



Introduction to epithelial health

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The airway epithelium is a first point of contact for environmental triggers and exposures¹

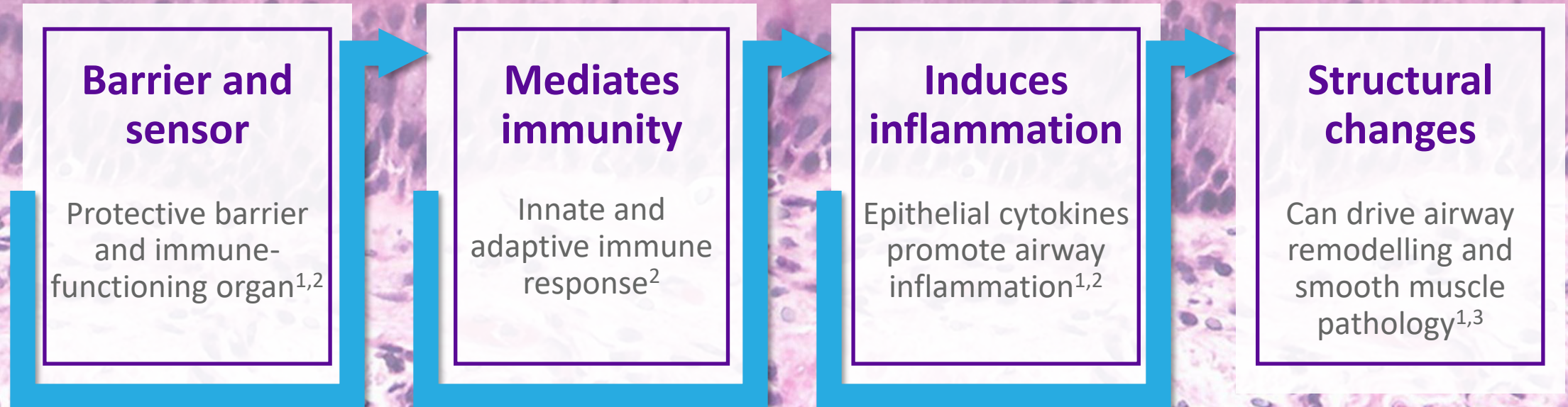


Image of normal lung; bronchus by Yale Rosen. Available from: https://www.flickr.com/photos/pulmonary_pathology/3661529896 (Accessed June 2026).

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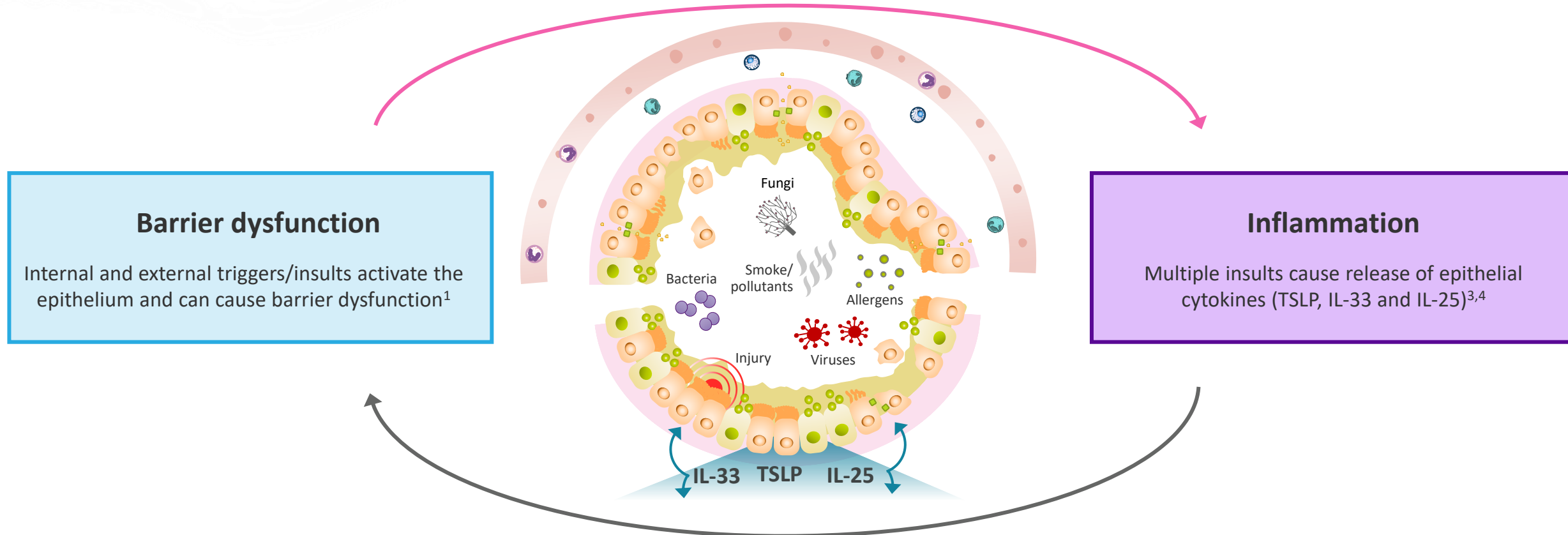
1. Bartemes KR and Kita H. *Clin Immunol.* 2012;143(3):222–35; 2. Roan F, et al. *J Clin Invest.* 2019;129(4):1441–51; 3. Wang Y, et al. *Respir Med.* 2008;102(7):949–55.

