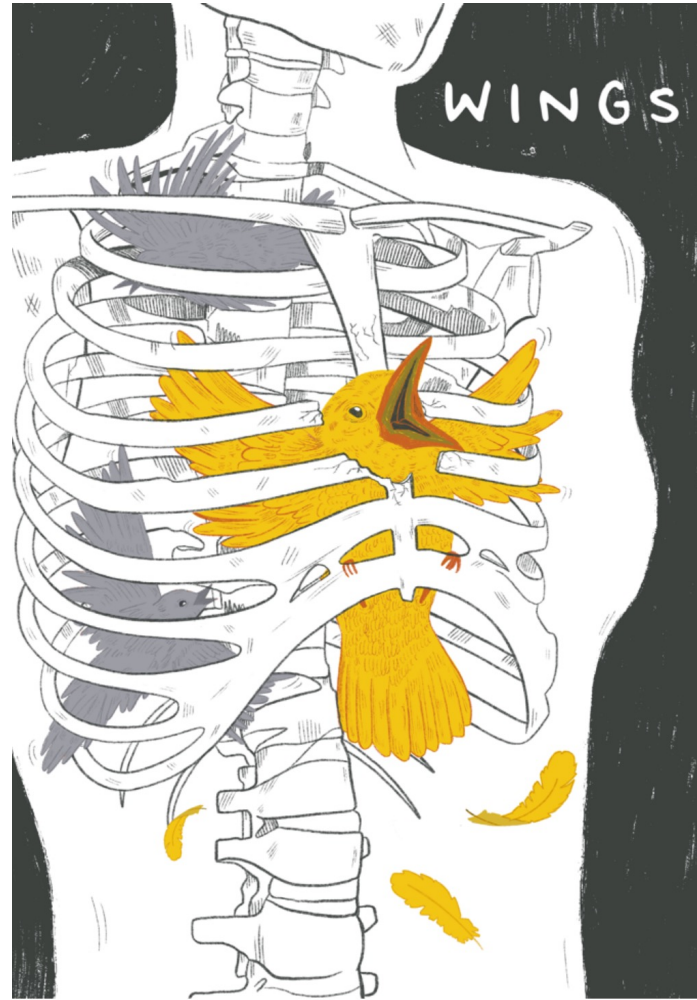


**SSC Project :**

**Understanding the nature of asthma  
exacerbations in patients on tezepelumab**

**Raphael Birch**

# The burden of living with severe asthma



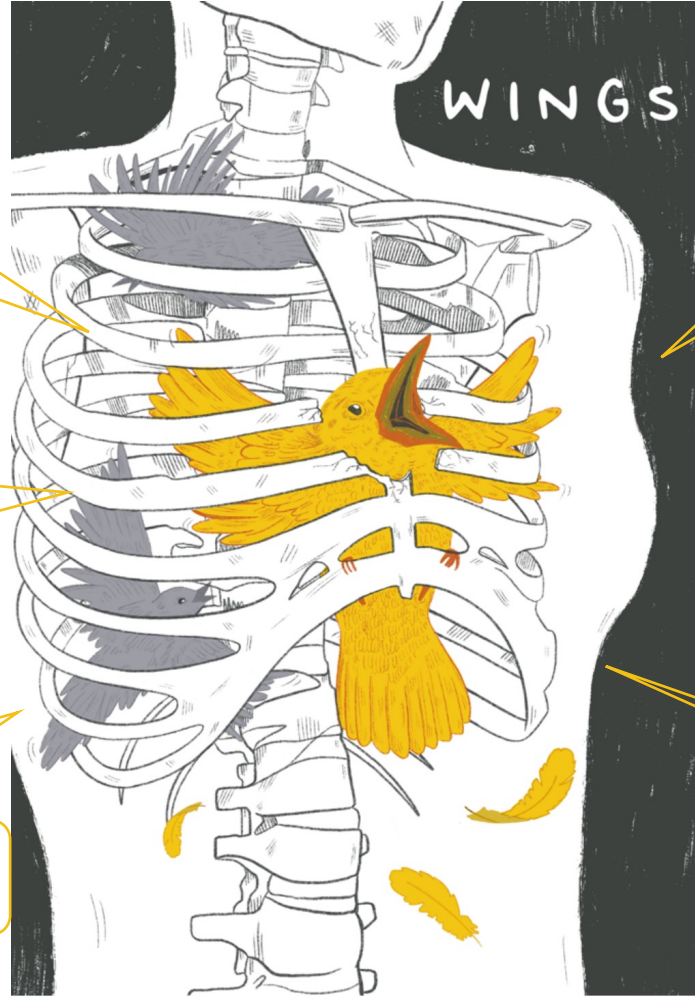
Artist Danielle Glover's interpretation of living with severe Asthma

