Nonspecific immunity

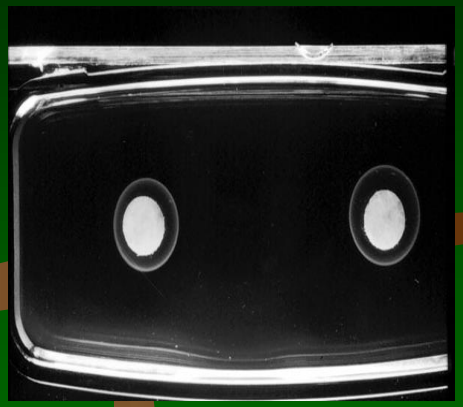
lysozyme

bactericidal activity

fagocytic activity

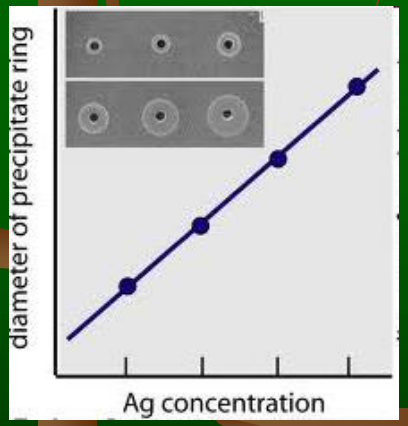
fagocytic index

Radial immunodiffusion assay for is a more practical test for lysozyme



Micrococcus lysodeicticus – bacterium soluble by lysosyme
Sample in which we are testing presence and level of lysosyme - saliva, blood, urine, CSF

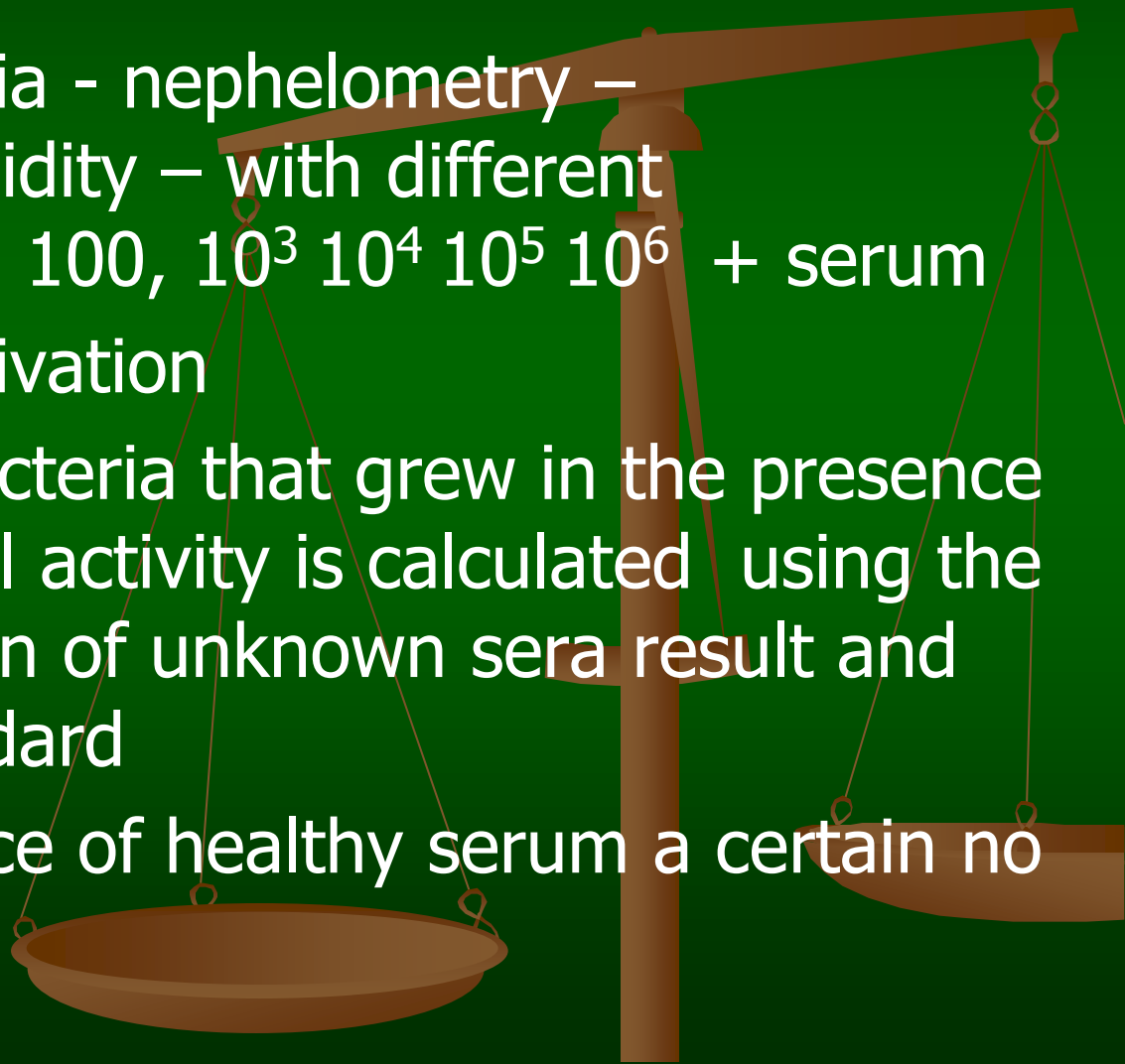
-Agar with suspension of Micrococcus l.on glass dish
-Wells in agar with standards with known concentration of lysosym and unknown sera
-We read the clarification next to the well with serum with lysosyme that cause the lysis of bacteria in suspension in agar
- Diameter of the zone of clarification is directly influenced by the concentration of lysosym and we calculate it by comparison using a formula



