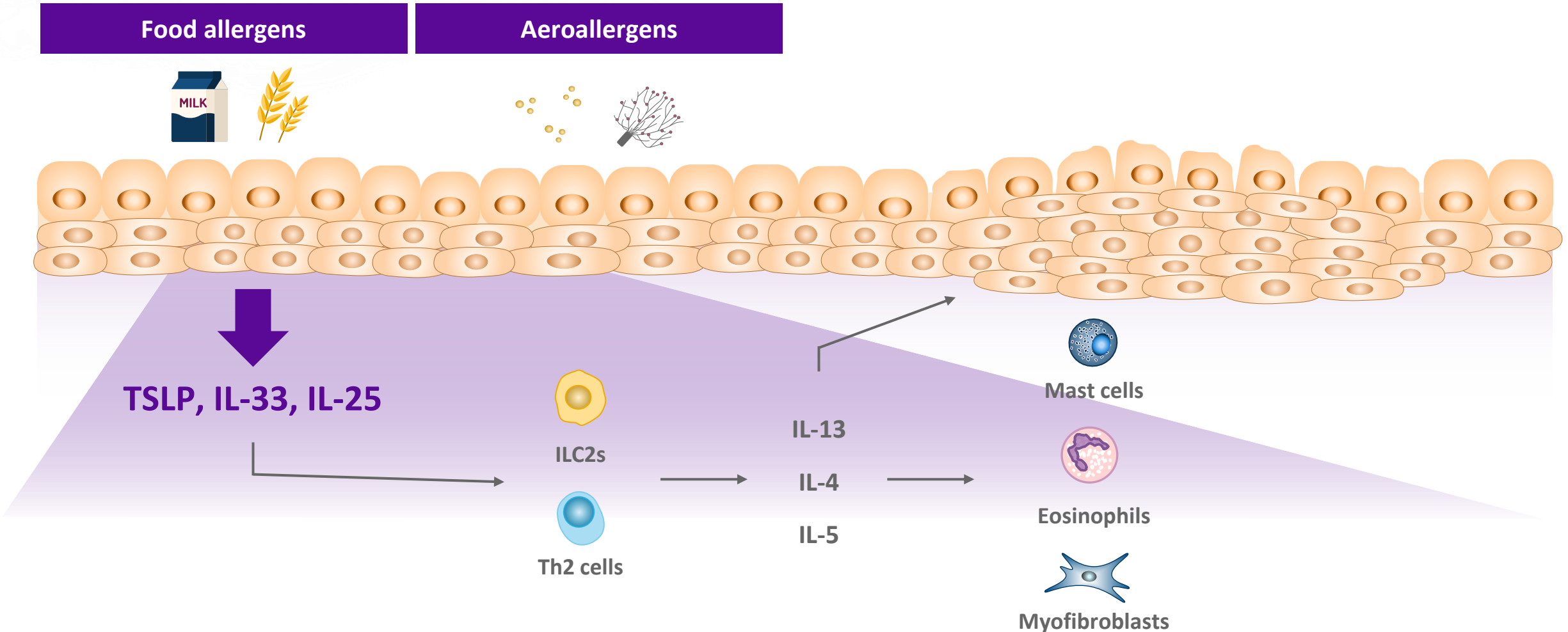


# Patient data on the role of epithelial cytokines in eosinophilic esophagitis (EoE)

Learn more about the role epithelial cytokines play in EoE



# Inflammation in EoE is initiated at the epithelium in response to environmental triggers<sup>1-4</sup>



Figures adapted from Berni Canani R, et al. Allergy 2024;79:1485–1500; the information presented in this image has been simplified for illustration purposes

EoE, eosinophilic esophagitis; IL, interleukin; ILC2, type 2 innate lymphoid cell; Th, T helper; TSLP, thymic stromal lymphopoietin