# Mary's asthma story

Inhalers and routine check-ups

Harder and harder to control

The highest doses of inhaled steroids

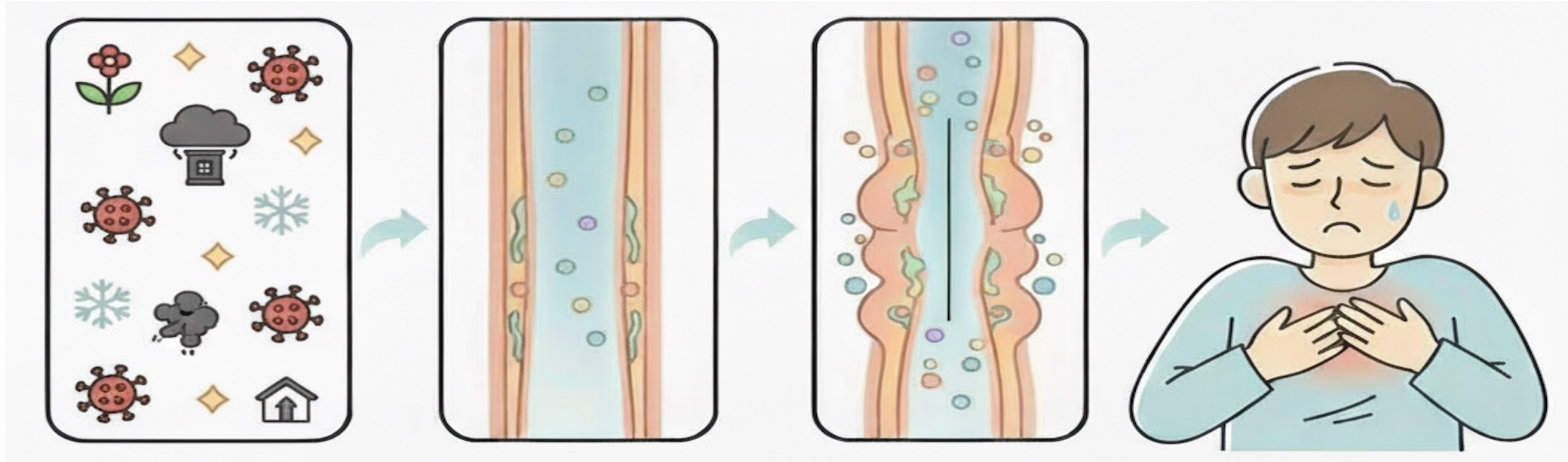


Life-threatening attacks

Frightening

Uncontrolled

# How does an asthma attack occur?



**Person inhales  
cold air, viruses,  
allergens,  
pollution ect**

