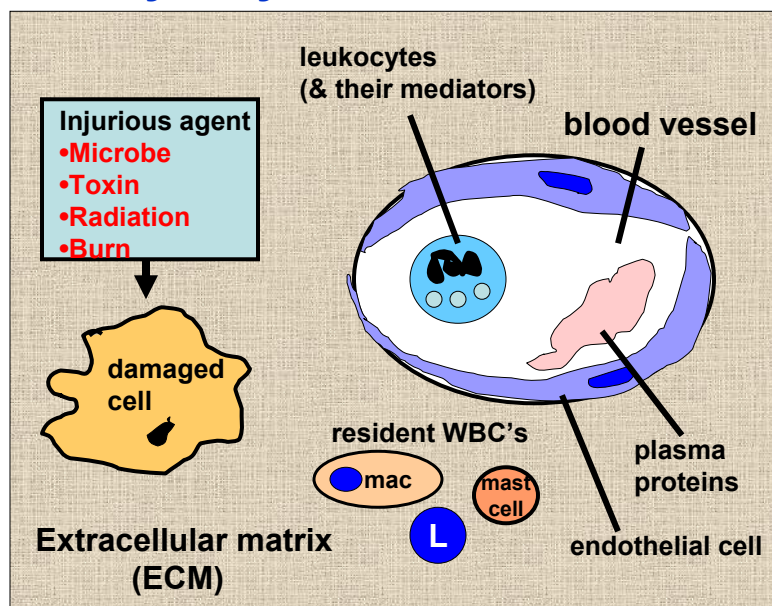
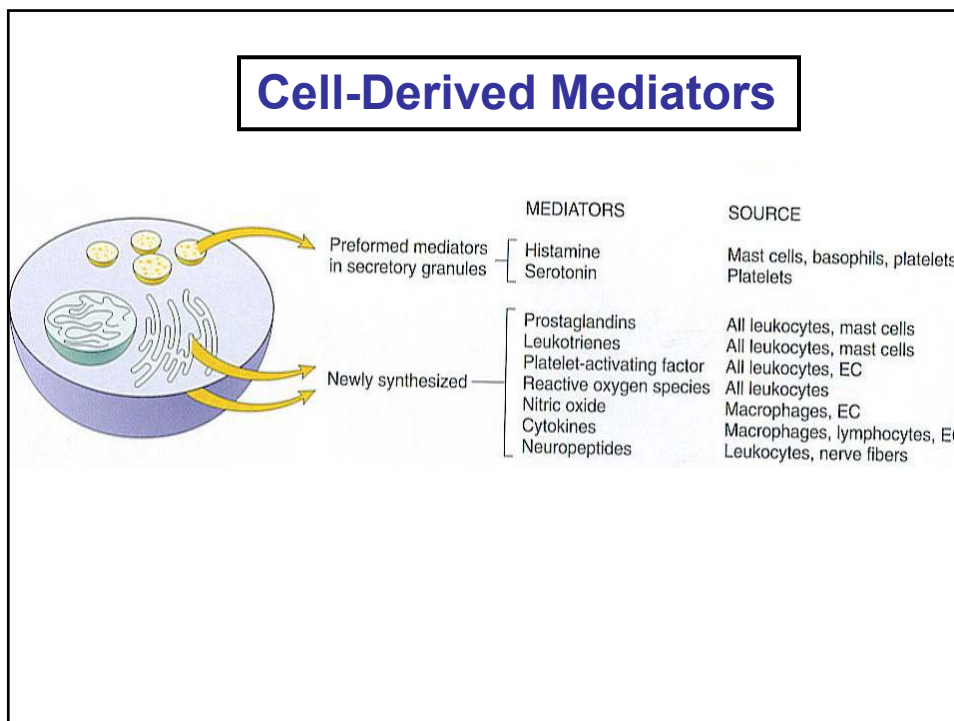
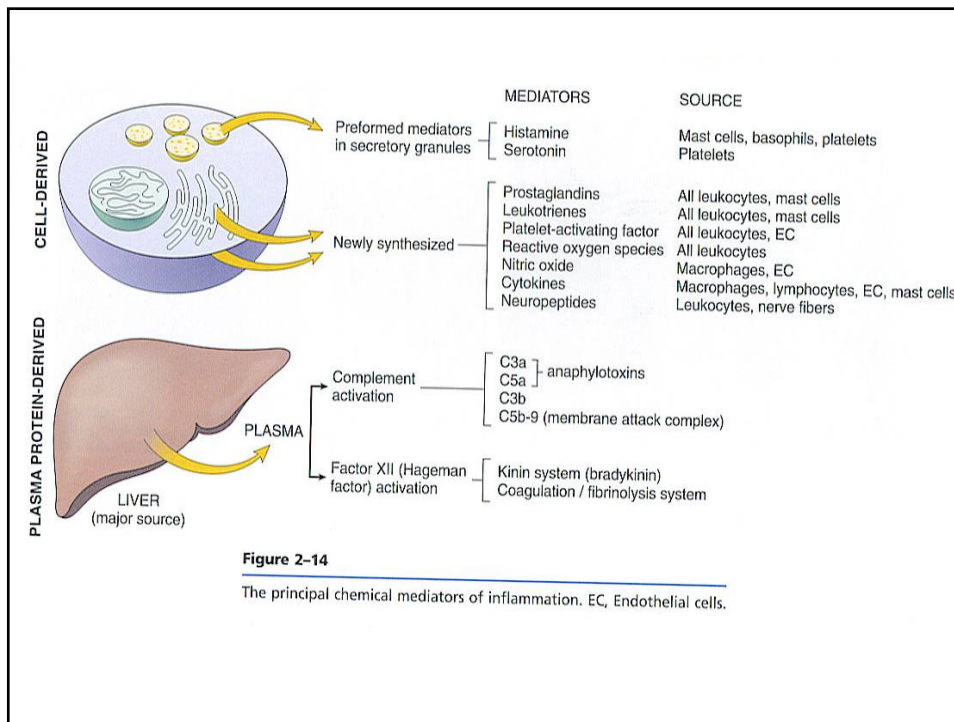