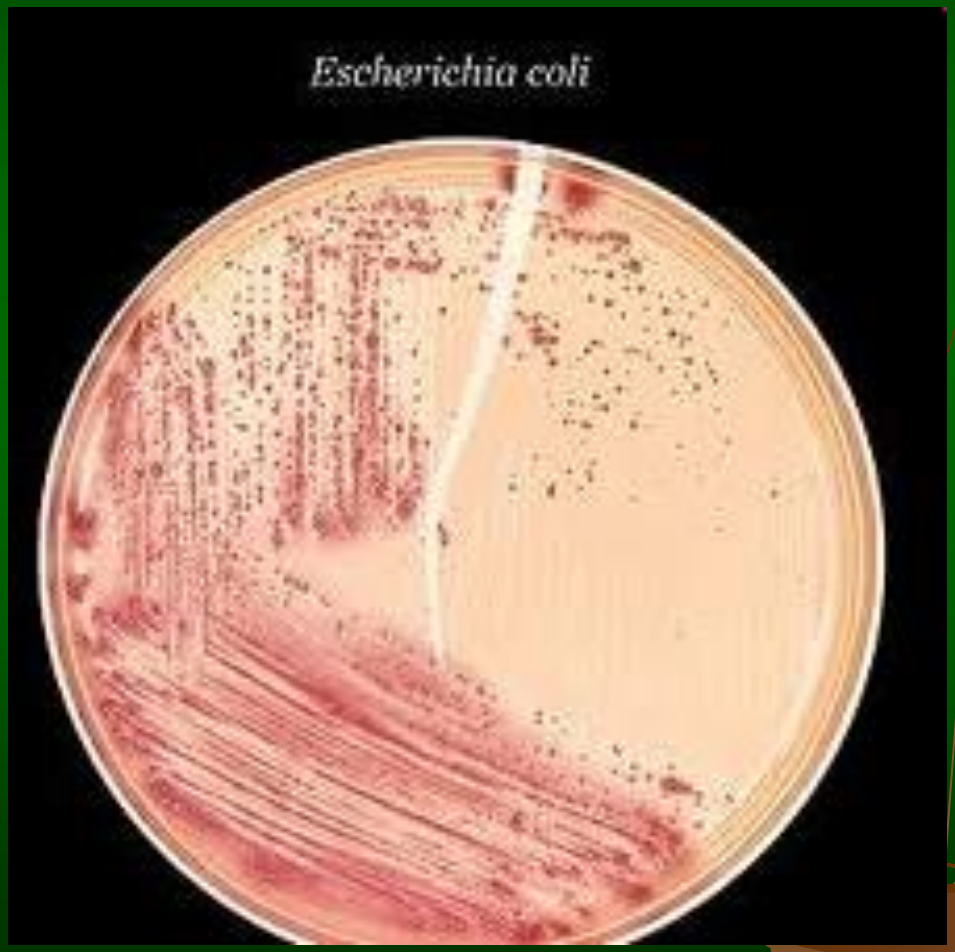
20,8 +- 3,2 mg/l

Bactericidal activity of blood (serum)

- Escherichia coli
- Suspension of bacteria - nephelometry – measurement of turbidity – with different concentration ex. 10, 100, 10^3 10^4 10^5 10^6 + serum
- On agar plates – cultivation
- Reading the no of bacteria that grew in the presence of serum. Bactericidal activity is calculated using the formula in comparison of unknown sera result and result of known standard
- Base – in the presence of healthy serum a certain no of bacteria are killed.



