

# Identified: Switch that turns on allergic disease in people

20 January 2010

A new study in human cells has singled out a molecule that specifically directs immune cells to develop the capability to produce an allergic response. The signaling molecule, called thymic stromal lymphopoietin (TSLP), is key to the development of allergic diseases such as asthma, atopic dermatitis (eczema) and food allergy.

The study team, led by Yong-Jun Liu, M.D., Ph.D., at the University of Texas M.D. Anderson Cancer Center, Houston, focused on [dendritic cells](#), immune cells that initiate the primary immune response. Dendritic cells come into contact with other [immune cells](#) known as T cells, causing them to develop into different subsets of T cells, including helper 1 (Th1) and helper 2 (Th2) cells. These T-cell subsets are involved in protective immune responses, but the [Th2 cells](#) can also drive an allergic response. Until now, it was not known how dendritic cells induced T cells to become Th2 cells.

The investigators used dendritic cells isolated from the blood of healthy donors and found that the binding of TSLP to these cells activates a distinct set of signaling pathways within the cells. As a result, the dendritic cells produce messenger molecules that act on the T cells, causing them to develop into Th2 cells.

The study identifies TSLP as a switch that causes the development of the allergic response in people and suggests that this molecule may be a potential [therapeutic target](#) to treat and prevent allergic diseases.

Dr. Liu and his colleagues are supported by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health. The investigators are with the Asthma and [Allergic Diseases](#) Cooperative Research Centers program, now in its fourth decade of continuous funding as the cornerstone of NIAID's asthma and allergy research portfolio.

**More information:** K Arima et al. Distinct signal codes generate dendritic cell functional plasticity. Science Signaling. [DOI:10.1126/scisignal.2000567](https://doi.org/10.1126/scisignal.2000567)

Provided by NIH/National Institute of Allergy and Infectious Diseases

APA citation: Identified: Switch that turns on allergic disease in people (2010, January 20) retrieved 14 August 2022 from <https://medicalxpress.com/news/2010-01-allergic-disease-people.html>

*This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.*