Chad Steele, Ph.D., endowed professor in UAB’s Division of Pulmonary, Allergy, and Critical Care Medicine, and Assistant Dean for Research Administration in the School of Medicine, was recently awarded his third R01 award from the National Institutes of Health (NIH) for the project entitled “Biology of innate IL-22 during lung fungal infection.” Dr. Steele’s research focuses on understanding immune responses against opportunistic fungal pathogens that cause lung infections in immunocompromised patients, as well as the role of fungi in exacerbating diseases such as asthma and cystic fibrosis. Dr. Steele has published over 100 peer-reviewed articles and has mentored multiple post-doctoral fellows and pre-doctoral students.

Dr. Steele has spent the past decade researching and identifying protective roles for the fungal beta glucan receptor Dectin-1 and the innate immune responses this pattern recognition receptor initiate, such as the induction of the cytokines interleukin-17A (IL-17A) and interleukin-22 (IL-22). Dr. Steele’s current funding seeks to understand how the cytokine IL-22 contributes to fungal asthma severity, yet is required for clearance of fungi during an acute exposure. As recent studies have shown that fungi-sensitive asthmatics typically require longer and more intense treatment during asthma exacerbations, Dr. Steele believes that the results of these studies may ultimately translate into treatment options for asthmatics affected by fungal allergy.

Dr. Steele frequently uses findings in humans to form the basis of his laboratory studies. This is not necessarily the norm, as a significant portion of medical research often takes results from basic science laboratory research and applies them in clinical settings. He believes that doing the opposite, i.e. bedside-to-bench, has higher value. Steele says “We let data from human subjects inform us on what pathways and potential mechanisms we need to pursue in experimental animal models.” “Some of our recent research focuses on uncommon cytokines that we would have never chosen to examine had we not first observe them in a human condition, in this case, asthma.” Dr. Steele said. “These factors were not simply ones you would have hypothesized as playing a role in disease severity.”

“Those kinds of moments, the unexpected discoveries, are the ones that keep researchers like me going. When you don’t see it coming, it makes you want to dive in more,” he explained. “That’s the best kind of finding you can have.”