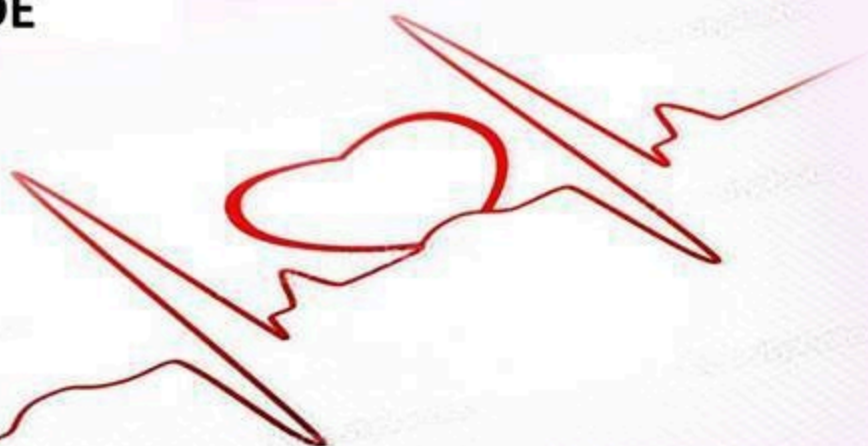


**SHEET**



**SLIDE**



**Slide : 8**



**Doctor: Heyam Awad**



# INFLAMMATION LECTURE 4

DR HEYAM AWAD

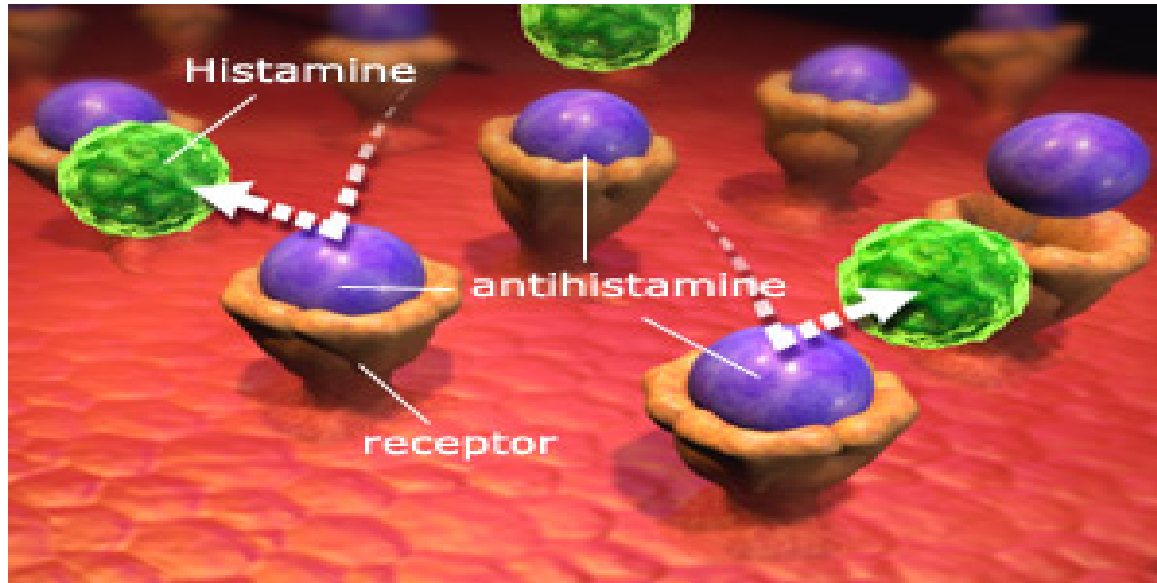
# CHEMICAL MEDIATORS OF INFLAMMATION

- VASOACTIVE AMINES.
- AA METABOLITES.
- CYTOKINES.
- COMPLEMENT SYSTEM.

# VASOACTIVE AMINES

- HISTAMINE.
- VASODILATOR AND INCREASES VASCULAR PERMEABILITY.
- SECRETED MAINLY FROM MAST CELLS AND OTHER INFLAMMATORY CELLS.
- ACTS VIA H1 RECEPTOR.