# Inflammation 2:

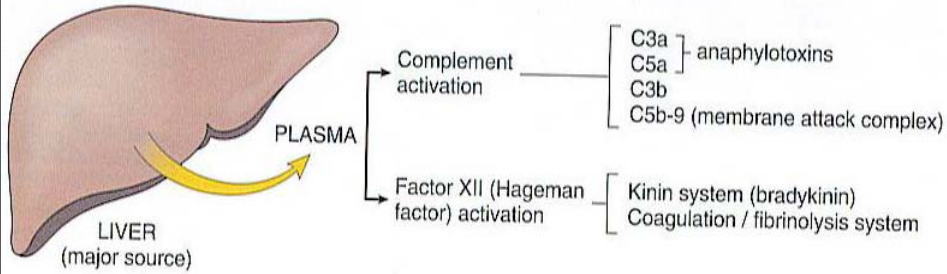
1. Chemical mediators
2. Systemic effects
3. Chronic inflammation

## Key Players in Inflammation



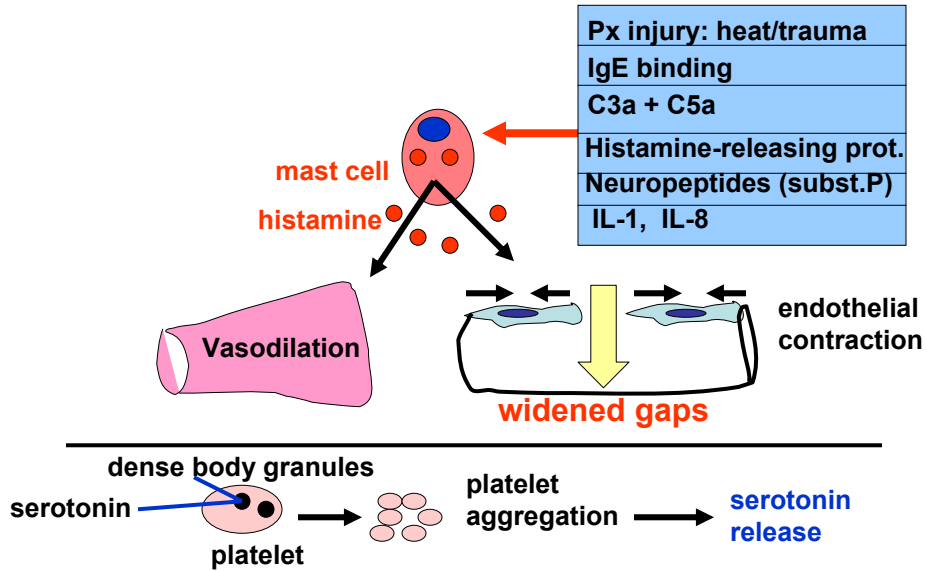


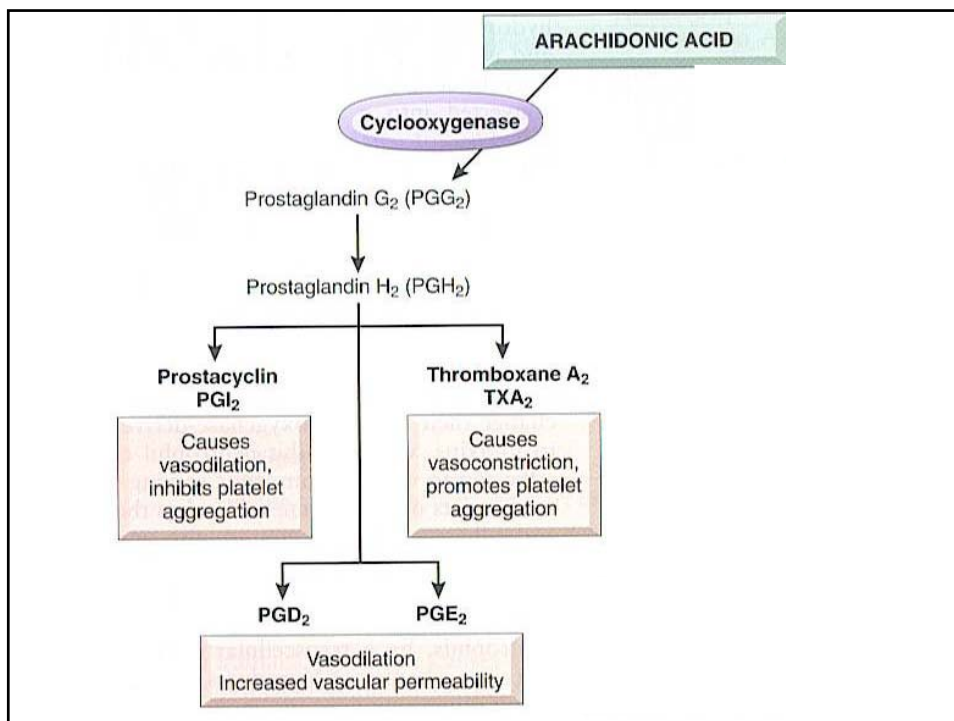
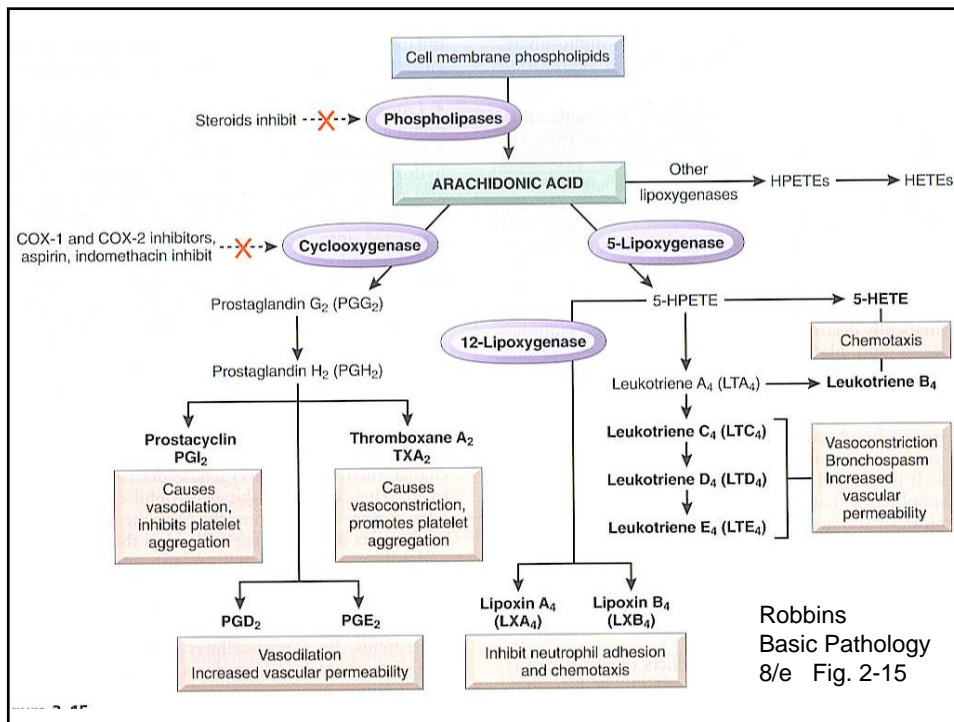
## Plasma Protein-Derived Mediators

