical center which has launched my career.

**Andrea Corcoran, BS, MS, PhD** – Assistant Professor of Exercise Science,  
Castleton University, Natural Sciences

*Research Focus:* We are looking at the role of cannabidiols on breathing and cardiovascular systems.

*Role of PBF Fellowship:* The PBF Fellowship provided me with the opportunity to form the foundations of my research career. It gave me the independence to be able to conduct experiments, analyze and interpret the results, and the skills with which to be able to mentor others.

**Mai Elmallah, MD, MS** – Associate Professor, Pediatrics Pulmonary, Duke  
University

*Research Focus:* My research focus is on breathing difficulties in patients with neuromuscular disease. The neuromuscular diseases that I focus on are Amyotrophic Lateral Sclerosis (ALS), Duchenne Muscular Dystrophy and Pompe Disease. Our laboratory focuses on identifying the mechanisms that cause breathing problems as well as novel therapies for these breathing problems as well as novel therapies for these breathing difficulties. We are investigating the role of adeno-viral gene therapy to treat these genetic diseases.

*Role of PBF Fellowship:* The PBF Fellowship award catapulted my research career. It gave my hiring institution the confidence to invest in me and it gave me the support necessary to be hired

as a physician-scientist with protected research time. This support allowed me to expand my research and apply for and secure NIH funding.

**Daniel Files**, - Wake Forest Baptist Hospital, Pulmonary – several emails sent - left phone message at (336) 716-2011 on 12/22/20

*Research Focus:*

My research is focused on discovery of new treatments for severe critical illnesses such as respiratory failure and sepsis, along with COVID 19. My lab works on muscle weakness that occurs with critical illness and injury.

*Role of PBF Fellowship:*

The PBF was fundamental for starting my career and instilled confidence in department leadership to support me during early career.

**Tillie Louise-Hackett, PhD** – Associate Professor, University of British Columbia, Anesthesiology, Pharmacology & Therapeutics

*Research Focus:* My goal is to improve the health of patients living with asthma and chronic obstructive pulmonary disease (COPD), who are challenged every day with the simple task of breathing.

My research approach is unique in that we use ultra-resolution imaging to detect microscopic early disease, which is undetectable using current clinical tests, and to investigate the underlying cellular, molecular, and genetic abnormalities responsible for disease pathobiology.

My recent work identified that the 40% of small airways in the lung are already destroyed by the time a patient is diagnosed with mild COPD. This knowledge has been used to spearhead a new Lancet Global Commission to identify new approaches to prevent, diagnose and treat early COPD.

The objectives of my research are to use this knowledge to provide new approaches to predict risk, diagnose, and discover new treatments to improve the quality of life of asthma and COPD patients.

*Role of PBF Fellowship:* The Parker B. Francis fellowship was key to enabling my transition to junior faculty by providing me start-up salary at the beginning of my position. During this time I was then able to apply for government salary and operating funding to support my research program and staff. The value of the Parker B. Francis fellowship funding has been matched 107 times (17.4 M) in subsequent grant funding I have received.

**Jinkwan Kim, PhD** – (info from web search- no response) – Associate Professor, Jungwon University, South Korea, Biomedical Laboratory Science

**Tereza Martinu, MD MHS** – Clinician-Scientist, Pulmonologist; Assistant Professor, University Health Network, University of Toronto, Dept. of Medicine

*Research Focus:*

Lung transplantation is the ultimate life-saving therapy for end-stage lung diseases such as emphysema, pulmonary fibrosis, and cystic fibrosis. However, the average survival after lung transplantation remains only 5 years because of acute and chronic rejection. These problems arise because the donor lung tissue is recognized as foreign by the recipient's immune system, leading to repeated and sustained injury to the organ. Unfortunately, current anti-rejection drugs cannot prevent the often untreatable and irreversible lung scarring that develops as a result. My overall goal is to identify new ways to diagnose, prevent, and treat lung rejection and scarring through a detailed study of how the transplanted lung and the recipient's immune system respond to the transplantation process.

I have established a research program focused on studying chronic rejection after lung transplantation, using animal models as well as samples generously provided by our patients. The Toronto Lung Transplant Program is one of the largest lung transplant programs in the world and allows my group to access samples and data from a large number of patients. My projects employ state-of-the-art analyses of cells and proteins in samples derived from the transplanted lungs in order to detect early inflammation and injury and identify previously unknown mechanisms of lung transplant rejection.

