

IL-33, TSLP and IL-25 are key epithelial cytokines in asthma

Cell sources, target cells, and central effects of IL-33, TSLP and IL-25

	IL-33	TSLP	IL-25 (IL-17E)
Cell sources	Airway smooth muscle, endothelial cells, fibroblasts, macrophages, dendritic cells, mast cells ^{1,2}	Lung-, GI tract- and skin-derived epithelium, fibroblasts, airway smooth muscle, endothelial cells, mast cells, macrophages/monocytes, dendritic cells ^{1,4}	<ul style="list-style-type: none"> • Epithelial cells, Th2 cells, mast cells, basophils and eosinophils¹ • IL-25 is high in the serum of patients with allergic asthma and following viral infections⁶
Target cells	Mast cells, macrophages, stromal cells, invariant NKT cells, eosinophils, basophils, ILC2, CD8+ T cells, fibroblasts ¹	Dendritic cells, CD4+ T cells, CD8+ T cells, regulatory T cells, B cells, mast cells, NKT cells, ILC2 cells, monocytes, eosinophils, basophils, airway smooth muscle, airway epithelium ^{1,4}	Dendritic cells, macrophages, basophils, eosinophils, invariant NKT cells, airway epithelial cells, endothelial cells, fibroblasts ^{1,2}
Central effects	<ul style="list-style-type: none"> • Potent activator of ILC2 and type 2 cytokine production¹ • More sustained deposition of extracellular matrix protein, neoangiogenesis and type 2 cytokine expression than IL-25³ 	<ul style="list-style-type: none"> • Activation of dendritic cells to promote CD4-Th2 phenotype⁴ • Activation of ILC2¹ • Basophil activation and release of type 2 cytokines^{1,2,5} • Mast cell growth⁵ 	<ul style="list-style-type: none"> • Development and activation of ILC2¹ • Production of type 2 cytokines¹ • Antagonistic to Th17 cell differentiation¹

IL, interleukin; ILC2, type 2 innate lymphoid cell; NKT, natural killer T; Th, T helper; TSLP, thymic stromal lymphopoietin

1. Roan F, et al. J Clin Invest 2019;129:1441–1451; 2. Bartemes KR, Kita H. Clin Immunol 2012;143:222–235; 3. Li Y, et al. Immunology 2015;145:508–518; 4. Gauvreau GM, et al. Expert Opin Ther Targets 2020;24:777–792; 5. Han NR, et al. J Invest Dermatol 2014;134:2521–2530; 6. Beale J, et al. Sci Transl Med 2014;6:256ra134

CN-142686; date of preparation: DEC 2024. © 2025 AstraZeneca. All Rights Reserved. This information is intended for healthcare professionals only. EpiCentral is sponsored and developed by Amgen and AstraZeneca.