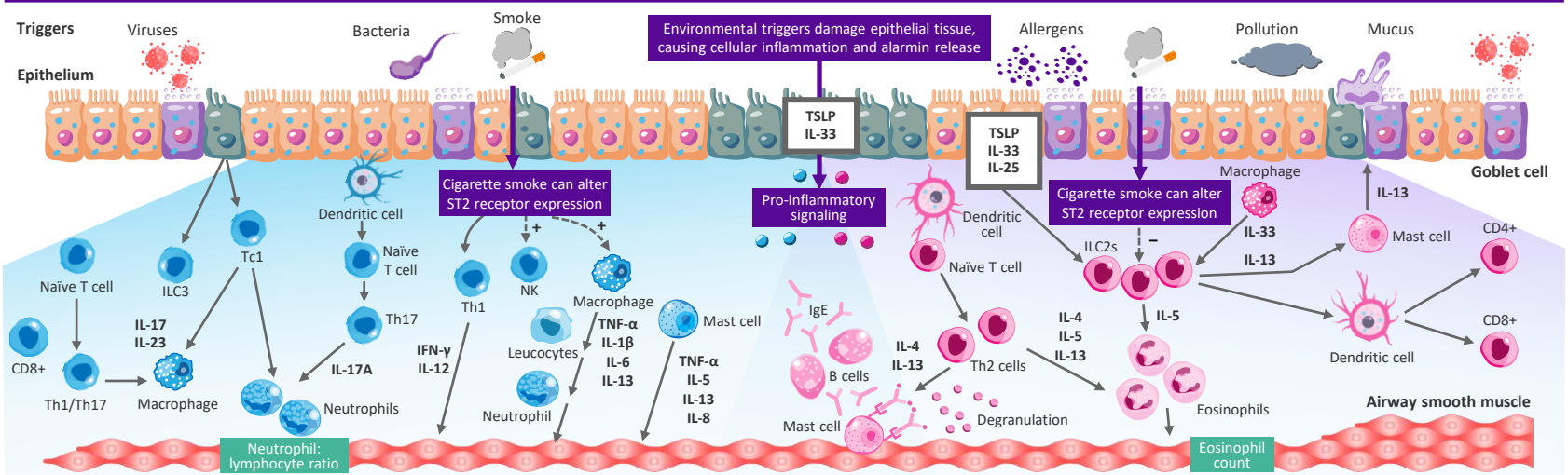
Inflammation in COPD

Inflammation associated with COPD*



Disease pathology and clinical manifestations

- Emphysema, dyspnea, and chronic cough
- Excess mucus production
- Chronic inflammation, pro-inflammatory signaling, and exacerbations
- Potential for small airway obliteration and lung parenchyma destruction
- Potential for fibrosis, epithelial remodeling, and epithelial damage

***Please note that the proposed inflammatory pathways in COPD shown here have been simplified for illustration purposes only and do not align with specific disease pathology or clinical manifestations, nor do they imply clinical benefit or relevance**

Inflammation in COPD is associated with Type 1, Type 3, and Type 2 pathways contributing to heterogeneous disease pathology and clinical manifestations.[1–8] This can be further impacted by environmental triggers including smoking, which can increase or decrease ST2 receptor expression on inflammatory cells.[1] To determine a patient's disease phenotype and contribute to a better understanding of the underlying disease biology, biomarkers of disease such as eosinophil count and the neutrophil/lymphocyte ratio can be measured,[4,5] reflecting examples of how biomarker approaches could be combined in the future to assess inflammation in COPD and tailor precision medicine-based approaches to disease management and treatment[2]

Figure adapted from Calderon AA, et al. Eur Respir Rev 2023;32:220144 and Brightling C, Greening N. Eur Respir J 2019;54:1900651

CD, cluster of differentiation; COPD, chronic obstructive pulmonary disease; IFN, interferon; IgE, immunoglobulin E; IL, interleukin; ILC, innate lymphoid cell; NK, natural killer; ST2, suppression of tumorigenicity 2; Tc, cytotoxic T cell; Th, T helper; TNF, tumor necrosis factor; TSLP, thymic stromal lymphopoietin

1. Calderon AA, et al. Eur Respir Rev 2023;32:220144; 2. Brightling C, Greening N. Eur Respir J 2019;54:1900651; 3. MacNee W. Proc Am Thorac Soc 2005;2:258–266; 4. Paliogiannis P, et al. Eur Respir Rev 2018;27:170113; 5. Rabe KF, et al. Am J Respir Crit Care Med 2023;208:395–405; 6. Safiri S, et al. BMJ 2022;378:e069679; 7. Keddache S, et al. Clin Immunol 2021;229:108798; 8. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the prevention, diagnosis and management of chronic obstructive pulmonary disease: 2024 report. Available from: https://goldcopd.org/2024-gold-report. Accessed 11 April 2024

EpiCentral
UNDERSTANDING THE CENTRAL ROLE OF THE EPITHELIUM IN SEVERE ASTHMA AND BEYOND

AMGEN AstraZeneca

US-90383 Last Updated 06/24. © 2024 AstraZeneca. All Rights Reserved. This information is intended for healthcare professionals only. EpiCentral is sponsored by Amgen and AstraZeneca.