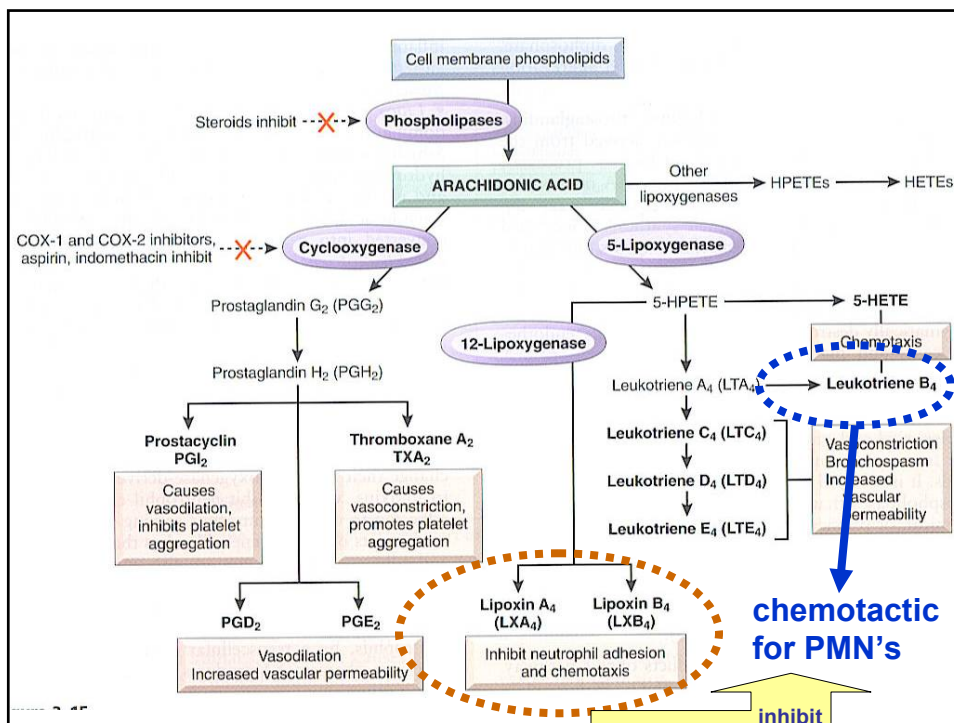
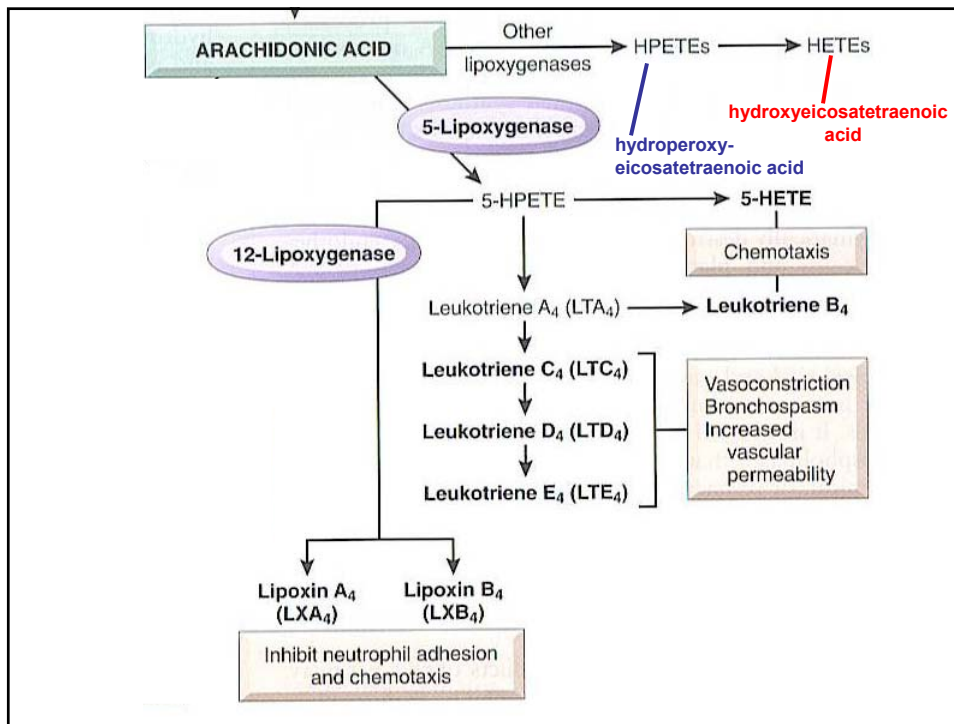


