The Role of IL-5 in Inflammatory Diseases

Support: The publication of this infographic was funded by GSK. This content is intended for US Healthcare Professionals only. PSE-US-4097 | June-25

The Role of IL-5 on Eosinophils Has Been Well Established as Central to Its Development, Maturation, and Activation^{1,2}



(n=3). *Found in sinus tissue.

[‡]Found in airway tissue.

Effects of IL-5 on eosinophils and other cell types⁶



IL-5 signaling Downregulates genes Enhances Is responsible for differentiation, Stimulates expression Mediates T.... cel Mediates relating to tight junctions proliferation and proliferation, and survival of eosinophils, of functional IL-5Rα on production¹⁰ ILC2 activity¹¹ and barrier function in activation of contributing to increased eosinophil protein plasma cells^{3,9} fibroblasts⁴ signaling and downstream airway ated epithelial cells^{3,} remodeling effects⁸ Promotes epithelial barrier Plays a role in immune nses^{2,3,8-11} and formation dysfunction and fibrosis^{3,4,7} of mucus plugs¹³ Leads to airway remodeling¹² and disease progression¹⁴ The relative contributions of IL-5 beyond eosinophils to disease pathology have yet to be quantified and require further studies to understand the impact of each contributing factor in the disease processes of patients with IL-5-mediated conditions. This information is scientific and non-promotional in nature and is not intended for further distribution. Abbreviations: AERD: aspirin-exacerbated respiratory disease; CLC: Charcot-Leyden crystals; CRSsNP: chronic rhinosinusitis without nasal polyps; CRSwNP: chronic rhinosinusitis with nasal polyp; DC: dendritic cell; ECM: extra-cellular matrix; EMTU: epithelial-mesenchymal trophic units; EPX: eosinophil peroxidase; ILC: innate lymphoid cell; ILC2: type 2 innate lymphoid cells; IL-5Ra: interleukin-5 receptor alpha; iNOS: inducible nitric oxide synthase; TGF-β: transforming growth factor β; T_{ren}: regulatory T cell; TSLP: tymic stromal lymphopoietin; VEGF: vascular endothelial growth factor.

References:

1. Travers J et al. Mucosal Immunol. 2015;8(3):464-75. 2. Pelaia C et al. Front Physiol. 2019;10:1514. 3. Buchheit KM et al. J Allergy Clin Immunol. 2021;148(2):574-84. 4. Bajbouj K et al. Allergy. 2023;78(3):882-5. 5. Gorski SA et al. PLoS ONE. 2019;14:1-13. 6. Buchheit KM et al. Allergy. 2024;79(10):2662-79. 7. Barretto KT et al. Allergy. 2020;75(8):2127-30. 8. Siddiqui S et al. J Allergy Clin Immunol. 2023;152(4):841-57. 9. Buchheit KM et al. J Allergy Clin Immunol. 2020;145(6):1574-84. Do. Bergantini Le tal. Scand J Immunol. 2021;94(1):e13031.
Malik Bet al. Respirology. 2023;28(8):758-66.
Domvri K et al. J Allergy Clin Immunol. 2025;155(2):425-35.
Dunican EM et al. J Clin Invest. 2018;128(3):997-1009.
Huang Y et al. Ann Transi Med. 2022;10(18):1023.

Evolving Evidence Suggests the Effect of IL-5 on Eosinophils and Other Cell Types Can Lead to Epithelial Barrier Dysfunction, Airway Remodeling, and Disease Progression^{3,4,7-12}







© 2025 GSK group of companies or its licensor.