

Scientists find receptor that puts the brakes on allergic response

April 1 2016, by Ziba Kashef

Up to 40% of the world's population has allergic rhinitis, commonly known as an allergy. A Yale-led study has identified an important receptor protein that regulates the intensity of the immune response to allergens. Their finding, published in *Science*, provides a new target for treating this pervasive health problem.

Researchers have known for years that the [immune system](#) has a built-in mechanism to regulate the intensity and duration of its response to an invader, such as dust mites. But the mechanism was poorly understood. The Yale team focused its study on a family of receptor proteins in cells that can impede the immune system response. They conducted a series of experiments on mice models, exposing them to dust mites as well as parasites, which trigger a similar immune system reaction. They confirmed that one particular receptor, TYRO3, regulated the strength of the immune response.

The finding points to a new approach for treating allergies and possibly asthma. "We identified a receptor, TYRO3, that puts a brake on this response," said Dr. Carla Rothlin, senior author and associate professor of immunobiology and pharmacology. "The relevance is if you know that you have a mechanism that inhibits the response to allergens, and it's a receptor, you can take a pharmacological approach to push this brake." Drugs could be developed to limit the immune [response](#) in allergies, or enhance it to fight parasites, Rothlin explained.

The researchers also uncovered variants of the TYRO3 gene that are

associated with another common condition: asthma. "Future studies might reveal whether it's contributing to this disease," said Rothlin.

Pamela Chan, a former graduate student in Rothlin's lab, is first author.

Provided by Yale University

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