# ANTI-HISTAMINES



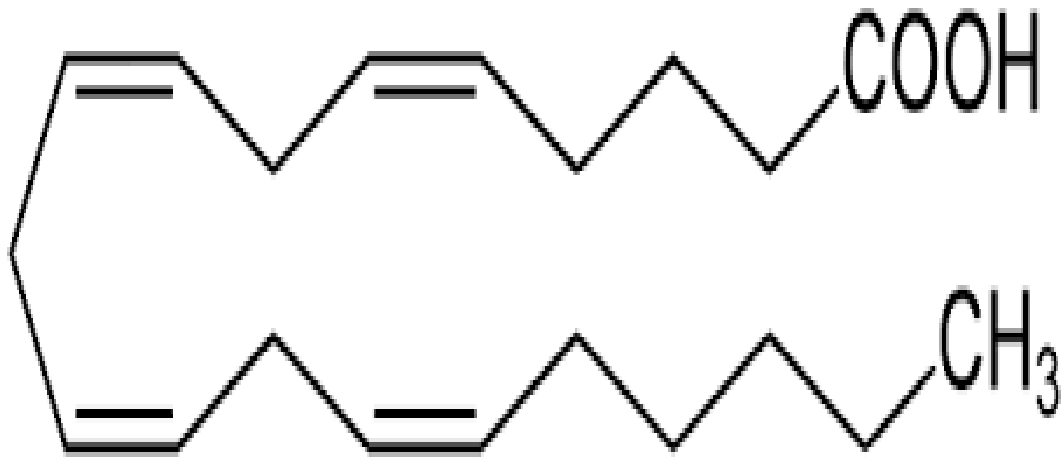
Many antihistamines work by occupying the receptors targeted by histamines. By blocking these receptors, antihistamines reduce or prevent allergic reactions.

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# VASOACTIVE AMINES

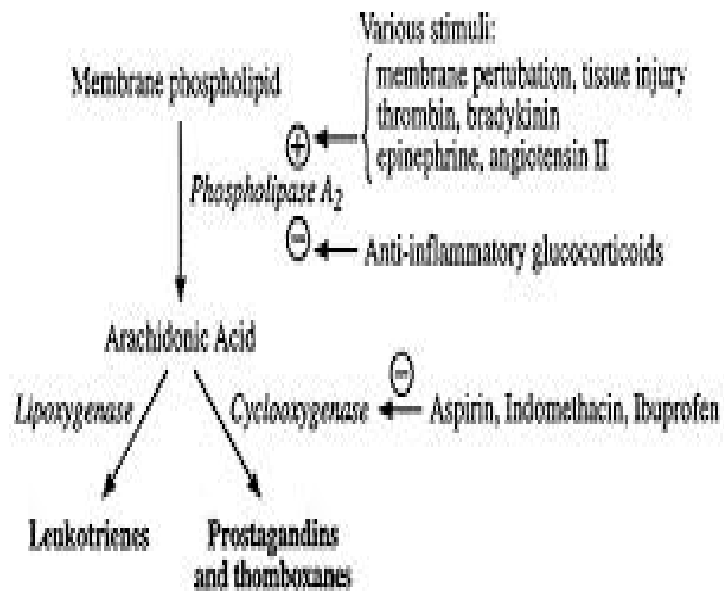
- SEROTONIN.
- VASOCONSTRICTOR.
- ?ROLE IN INFLAMMATION????

# ARACHIDONIC ACID









# PROSTAGLANDINS

- *PGD2 AND PGE2*
- VASODILATORS.
- INCREASE VASCULAR PERMEABILITY.