## Vasoactive Amines

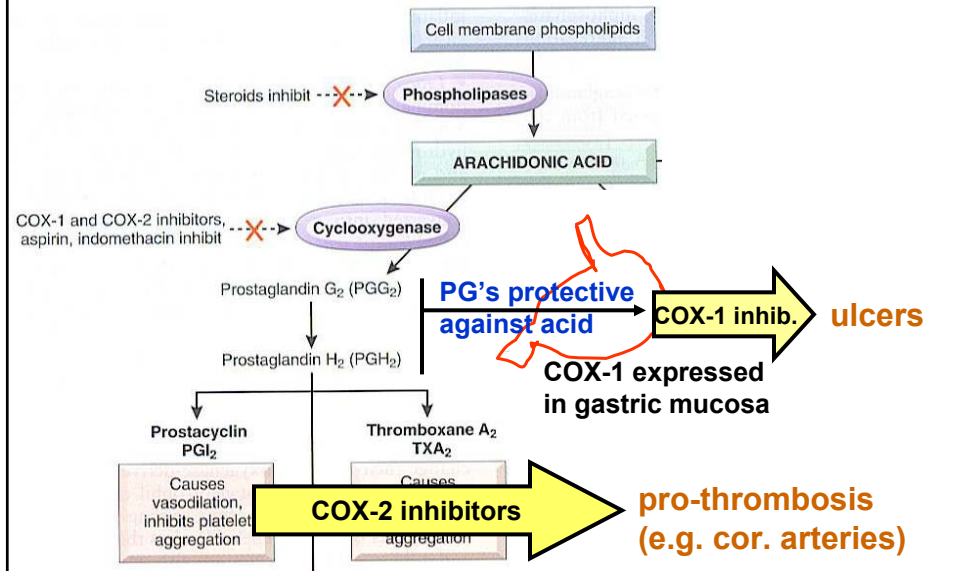
- Histamine
- Serotonin (5-OH-tryptamine)



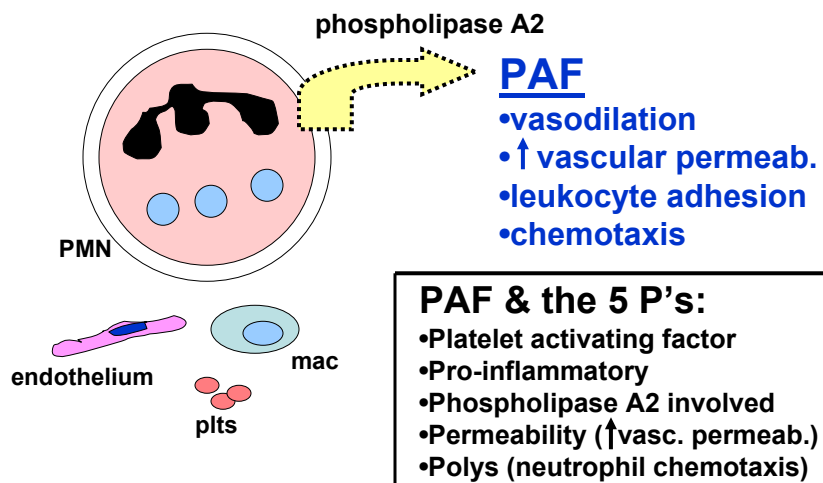




## Adverse effects of anti-inflammatory drugs

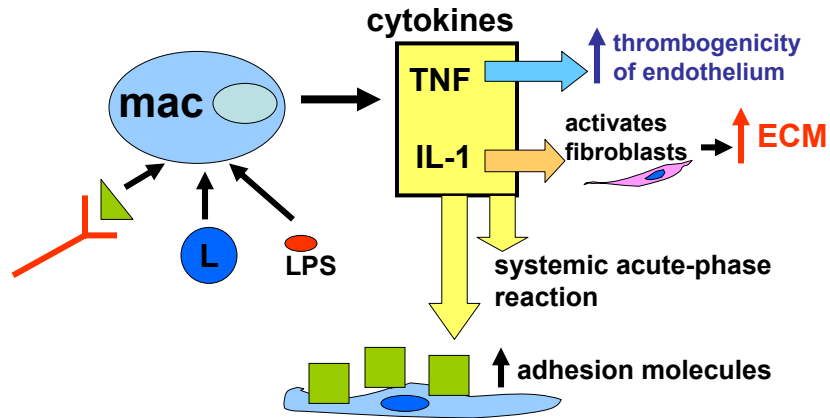


## Platelet Activating Factor (PAF)



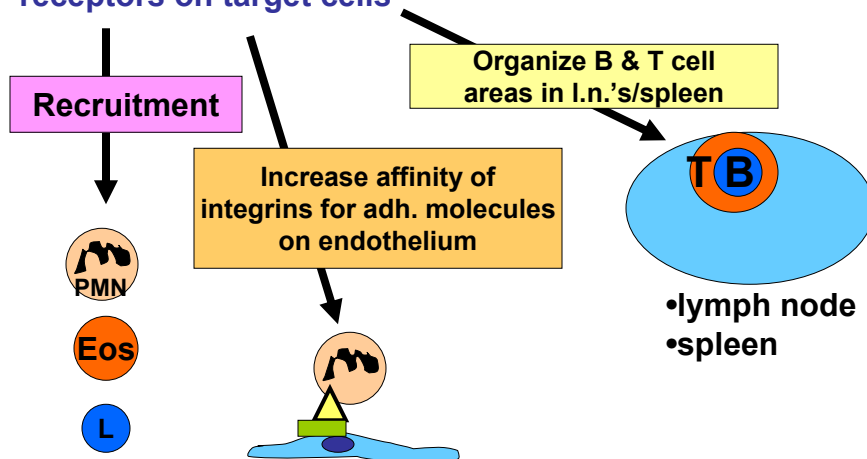
## Cytokines:

- polypeptides
- from many cells—esp. mac's and lymphocytes
- e.g. interleukins (communicate between leukocytes)