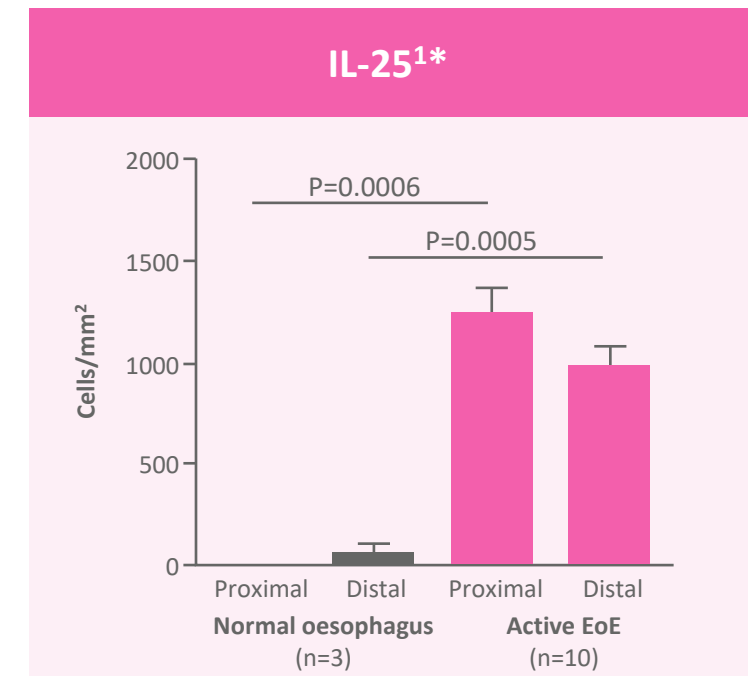
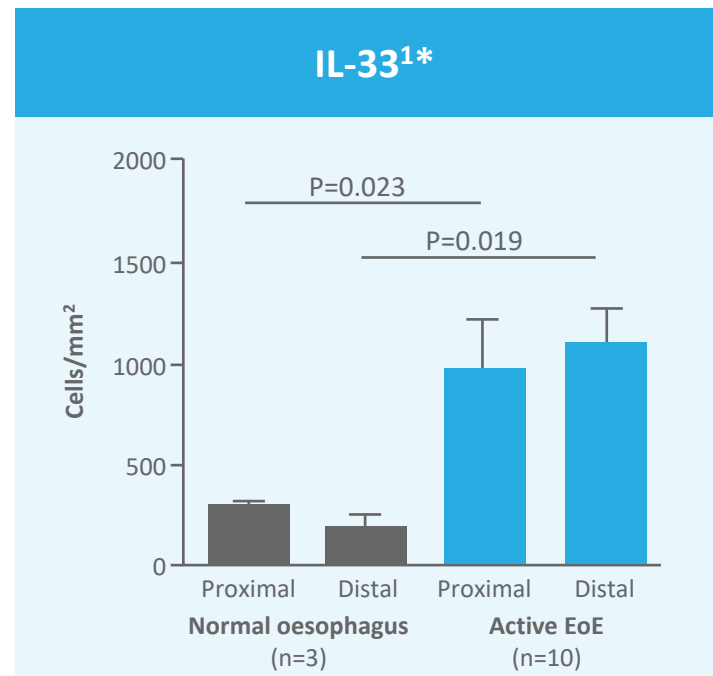
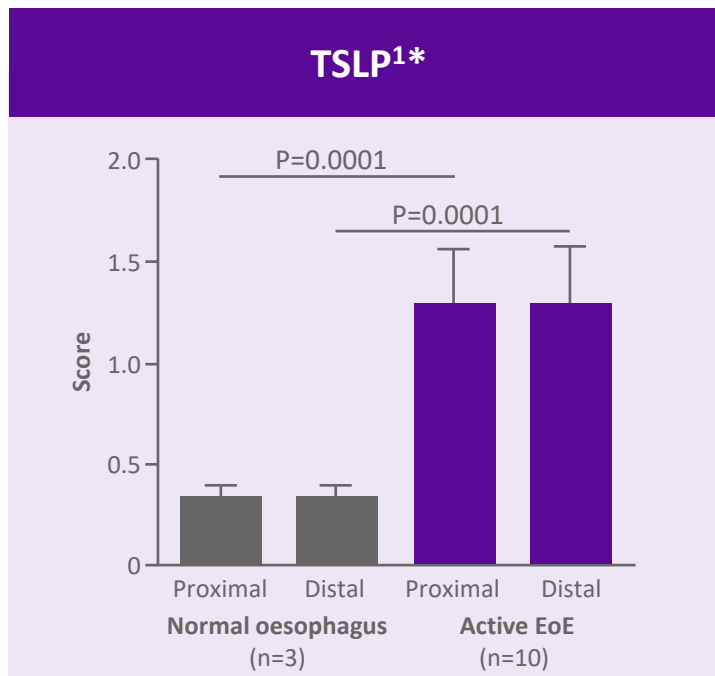
1. Berni Canani R, et al. Allergy 2024;79:1485–1500; 2. Farah A, et al. Diagnostics (Basel) 2025;15:240; 3. Underwood B. Ann Allergy Asthma Immunol 2023;130:28–39;