# PROSTAGLANDINS

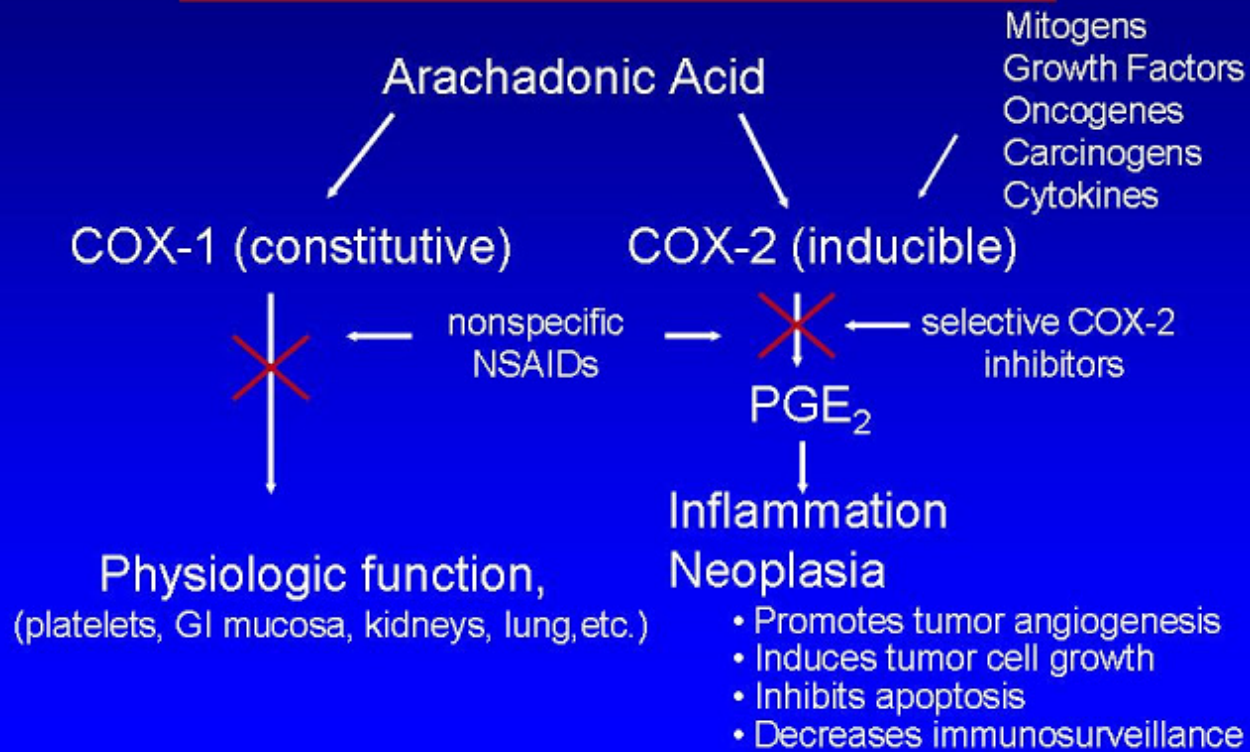
## PROSTACYCLIN = PGI<sub>2</sub>.

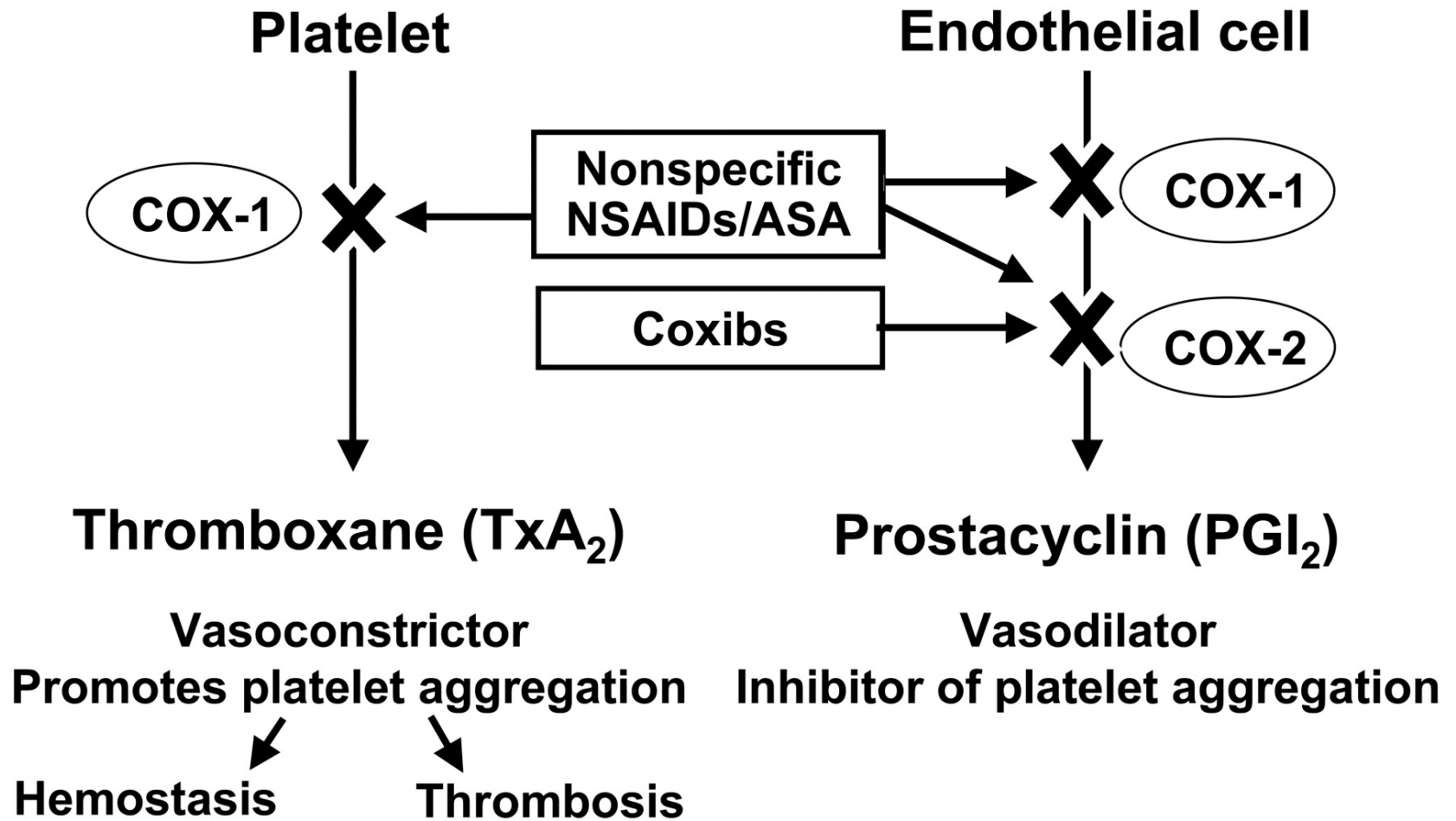
- VASODILATOR AND INHIBITS PLATELET AGGREGATION.
- ENDOTHELIAL CELLS.