**Airways release  
chemical  
signals that  
trigger  
inflammation**

**Inflammation  
causes airway  
narrowing**

**Asthma attack  
(exacerbation)**

# T2 vs non - T2 Asthma

## T2 Inflammation

Driven by high levels of  
**eosinophils**

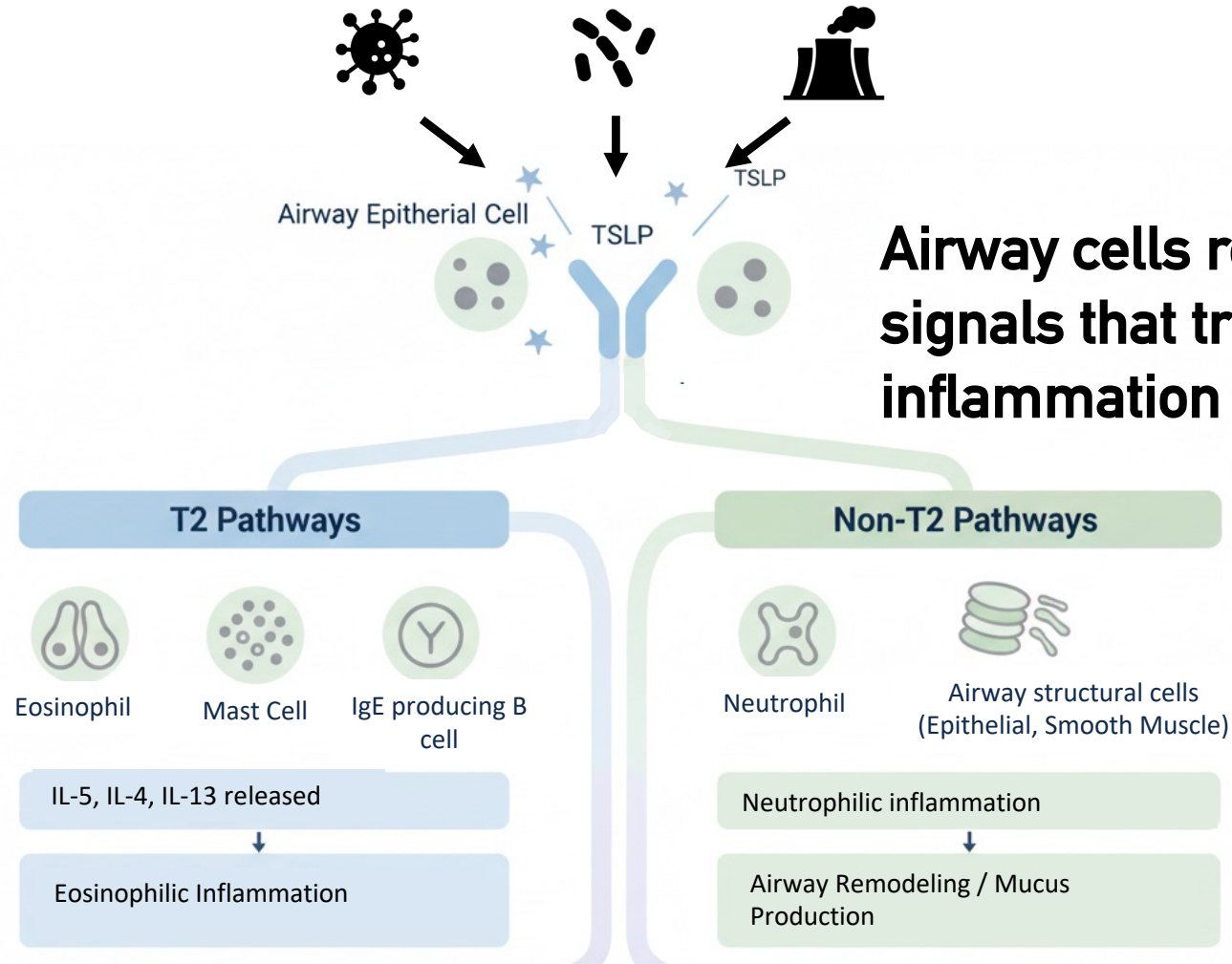


## Non - T2 Inflammation

Driven by high levels of  