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Activation of the epithelium by inhaled triggers leads to a cycle of inflammation and barrier dysfunction^{1,2}

Activation of the epithelium is the **critical initiation step** for airway diseases, orchestrating the disease pathogenesis in **CRSwNP and asthma**¹



Refer to the Centre of Excellence in Severe Asthma. *Severe Asthma Toolkit*. 2018. <https://toolkit.severeasthma.org.au/severe-asthma/pathophysiology/>. Accessed June 2026.

IL, interleukin; TSLP, thymic stromal lymphopoietin.

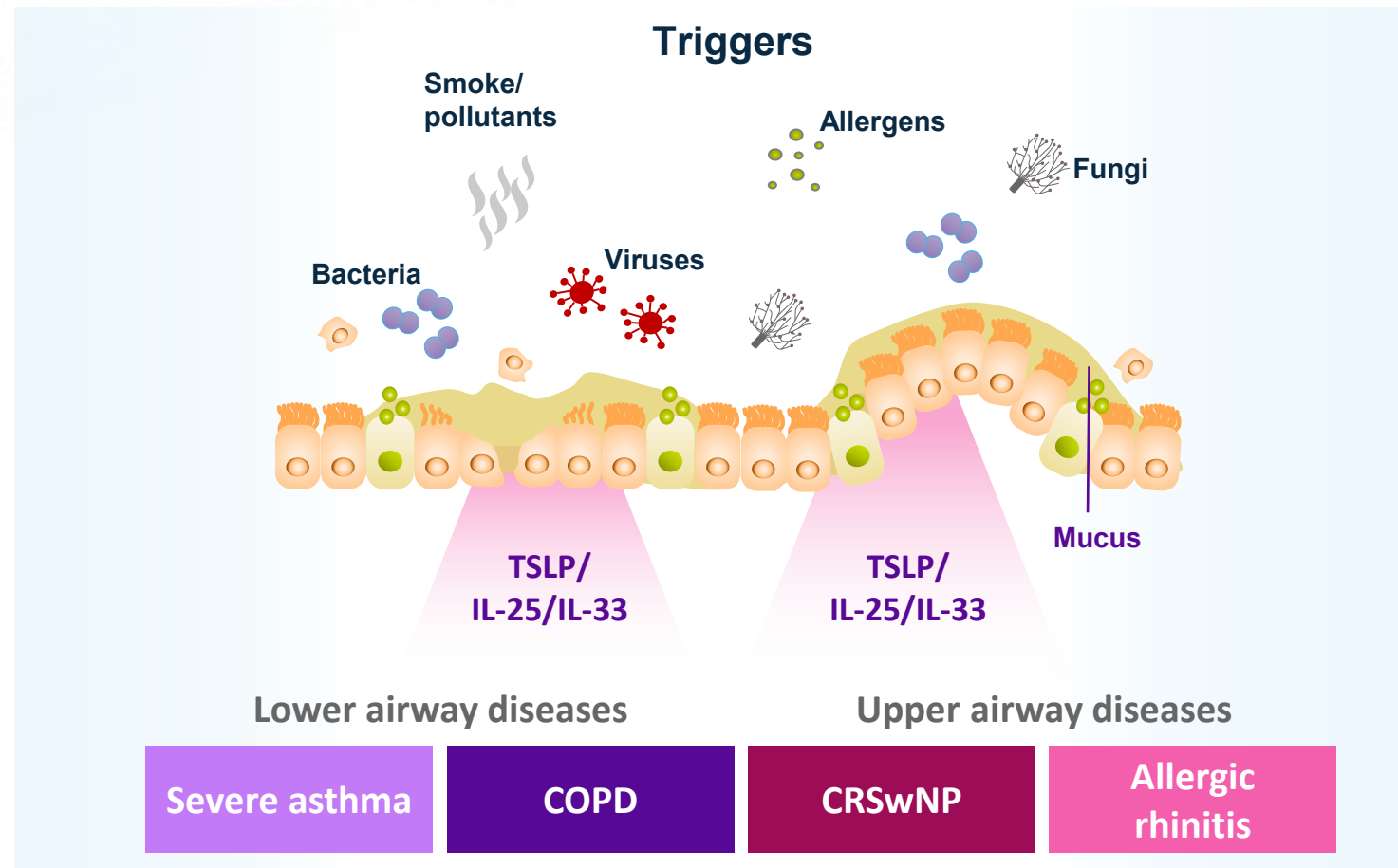
1. Hellings PW and Steelant B. *J Allergy Clin Immunol*. 2020;145(6):1499–509; 2. Palomares O and Akdis CA. Immunology of the Asthmatic Response. In: Leung DYM, Szefer SJ, Bonilla FA, et al., eds. *Pediatric Allergy: Principles and Practice*. 3rd ed. Elsevier; 2016:250–61.e5; 3. Roan F, et al. *J Clin Invest*. 2019;129(4):1441–51;