In the last several years, my group has identified proteins that are associated with chronic inflammation, chronic rejection and scarring in the lung graft. These proteins are part of an immunological pathway called Th17, which is known to have strong pro-inflammatory potential as well as scarring effects. It is also a pathway that is very amenable to specific drug therapies that we will explore in the future. We have further detected proteins associated with reflux and aspiration, which are risk factors of chronic rejection. Detecting such triggering events early may allow prevention of chronic rejection. We are now studying these mechanisms in mouse models of lung transplantation.

Through ongoing efforts, our research identifies new ways to monitor, prevent, and ultimately treat rejection. I hope that my team's work will ultimately lead to improved patient outcomes and survival after lung transplantation.

*Role of PBF Fellowship:* The PBF fellowship was instrumental in supporting my research and securing my protected research time when I needed it the most. It was really the springboard for

future research projects and grants. I credit it with allowing me to grow and establish my research career.

**Richard Oeckler, MD PhD** - Director, Medical ICU; Director, Mayo Clinic ICU Recovery Program; Consultant, Pulmonary & Critical Care Medicine

*Research Focus:* My clinical research focuses on patients requiring a breathing machine (“mechanical ventilator”) due to respiratory failure that may result from pneumonia or its more severe form, the acute respiratory distress syndrome. The ventilator can be a double-edged sword. Although providing necessary life support for critically ill patients, mismatch of patient’s needed support and the machine’s settings can lead to injury and harm. Employing sound, physiological-based techniques to understand an individual’s needs at bedside, the clinician can provide the appropriate type and amount of support to maximize healing and minimize the risk of harm. We have developed and employed algorithmic approaches to the setting and monitoring of ventilators in the ICU, and by doing so have minimized and/or prevented ventilator-induced (VILI) and patient self-inflicted (P-SILI) lung injury and have reduced overall mortality in these conditions.

My basic and translational work attempts to understand how lung cells injure and repair in response to physical forces. Educational efforts include the development of mechanical ventilation education for residents, fellows, and staff at the Mayo Clinic and participation internationally through the Mayo Clinic Mechanical Ventilation conference and various organizations and societies.

*Role of the PBF Fellowship:* In some ways the PBF award was a double edge sword. It introduced me to many wonderful and supportive folks and allowed me to get off to a start in translational studies of ventilator induced lung injury. However, having the PBF award seemed to deter K08 application reviewers who felt they could not justify further K level training after completion even though I could have definitely used another couple of years to complete my work and push out several further publications to support an R level award application. Without the K, I had to return to 100% clinical duty immediately at the completion of the PBF and therefore no longer had time, space, or support to complete ongoing projects to wrap up data and publish results.

**Sarah Sayner, PhD** – Associate Professor, Physiology & Cell Biology, University of South Alabama

*Research Focus:* My lab studies the pulmonary endothelium, which are cells lining blood vessels of the lung. These pulmonary endothelial cells form a barrier which critically regulates the movement of fluid and immune cells into the lung tissue. During Acute Respiratory Distress Syndrome (ARDS) cellular signals alter the integrity of this endothelial barrier. The goal of my lab is to understand what promotes changes in endothelial barrier integrity allowing fluid and immune cells to migrate into the underlying tissue and how it can be reversed to restore

lung function.

*Role of the PBF Fellowship:* As an early investigator, the PBF Fellowship provided valuable financial support and recognition to my lab to enable me to successfully transition to federal R01 level funding. In addition, the PBF Fellowship allowed me to develop contacts with other investigators in the field.

**Damian Turner, B.Sc, PhD** – Assistant Professor, Williams College, Biology

*Research Focus:* My research focuses on memory T cell populations that take up residence within the lungs following an infection or sensitization to an airborne allergen. Understanding how these lung-resident T cells contribute to lung inflammation could provide useful targets for preventing lung inflammation and recurrent asthma symptoms.

*Role of PBF Fellowship:* The PBF fellowship award allowed me to use some time during my postdoctoral fellowship to expand my research focus beyond studying respiratory viruses into studying allergic asthma. This allowed me to differentiate my research focus away from that of my mentor's and created a research model that was more achievable at small liberal arts colleges.

**Ting Wang, PhD** – Associate Professor, University of Arizona College of Medicine Phoenix, Dept. of Internal Medicine

*Research Focus:* Critical ill patients with acute respiratory distress syndrome (ARDS) will receive mechanical ventilation in ICU to support life. Mechanical ventilation imposes pro-inflammatory stress to the lung to limit the improvement of survival. Our research tries to understand the molecular mechanisms of mechanical stress mediated cellular injury in order to eliminate ventilator induced lung injury and improve survival of ARDS patients.

*Role of PBF Fellowship:* PBF fellowship is the critical bridge to move me to an independent research track.