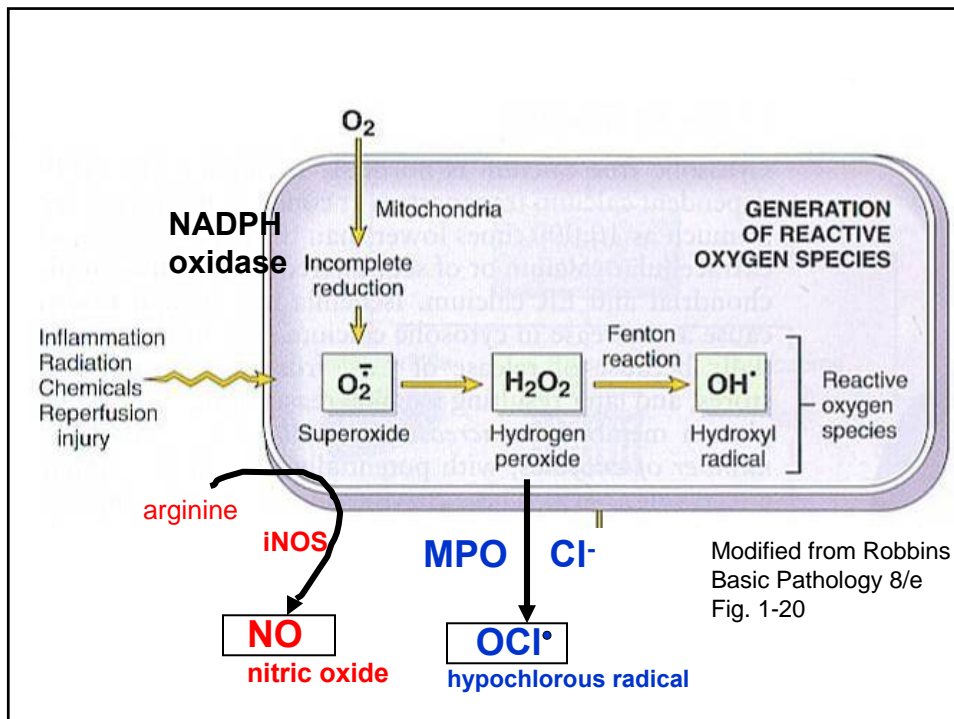
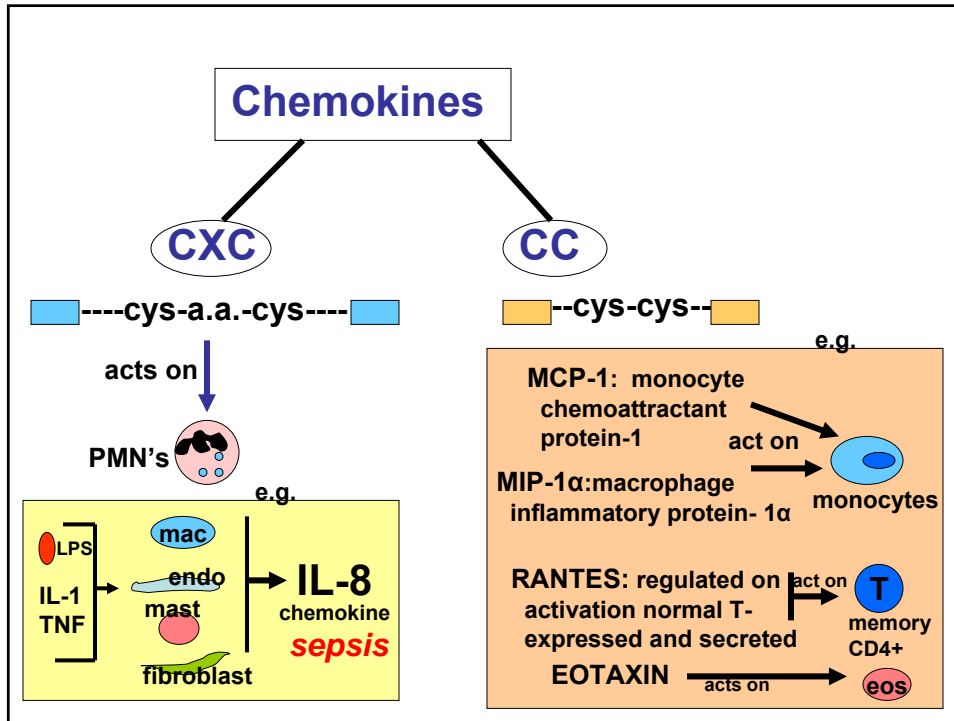


## Chemokines

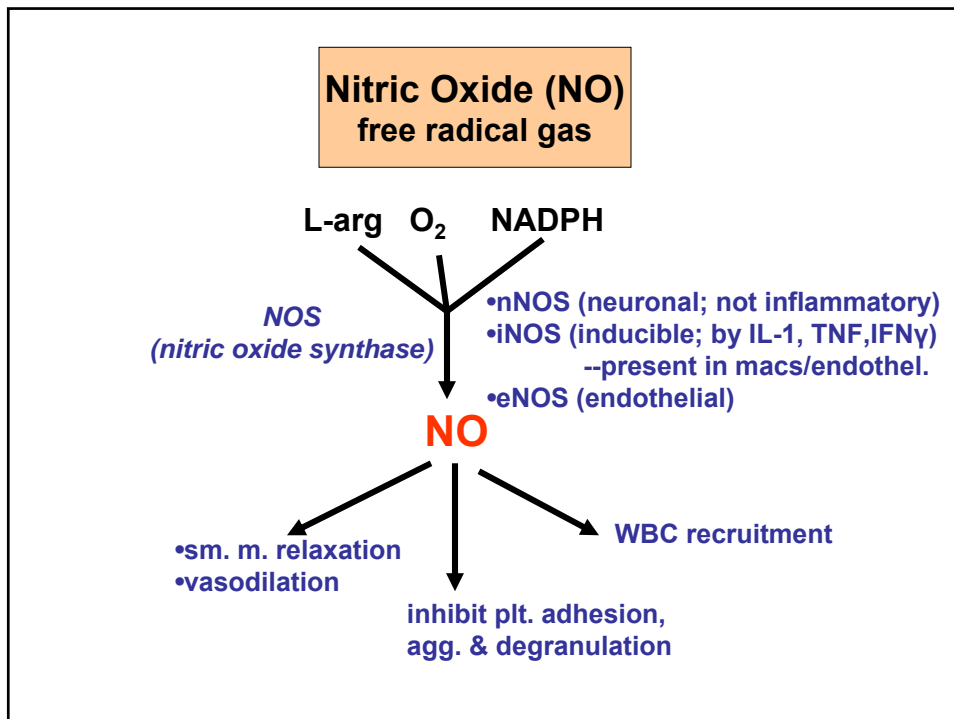
