

Study finds protein may be responsible for damage in eosinophilic esophagitis

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Scientists have identified a protein that may be the cause of tissue damage in patients with eosinophilic esophagitis (EoE), which affects as many as 56 of every 100,000 people in the United States. EoE is a food allergy-related disease in which white blood cells called eosinophils accumulate in the esophagus, often causing difficult or painful swallowing, nausea, vomiting and poor growth in children and adults. Further understanding of the role of this protein, calpain 14, may lead to potential therapies for EoE. The researchers received support from the National Institute of Allergy and Infectious Diseases and the National Institute of Diabetes and Digestive and Kidney Diseases, both part of the National Institutes of Health.

Researchers from the Cincinnati Children's Hospital Medical Center, led by Marc E. Rothenberg, had [previously identified](#) genetic differences in EoE patients that led them to focus on the CAPN14 gene, which codes for calpain 14. In this new study, the research team collected esophageal biopsies from patients with EoE to identify a possible role for calpain 14 in the disease. They exposed cells from these tissues to an immune system signaling protein called interleukin-13, which is produced during allergic reactions, mimicking signals that may contribute to EoE in the body.

The researchers found that interleukin-13 caused cells from patients with EoE to increase markedly production of calpain 14. They also found that calpain 14 in esophageal epithelial cells regulates another protein called desmoglein 1, a critical component of tissue in the esophagus, and that

these molecular changes may be an early step in a process that leads to inflammation and scarring in the esophagus. The findings suggest that controlling the production or activity of calpain 14 may prevent the development of EoE. In this regard, calpain 14 may be a valuable drug target for further research, the researchers note.

More information: Benjamin P. Davis et al. Eosinophilic esophagitis–linked calpain 14 is an IL-13–induced protease that mediates esophageal epithelial barrier impairment, *JCI Insight* (2016). DOI: [10.1172/jci.insight.86355](https://doi.org/10.1172/jci.insight.86355)

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