## THROMBOXANE A<sub>2</sub>

- VASOCONSTRICTOR AND PROMOTES PLATELET AGGREGATION
- PLATELETS.

# Cyclo-oxygenase (COX) Pathways





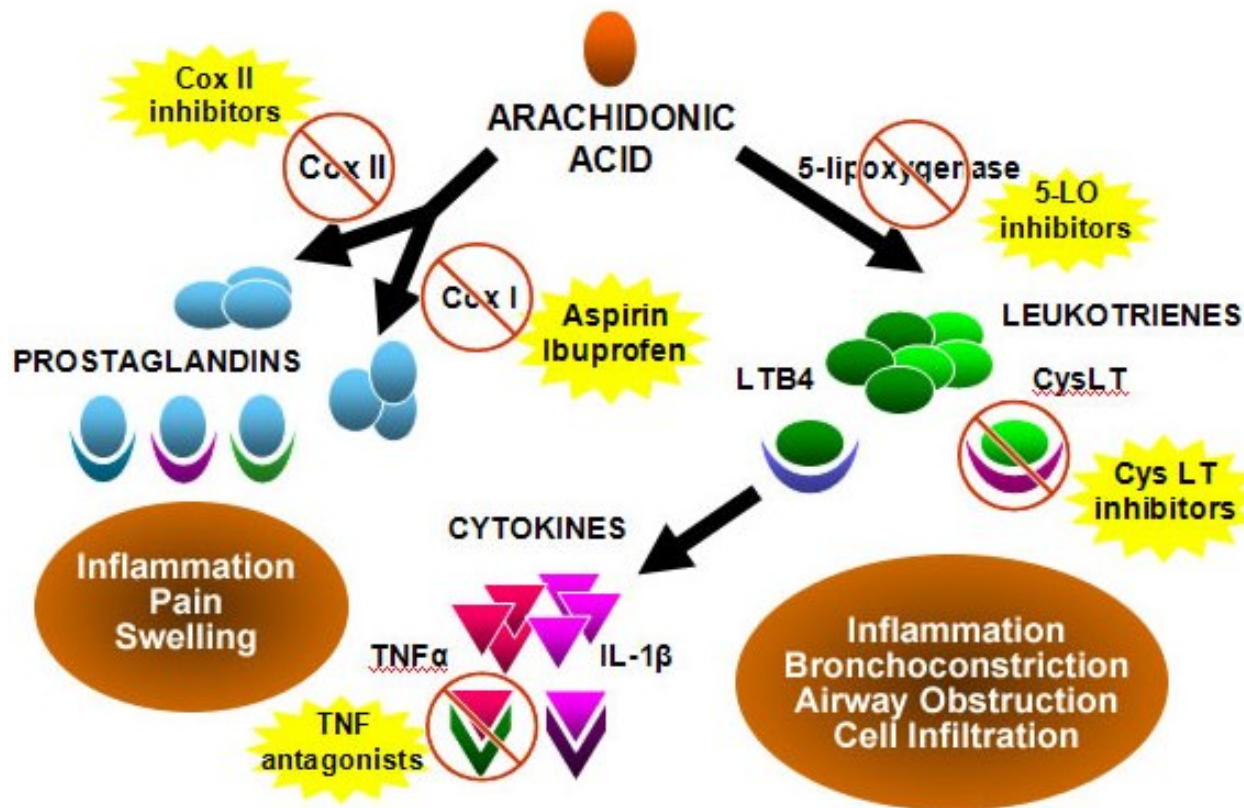
# LEUKOTRIENES

- LT B<sub>4</sub>.....CHEMOTAXIX.
- LTC<sub>4</sub>, LTD<sub>4</sub>, LTE<sub>4</sub>....BRONCHOSPASM AND INCREASED VASCULAR PERMEABILITY.

# LIPOXINS

- LIPOXIN A4 AND B4.
- ANTI-INFLAMMATORY ACTION.

**Figure 2.** Arachidonic acid is metabolized to produce inflammatory mediators. Many current anti-inflammatory and pain medicines are inhibit some portion of the arachidonic acid pathways.





