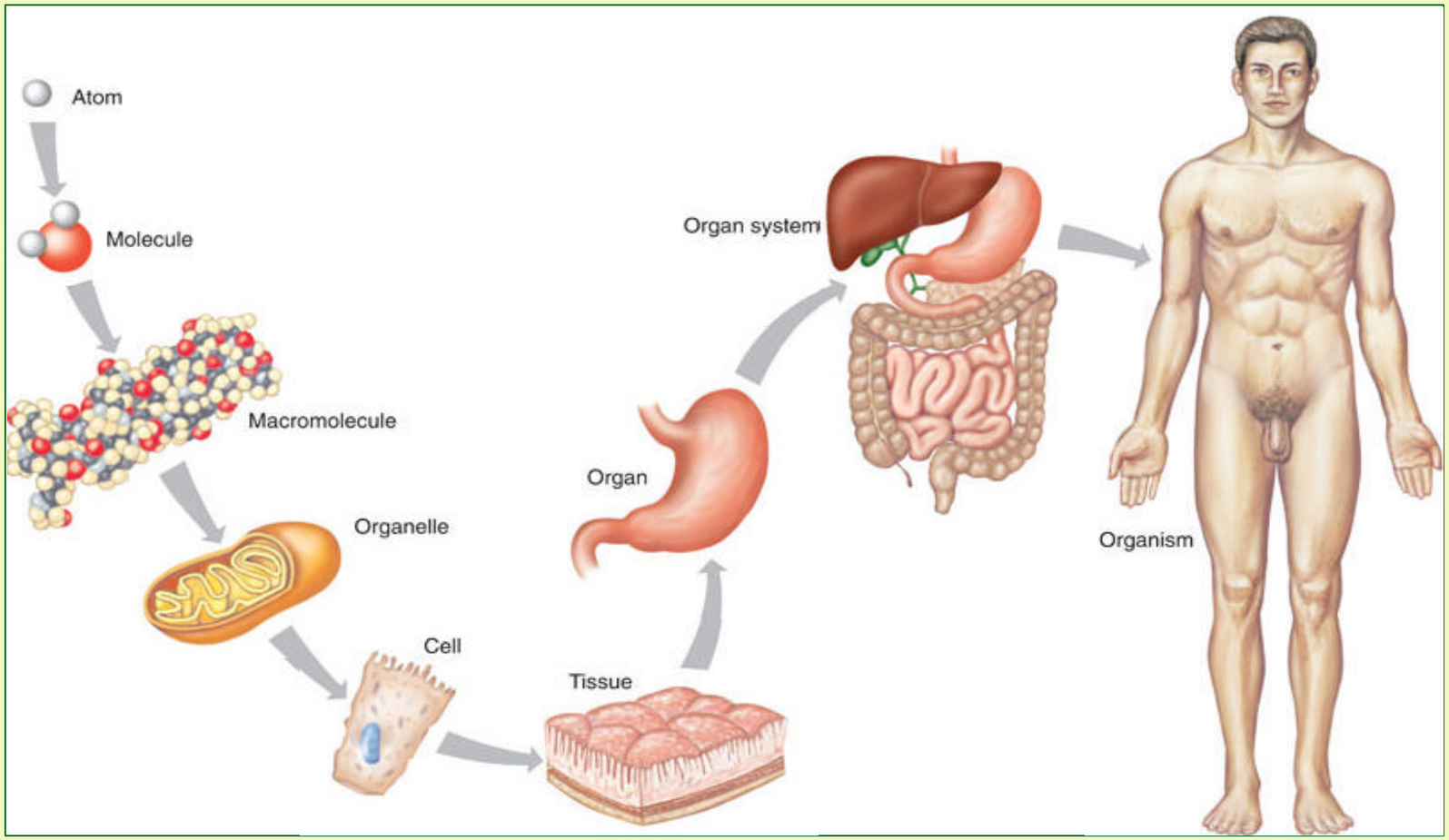
Introducción Macromoléculas

Dra. Luz E. Cuevas

INTRODUCION

- DEFINICIONES
- ANATOMIA
- FISIOLOGIA

NIVELES DE ORGANIZACION



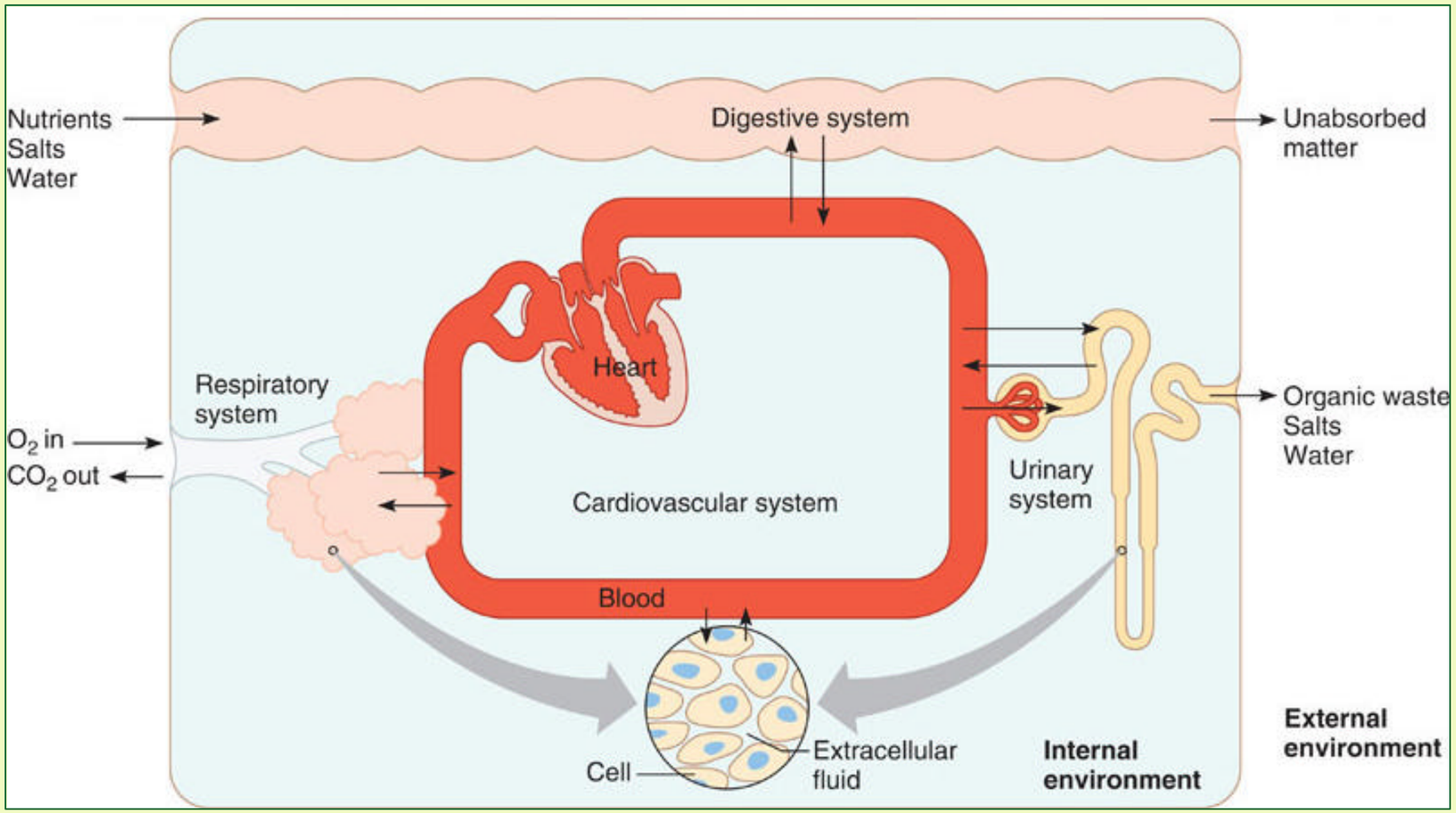
CARACTERISTICAS DE LA VIDA

- Movimiento
- Irritabilidad
- Crecimiento
- Reproducción
