

Pathophysiology I

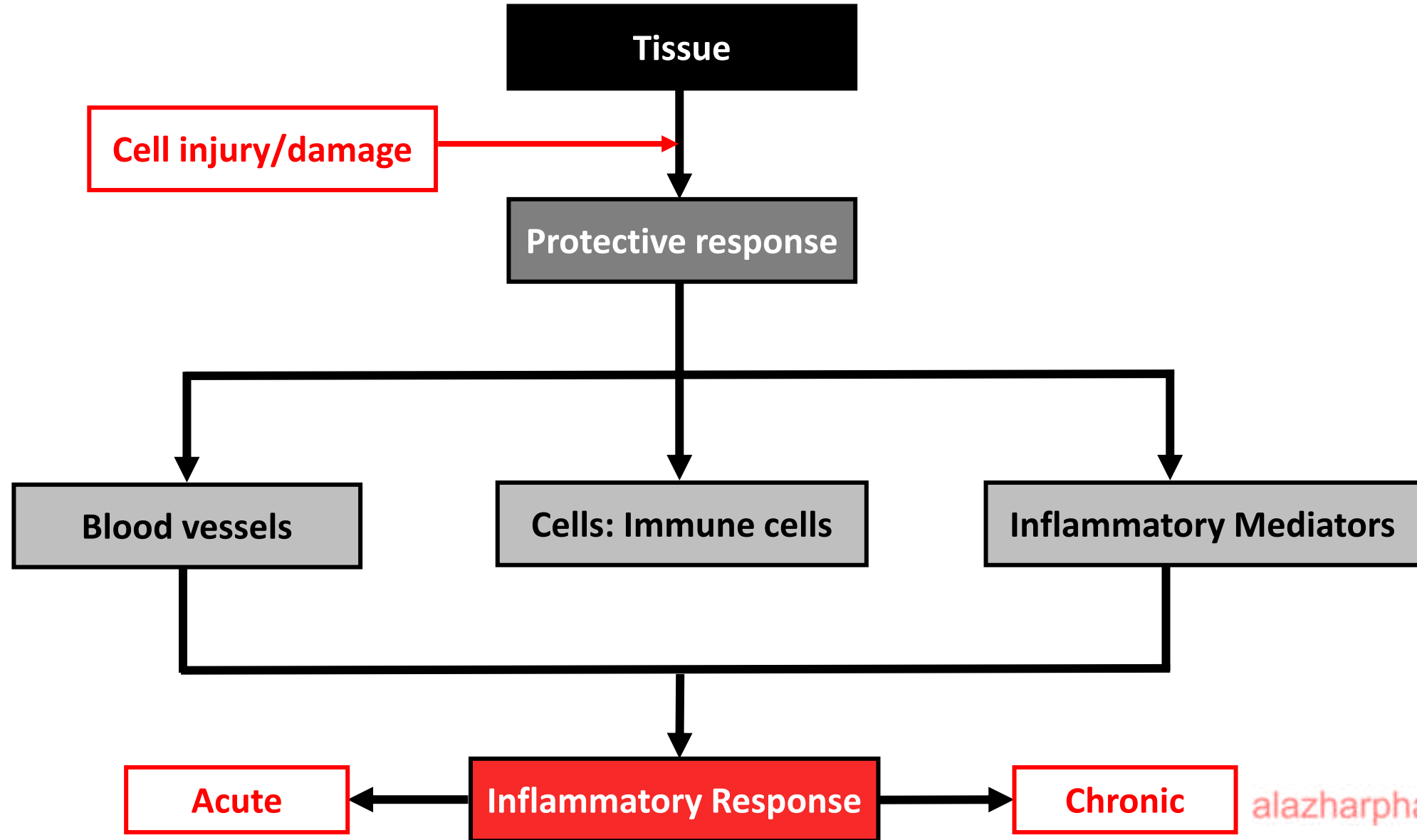
Chapter (3): Inflammation

- Acute inflammation
- Chronic inflammation

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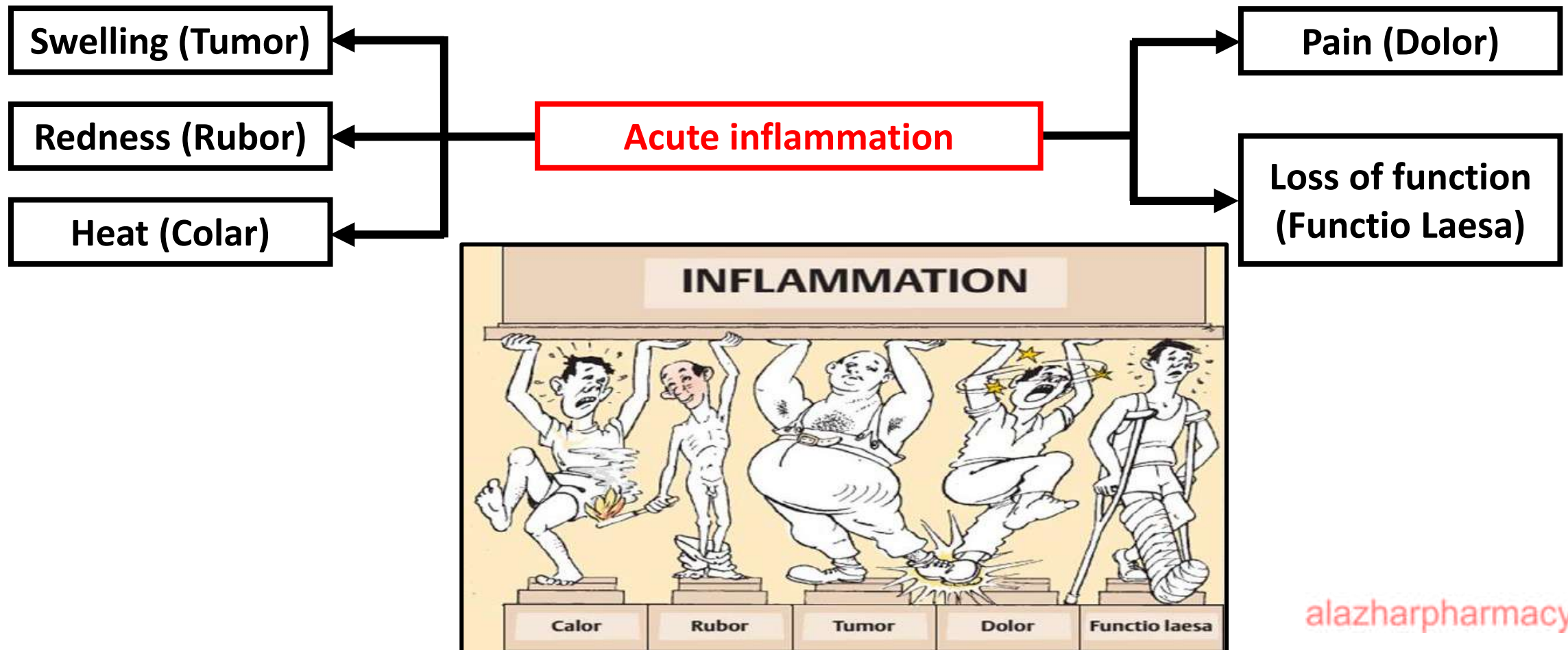
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Inflammation