# COMPLEMENT SYSTEM

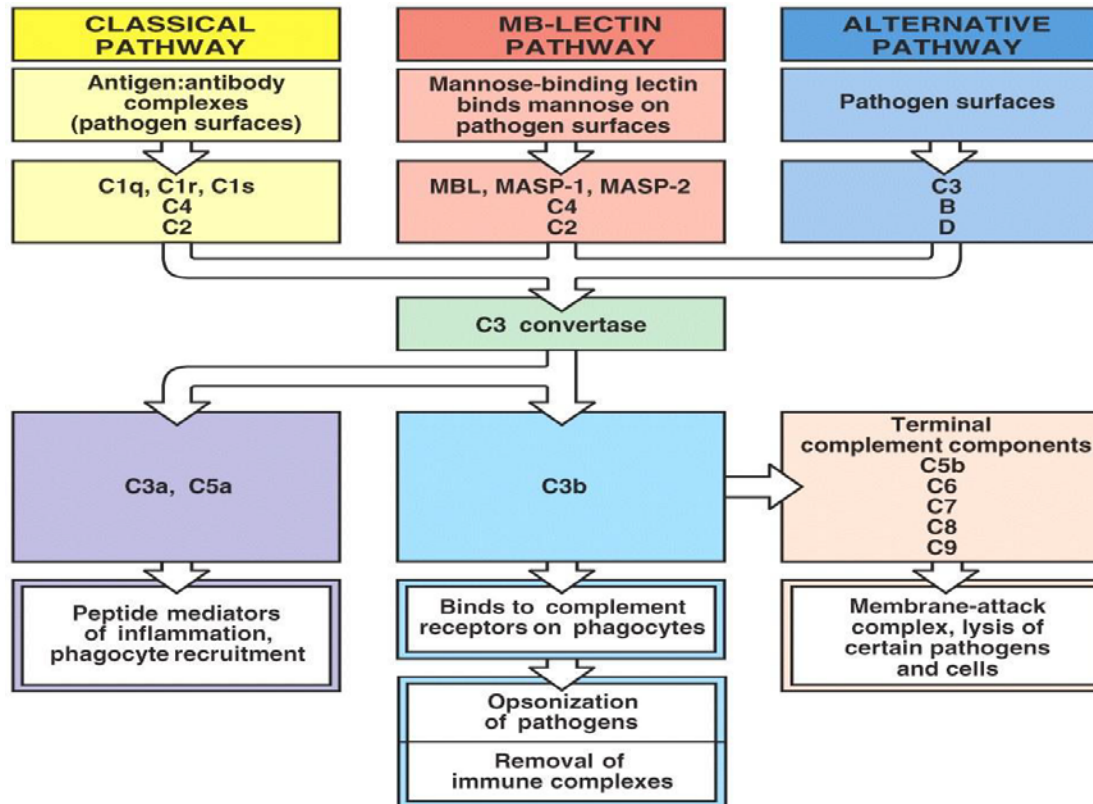
