

Cells that mediate steroid-resistant asthma identified by scientists at Children's Hospital

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Children's Hospital of Pittsburgh of UPMC researchers have identified cells that may play a key role in some forms of steroid-resistant asthma, a complication of the condition that makes treatment even more challenging.

The identification of a lineage of cells known as T Helper Type 17 (Th17) may help scientists in the development of new treatments that lead to better control of asthma, according to the study's senior author, Jay K. Kolls, MD, chief of the Division of Pediatric Pulmonary Medicine, Allergy and Immunology at Children's Hospital.

More than 22 million Americans (including 9 million children) are diagnosed with asthma, according to the U.S. Centers for Disease Control and Prevention (CDC). As many as 50 percent of them have asthma that can be resistant to steroids, which are intended to reduce lung inflammation during an asthma attack, Dr. Kolls said.

"Asthma is a challenging condition to treat. For many patients, if they take preventive medications regularly, the condition can be controlled and they can lead relatively normal lives," Dr. Kolls said. "Inhaled steroids are an important treatment for patients to prevent asthma attacks. Unfortunately, some patients have attacks despite the use of inhaled steroids, meaning they don't respond to steroids or they need such high doses that side effects are experienced."

In a study published in the September issue of the *Journal of Immunology*, Dr. Kolls and colleagues found that Th17 cells mediated steroid-resistant airway inflammation and hyper-responsiveness in animal models of asthma. Th17 cells are part of the immune system and are found where the body comes in contact with the external environment, such as the lungs and the lining of the

gastrointestinal tract.

"Identifying Th17 cells as a potential mechanism by which steroid-resistant asthma gives us a potential new target for the development of drugs that focus on these cells and lead to better overall control of asthma," said Dr. Kolls, the Niels K. Jerne Professor of Pediatrics and Immunology at the University of Pittsburgh School of Medicine.

Source: Children's Hospital of Pittsburgh

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