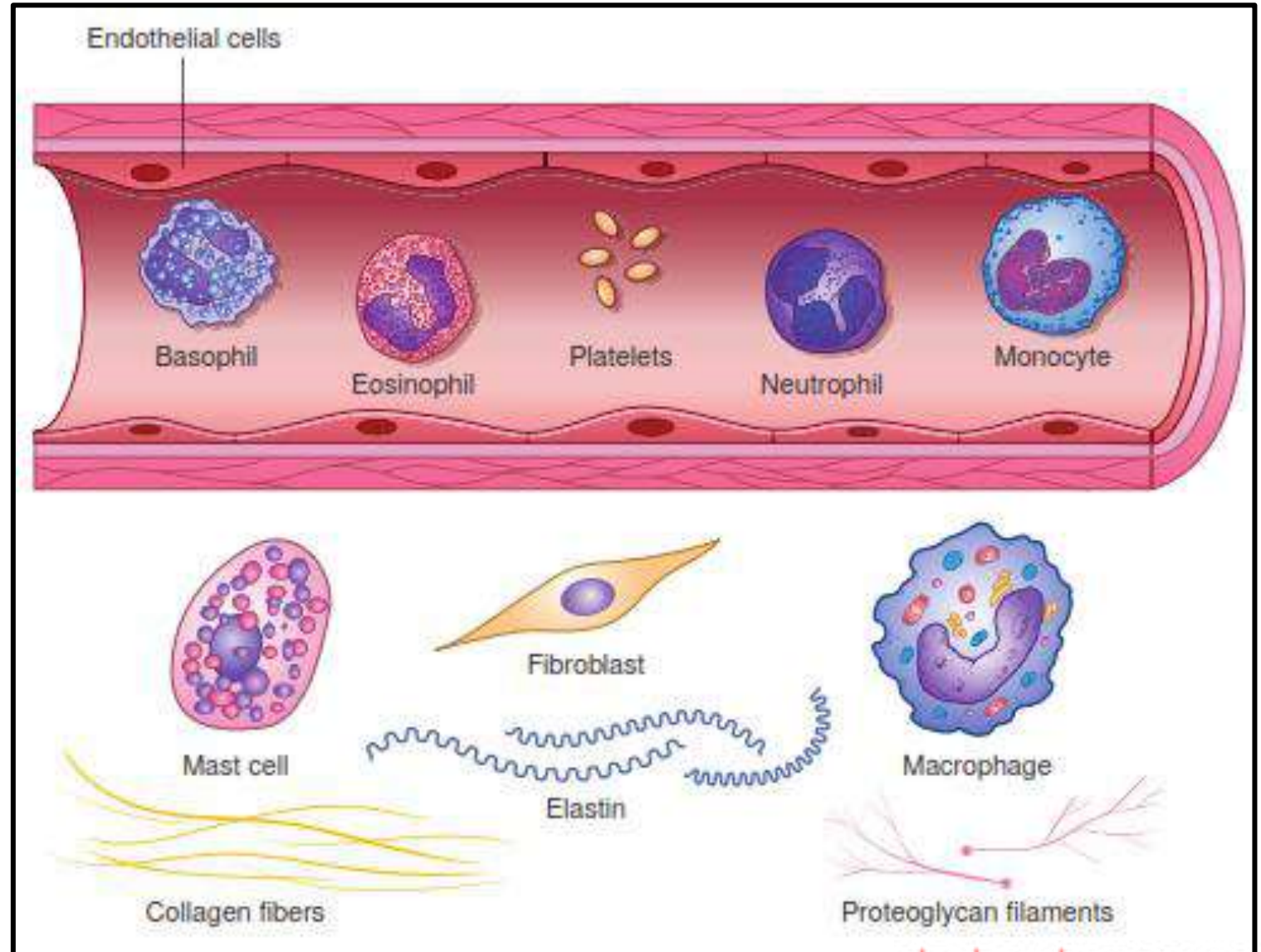
Inflammation

- Signs of inflammation: Cardinal signs

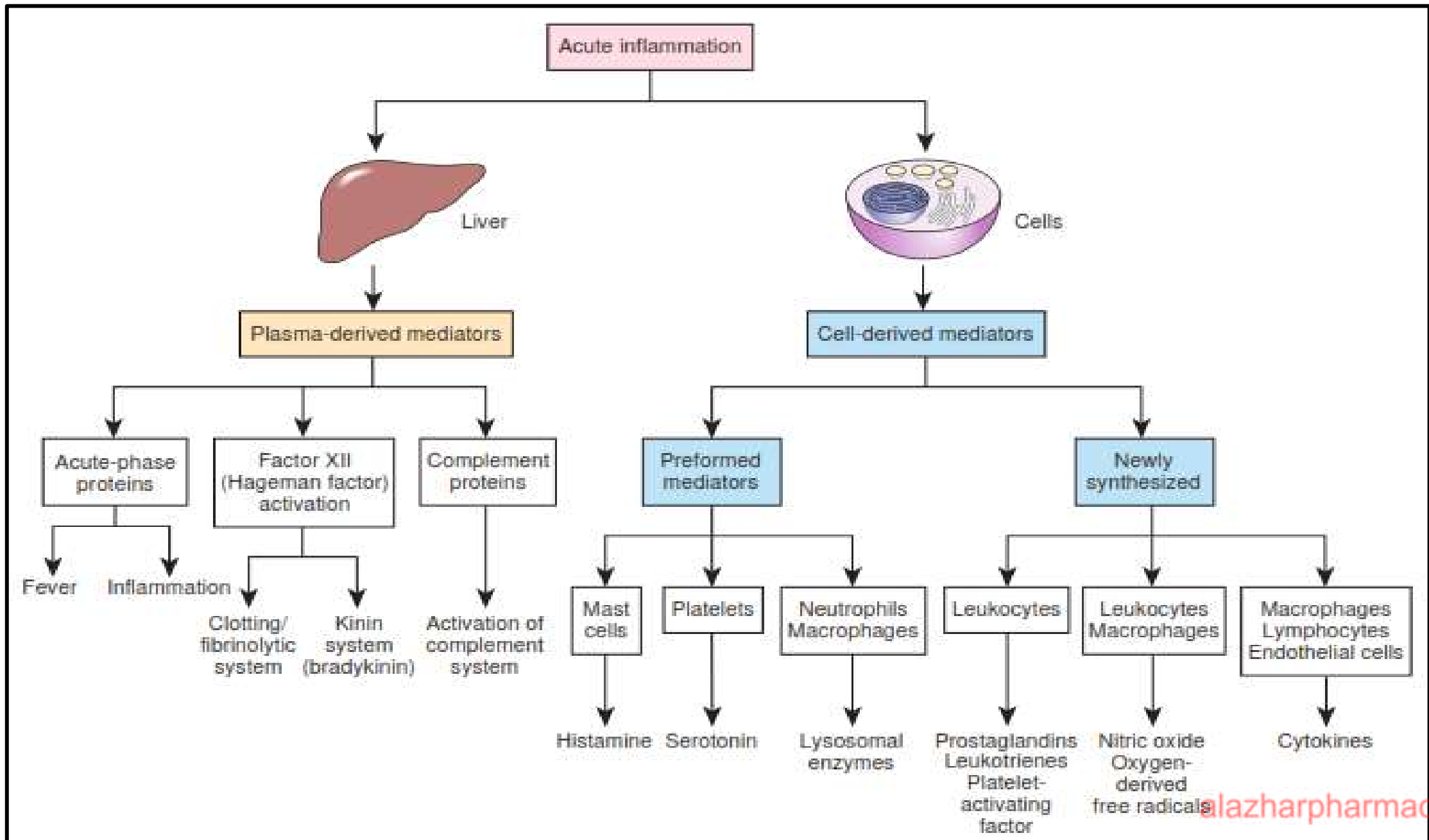


Acute Inflammation

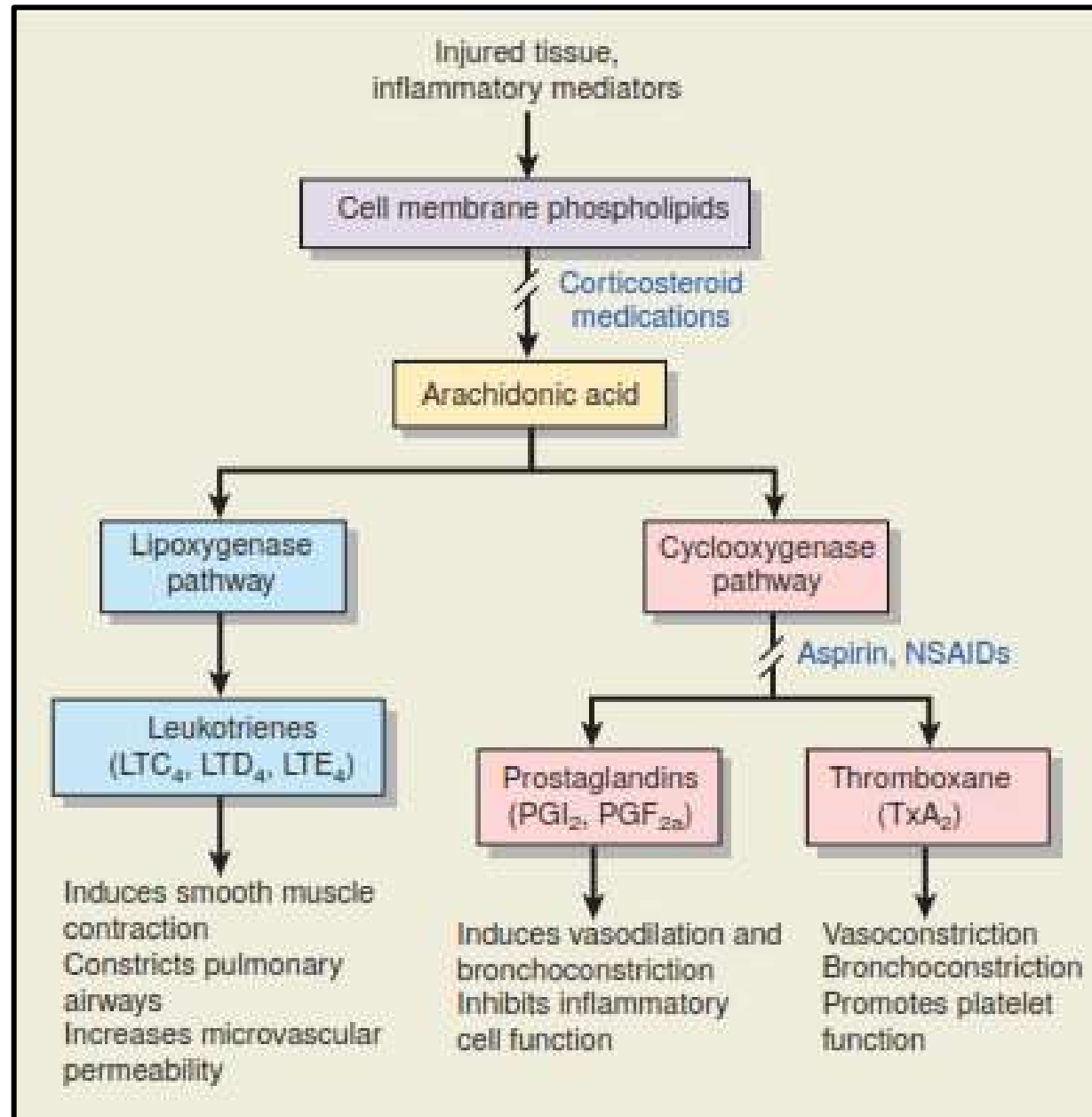
- Definition
- Components involved in acute inflammation process
 - Blood vessels
 - Inflammatory cells
 - Inflammatory mediators



