

Key to potential new treatment for allergy-induced asthma identified

May 18 2009

In research that could lead to new asthma drugs, scientists at Yale School of Medicine, Hydra Biosciences of Cambridge, Massachusetts, and the University of California, San Francisco have discovered that a protein may be a trigger of allergy-induced asthma in mice. They also demonstrated how a drug known to reduce inflammatory and neuropathic pain may also inhibit asthma symptoms in mice. Their paper is published in the May 18-22 online Early Edition of the *Proceedings of the National Academy of Sciences*.

There has been a dramatic increase in the number of [asthma](#) cases reported in recent decades. Scientists know that asthma involves an immune response to inhaled allergens that results in inflammation, mucus secretion and bronchial constriction. But limitations of existing treatments aimed at the immune system suggest that additional physiological mechanisms may be involved in asthmatic inflammation.

The new study tracks the role of the ion channel protein TRPA1. While the exact function of TRPA1 in the airway inflammation of asthma is not completely understood, scientists do know from previous research that this ion channel protein is a sensor for chemical irritants such as cigarette smoke and certain chemicals that also trigger asthma. TRPA1 is found in airway nerves that mediate pain and irritation and trigger coughing and sneezing.

The researchers found that mice with no TRPA1 showed fewer signs of asthma. According to the paper's lead author, Sven-Eric Jordt, Ph.D.,

assistant professor of pharmacology at Yale School of Medicine, "When compared to normal mice, those lacking the gene for TRPA1 had greatly diminished inflammation, airway mucus and bronchoconstriction."

Furthermore, when the Yale-Hydra team administered a pharmacological agent, HC-030031, that is known to inhibit pain related to TRPA1, to mice with asthma, their symptoms were diminished. "Blocking TRPA1 may prevent the infiltration of the lung by the [inflammatory cells](#) responsible for asthma symptoms such as wheezing and mucus overproduction," Jordt explained.

The pharmacological agent observed in this study to diminish asthmatic symptoms in mice was identified by Hydra Biosciences. Yale's Sven-Eric Jordt serves on Hydra's scientific advisory board and receives consulting fees from Hydra. Several other members on the research team are employees of Hydra Biosciences and have a financial interest in the potential development of HC-030031 as a pharmacological treatment.

Source: Yale University ([news](#) : [web](#))

Citation: Key to potential new treatment for allergy-induced asthma identified (2009, May 18) retrieved 25 April 2024 from <https://medicalxpress.com/news/2009-05-key-potential-treatment-allergy-induced-asthma.html>

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