RESPIRATORY
ADVENT
ADVANCES IN
THE SCIENCE OF TYPE 2 INFLAMMATION

PATHWAYS TO DISEASE: INFLAMMATION IN COPD

COPD is a chronic, heterogeneous, and often progressive inflammatory airway disease associated with persistent airflow limitation, respiratory symptoms, and exacerbations[1]

SYMPTOMS[1]

Dyspnea, cough, sputum production

BRONCHITIS, SMALL AIRWAYS DISEASE[2,3]

Chronic inflammatory damage to airways, mucus overproduction, and hypersecretion

EMPHYSEMA[2]

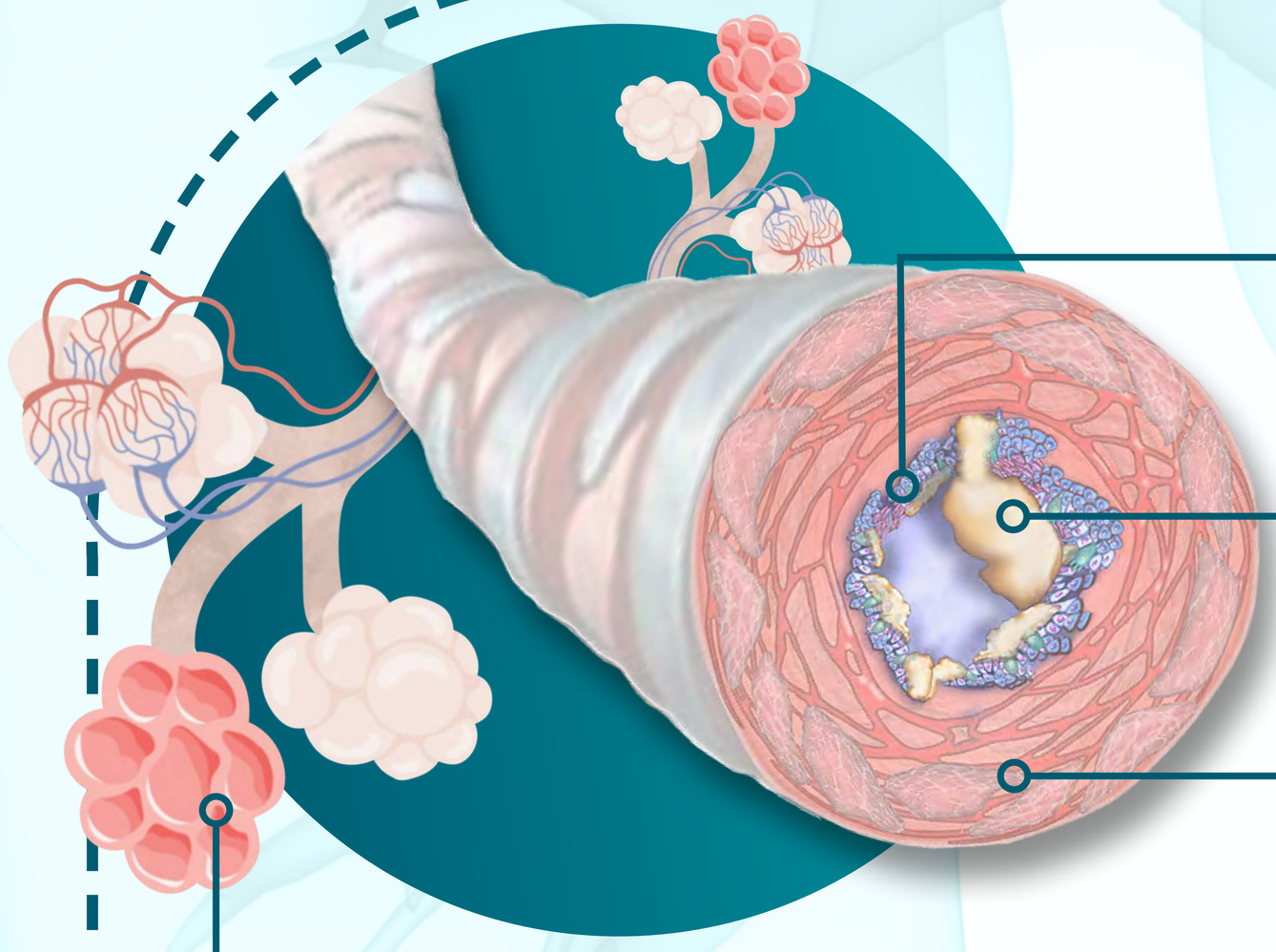
Loss of elasticity, hyperinflation, and alveolar destruction