4. Laky K, et al. J Allergy Clin Immunol 2024;153:1485–1499

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# Epithelial cytokines are overexpressed in patients with EoE

Oesophageal biopsies from patients with EoE show significantly higher epithelial cytokine expression than healthy controls<sup>1–3</sup>



Figures adapted from Simon D, et al. Allergy 2015;70:443–452

\*Anonymised tissue samples from 18 patients with active EoE were analysed. The presence of DNA nets associated with eosinophil granule proteins forming EETs and the expression of filaggrin, antimicrobial peptides, and cytokines were evaluated by confocal microscopy following immune fluorescence staining techniques<sup>1</sup>

DNA, deoxyribonucleic acid; EET, eosinophil extracellular traps; EoE, eosinophilic esophagitis; IL, interleukin; TSLP, thymic stromal lymphopoietin

1. Simon D, et al. Allergy 2015;70:443–452; 2. Chandramouleeswaran PM, et al. PLoS ONE 2016;11:e0150968; 3. Travers J, et al. Sci Rep 2017;7:17563;

4. Varricchi G, et al. J Allergy Clin Immunol 2025;155:1420–1434; 5. Bamias G, et al. J Immunol 2003;171:4868–4874

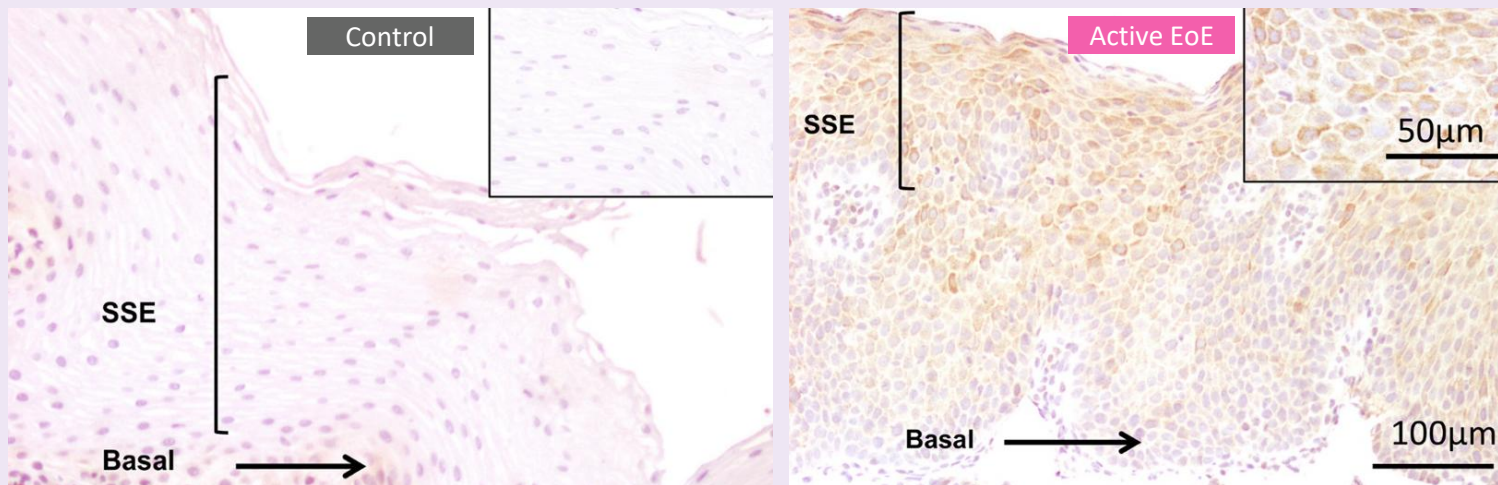
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# Epithelial cytokines are overexpressed in patients with EoE

