Type 2 Inflammation Underpins Pediatric Severe Asthma

Type 2 inflammation is driven by key cytokines **IL-4, IL-13, and IL-5**, often characterized by elevated **eosinophils** and/or **FeNO**, and **may be clinically allergen-driven**[1]

TYPE 2 INFLAMMATION[1-5]

Disease Burden

- Exacerbations[6]
- Lung function impairment[7]
- OCS overexposure[8]
- Hospitalizations[9,10]
- Reduced patient and caregiver HRQoL[11,12]
- Sleep disturbances[13]
- Missed school days[14]

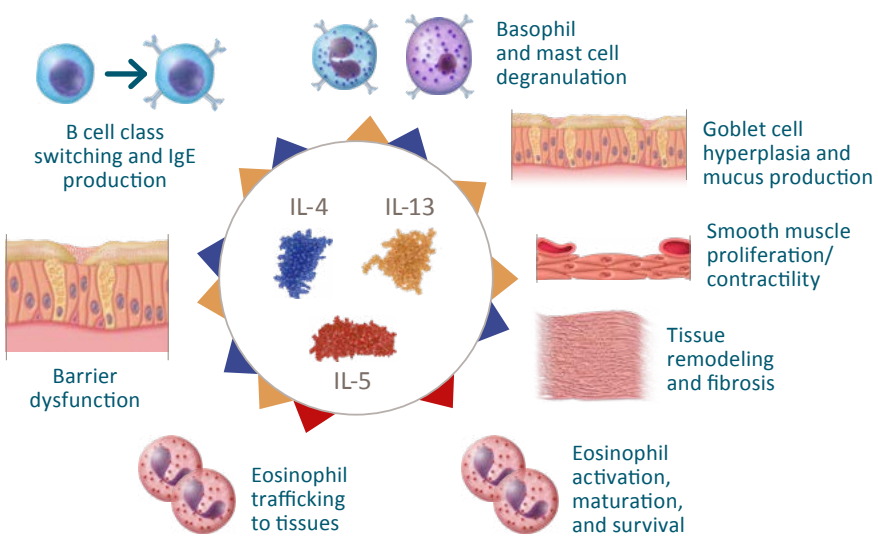
Allergic asthma | **Eosinophilic asthma**

Coexisting Diseases

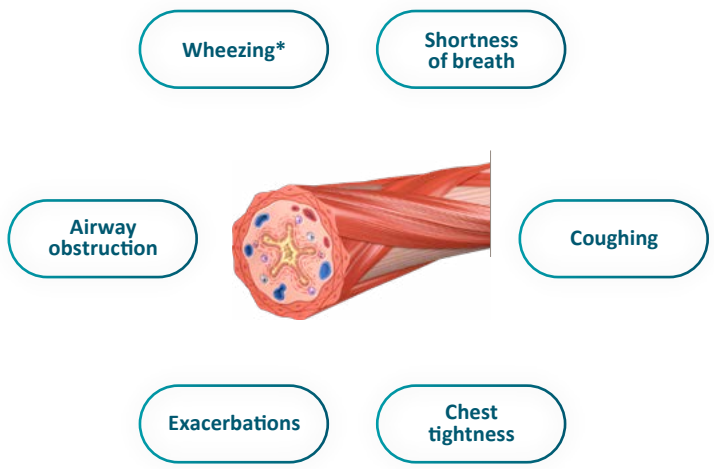
Coexisting type 2 inflammatory diseases are common in pediatric asthma patients and can increase the cumulative burden of disease[15]

- Atopic dermatitis
- Allergic rhinitis
- Food allergy

Pathophysiological Consequences[16-19]



Clinical Consequences[1,16]



*The production of a high-pitched whistling sound while breathing.[20]

FeNO=fractional exhaled nitric oxide; **HRQoL=**health-related quality of life; **IgE=**immunoglobulin E; **IL=**interleukin; **OCS=**oral corticosteroids.

1. Global Initiative for Asthma (GINA). Global strategy for asthma management and prevention. Updated 2021. https://ginasthma.org/wp-content/uploads/2021/04/GINA-2021-Main-Report_FINAL_21_04_28-WMS.pdf. Accessed May 27, 2021. **2.** Gauthier M, et al. *Am J Respir Crit Care Med*. 2015;192(6):660-668. **3.** Wenzel SE. *Nat Med*. 2012;18(5):716-725. **4.** Bacharier LB, et al. Presented at the American Thoracic Society (ATS 2021) International Conference; May 14-19, 2021. Abstract #1204. **5.** Papadopoulos N, et al. Presented at the European Academy of Allergy and Clinical Immunology (EAACI Hybrid Congress 2021); July 10-12, 2021. Abstract #934. **6.** Chipps BE, et al. *Curr Respir Care Rep*. 2012;1(4):259-269. **7.** McGeachie MJ, et al. *N Engl J Med*. 2016;374(19):1842-1852. **8.** Arabkhazaeli A, et al. *J Asthma*. 2016;53(10):1012-1017. **9.** Witt WP, et al. Overview of hospital stays for children in the United States, 2012. https://www.hcup-us.ahrq.gov/reports/statbriefs/sb187-Hospital-Stays-Children-2012.pdf. Accessed May 27, 2021. **10.** *Qin X, et al. J Asthma. 2021;58(5):565-572.* **11.** Chipps BE, et al. *J Allergy Clin Immunol Pract*. 2018;6(1):169-176. **12.** Foronda CL, et al. *J Pediatr Health Care*. 2020;34:366–376. **13.** Rabe KF, et al. *Eur Respir J*. 2000;16(5):802-807. **14.** Sullivan PW, et al. *J Asthma*. 2018;55(6):659-667. **15.** Arabkhazaeli A, et al. *BMC Ped*. 2015;15:172. **16.** Israel E, Reddel HK. *N Engl J Med*. 2017;377(10):965-976. **17.** Gandhi NA, et al. *Nat Rev Drug Discov*. 2016;15(1):35-50. **18.** McLeod JJ, et al. *Cytokine*. 2015;75(1):57-61. **19.** Kaur D, et al. *Allergy*. 2006;61(9):1047-1053. **20.** National Organization for Rare Disorders. Churg Strauss syndrome. https://rarediseases.org/rare-diseases/churg-strauss-syndrome/. Accessed May 13, 2021.

SANOFI GENZYME REGENERON

RESPIRATORY ADVENT ADVANCES IN TYPE 2 INFLAMMATORY DISEASES