COPD PATHOPHYSIOLOGY

Chronic inflammation is triggered by[1,2,4]:

- TOBACCO SMOKE
- TOXIC PARTICLES/ GASES
- OXIDATIVE STRESS
- VIRUSES/ BACTERIA

which cause pathophysiological processes:



- BARRIER DISRUPTION[2,5]
- MUCUS HYPERSECRETION[2]
- FIBROSIS AND AIRWAY REMODELING[5-7]
- EMPHYSEMA[2]

with clinical impacts:

- PERSISTENT SYMPTOMS[1]
- PROGRESSIVE LUNG FUNCTION DECLINE[2]
- COPD EXACERBATIONS[1]
- SYSTEMIC EFFECTS[1]

REFERENCES

COPD, chronic obstructive pulmonary disease.

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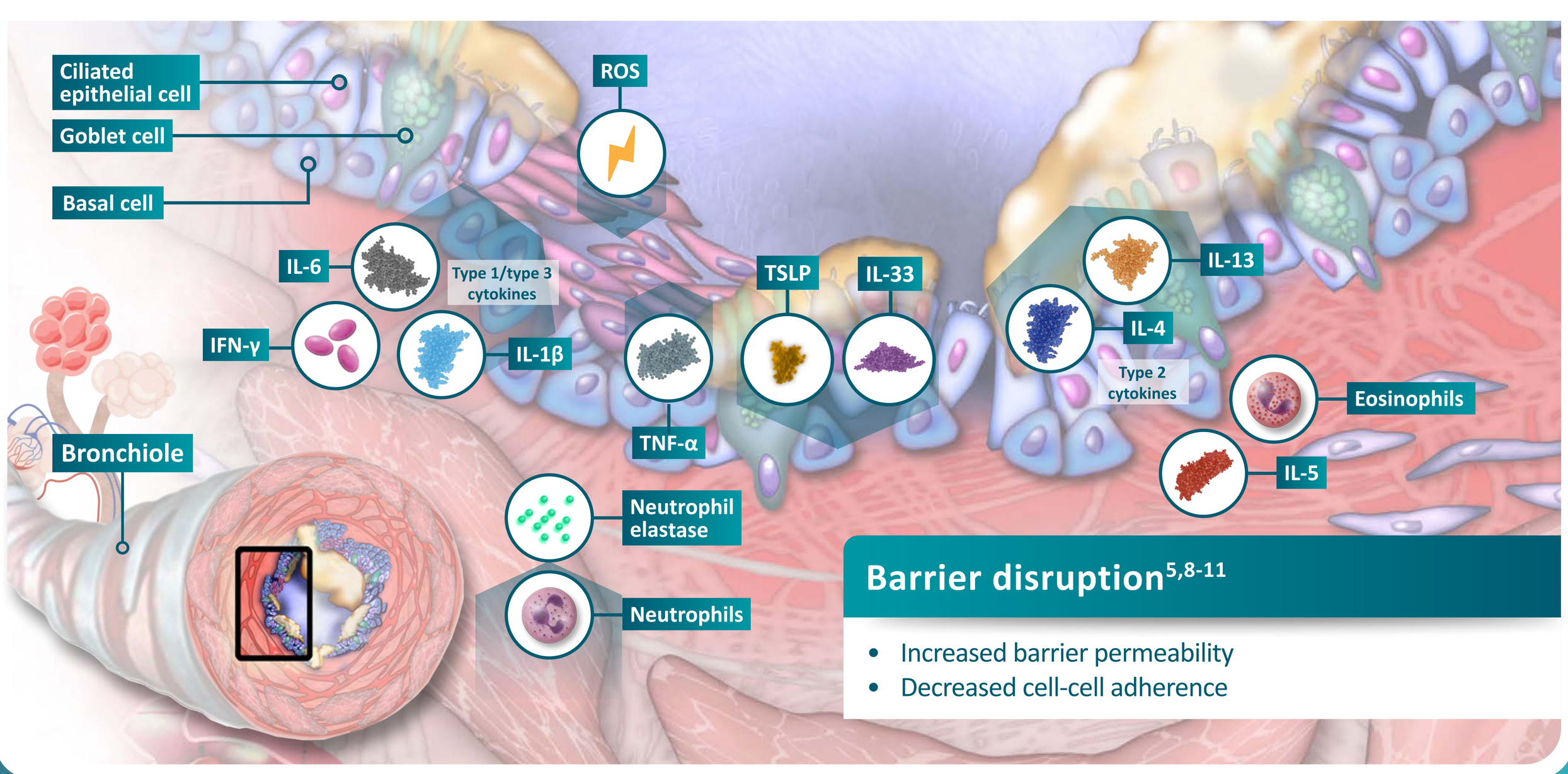
MECHANISMS OF DISEASE