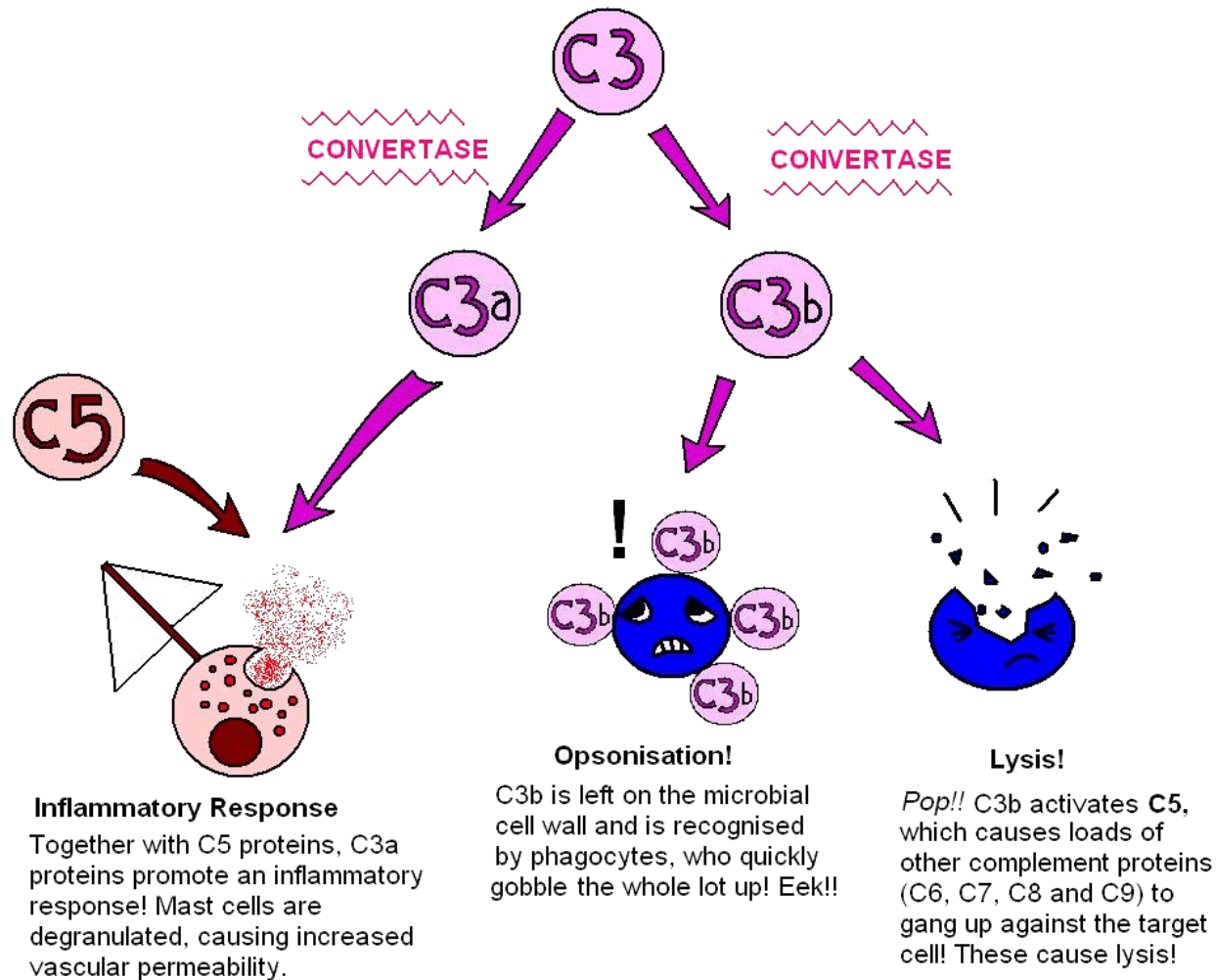
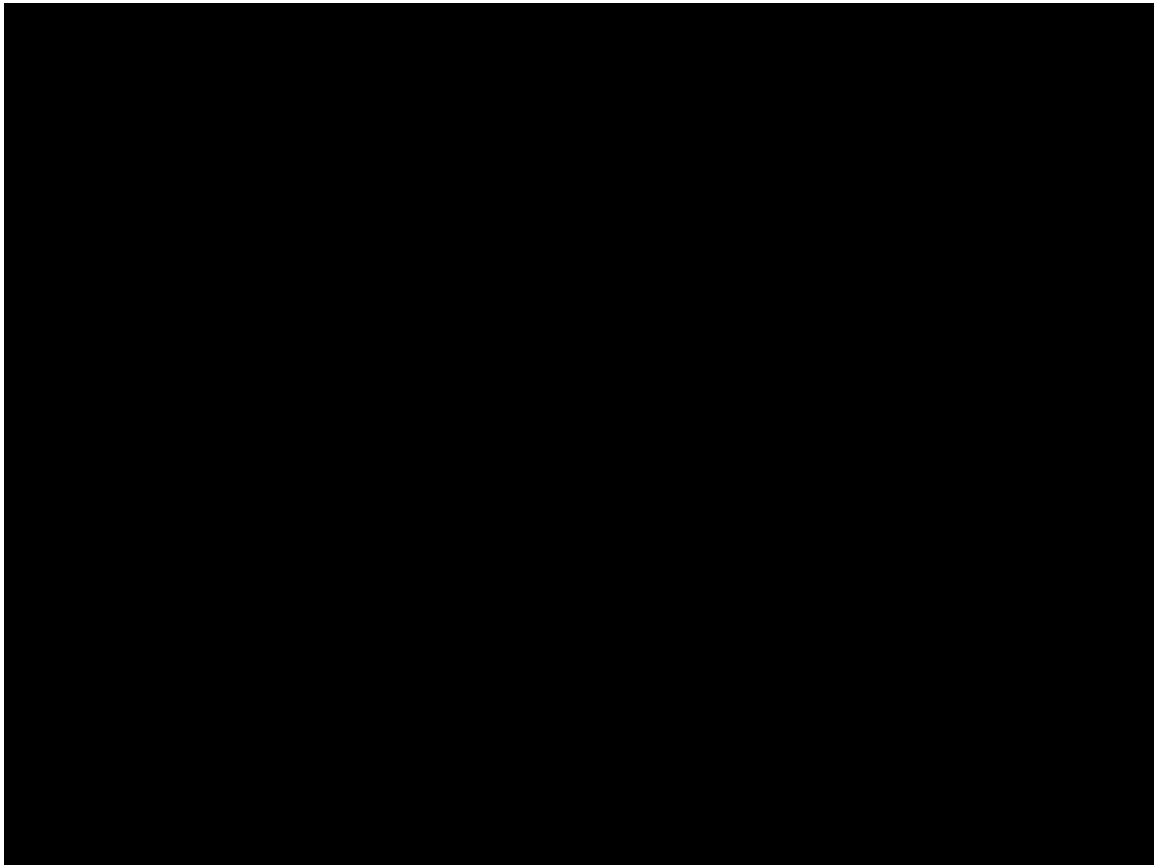


