

6. Antihistamines – H1 receptor antagonists – oral/patch
MOA: Block H1 receptor activity
1st gen: diphenhydramine, dimenhydrinate, promethazine
2nd gen: Loratadine, fexofenadine, cetirizine (does not cross BBB)
Use: Allergy induced asthma bronchoconstriction, anti-emetic (1st), motion sickness (1st)
SE: sedation (1st), anticholinergic side effects (hot, dry, blind)
PK: long half life – excreted via bile

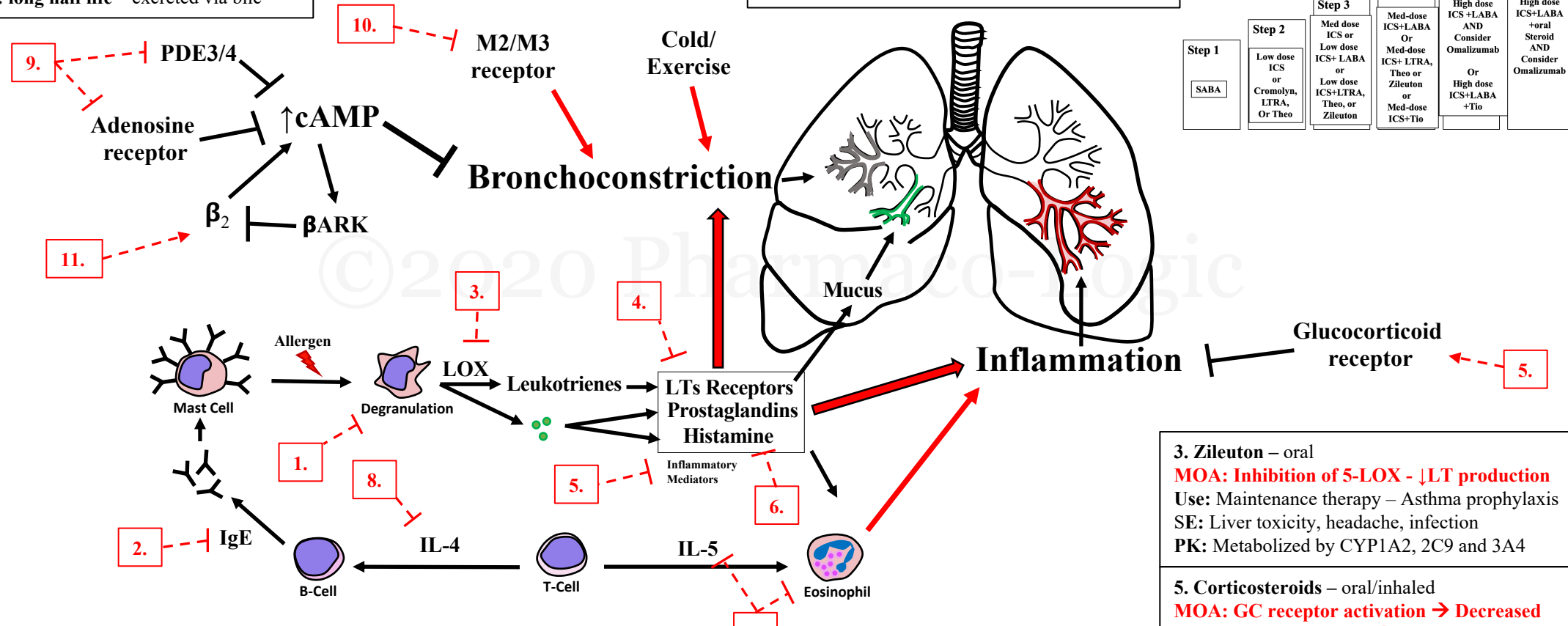
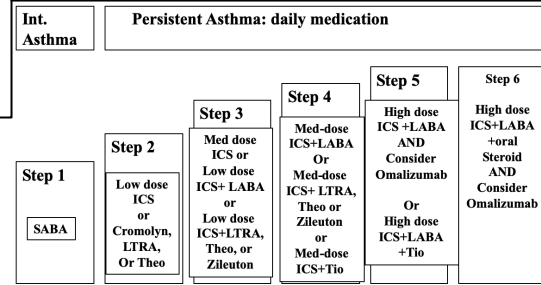
7. Monoclonal IL-5 inhibitors - SubQ
MOA: Antibodies directed against IL-5 which lowers eosinophils
Benralizumab, Reslizumab, Mepolizumab
Use: Maintenance therapy – Asthma prophylaxis
SE: Hypersensitivity – all MABs

8. Dupilumab- SubQ
MOA: Antibodies directed against IL-4/IL-13 which lowers eosinophils
Use: Maintenance therapy – Asthma prophylaxis
SE: Hypersensitivity – all MABs

9. Methylxanthines – Theophylline - Oral
MOA: Inhibition of PDE3/4, blockade of adenosine receptors → ↑cAMP → Dilation
Use: COPD, 2nd line for asthma
SE: Arrhythmia, **Seizures**, tremors
PK: CYP1A2, CYP3A4
CI: Beta agonists, Zileuton

10. Anticholinergics - inhaled
MOA: Blockade of M3 receptors
Ipratropium, tiotropium, Acclidinium, Umeclidinium
Use: COPD
SE: Anticholinergic effects – Hot, red, dry, tachy

11. Beta adrenergic agonists – Inhaled
MOA: Activate beta receptors → ↑cAMP → Bronchodilation
SABAs – Albuterol, Terbutaline, Levalbuterol
LABAs – Salmeterol, Formoterol, Vilanterol
Use: Asthma rescue/prophylaxis
SE: tachyarrhythmia, hypokalemia, tolerance (PDE4/BARK)
PK: Metabolized by CYP3A4



1. Mast Cell degranulation Inhibitors
MOA: Inhibit Mast cell Degranulation
Cromolyn, Nedocromil – inhaled
Use: Maintenance therapy – Asthma prophylaxis
SE: throat irritation, hypersensitivity
CI: Inhaled insulin

2. Omalizumab - SubQ
MOA: Anti-IgE antibody–block binding of IgE
Use: Maintenance therapy – Asthma prophylaxis
SE: Hypersensitivity – all MABs
PK: long half life – excreted via bile

4. Leukotriene receptor antagonists – oral
MOA: Block LTD₄ receptors - ↓LT activity
Montelukast, zafirlukast - oral
Use: Asthma prophylaxis, exercise induced asthma
SE: Liver toxicity, headache, infection
PK: Zafirlukast – CYP2C9, 3A4 inhibition

3. Zileuton – oral
MOA: Inhibition of 5-LOX - ↓LT production
Use: Maintenance therapy – Asthma prophylaxis
SE: Liver toxicity, headache, infection
PK: Metabolized by CYP1A2, 2C9 and 3A4

5. Corticosteroids – oral/inhaled
MOA: GC receptor activation → Decreased production of cytokines → ↓PG's, ↓LTs, ↓TNF
Fluticasone, Beclomethasone, Triamcinolone
Use: Maintenance therapy – Asthma prophylaxis
SE: Oral thrush (rinse after use), osteoporosis, immunosuppression, GI ulcer, Hyperglycemia
PK: Metabolized by CYP3A4