**neutrophils +/-  
lymphocytes**



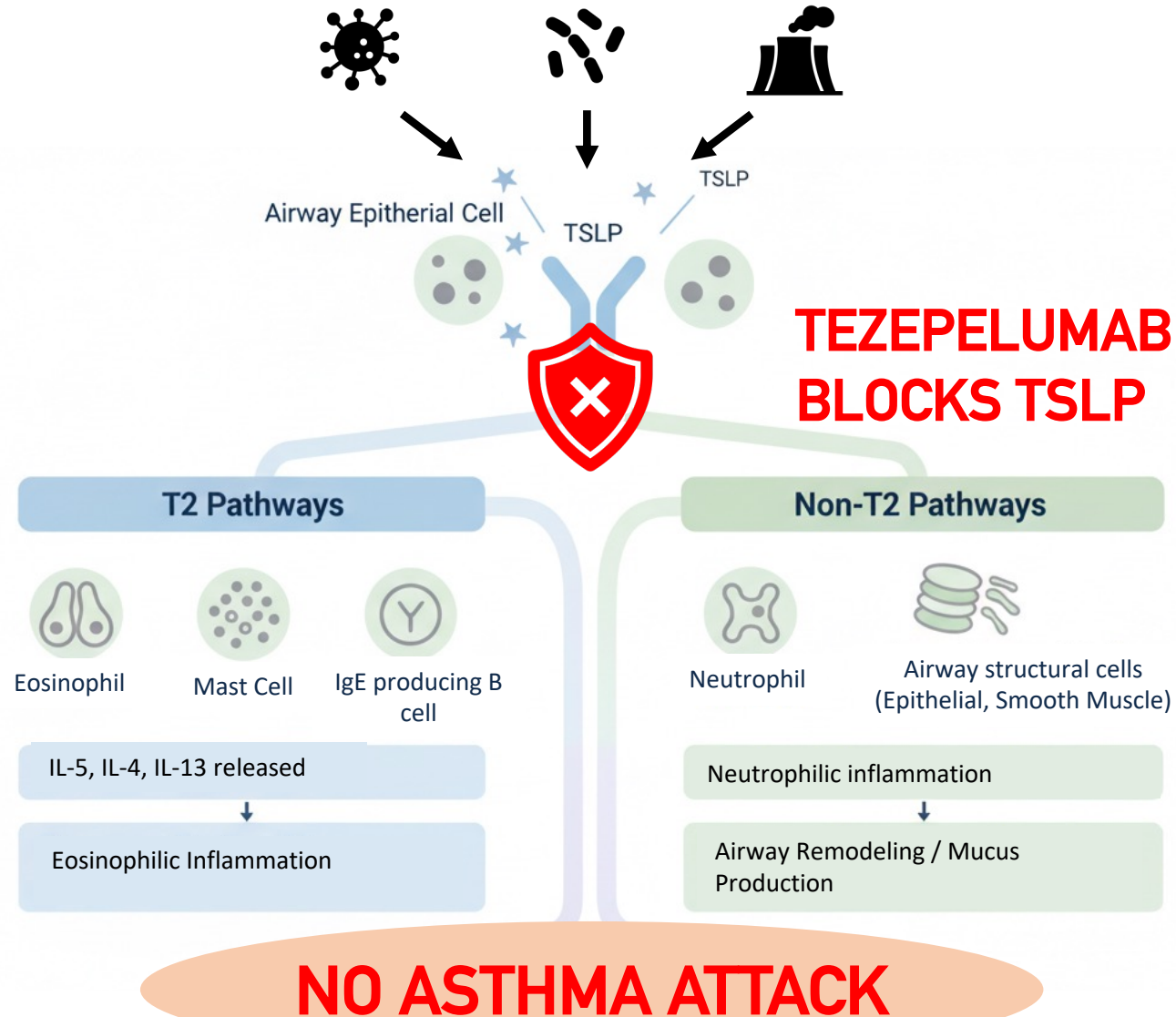
# Airway inflammation



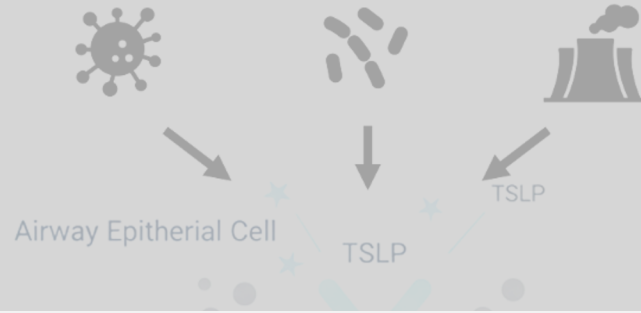
**ASTHMA ATTACK**



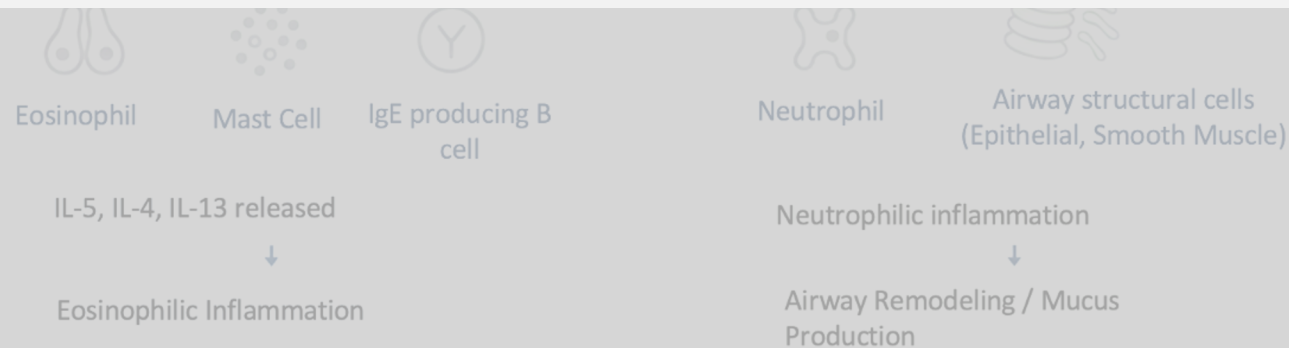
# How Tezepelumab works



# How Tezepelumab works



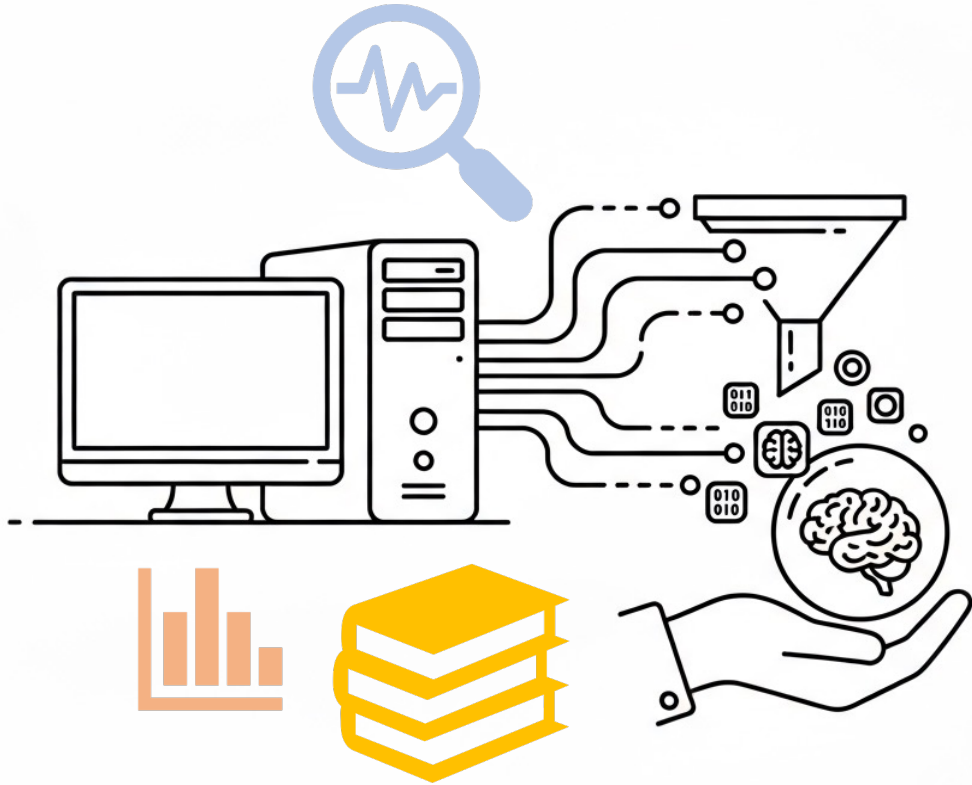
**But why is Mary still  
having the attack?**