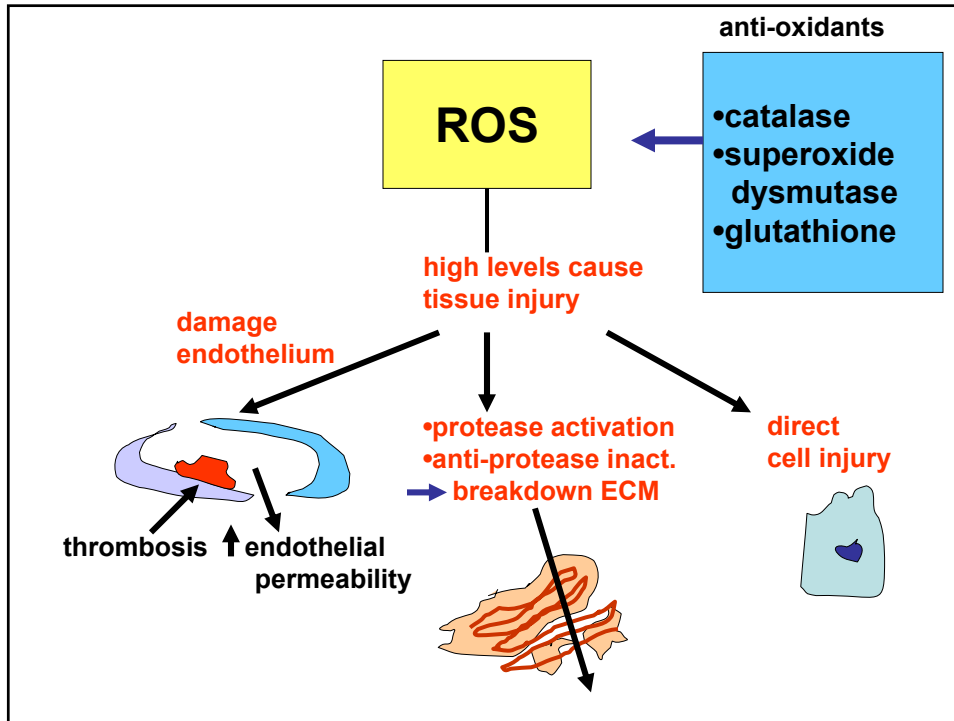
- Chemoattractant cytokines
- Small: 8-10 kD
- Bind to G-protein-coupled receptors on target cells