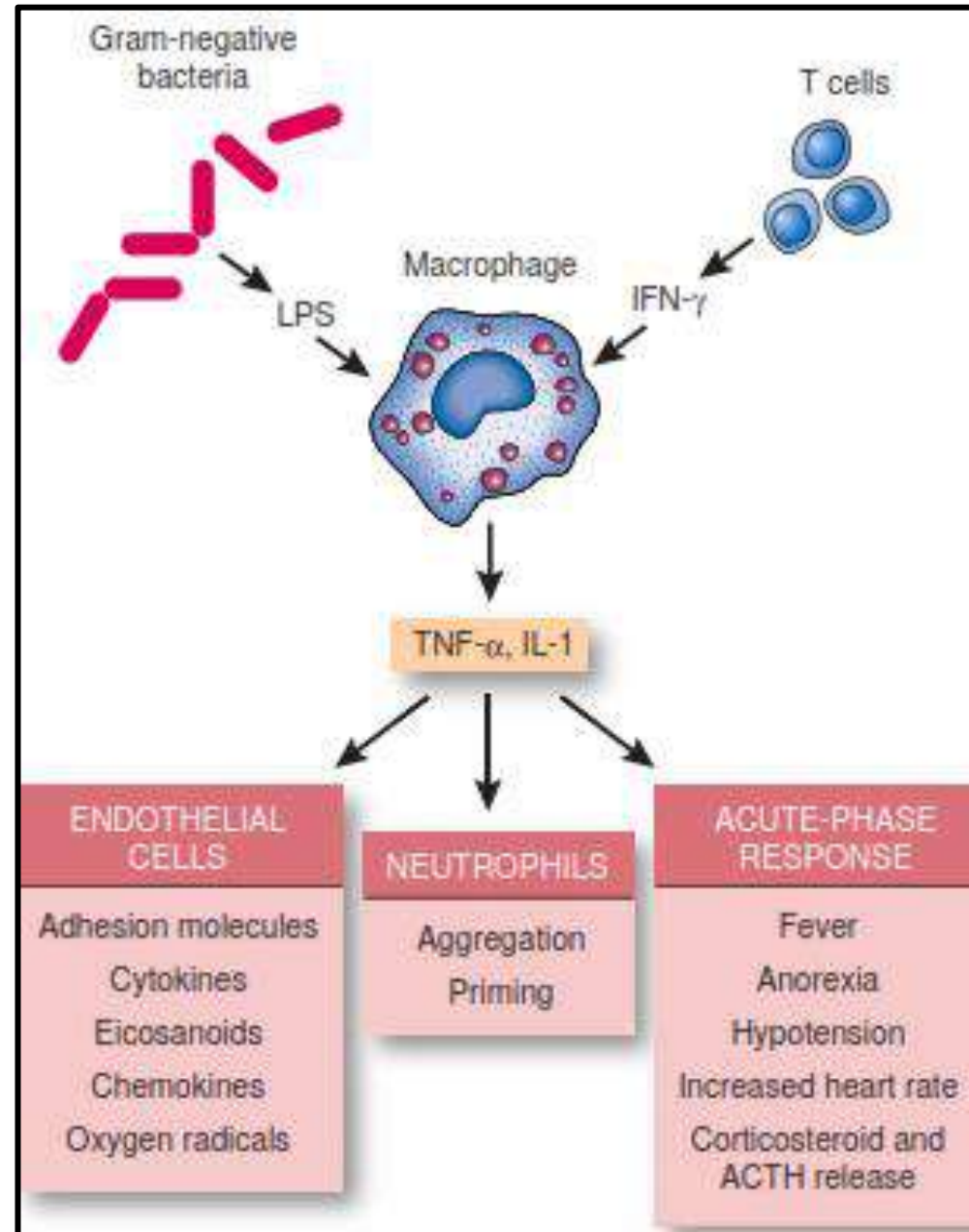
Inflammatory Mediators



Inflammatory Mediators

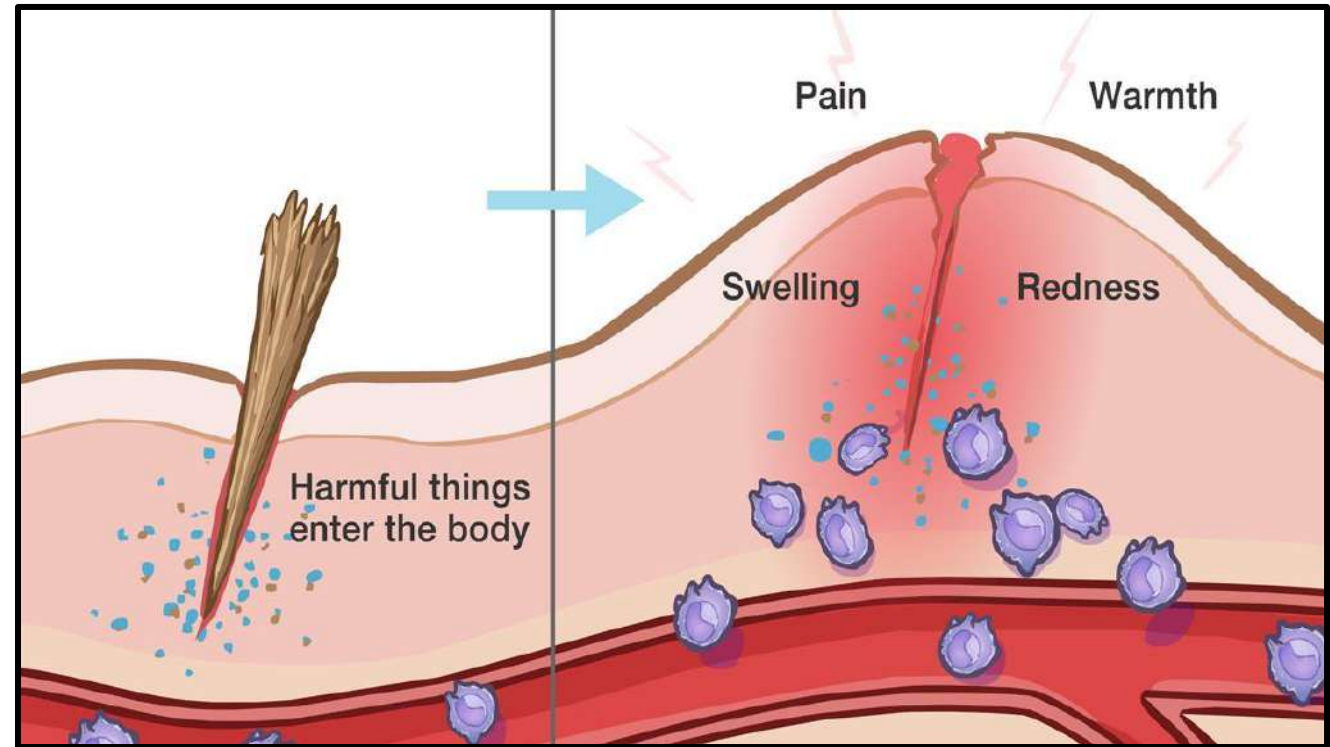
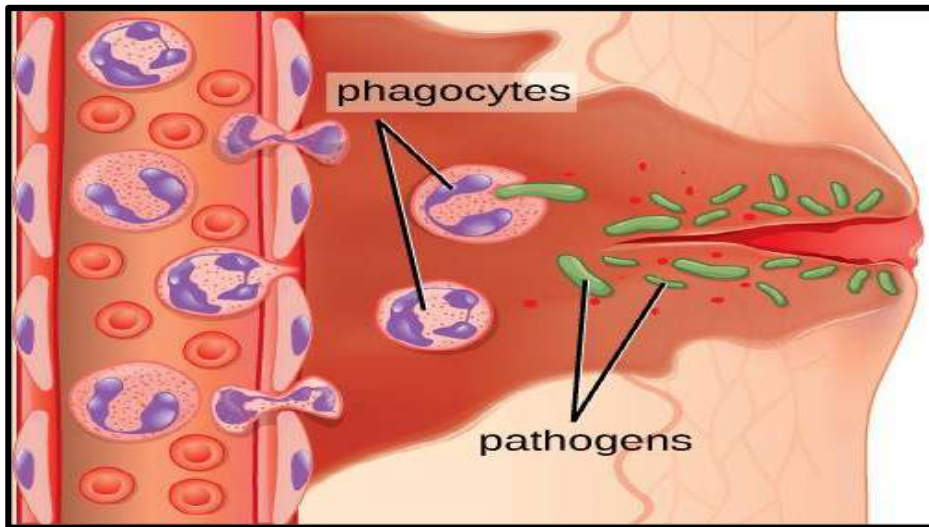
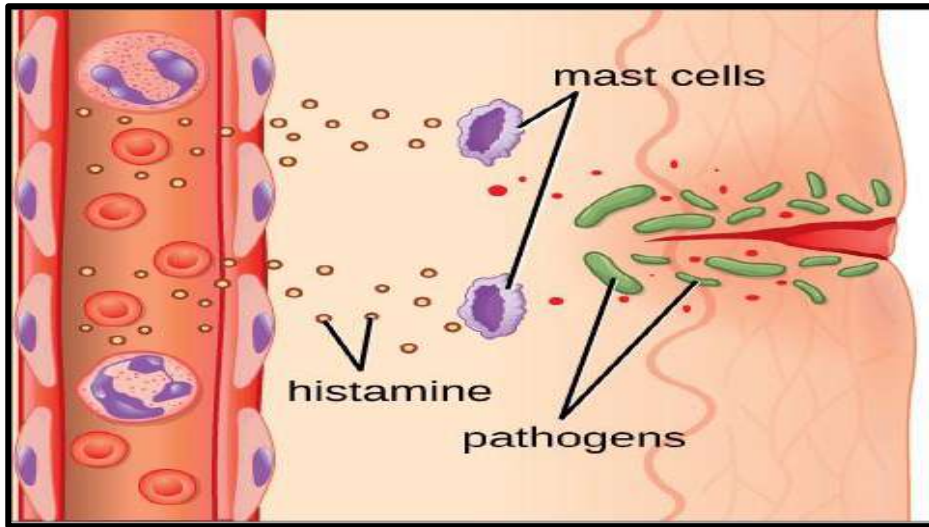