Baktericidal activity of blood (serum)



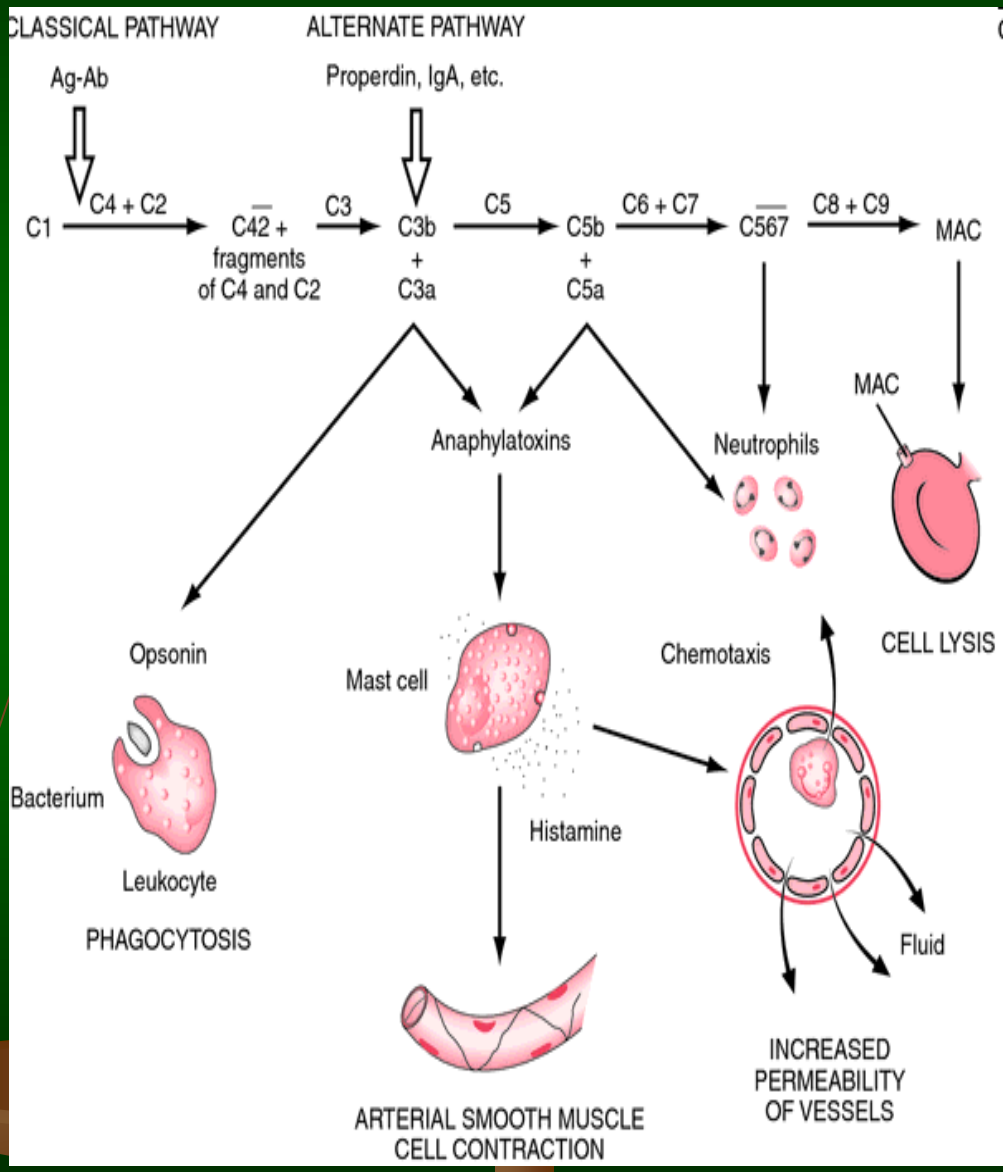
complement system

- The complement system is a component of innate immunity
- Complement proteins are synthesized by the liver and circulate within the plasma in inactive forms.

