# The IL-33 receptor ST2 is highly induced on IL-13-expressing tissue eosinophils in eosinophilic esophagitis

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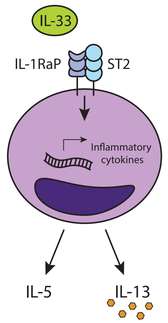
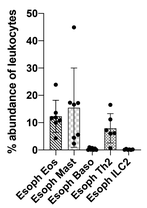
## RATIONALE:

- Eosinophilic esophagitis (EoE) is an increasingly common allergic disease characterized by esophageal eosinophilia.
- IL-33 is elevated in EoE patients and IL-33 signaling, through its receptor ST2, is recognized as a potent initiator of type 2 inflammatory responses implicated in atopic diseases like EoE.



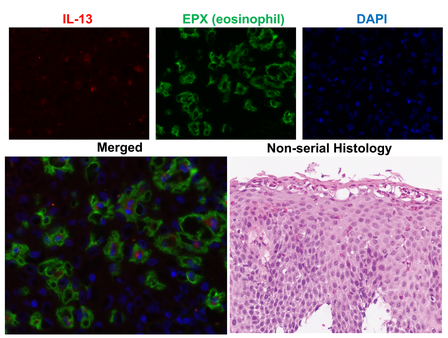

## METHODS:

- Collected blood and esophageal biopsies from EoE and healthy patients.
- Performed flow cytometry on **43 EoE** patients.
- Performed single cell RNA sequencing and immunofluorescence on **3 EoE** patients.
- Measured **ST2, IL-5** and **IL-13** on blood and tissue immune cells.

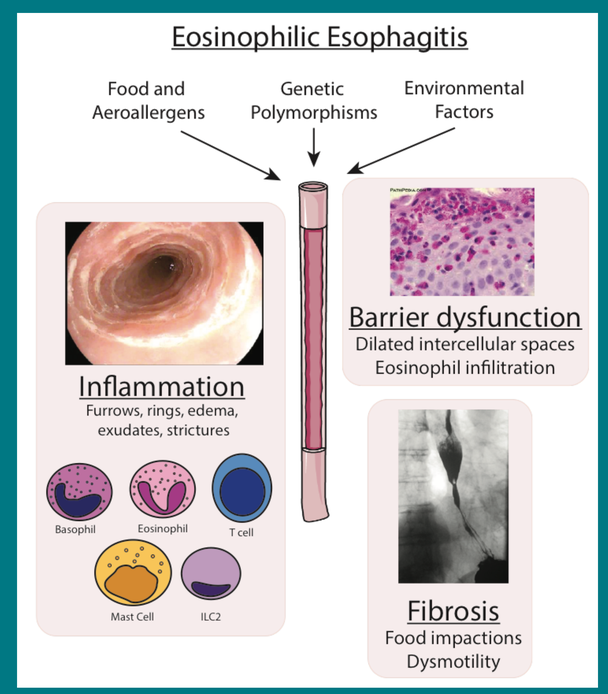



## RESULTS:

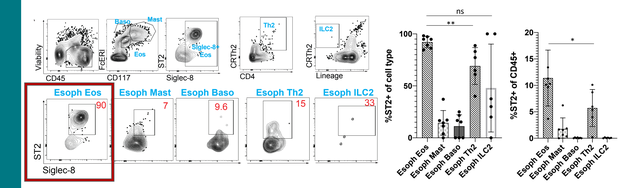
- Blood eosinophils have low expression of ST2.
- ST2 is highly expressed on esophageal eosinophils from EoE patients
- ST2+ esophageal eosinophils highly express IL-5 and IL-13



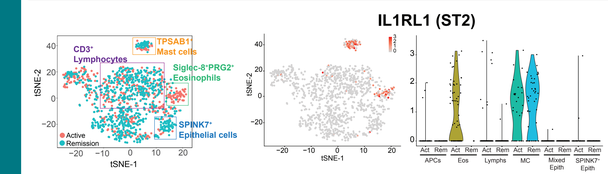

# Flow cytometry and single cell RNA sequencing reveal tissue eosinophils highly express ST2 and IL-13 in eosinophilic esophagitis patients



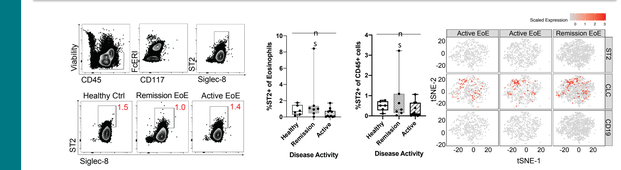

## ST2 protein is highly expressed on tissue eosinophils in EoE



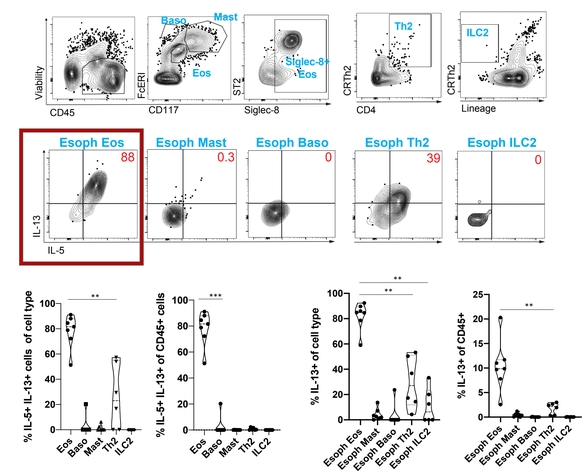

## Increased ST2 transcription on tissue eosinophils & mast cells in EoE




## ST2 is low in blood eosinophils regardless of disease state or activity




## Tissue eosinophils highly express IL-5 and IL-13



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