Inflammatory Mediators: Cytokines



Acute Inflammation

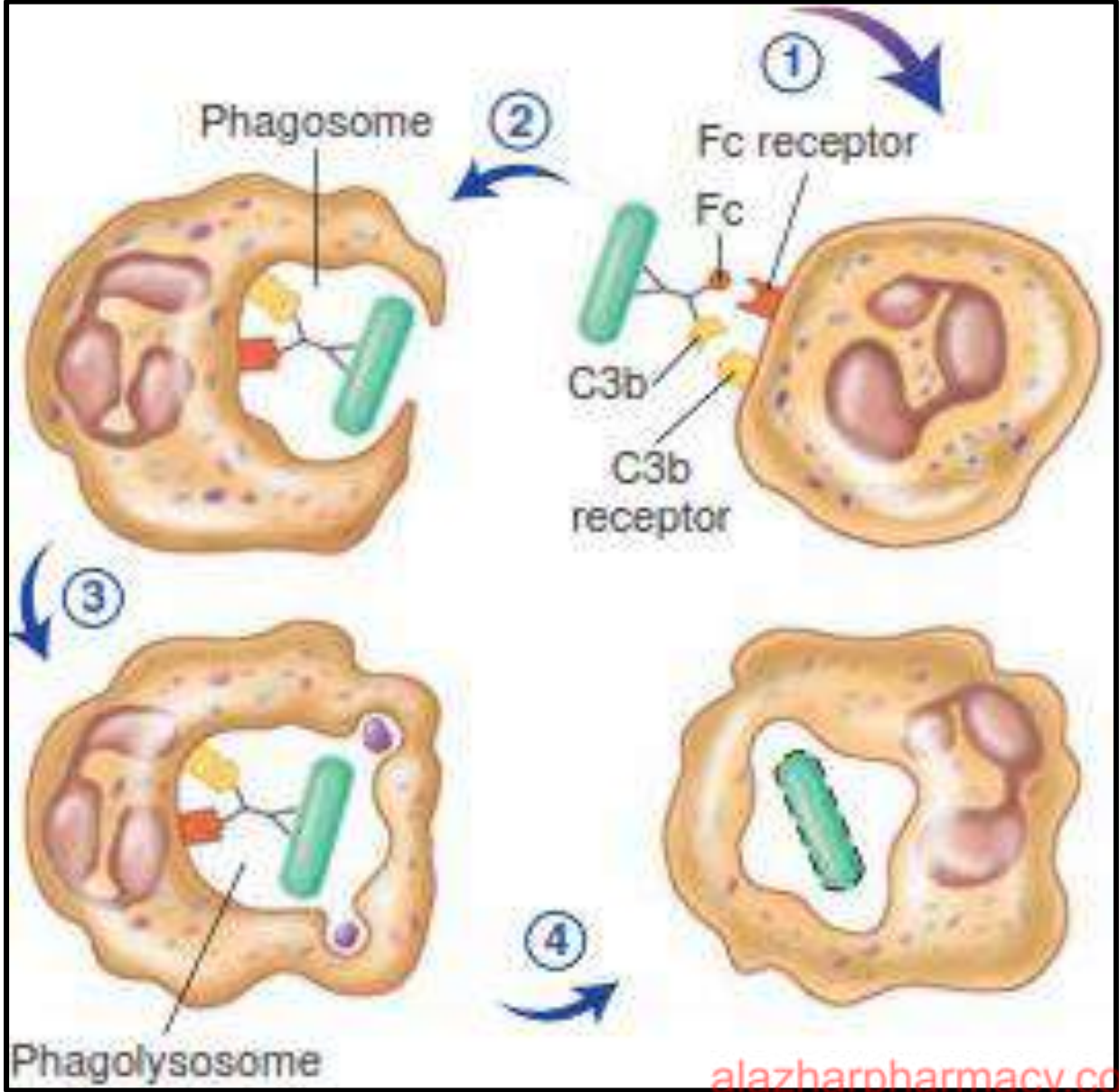
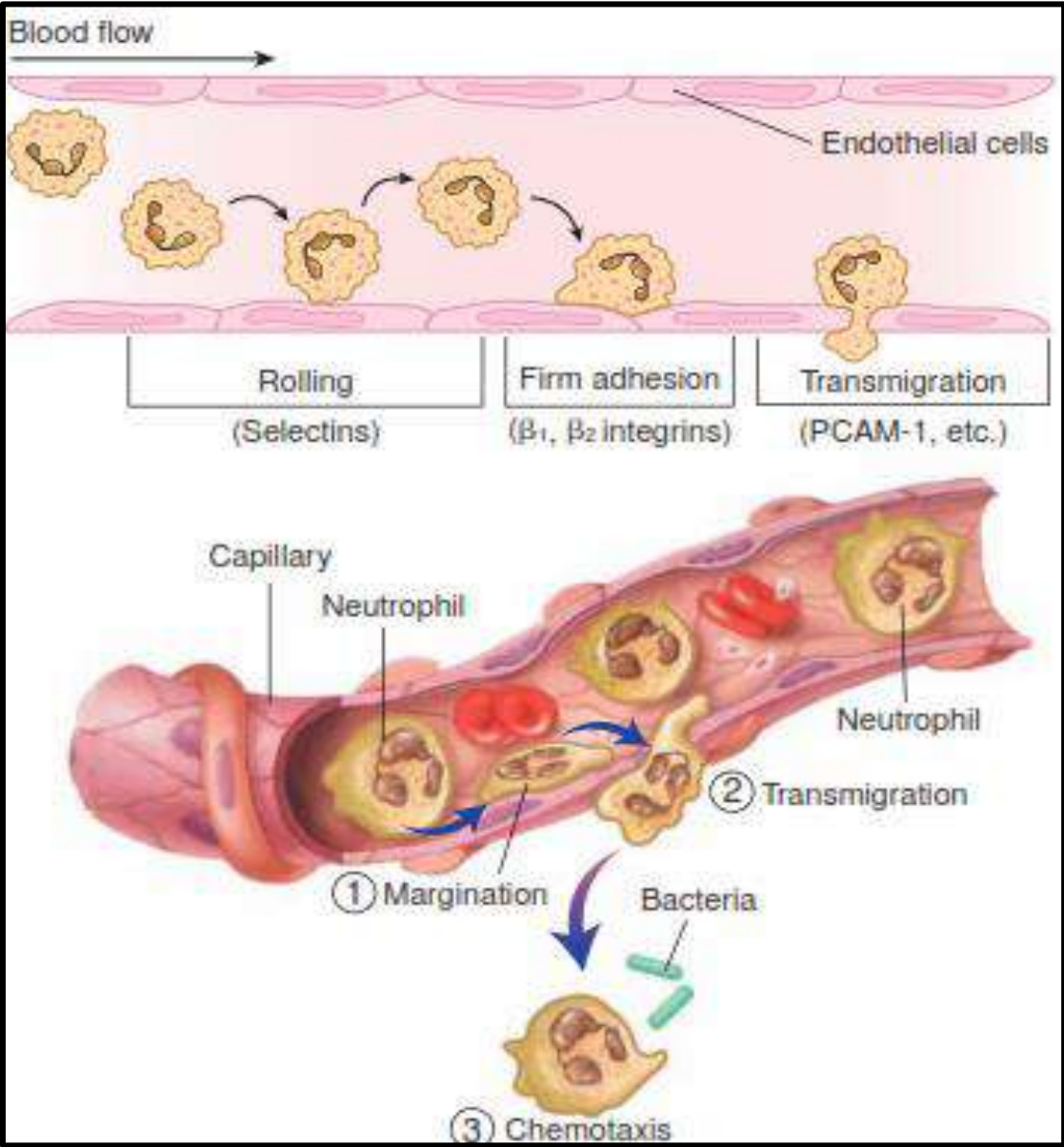
Phases of acute inflammation