- Metabolismo
  - Respiración
  - Digestión
  - Absorción
  - Circulación
  - Excreción

PARA VIVIR SE REQUIERE:

- Agua
- Nutrientes
- Oxígeno
- Calor
  - temperatura
- presión

HOMEOSTASIS



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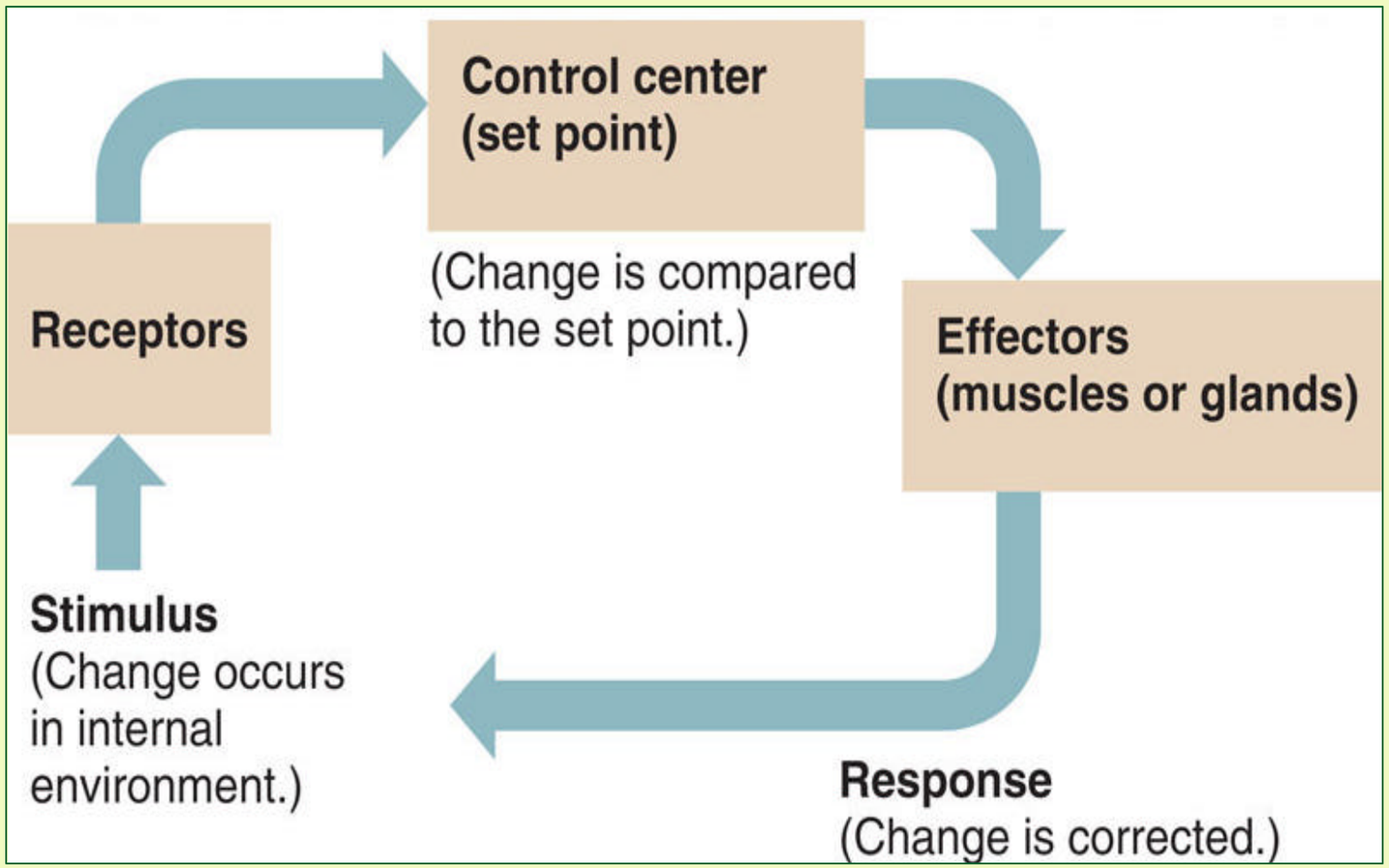