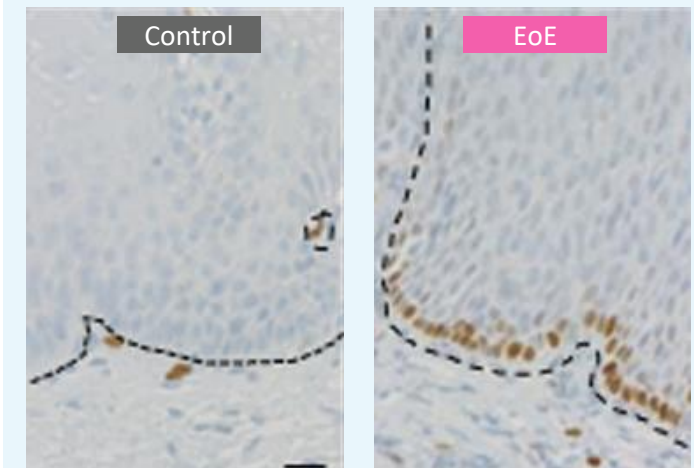
Oesophageal biopsies from patients with EoE show significantly higher epithelial cytokine expression than healthy controls<sup>1-3</sup>

## TSLP expression in the suprabasal differentiated compartment of the oesophageal epithelium of paediatric patients<sup>2\*</sup>



Immunohistochemistry: cells expressing TSLP stain brown

## IL-33 localisation in oesophageal basal epithelial cells<sup>3</sup>



Immunohistochemistry: cells expressing IL-33 stain brown, dashed line indicates basement membrane

Images from Chandramouleeswaran PM, et al. PLoS ONE 2016;11:e0150968 and Travers J, et al. Sci Rep 2017;7:17563

\*TSLP expression was characterised in human oesophageal epithelium in EoE in vivo and to determine the role of food antigens upon epithelial TSLP expression in vitro. Using immunohistochemistry, TSLP was localised in oesophageal biopsies of active EoE ( $\geq 15$  eos/hpf), inactive EoE ( $< 15$  eos/hpf) and non-EoE control subjects<sup>2</sup>

EoE, eosinophilic esophagitis; eos/hpf, eosinophils per high-power field; IL, interleukin; SSE, stratified squamous epithelium; TSLP, thymic stromal lymphopoietin

1. Simon D, et al. Allergy 2015;70:443–452; 2. Chandramouleeswaran PM, et al. PLoS ONE 2016;11:e0150968; 3. Travers J, et al. Sci Rep 2017;7:17563;

4. Varricchi G, et al. J Allergy Clin Immunol 2025;155:1420–1434; 5. Bamias G, et al. J Immunol 2003;171:4868–4874

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# TSLP polymorphisms are observed in patients with EoE

## TSLP polymorphisms associated with EoE

- ✿ In patients with EoE, genomic analyses have identified polymorphisms associated with:



*TSLP*<sup>1–3\*</sup>



*TSLPR*<sup>2</sup>

## Elevation of *TSLP* expression in EoE

- ✿ Overexpression of several critical genes, including ***TSLP***, was found to disrupt the oesophageal barrier and enhance immune-mediated inflammation<sup>4</sup>
- ✿ Variants in the genes encoding the alarmin TSLP are associated with increased risk of developing EoE; ***TSLP* expression is increased in biopsy samples from patients with EoE<sup>5</sup>**

**\*There are currently no well-established polymorphisms in the *IL-33* or *IL-25* genes associated with EoE susceptibility<sup>6</sup>**

EoE, eosinophilic esophagitis; IL, interleukin; TSLP, thymic stromal lymphopoietin; TSLPR, thymic stromal lymphopoietin receptor

1. Rothenberg ME, et al. Nat Genet 2010;42:289–291; 2. Sherrill JD, et al. J Allergy Clin Immunol 2010;126:160–165; 3. Kottyan LC, et al. Nat Genet 2014;46:895–900; 4. Ryu S, et al. Int J Mol Sci 2020;21:7253; 5. Laky K, et al. J Allergy Clin Immunol 2024;153:1485–1499; 6. Trimarchi MP, et al. Res Sq 2025;10.21203/rs.3.rs-6630283/v2

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