

Severe Asthma Phenotypes & Biomarkers

Asthma is a **HETEROGENOUS** disease with different phenotypes

Groups of patients with similar disease features cluster into phenotypes



TARGETED THERAPY for severe asthma blocks specific disease processes

Phenotypic biomarkers can predict response to treatment



WHAT IS A SEVERE ASTHMA PHENOTYPE?

PHENOTYPES

ARE OBSERVABLE INDIVIDUAL FEATURES RESULTING FROM GENETICS AND ENVIRONMENT

BIOMARKERS

ARE OBJECTIVELY MEASURABLE CHARACTERISTICS THAT CAN BE COMPARED TO NORMAL RANGES TO UNDERSTAND BODY PROCESSES

INFLAMMATORY ASTHMA PHENOTYPES

Phenotype	Biomarker	Treatment Options
Allergic Asthma	↑ IgE	Omalizumab (anti-IgE), Dupilumab (anti IL-4R α), Itraconazole, Oral Corticosteroids
Eosinophilic Asthma	↑ Eosinophils (Blood $\geq 300/\mu\text{L}$; Sputum $\geq 3\%$)	Anti-IL-5 treatment (mepolizumab, benralizumab), Anti-I L-4R α (dupilumab), Macrolide antibiotics, Oral corticosteroids
Non-Eosinophilic Asthma	Absence of ↑ eosinophils	Long-acting bronchodilators (LAMA/LABA), Theophylline, Macrolide antibiotics

Key: LAMA = Long-acting muscarinic antagonist

LABA = Long-acting beta-agonist

References: Fricker et al. 2017, Gibson & McDonald 2017