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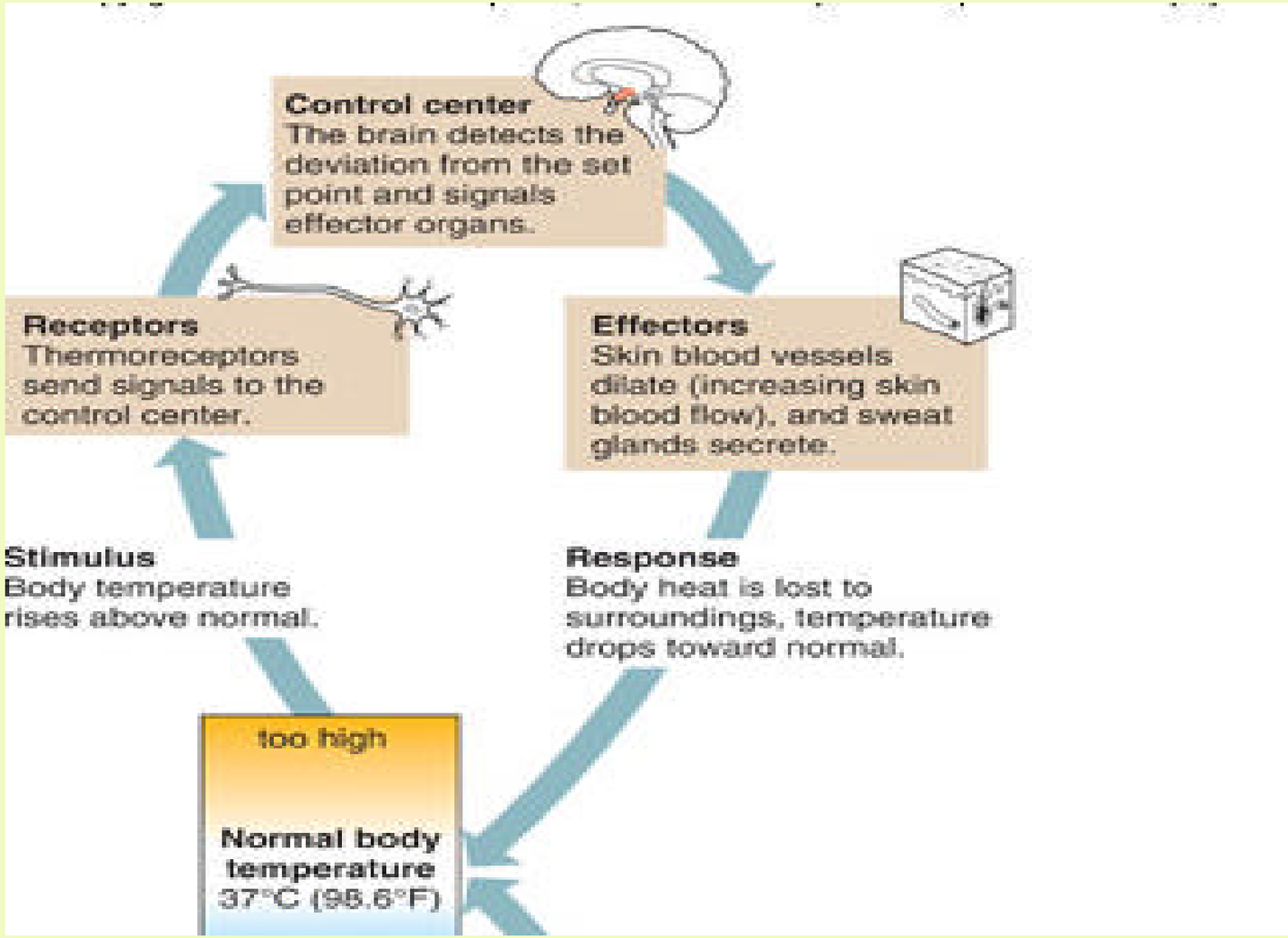