Figure 2-19 Immunobiology, 6/e. (© Garland Science 2005)





# CYTOKINES

- IL1 AND TNF.
- CHEMOKINES
- OTHERS

# IL1 AND TNF

- **ENDOTHELIAL ACTIVATION.**
- INCREASED EXPRESSION OF ENDOTHELIAL ADHESION MOLECULES.
- INCREASE OTHER MEDIATORS: OTHER CYTOKINES, GROWTH FACTORS, AA METABOLITES.

# IL1 AND TNF

- **LEUKOCYTE ACTIVATION.**
- TNF AUGMENTS RESPONSE OF NEUTROPHIL TO OTHER STIMULI AND ACTIVATES MICROBICIDAL ACTIVITY OF MACROPHAGES.
- IL1 ACTIVATES COLLAGEN SYNTHESIS BY FIBROBLASTS.

# IL1 AND TNF

- SYSTEMIC ACUTE PHASE RESPONSE ;  
FEVER.  
CASHEXIA (TNF)  
SEPSIS

# CHEMOKINES

- SMALL PROTEINS THAT ACT AS CHEMOATTRACTANTS TO SPECIFIC TYPES OF CELLS.
- IL8....NEUTROPHILS.
- LYMPHOTACTIN....LYMPHOCYTES.



# OTHER MEDIATORS

- PAF
- PLATELET AGGREGATION.
- VASOCONSTRICTION.
- BRONCHOCONSTRICTION.

# OTHER MEDIATORS

## Kinin System and Neutrophil Action