**NO ASTHMA ATTACK**



# My research method

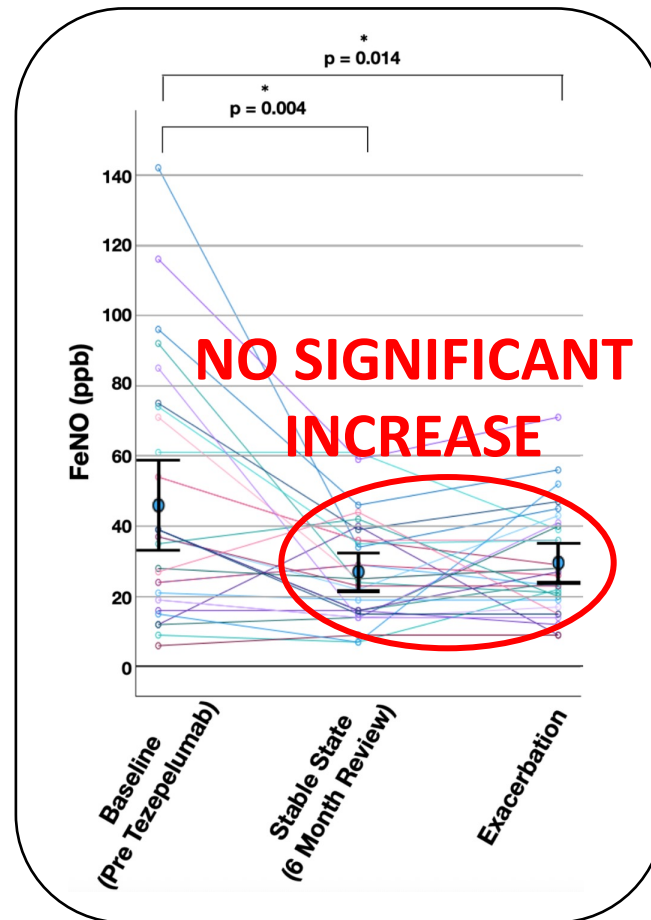


- I collected data about 26 patients who have had an asthma attack while on tezepelumab.
- These included : **Blood Eosinophil Count and FENO** from 3 timepoints:
  - Before starting tezepelumab,
  - After 6 months on tezepelumab
  - At exacerbation