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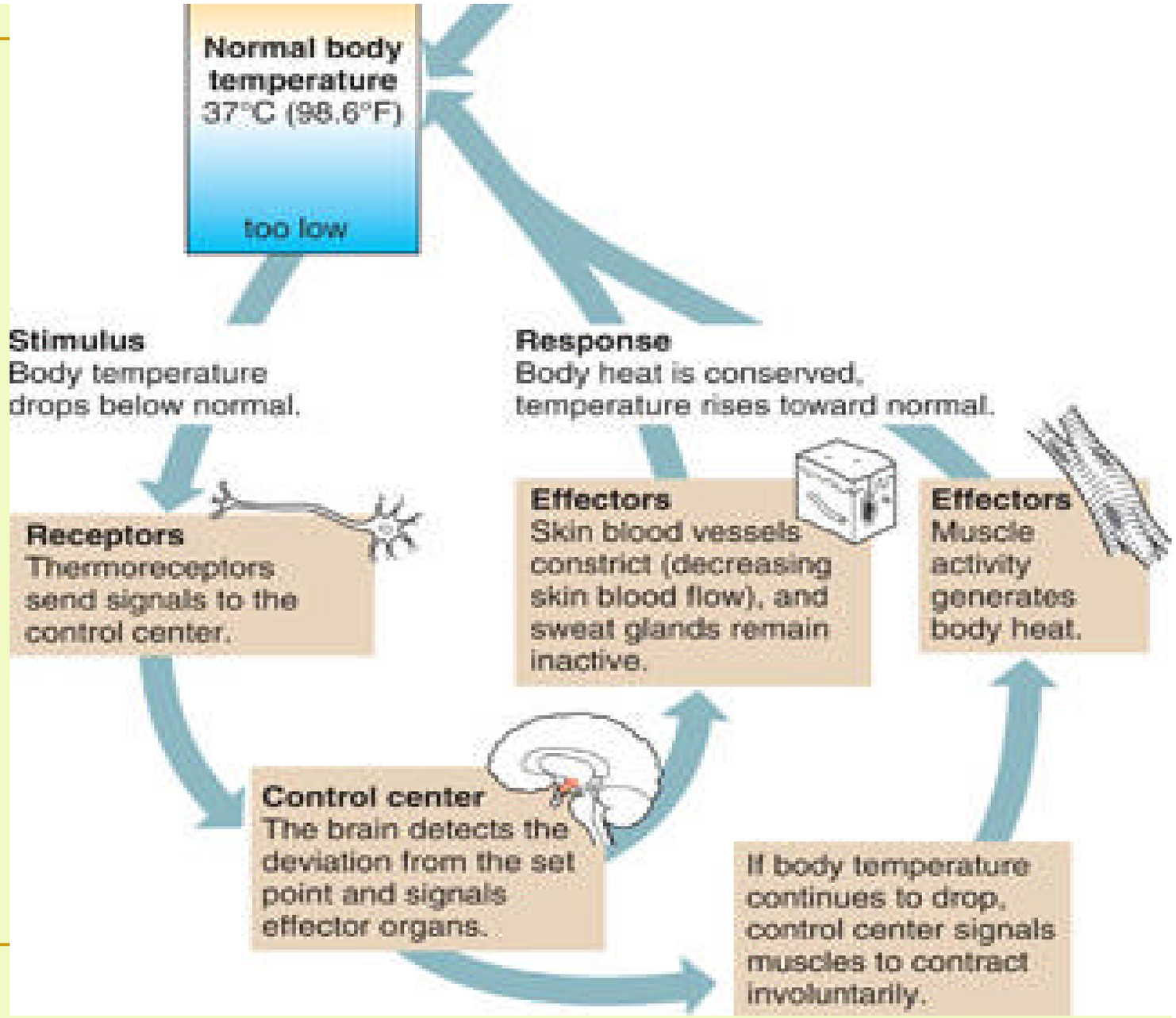
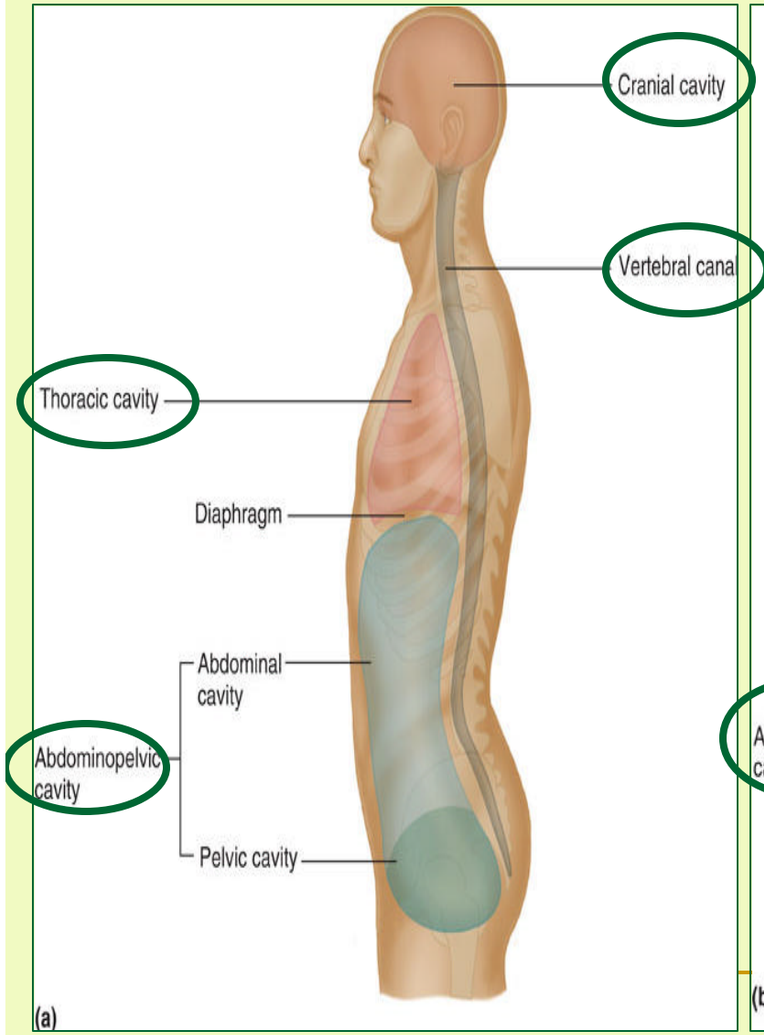