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In response to environmental triggers and exposures, the epithelium initiates multiple pathways of inflammation through the release of epithelial cytokines¹⁻¹¹



The information presented in this image has been simplified for illustration purposes.

Refer to Caminati M, et al. *Allergy*. 2024;79(5):1134–45.

COPD, chronic obstructive pulmonary disease; CRSwNP, chronic rhinosinusitis with nasal polyps; IL, interleukin; TSLP, thymic stromal lymphopoietin.

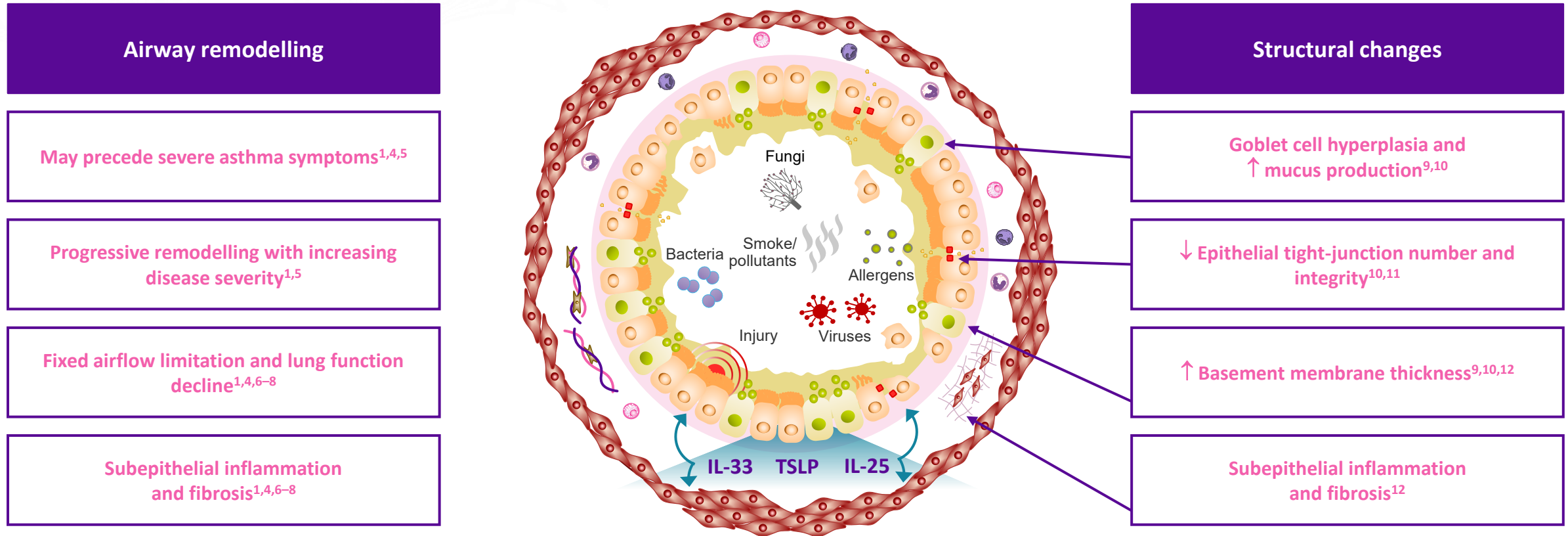
1. Calderon AA, et al. *Eur Respir Rev*. 2023;32(167):220144; 2. Fokkens WJ, et al. *Rhinology*. 2020;58(Suppl. S29):1–464; 3. Staudacher AG, et al. *Ann Allergy Asthma Immunol*. 2020;124(4):318–25; 4. Caminati M, et al. *Allergy*. 2024;79(5):1134–45;