Vascular phase

Acute Inflammation

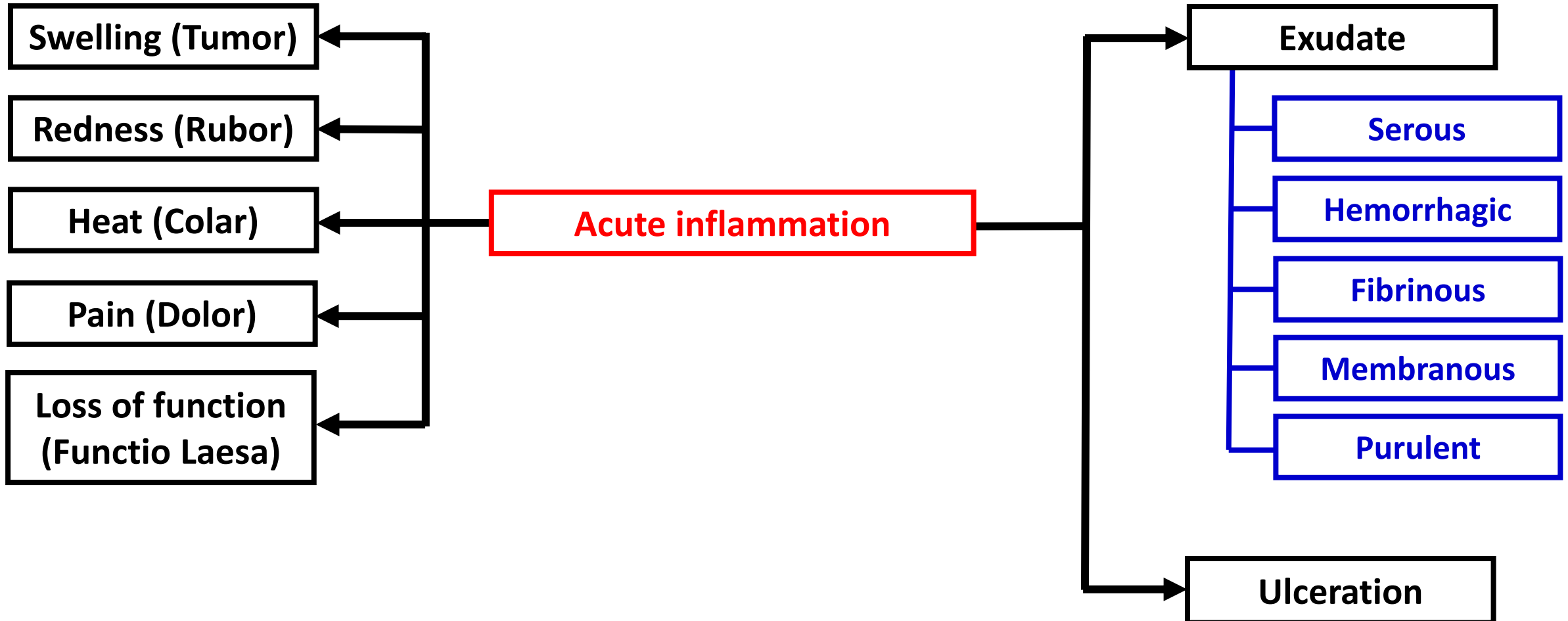
Phases of acute inflammation



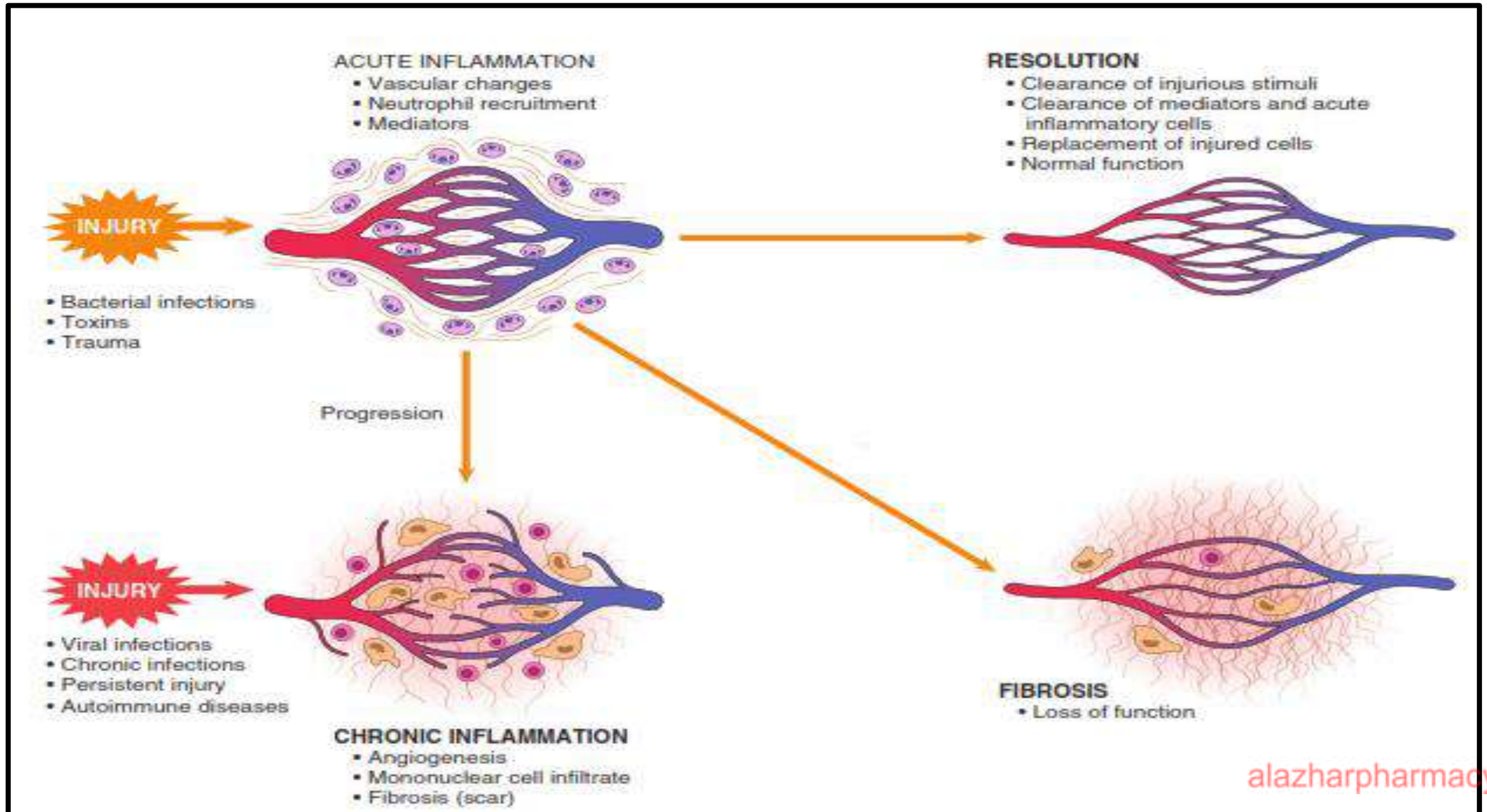
Cellular phase

Acute Inflammation

- Local manifestations

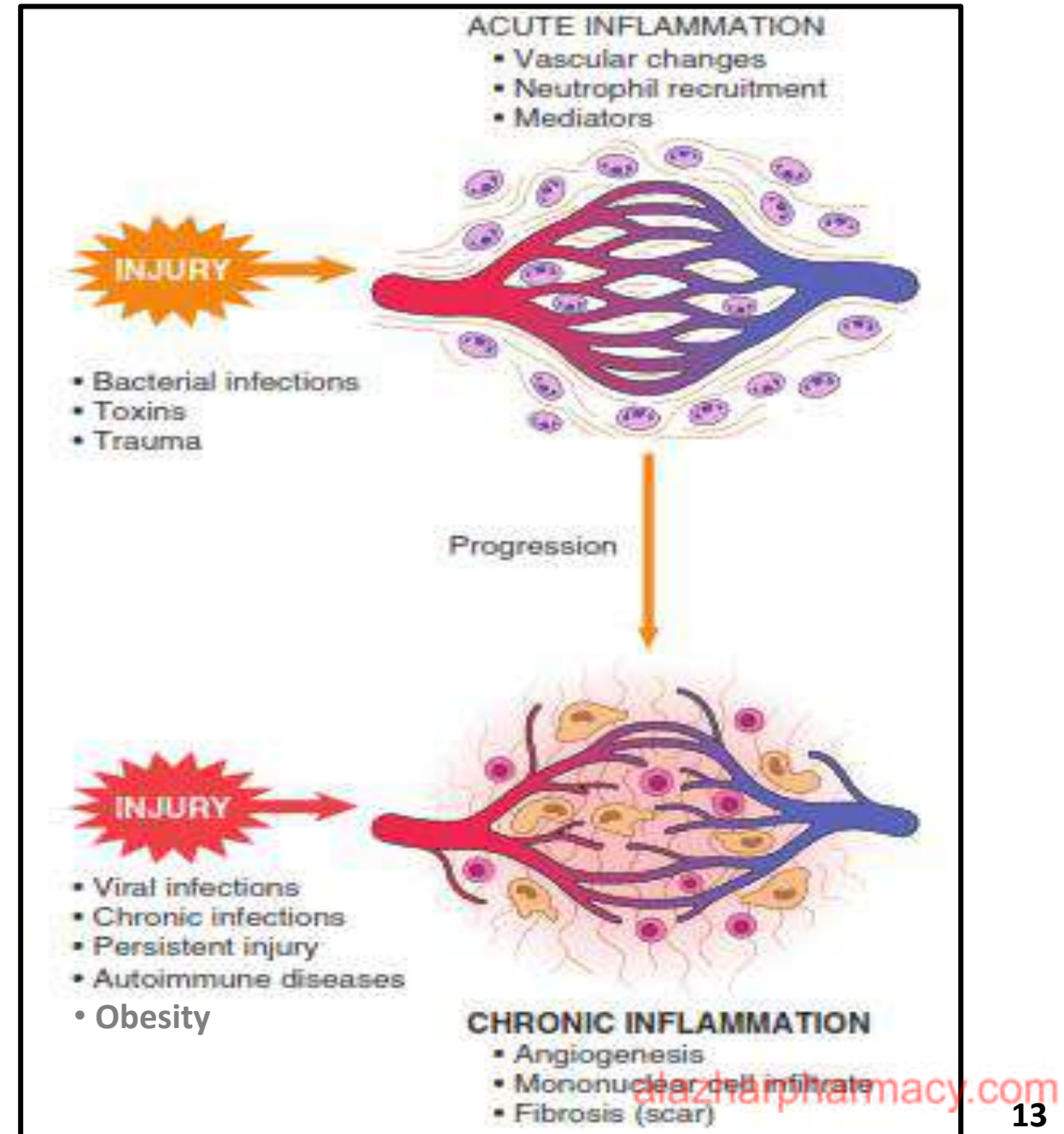


Outcome of acute Inflammation



Chronic Inflammation

- Definition
- Causes
- Cells



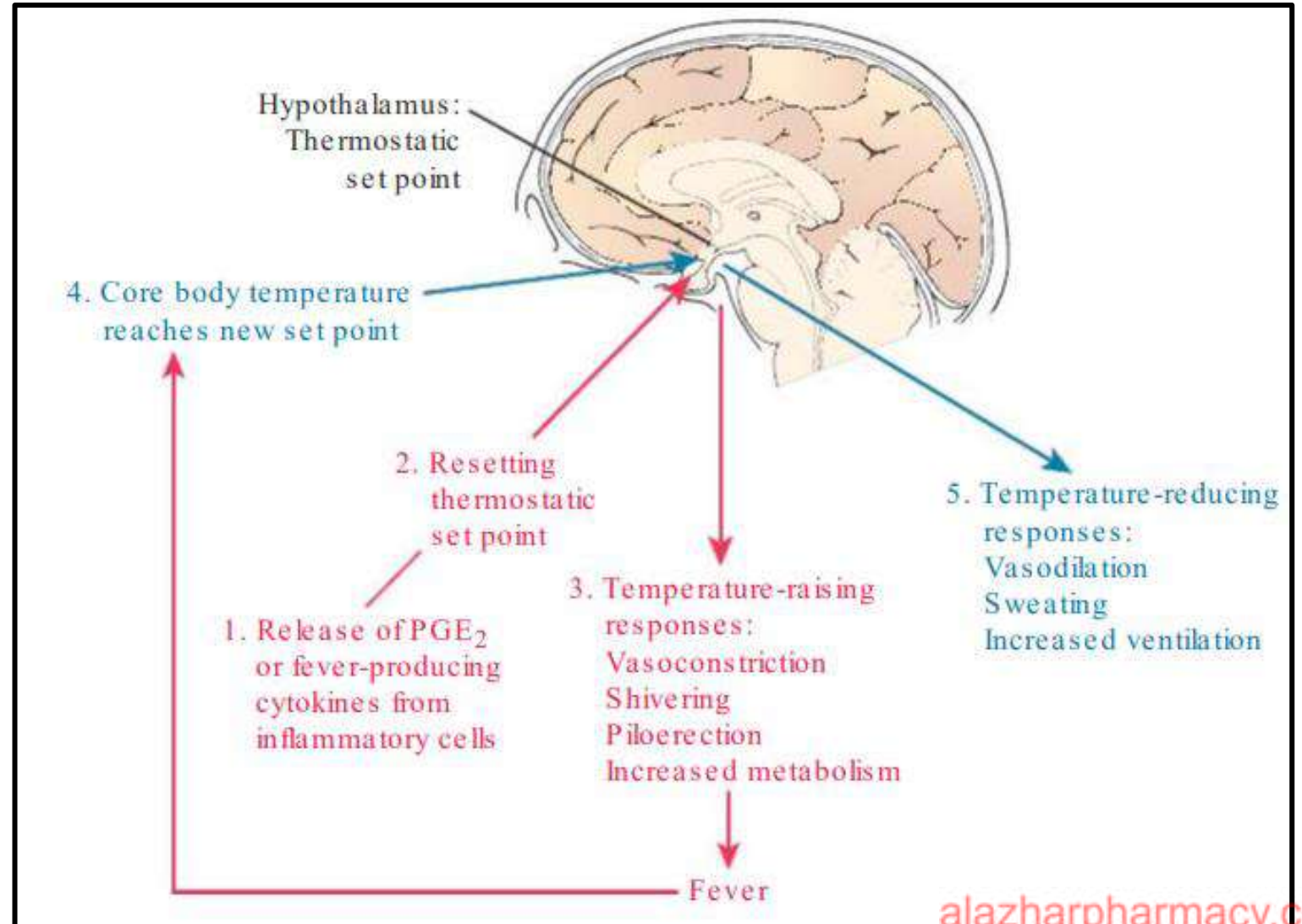
Systemic manifestations of inflammation

inflammation

Acute phase
proteins

WBC response

Fever