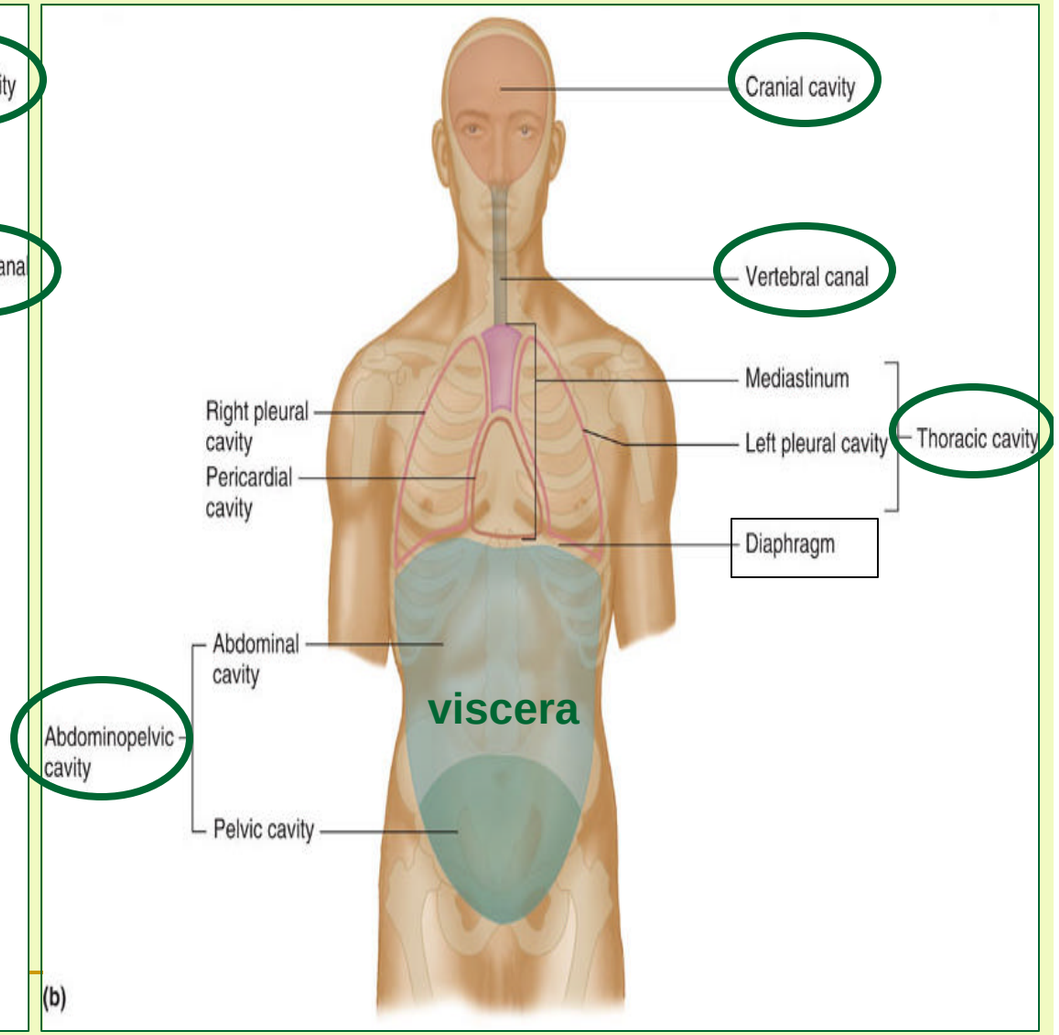
CAVIDADES DEL CUERPO

- Axial
  - Cabeza, cuello y tronco
- Apendicular
  - Extremidades superiores y inferiores