5. Yli ACA, et al. *Allergy*. 2018;73(10):1964–78; 6. Fokkens W and Reitsma S. *Otolaryngol Clin North Am*. 2023;56(1):1–10; 7. Brightling C and Greening N. *Eur Respir J*. 2019;54(2):1900651; 8. Bousquet J, et al. *Nat Rev Dis Primers*. 2020;6(1):95; 9. Global Initiative for Asthma. https://ginasthma.org/wp-content/uploads/2024/05/GINA-2024-Strategy-Report-24_05_22_WMS.pdf. Accessed June 2026; 10. Hellings PW and Steelant B. *J Allergy Clin Immunol*. 2020;145(6):1499–509; 11. Laidlaw TM, et al. *J Allergy Clin Immunol Pract* 2021;9(3):1133–41.

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Disruption to the epithelial barrier drives airway remodelling¹⁻³



Refer to the Centre of Excellence in Severe Asthma. Severe Asthma Toolkit. <https://toolkit.severeasthma.org.au/severe-asthma/overview/>. Updated 2018. Accessed June 2026.

IL, interleukin; TSLP, thymic stromal lymphopoietin.

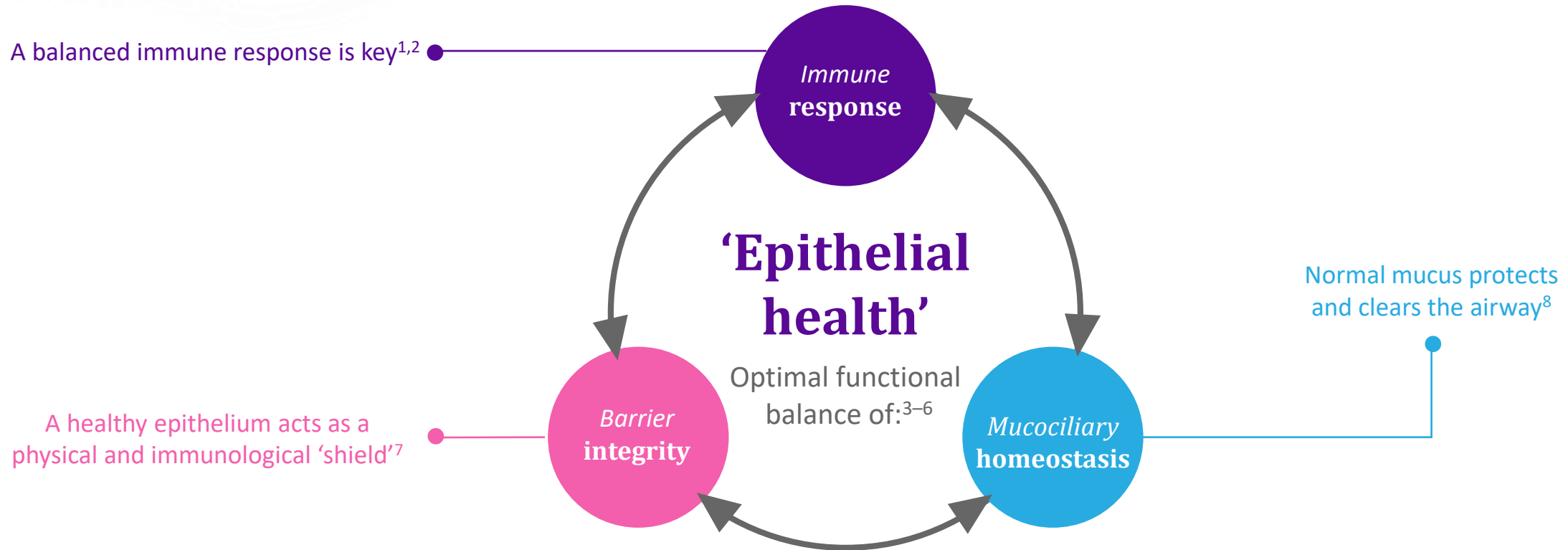
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Restoring epithelial health provides a new opportunity to break the cycle of inflammation and barrier dysfunction

‘Epithelial health’ refers to the optimal structural integrity and functional balance of the airway epithelial layer, maintained through three core domains



Restoring epithelial health may be a critical step towards clinical remission and disease modification