Airway diseases are one of the fastest growing families of related diseases and pose some of the most serious health risks to millions of Americans. For example, asthma affects more than 15 million Americans each year, including 5 million children. Asthma often begins in childhood and accounts for a significant number of emergency room visits, hospitalizations, deaths, office visits, missed school days and restricted activity days. Allergic rhinitis affects approximately 40 million people each year in the United States, and this includes up to 40% of children. Allergic rhinitis leads to as many as 3.8 million missed days per year, including school and work. Allergic rhinitis has been associated with the development of other diseases including asthma, rhinosinusitis, allergic conjunctivitis and otitis media. These disorders often co-exist. Indeed, as many as 78% of asthma patients have allergy-related nasal symptoms and 38% of allergic rhinitis patients have asthma.

Dr. Thomas B. Casale, Professor and Associate Chair of Medicine, and Chief of the Division of Allergy/Immunology leads a team of investigators working on allergic and non-allergic airway diseases. Dr. Casale and Dr. Robert G. Townley, Professor of Medicine, are using a mouse model of allergic asthma to help define key pathogenic mechanisms. They are working on using this information to develop new therapeutic strategies for asthma. Dr. Casale is also engaged in research exploring the role of maternal smoking in the development of asthma in offspring using a mouse model.

The team of investigators is also studying the efficacy and safety of novel treatments of allergic rhinitis and asthma. They employ many experimental model systems that not only examine the therapeutic potential of new treatments but also explore biomarkers to identify the most appropriate patients that might benefit from these novel agents. These studies will hopefully lead to treatments that modify the immune system in ways that will ultimately prevent and/or reverse the consequences of diseases such as asthma.

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