CAVIDADES DEL CUERPO

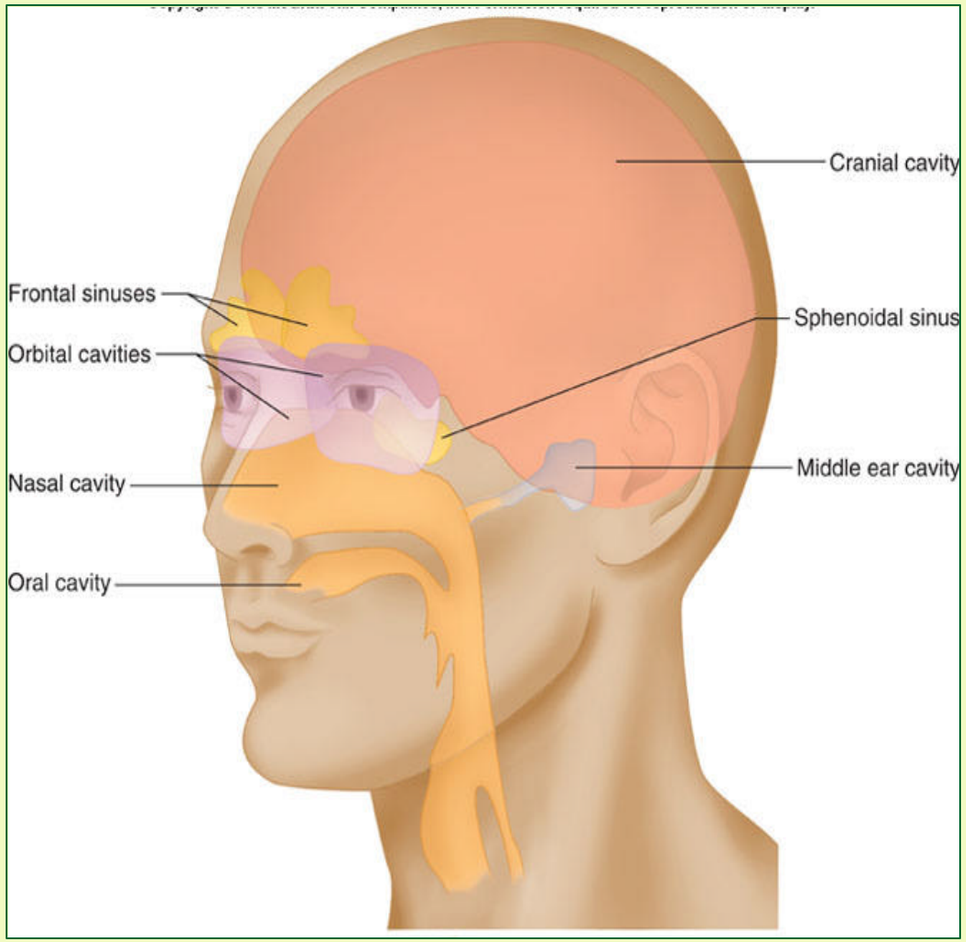


VISTA LATERAL



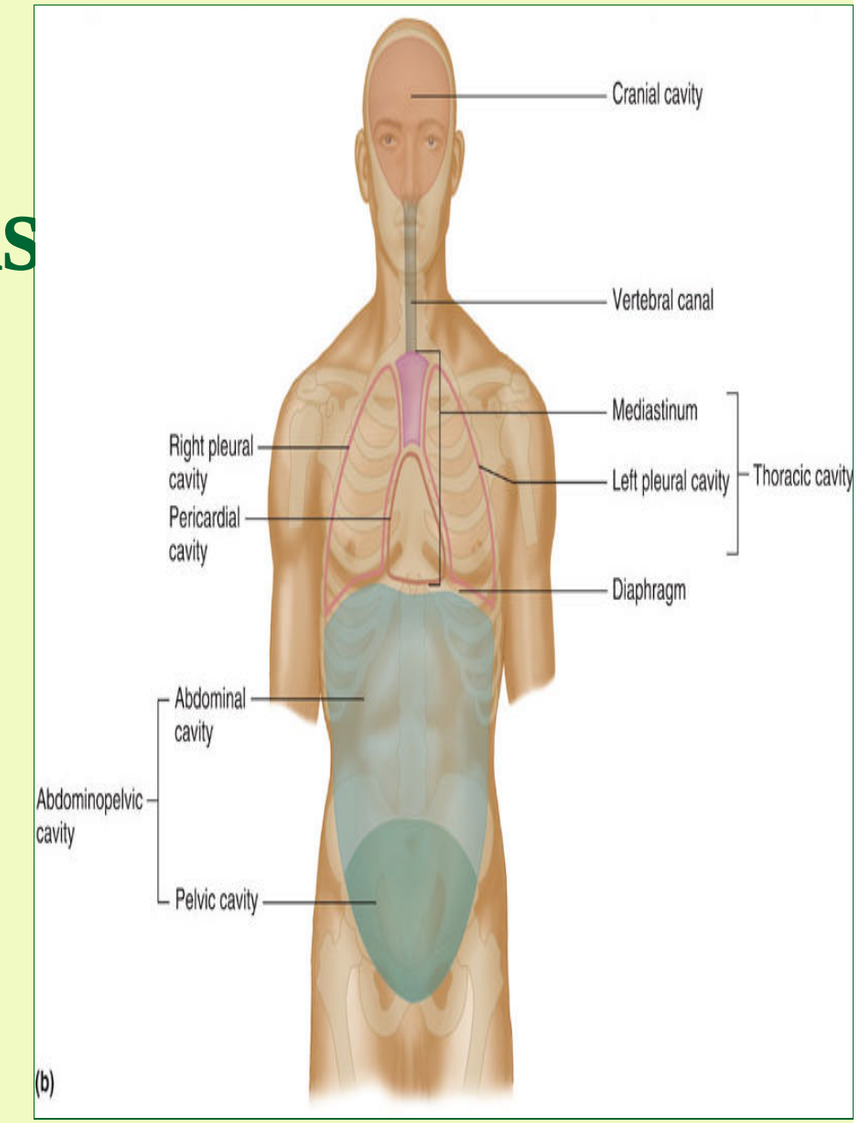
VISTA ANTERIOR

CAVIDADES DE LA CABEZA



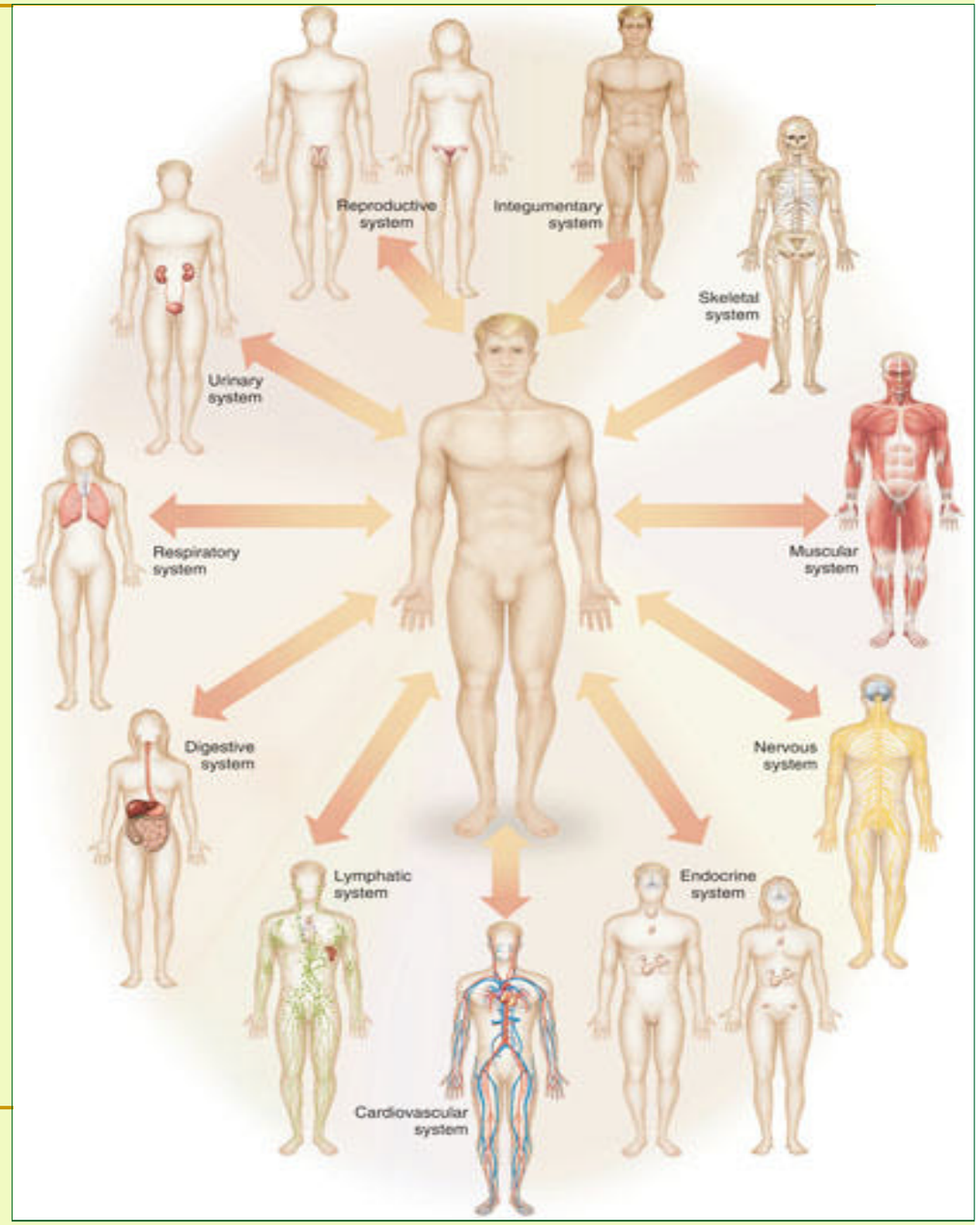
MEMBRANAS TORACICAS Y ABDOMINOPELVICAS

- Parietal
- Visceral
- Membrana pleural
  - Fluido seroso
- Membrana pericardial
- Membrana peritoneal



SISTEMAS

- Cubierta corporal
- Soporte
- Movimiento
- Integración y coordinación
- Transporte
- Absorción y excreción
- Reproducción