- consists of multiple plasma proteins which act to fight infection
- opsonizing pathogens, inflammatory responses
- enhancing antibody responses
- attacking some pathogens directly

- There are three pathways of complement activation:

1) The Classical Pathway
2) The Alternate Pathway.
3) Mannose – binding Lectine Pathway



complement system

- Three pathways can activate the complement system

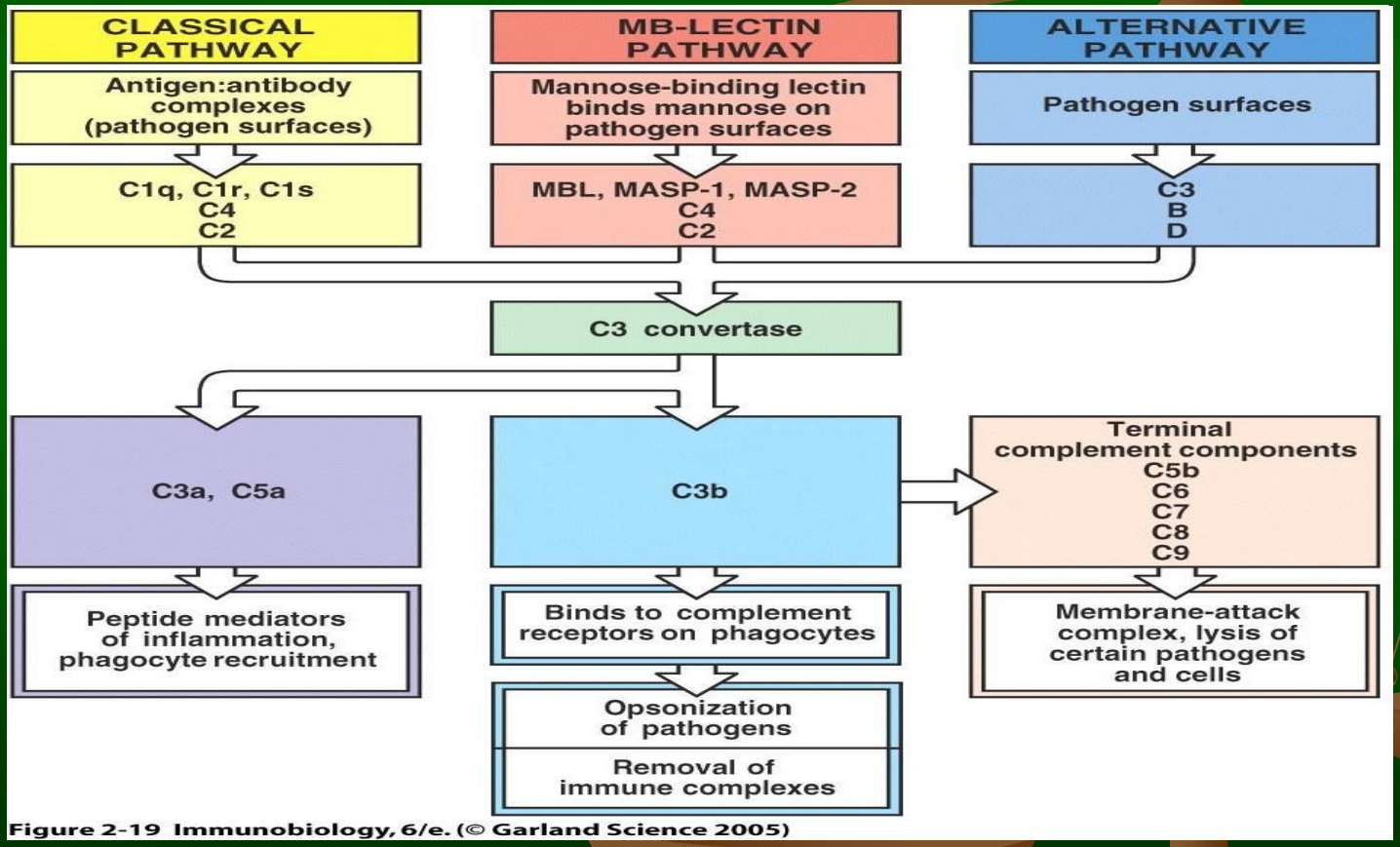
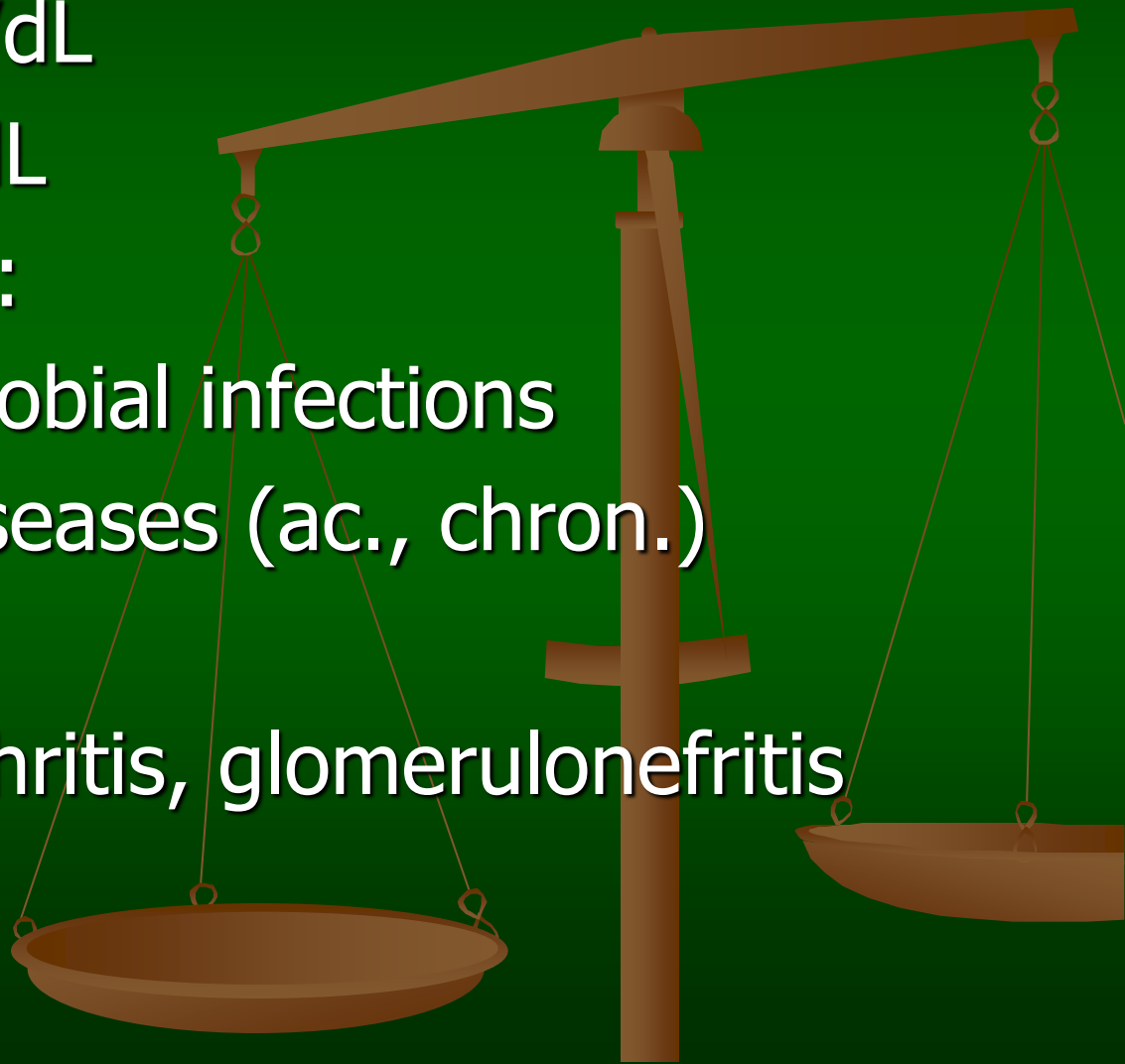