BRONCHIOLAR ABNORMALITIES: BARRIER DISRUPTION



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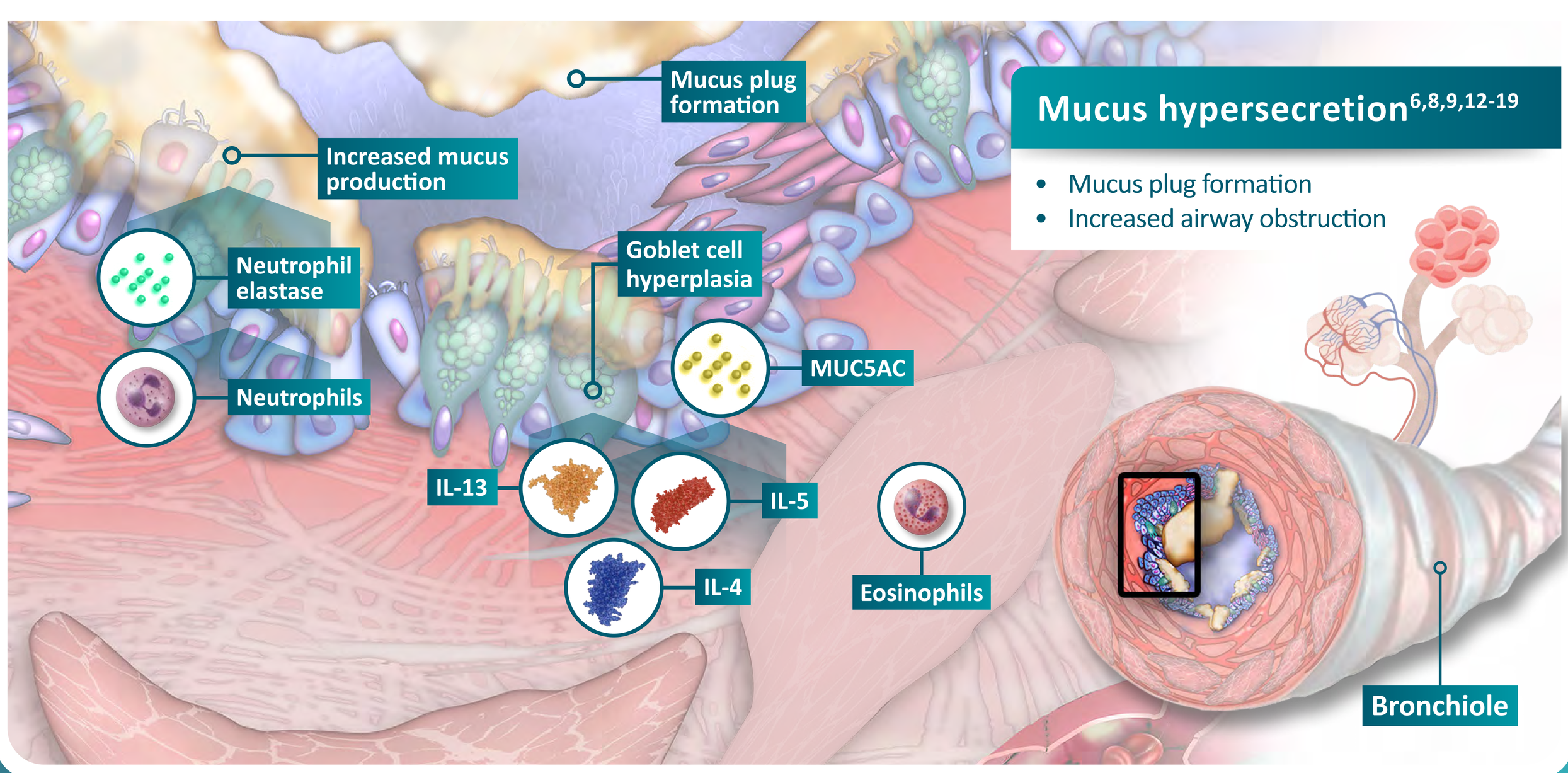
COPD, chronic obstructive pulmonary disease; **IFN**, interferon; **IL**, interleukin; **ROS,** reactive oxygen species; **TNF**, tumor necrosis factor; **TSLP**, thymic stromal lymphopoietin.
COPD is a complex heterogeneous disease. Not all pathophysiological processes are depicted here.