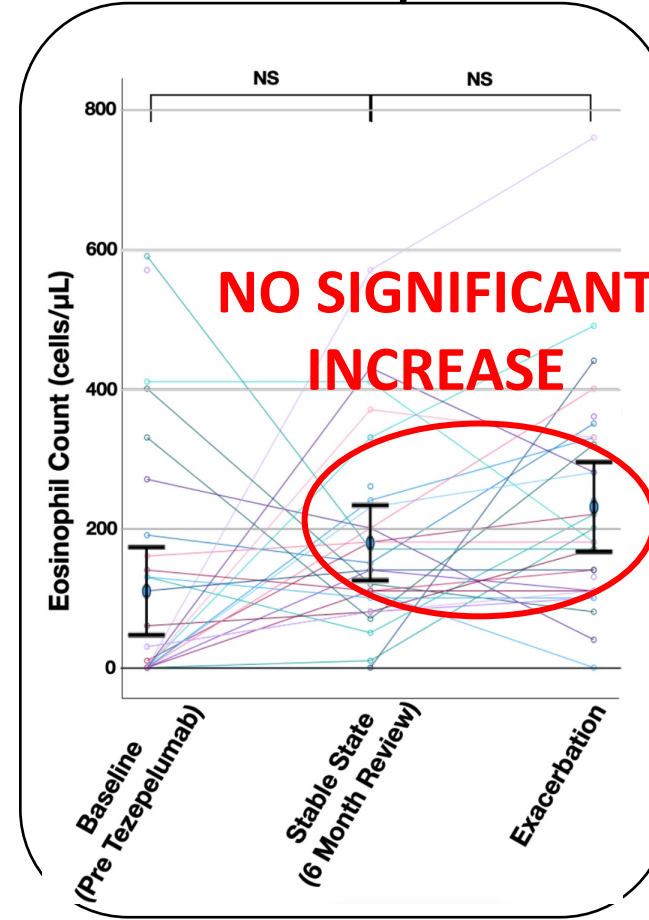
# Key results – T2 Inflammatory Markers



FeNO



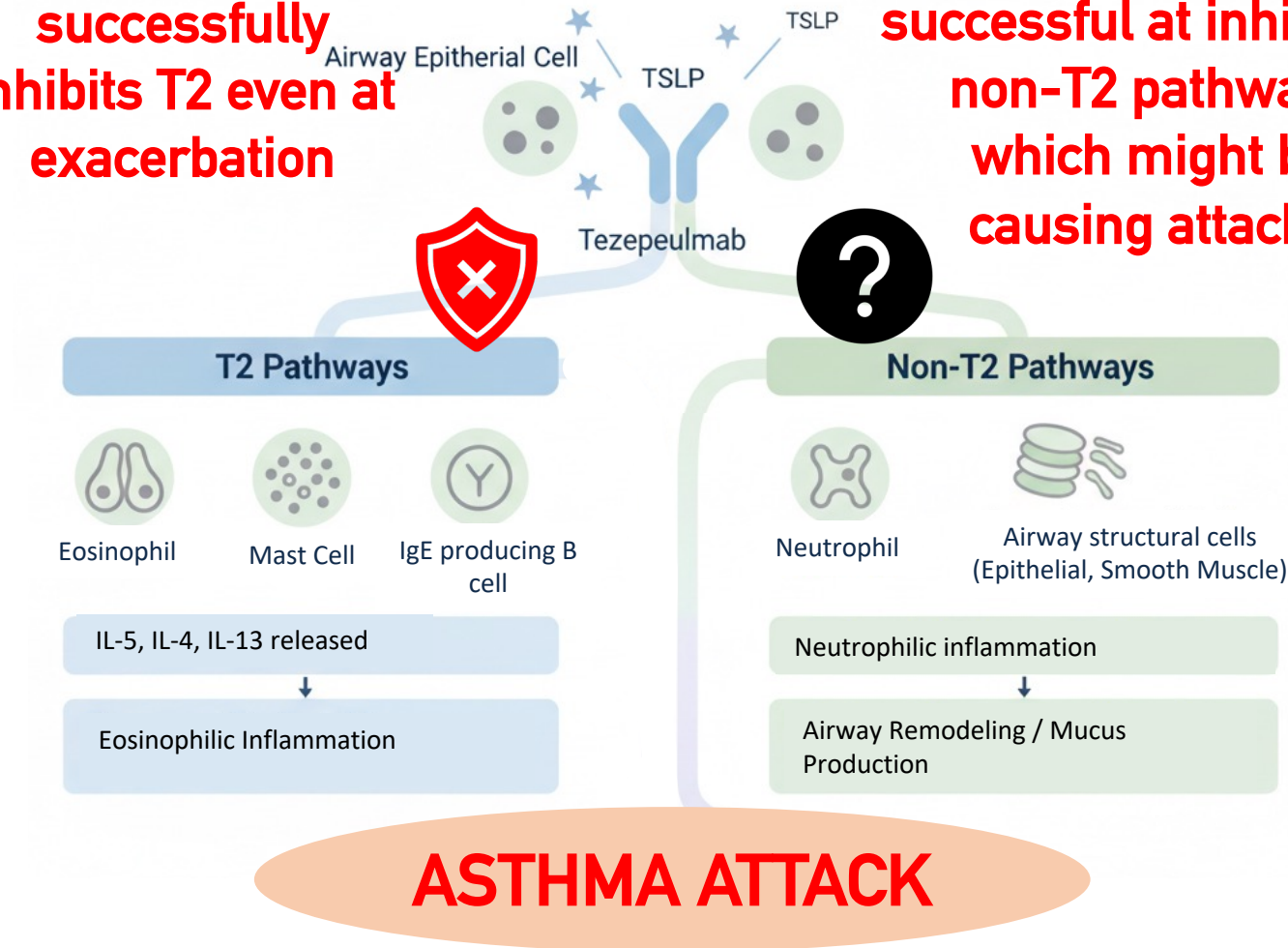
Blood Eosinophil Count



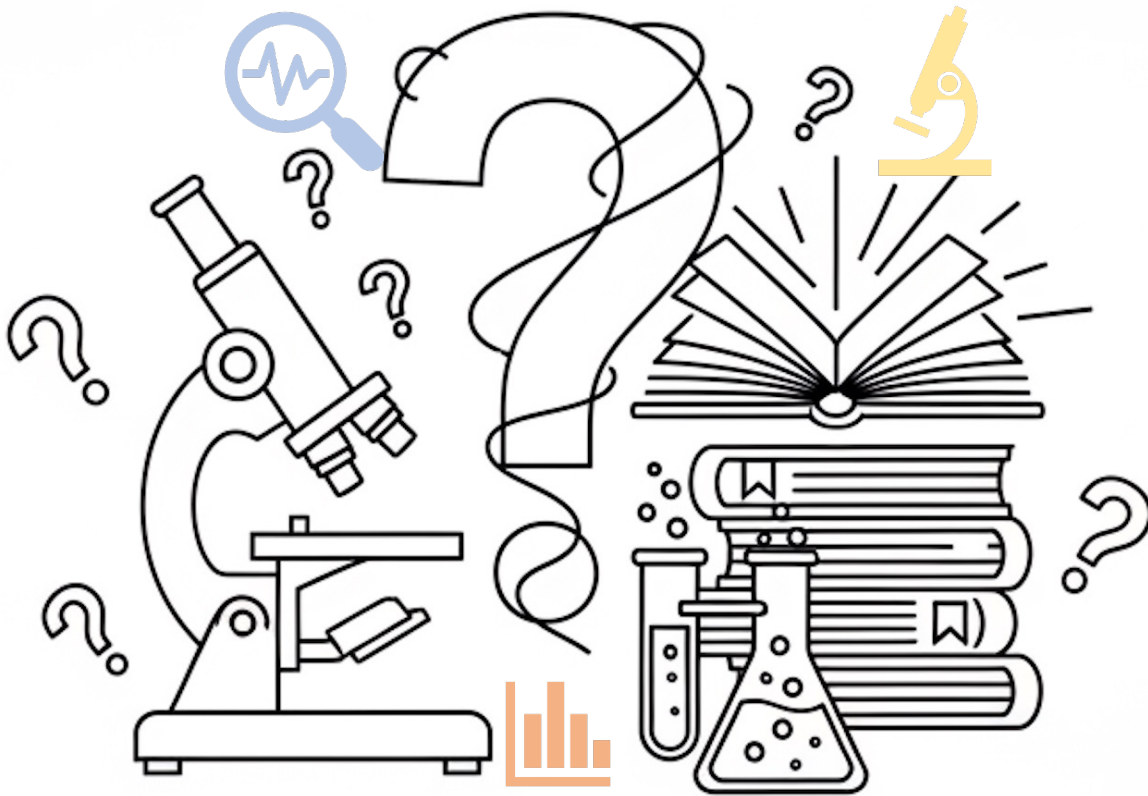
# Interpretation of the results

**TEZEPELUMAB**  
**successfully**  
**inhibits T2 even at**  
**exacerbation**

**This could mean it isn't**  
**successful