The increasing burden of asthma and nasal allergies presents a significant health problem in this country. At Northwestern University Feinberg School of Medicine, a diverse group of clinical and laboratory scientists is conducting important research projects to better understand the onset and biological mechanisms of these diseases, how they affect different population groups, and to develop new treatments for asthma and rhinitis.

**Airway Inflammation and Asthma Exacerbations Research**

One in 10 people suffers from asthma, and 3 in 10 people suffer from allergic rhinitis (hay fever). To better understand the mechanism of inflammation in lung and nasal airways, our researchers employ cutting-edge technology to investigate disease in patients and in pre-clinical animal models of disease. Discovering the main cells, proteins, and pathways causing blockage of airflow, as well as mucus overproduction in the airways, can lead to new treatments for asthma and rhinitis.

Asthma attacks, also known as exacerbations, are a major health problem. During asthma attacks, symptoms may worsen to disabling levels for several days, leading to missed days of school and work, visits to the emergency department, hospitalizations, and thousands of deaths annually in the United States. We investigate the triggers and mechanisms of airway obstruction during exacerbations, including viral respiratory infections and influenza. Using state-of-the-art genetics and bioinformatics tools, we aim to discover new molecular targets to develop novel medicines to prevent and treat asthma exacerbations.
Epidemiology and Genetics of Asthma Research
In Chicago, asthma affects up to 44 percent of children. Asthma unevenly affects more African Americans, Puerto Ricans, inner city children, and elderly. At Northwestern, we collaborate with local and national researchers to study the characteristics of asthma and how environmental and genetic factors interact to cause and worsen asthma in diverse populations. Understanding these differences will lead to personalized asthma treatments in the future.

Severe Asthma and Remodeling Research
Up to 10 percent of patients with asthma still suffer bothersome symptoms or progressive airway obstruction (remodeling) despite currently available treatments. The allergists in our Allergy-Immunology Clinic have more than four decades of experience in treating patients with asthma, particularly those with severe asthma. Patients with severe asthma often have distinct underlying causes and mechanisms of airway inflammation that we investigate with collaborative, multidisciplinary research teams.

Discovery Science and Development of New Treatments
New discoveries of disease mechanism in our laboratories are showing great promise for the development of new treatments for asthma and allergies. These new treatments include immuno-modulators, targeted elimination of unwanted immune cells, induction of immune tolerance, and nutritional intervention. Your support of our breakthrough efforts will advance our understanding of the mechanism of disease, uncovering further novel strategies for treatment.

For more information about philanthropic opportunities relating to Asthma and Allergy research, please contact:

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