MECHANISMS OF DISEASE

BRONCHIOLAR ABNORMALITIES: MUCUS HYPERSECRETION



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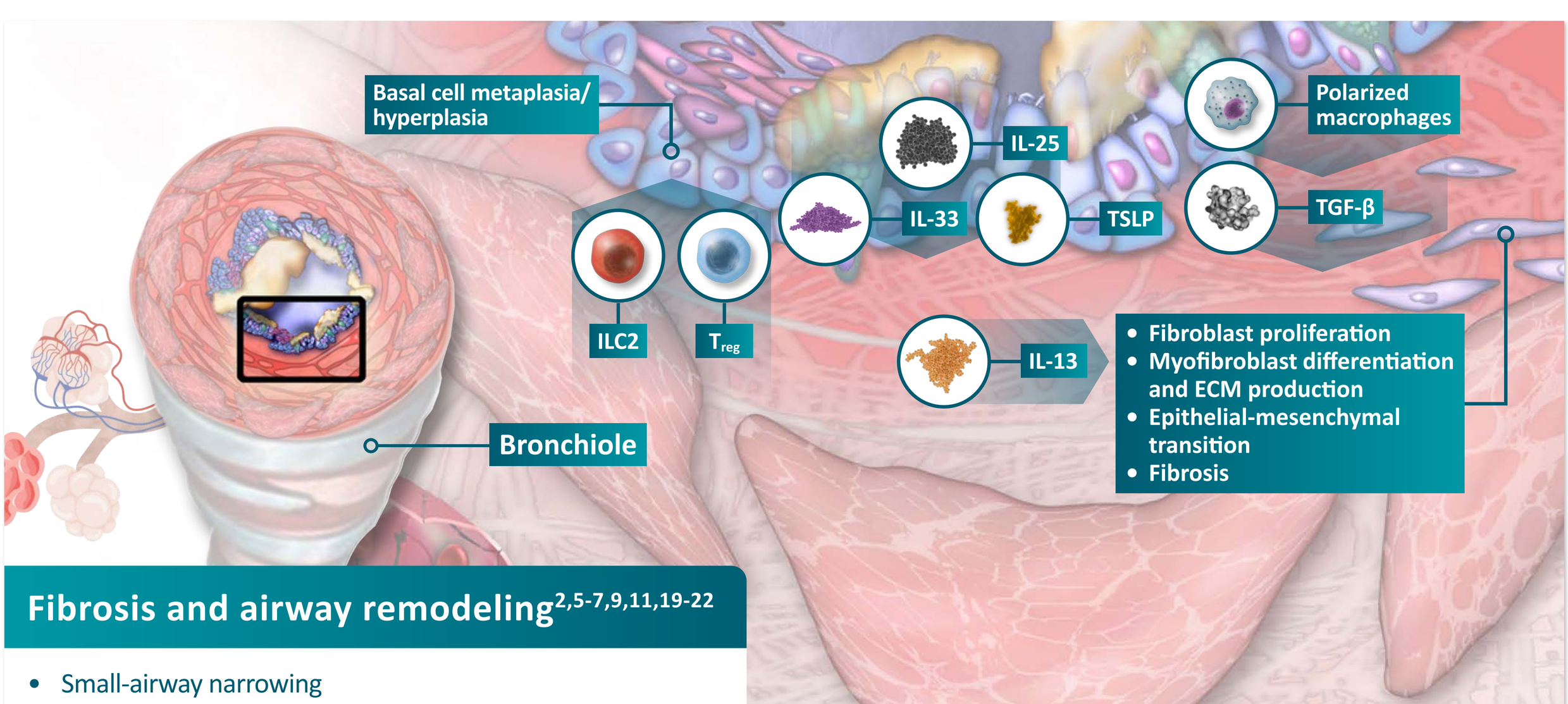
COPD, chronic obstructive pulmonary disease; **IL**, interleukin; **MUC5AC**, mucin 5AC.
COPD is a complex heterogeneous disease. Not all pathophysiological processes are depicted here.