at inhibiting**  
**non-T2 pathways**  
**which might be**  
**causing attacks**

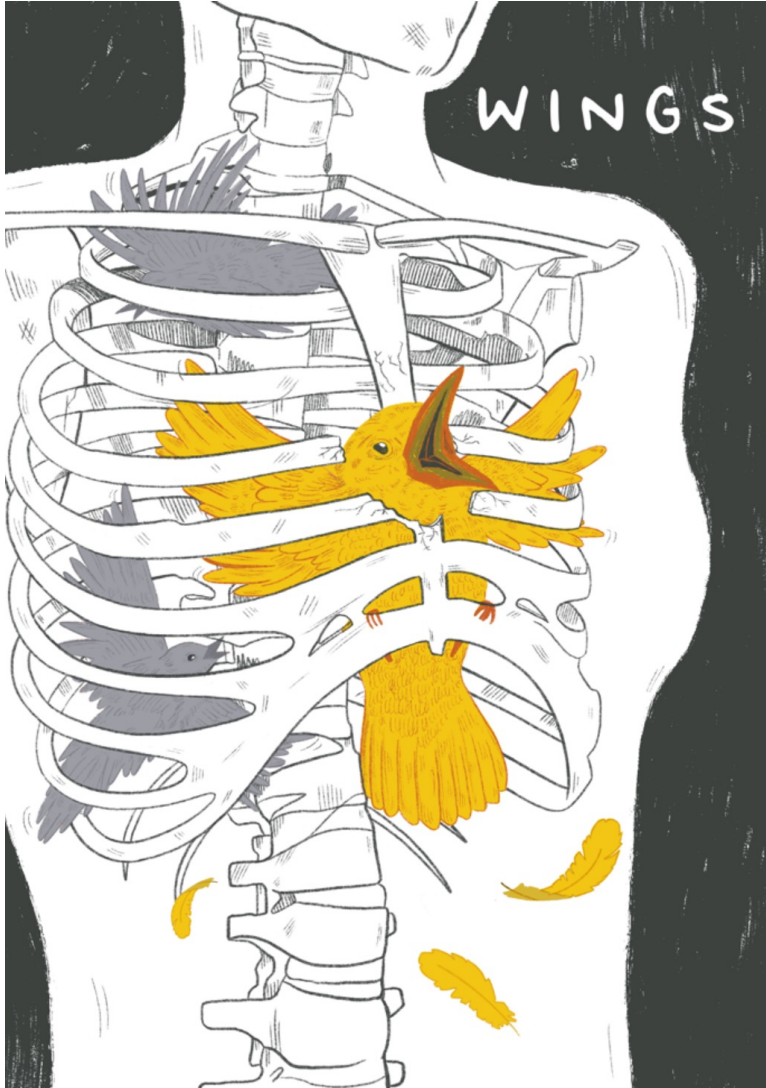


# Future research



- Investigate non T2 inflammatory markers during asthma exacerbations in tezepelumab patients
- Trial non-T2 targeting medications alongside tezepelumab to reduce non T2 inflammation.

# Guidelines and Patient Care



- Patient experiences changed how I interpret guidelines.
- Realised guidelines are population-based and don't always fit individual patients.
- Learned the importance of recognising guideline limitations in managing expectations and finding the best treatments.
- This SSC highlighted the need for personalised, flexible, patient-centred practice.