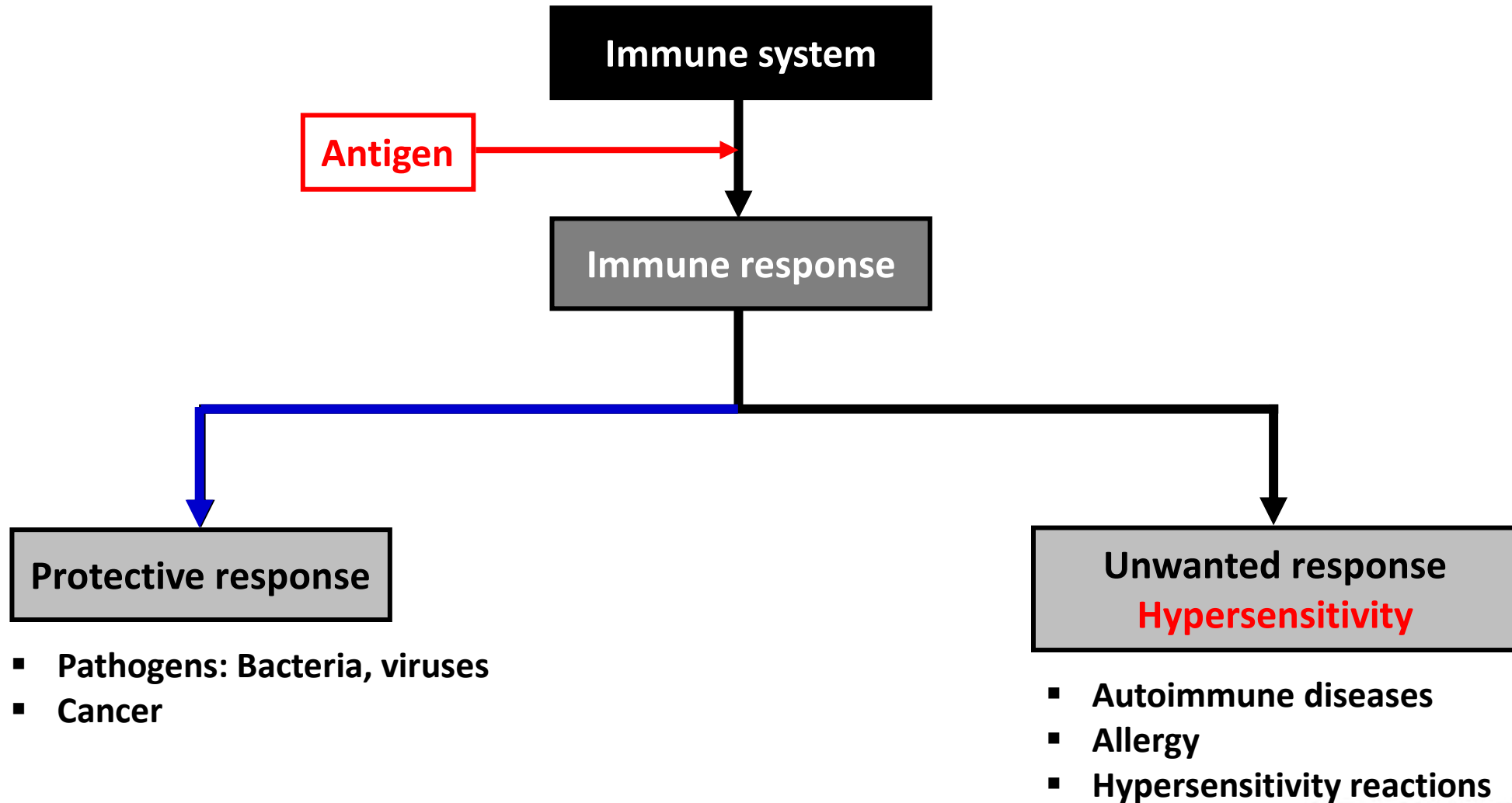
Pathophysiology I

Chapter (3B): Disorders of the immune response

- **Hypersensitivity reactions**

Hypersensitivity

Hypersensitivity abnormal and excessive response of the activated immune system.



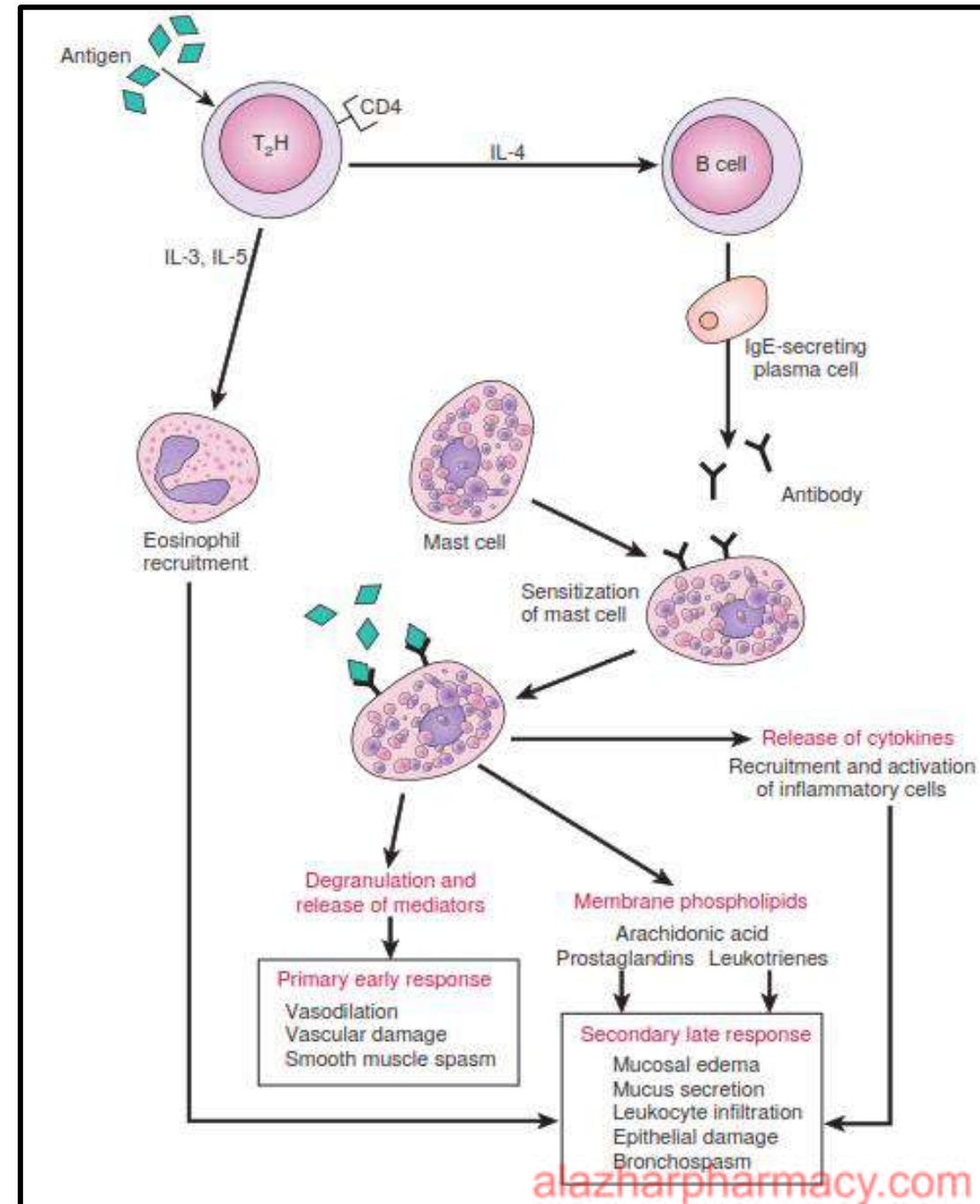
Hypersensitivity reactions: Four types

■ Type I: Immediate hypersensitivity reaction

- Local (atopic) reactions: allergic rhinitis (hay fever), urticaria, food allergies, allergic asthma.