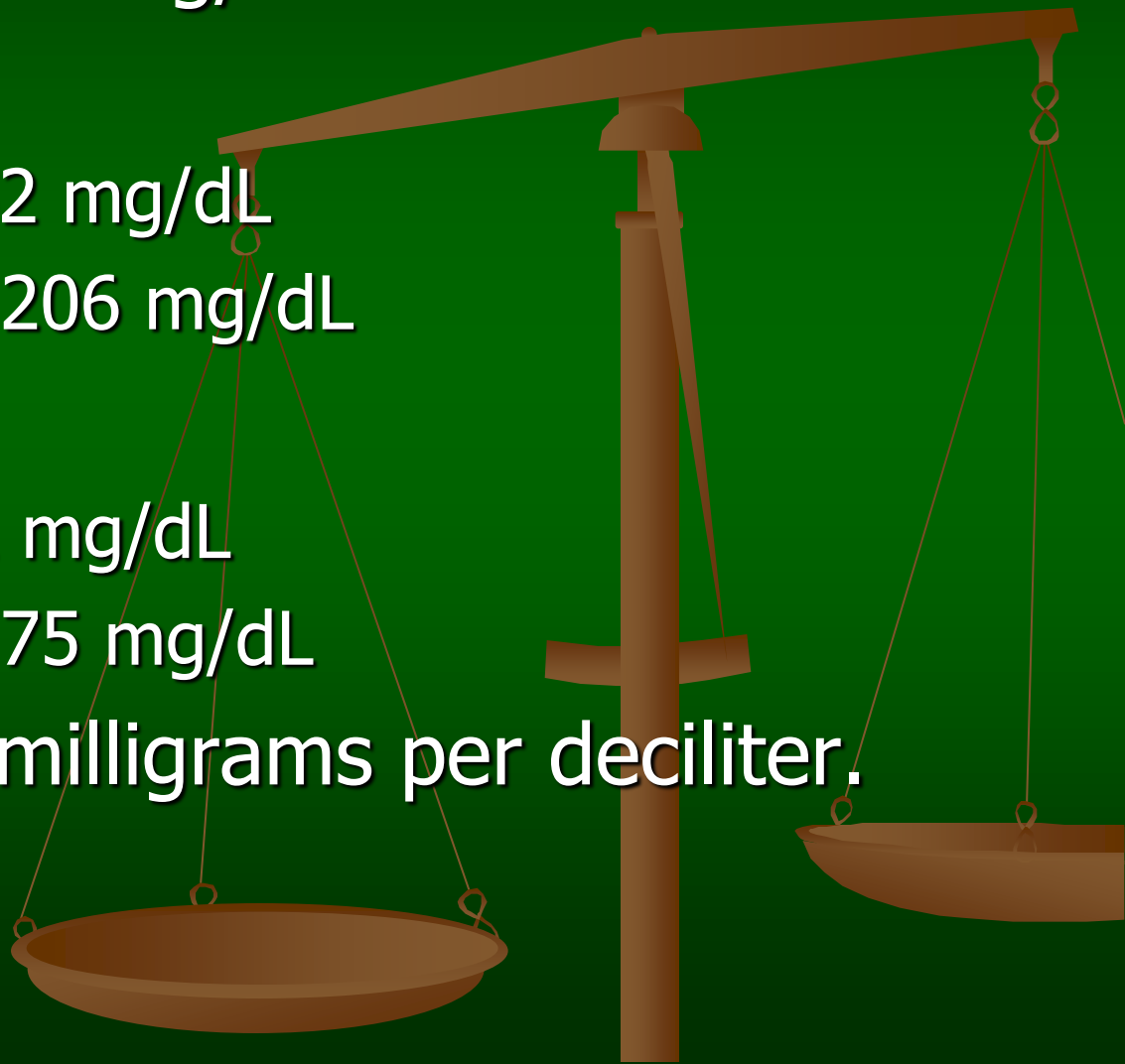
Figure 2-19 Immunobiology, 6/e. (© Garland Science 2005)

C3 , C4

- C3=75-135 mg/dL
- C4=12-75 mg/dL
- May be ordered:
- Reccurrent microbial infections
- Autoimmune diseases (ac., chron.)
- SLE
- Rheumatoid arthritis, glomerulonefritis

