

Stopping the itch—new clues into how to treat eczema

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More than 15% of children suffer with eczema, or atopic dermatitis, an inflammatory skin disease that in some cases can be debilitating and disfiguring. Researchers reporting in the October issue of *Immunity* have discovered a potential new target for the condition, demonstrating that by blocking it, they can lessen the disease in mice.

In eczema, immune T cells invade the skin and secrete factors that drive an [allergic response](#), making the skin itch. Dr. Raif Geha, of Boston Children's Hospital, and his collaborators now show that scratching the skin precipitates the condition by encouraging an influx of other [immune cells](#) called neutrophils. These neutrophils secrete a lipid called leukotriene B4 that calls in more neutrophils, and more importantly, potent immune T cells that are the hallmark of eczema. These cells cause inflammation that aggravates the skin further. The investigators suspected that blocking the onslaught of these cells might slow down the disease or even stop it in its tracks.

Furthermore, Dr. Geha and his colleagues wondered whether the production of leukotriene B4 served to recruit [T cells](#) to the site of mechanical insult. And indeed that was the case. "We showed that a drug that blocks the production of leukotriene B4 blocks the development of [allergic skin](#) inflammation in a mouse model of eczema," says Dr. Geha. His team also found that deleting the receptors on immune cells that bind to leukotriene B4 had a similar effect.

"Our findings suggest that neutrophils play a key role in allergic [skin](#)

[inflammation](#) and that blockade of leukotriene B4 and its receptor might provide a new therapy for eczema," says first author Dr. Michiko Oyoshi.

Most people get eczema as infants, and they tend to outgrow it by adolescence; however some people continue to experience "flare-ups" of an itchy rash on and off throughout life. Some develop these after coming into contact with particular substances, such as specific soaps, or in response to certain conditions, such as a respiratory infection or cold.

More information: Oyoshi et al.: "Leukotriene B4 driven neutrophil recruitment to the skin is essential for allergic skin inflammation." [DOI: 10.1016/j.immuni.2012.06.018](#)

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