Antihistamine, nasal corticosteroids, Cromolyn

- Systemic reactions: Anaphylaxis
Systemic epinephrine



Hypersensitivity reactions

- **Type I: Immediate hypersensitivity reaction**

- **Local (atopic) reactions:** allergic rhinitis (hay fever), urticaria, food allergies, allergic asthma.

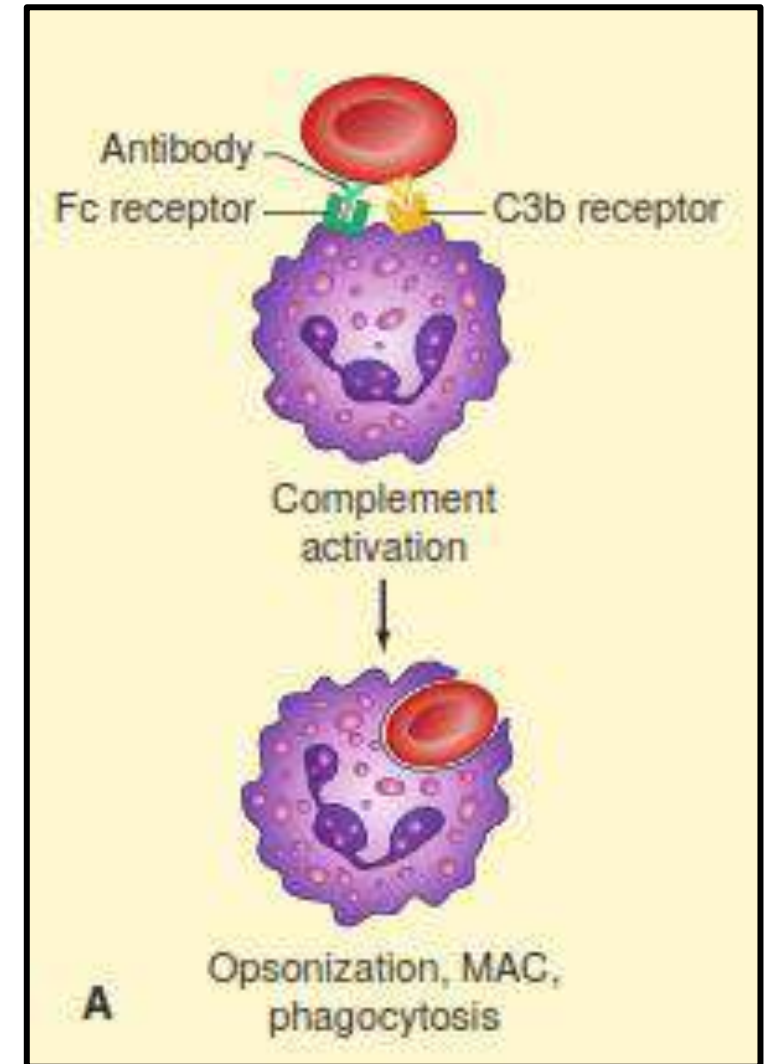
Antihistamine, nasal corticosteroids, Cromolyn

- **Systemic reactions:** **Anaphylaxis**
Systemic epinephrine



Hypersensitivity reactions:

- Type II: Antibody-mediated reaction
 - a. Complement - activated cell destruction
 - Phagocytosis or membrane attack complex
- Example: mismatch blood transfusion, autoimmune hemolytic anemia (AIHA)**



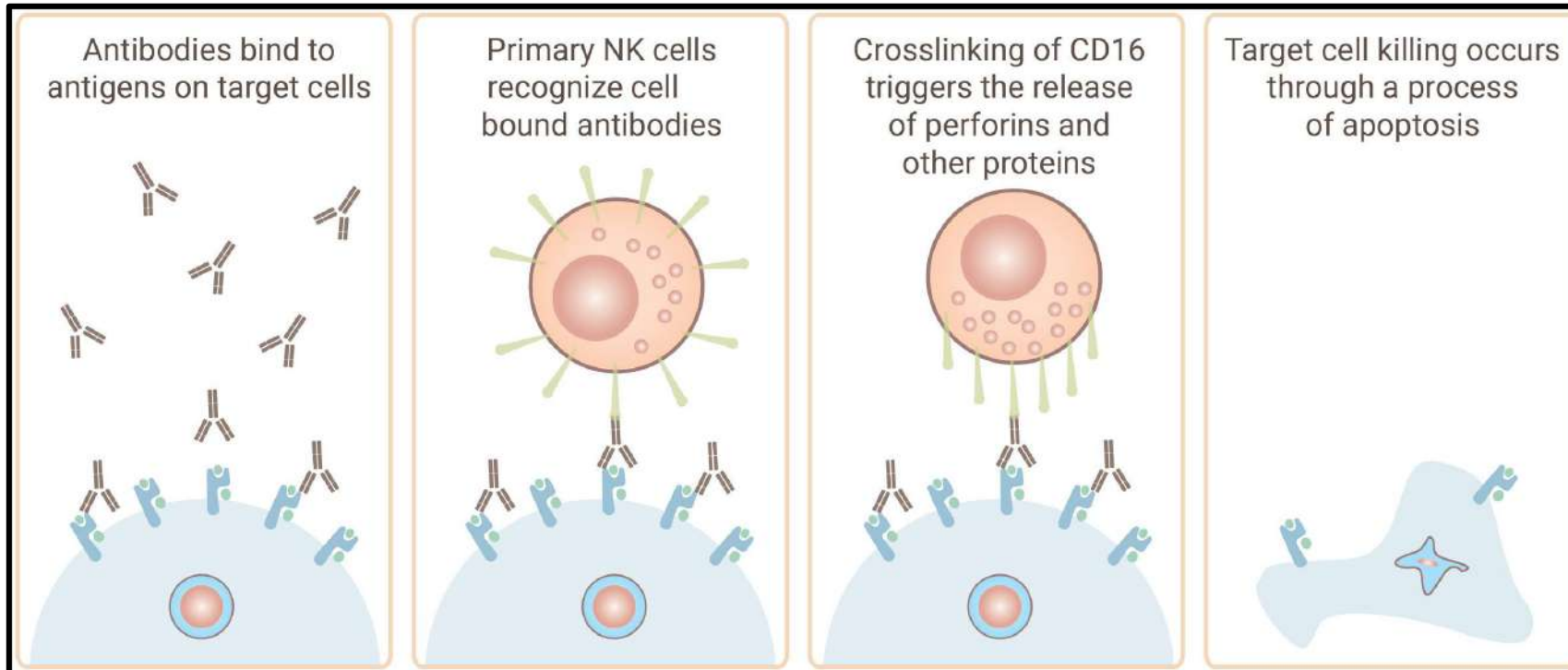
Hypersensitivity reactions:

- Type II: Antibody-mediated reaction

- b. Antibody-dependent cell cytotoxicity (ADCC)

- CD16 on NK cells

Example: pemphigus vulgaris

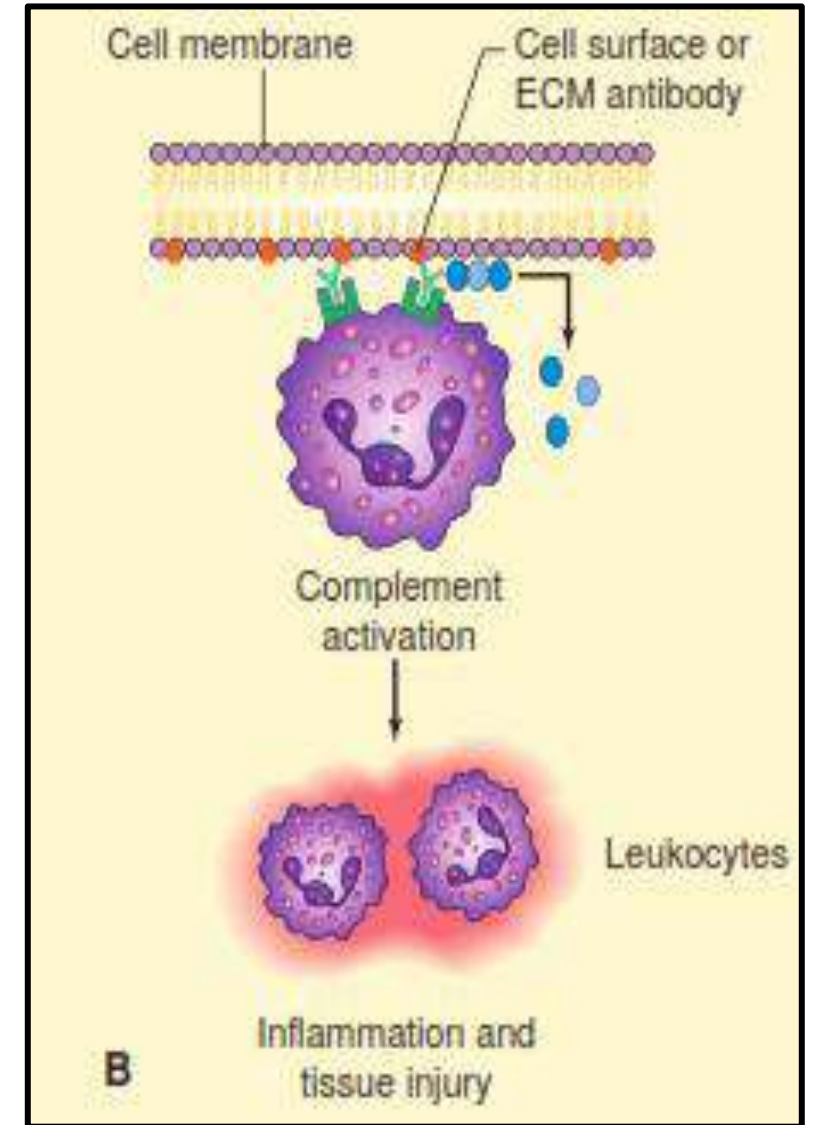


Hypersensitivity reactions:

- Type II: Antibody-mediated reaction

c. Complement - and Antibody-Mediated inflammation

Examples: rejection of organ graft, Goodpasture syndrome (inflammation in kidneys and lungs basement membranes)



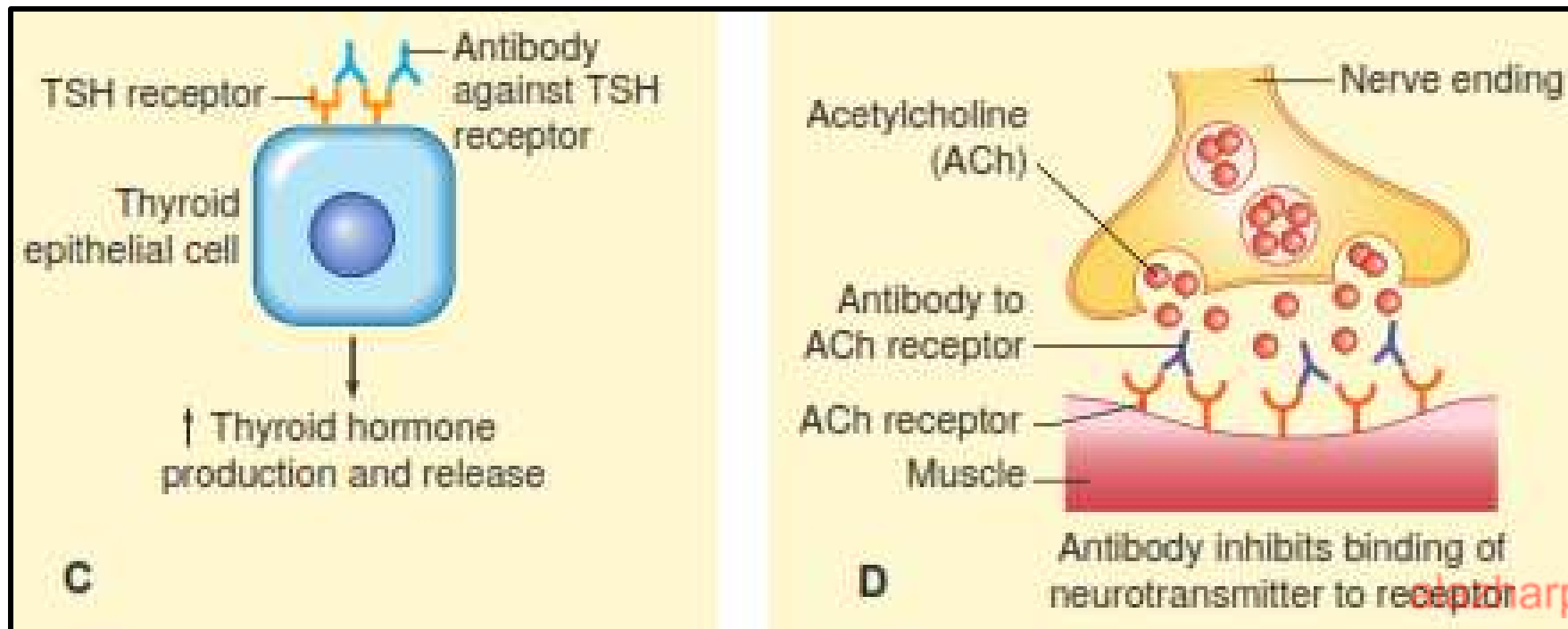
Hypersensitivity reactions:

- Type II: Antibody-mediated reaction

d. Antibody-Mediated cellular dysfunction

Examples:

- **Graves disease: antithyroid drugs as methimazole, propylthiouracil**
- **Myasthenia gravis: Cholinesterase inhibitors (Neostigmine), Corticosteroids**



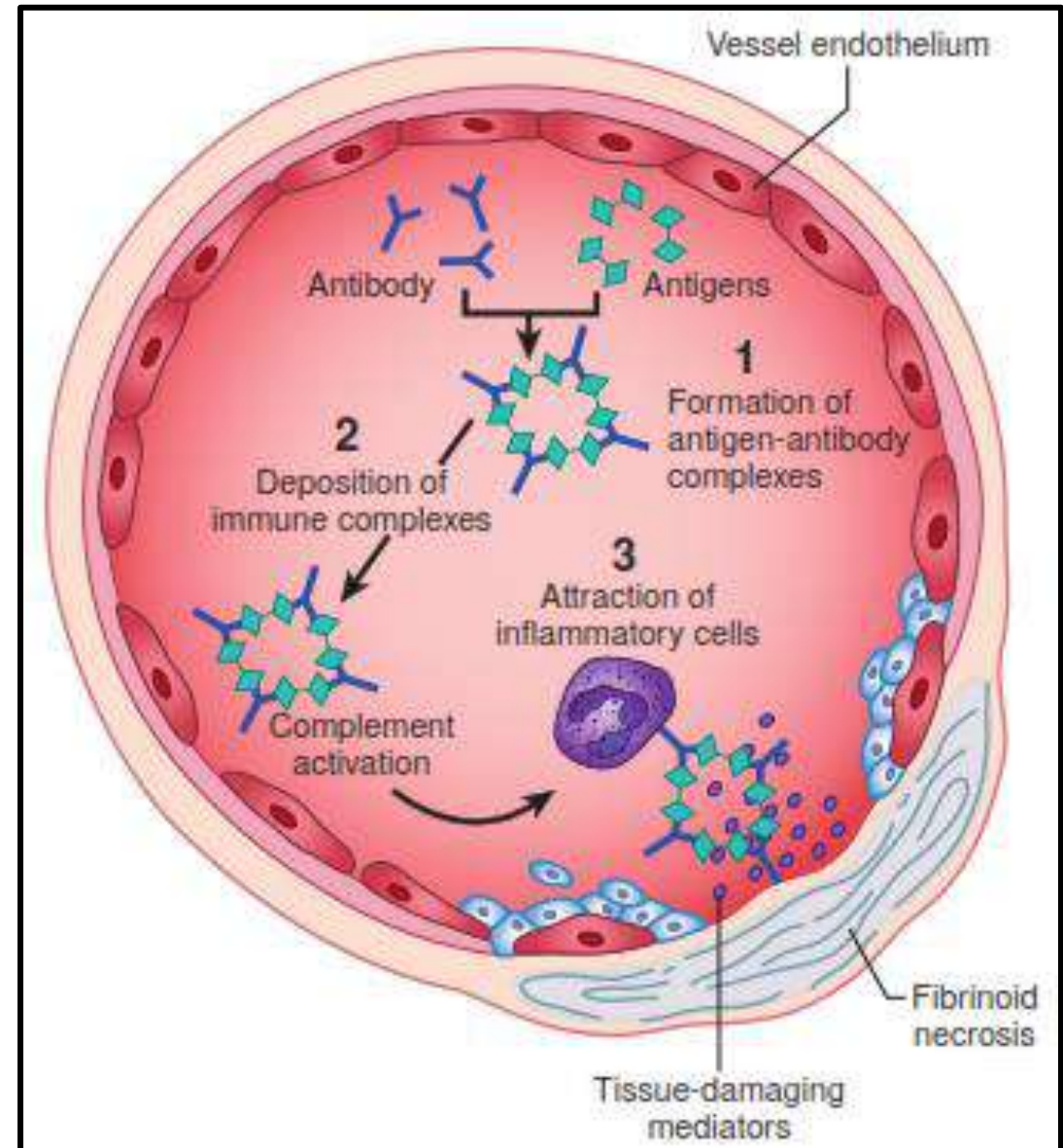
Hypersensitivity reactions:

■ Type III: Immune complex-mediated reaction

Examples:

- SLE: Systemic lupus erythematosus
- Autoimmune rheumatoid arthritis
- Serum sickness (serum, drugs, insect venoms)
- Arthus reaction

Antihistamine, NSAIDs, Corticosteroids, epinephrine



Hypersensitivity reactions:

- Type III: Immune complex-mediated reaction

Examples:

- SLE: Systemic lupus erythematosus
- Autoimmune rheumatoid arthritis
- Serum sickness
- Arthus reaction



SLE



Serum sickness



Arthus reaction

Hypersensitivity reactions:

- **Type IV: Cell-mediated reaction**

Examples:

- Tuberculin skin test
 - Contact dermatitis
 - Hypersensitivity pneumonitis
- Antihistamine, Corticosteroids