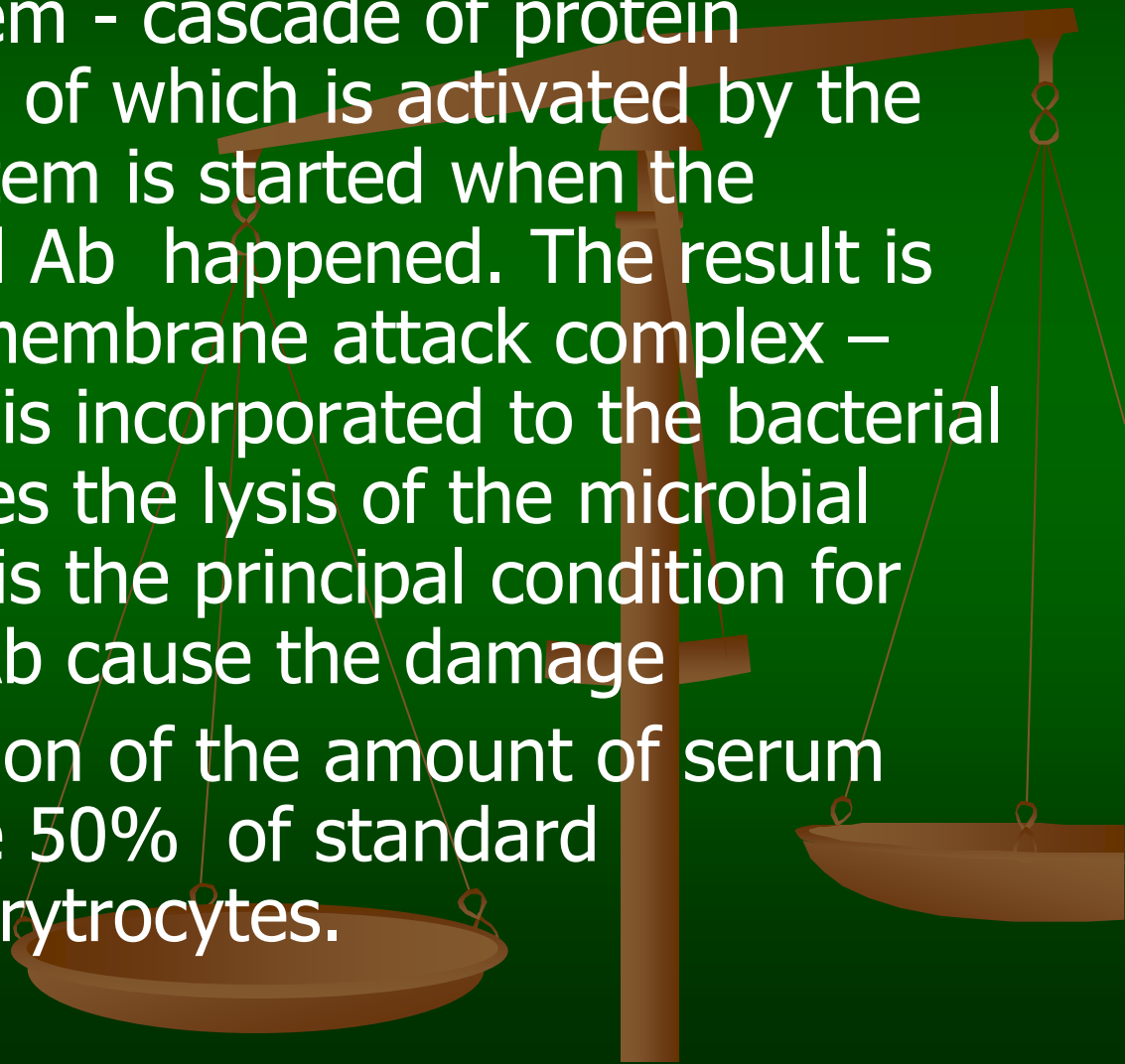


- Total blood complement level: 41 to 90 hemolytic units
- C1 level: 16 to 33 mg/dL
- C3 levels:
  - Males: 88 to 252 mg/dL
  - Females: 88 to 206 mg/dL
- C4 levels:
  - Males: 12 to 72 mg/dL
  - Females: 13 to 75 mg/dL
- Note: mg/dL = milligrams per deciliter.



CH50

- Complement system - cascade of protein components, each of which is activated by the previous. The system is started when the reaction of Ag and Ab happened. The result is the formation of membrane attack complex – the structure that is incorporated to the bacterial cell wall and causes the lysis of the microbial cell. Complement is the principal condition for the comlex of AgAb cause the damage
- Test – determination of the amount of serum that is able to lyse 50% of standard concentration of erytrocytes.



C-reactive protein

- C-reactive protein is produced by the liver.
- The level of CRP rises when there is inflammation throughout the body.
- Role in cardiovascular disease
- Role in a cancer

- Normal concentration : lower than 10mg/L
- Diagnostic use