MECHANISMS OF DISEASE

BRONCHIOLAR ABNORMALITIES: FIBROSIS AND AIRWAY REMODELING



Fibrosis and airway remodeling[2,5-7,9,11,19-22]

- Small-airway narrowing

close

COPD, chronic obstructive pulmonary disease; **ECM**, extracellular matrix; **FEV_1**, forced expiratory volume in 1 second; **IL**, interleukin; **ILC**, innate lymphoid cell; **TGF**, transforming growth factor; **T_{reg}**, regulatory T cell; **TSLP**, thymic stromal lymphopoietin.
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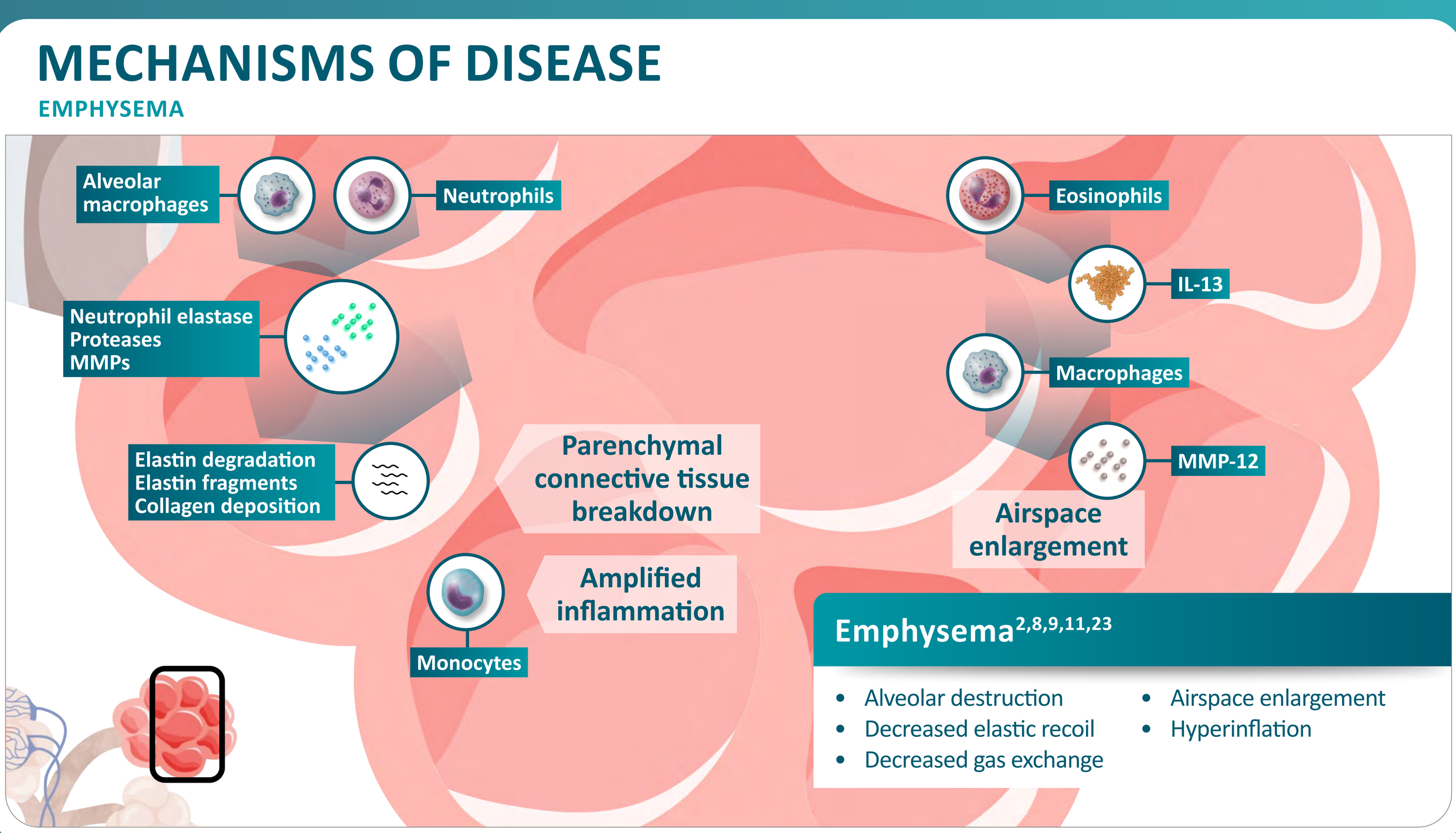
MECHANISMS OF DISEASE

EMPHYSEMA



Emphysema[2,8,9,11,23]

- Alveolar destruction
- Decreased elastic recoil
- Decreased gas exchange
- Airspace enlargement
- Hyperinflation

close

COPD, chronic obstructive pulmonary disease; **IL**, interleukin; **MMP**, matrix metalloproteinase.
COPD is a complex heterogeneous disease. Not all pathophysiological processes are depicted here.

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