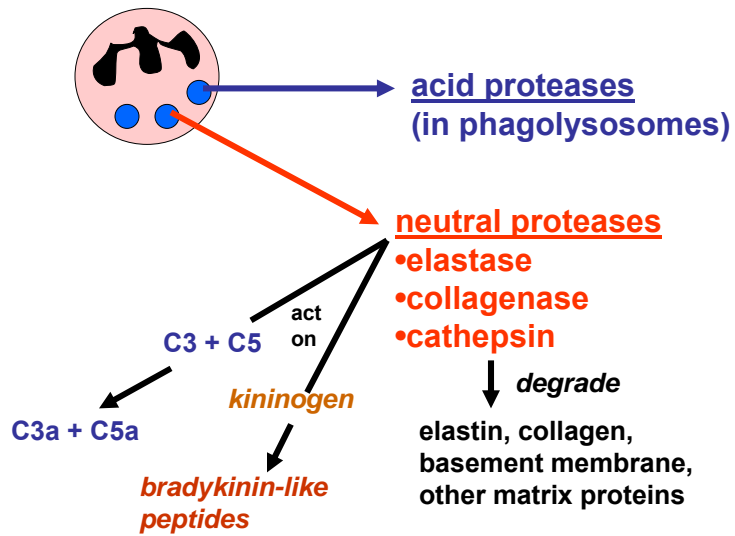




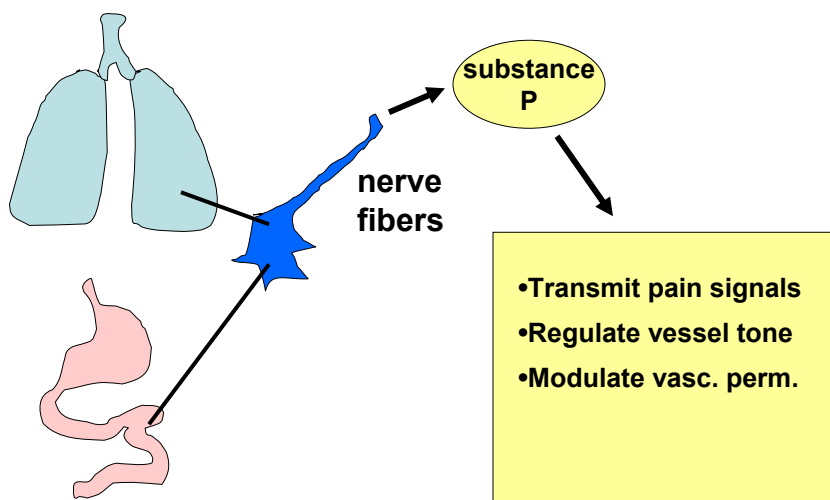




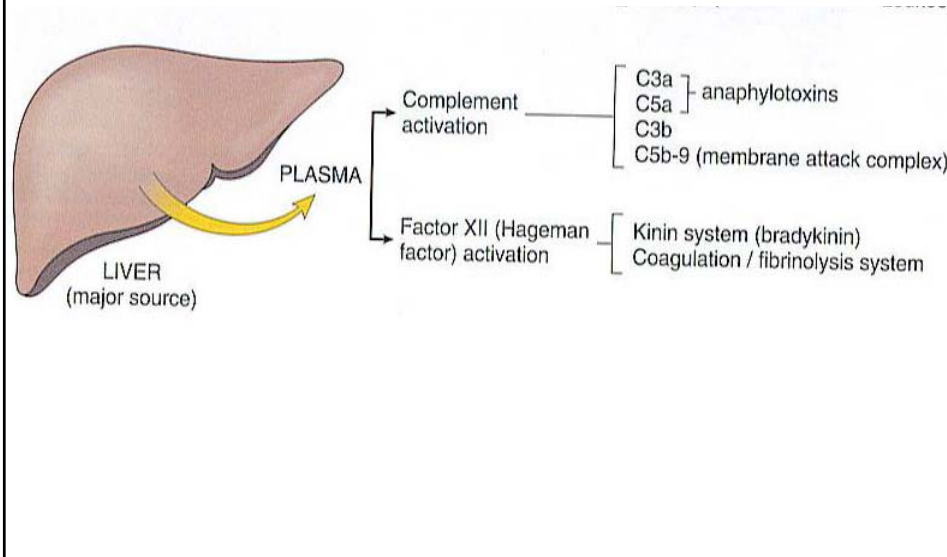
## Lysosomal enzymes of leukocytes



## Neuropeptides

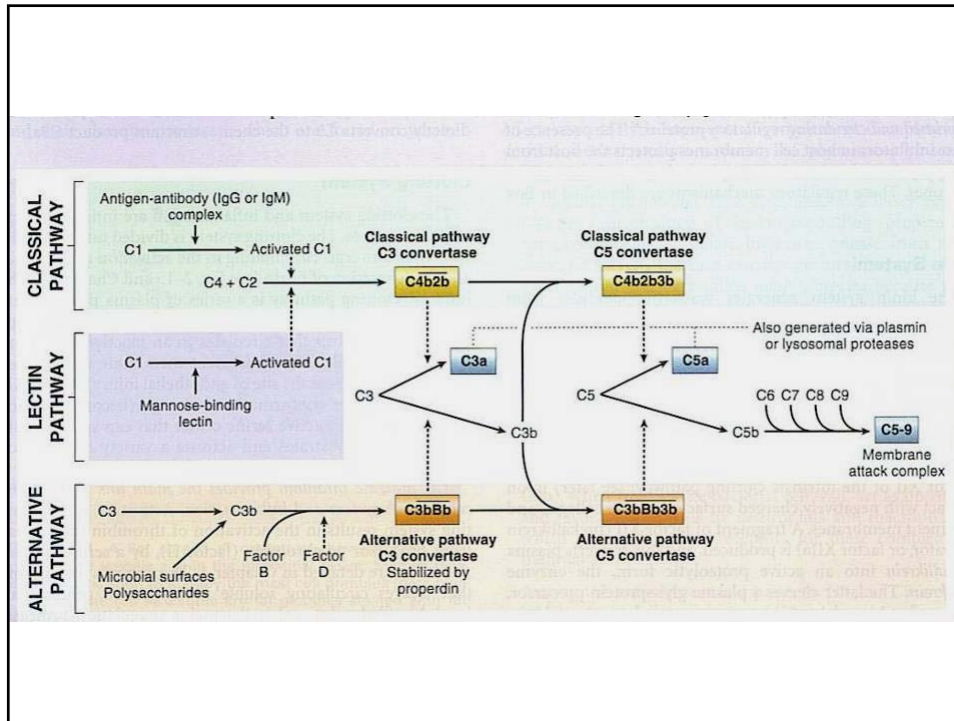


## Plasma Protein-Derived Mediators

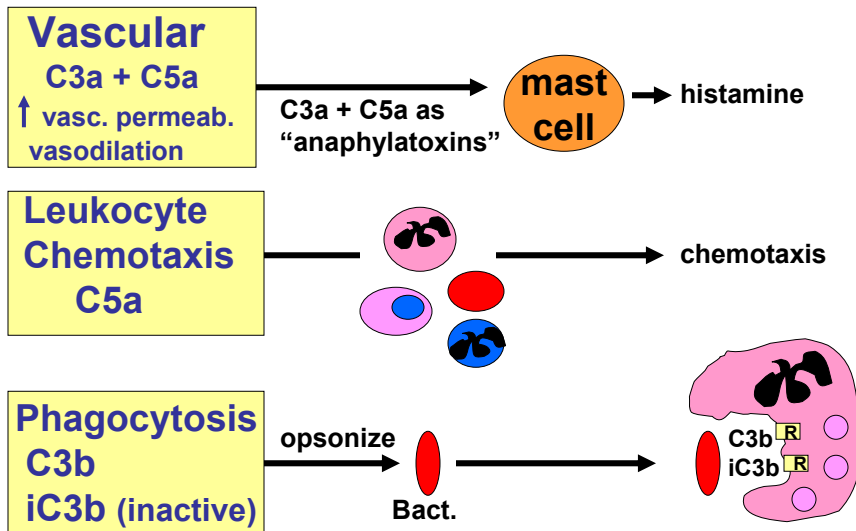


## Complement

- Present in plasma as 9 inactive proteins C1 – C9
- Progressive conversions from inactive to active forms (C1→C1a, C3→C3a + C3b, etc.)
- Membrane attack complex: C5-9  
forms channel in lipid membranes→  
entry of fluid & ions, cell lysis
- Activation pathways:
  1. Classical (Ag-Ab complexes; IgG/IgM)
  2. Alternative (bacterial polysaccharides, e.g., endotoxin, cell wall components)
  3. Lectin (plasma mannose-binding lectin binds to mannose residues on microbes)



## Complement roles in inflammation



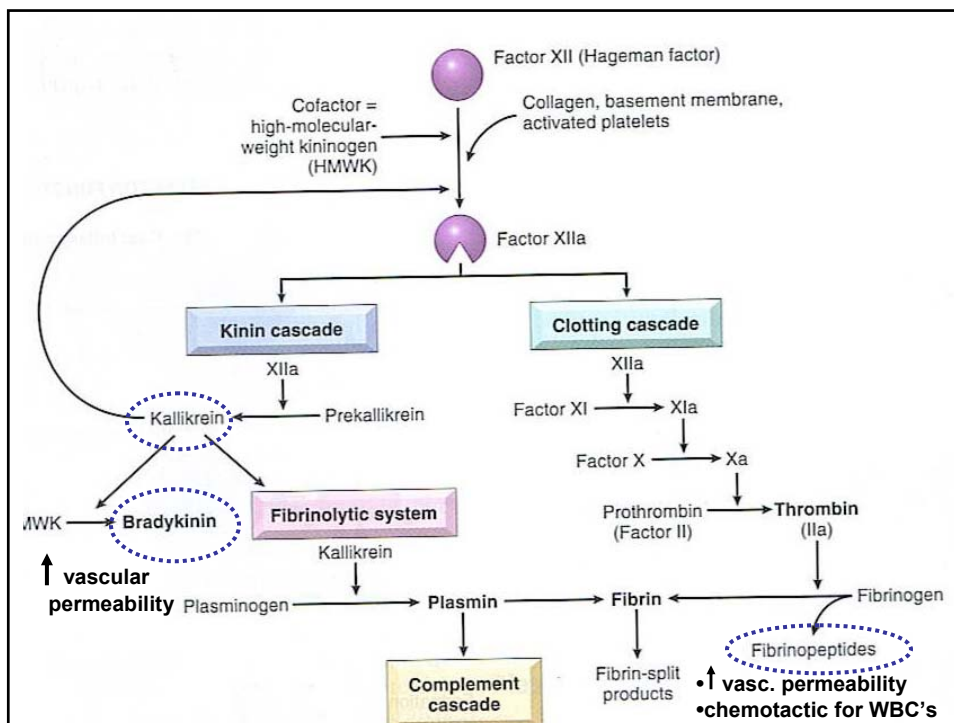
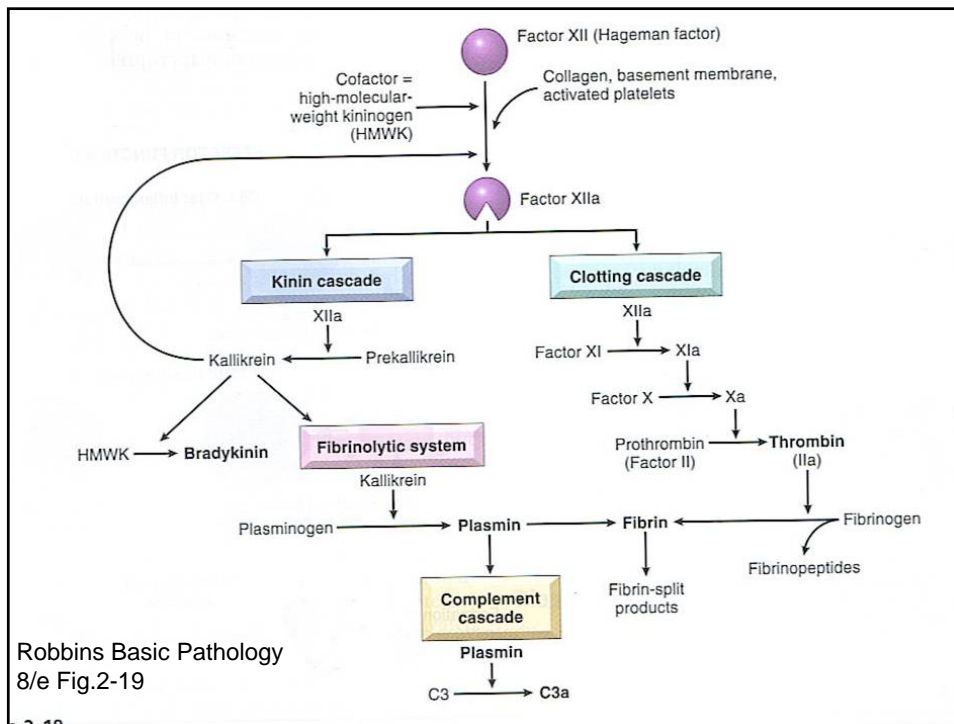
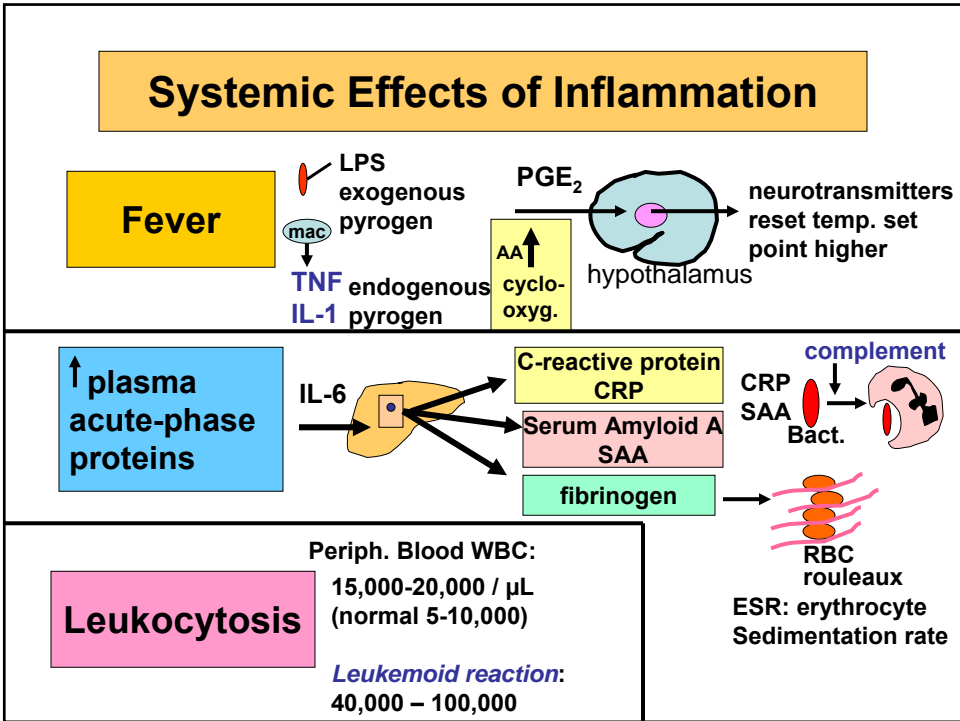


TABLE 2-6 Role of Mediators in Different Reactions of Inflammation	
Vasodilation	Prostaglandins Nitric oxide Histamine
Increased vascular permeability	Vasoactive amines C3a and C5a (through liberating amines) Bradykinin Leukotrienes C <sub>4</sub> , D <sub>4</sub> , E <sub>4</sub> PAF Substance P
Chemotaxis, leukocyte recruitment and activation	C5a Leukotriene B <sub>4</sub> Chemokines IL-1, TNF Bacterial products
Fever	IL-1, TNF Prostaglandins
Pain	Prostaglandins Bradykinin
Tissue damage	Neutrophil and macrophage lysosomal enzymes Oxygen metabolites Nitric oxide



# Chronic Inflammation