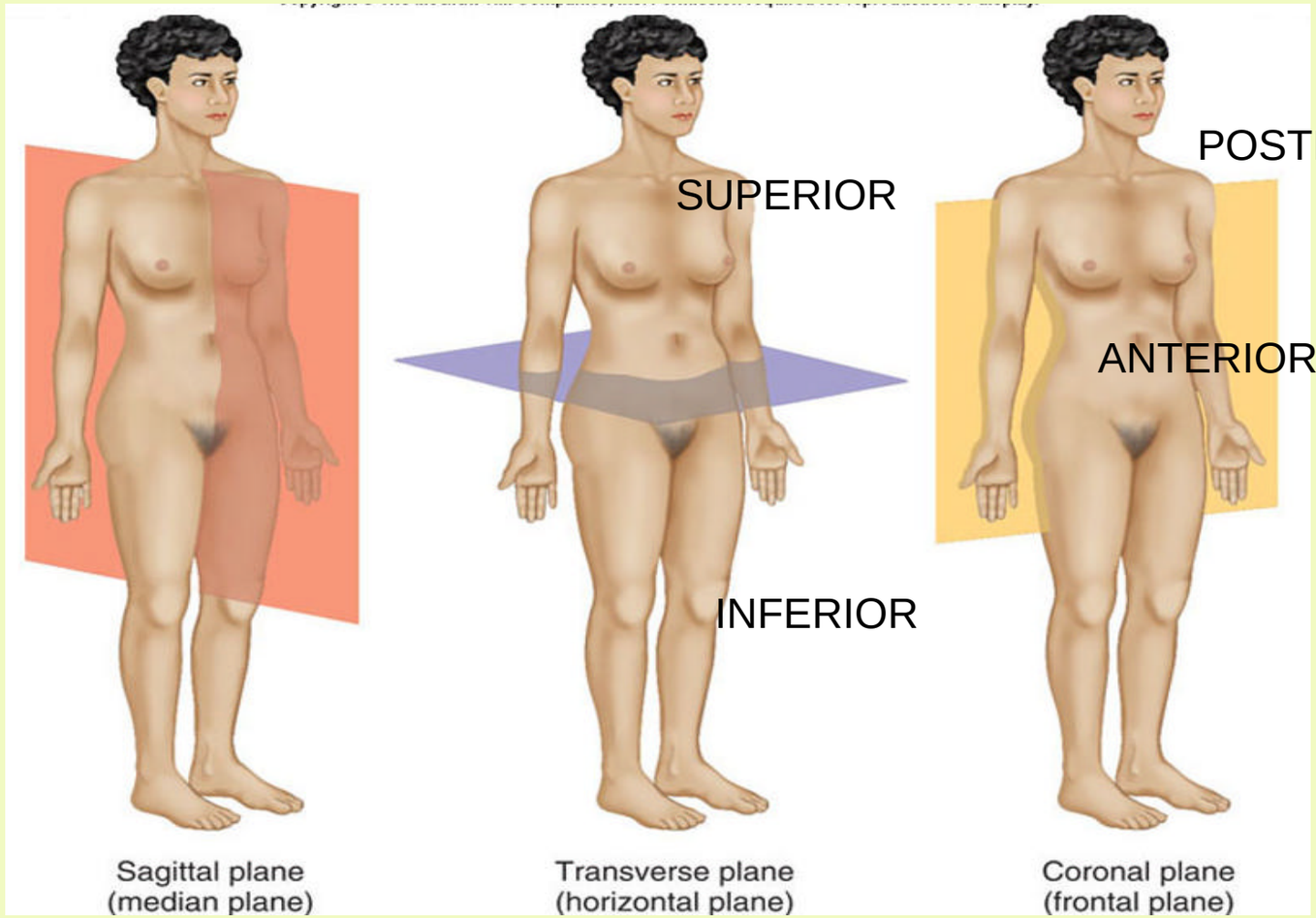


TERMINOLOGIA ANATOMICA

- Posición anatómica
- Posiciones anatómicas
  - Superior
  - Inferior
  - Anterior
  - Posterior

- Posiciones anatómicas
  - Medial
  - Lateral
  - Proximal
  - Distal
  - Superficial
  - profundo

PLANOS CORPORALES



SUPERIOR

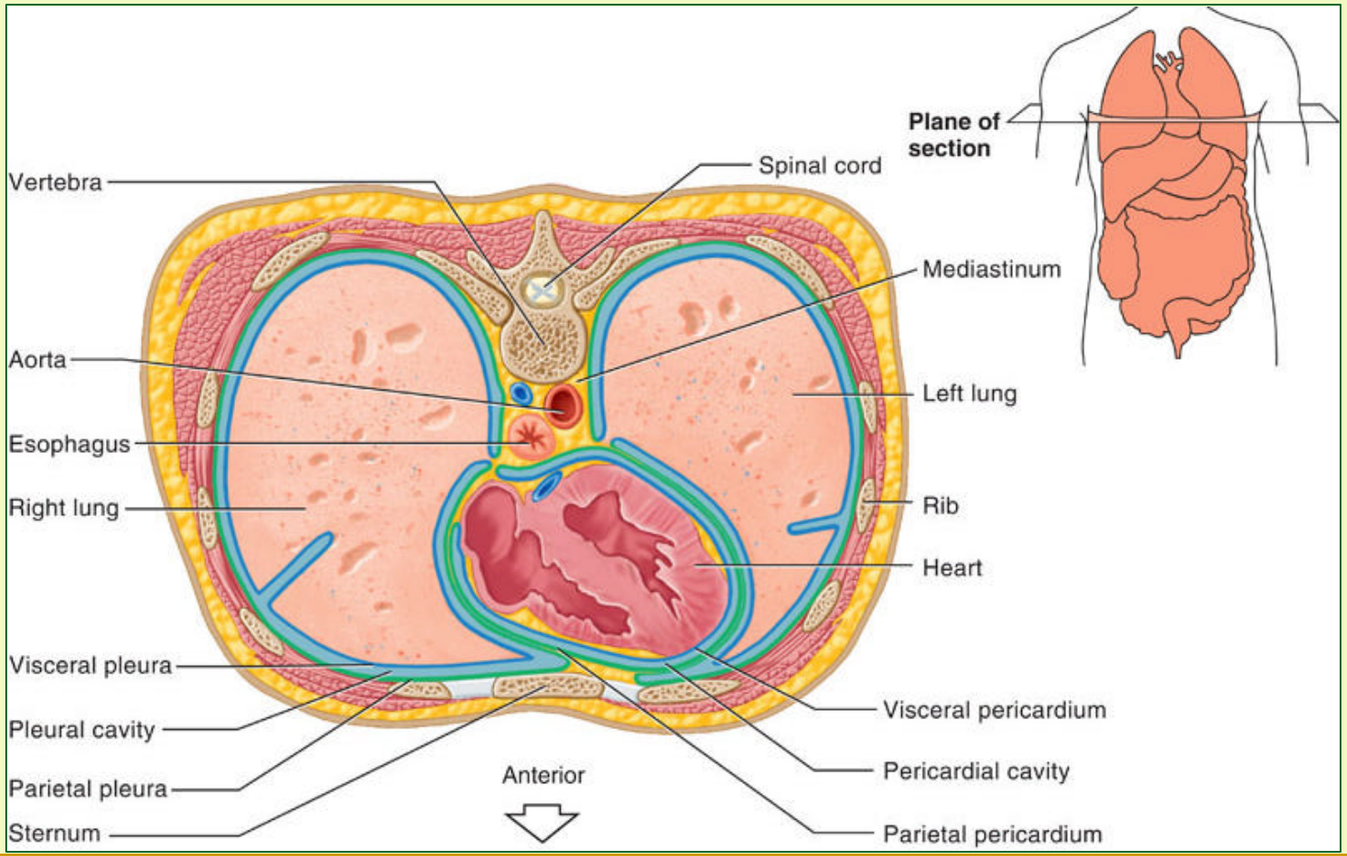
INFERIOR

POSTERIOR

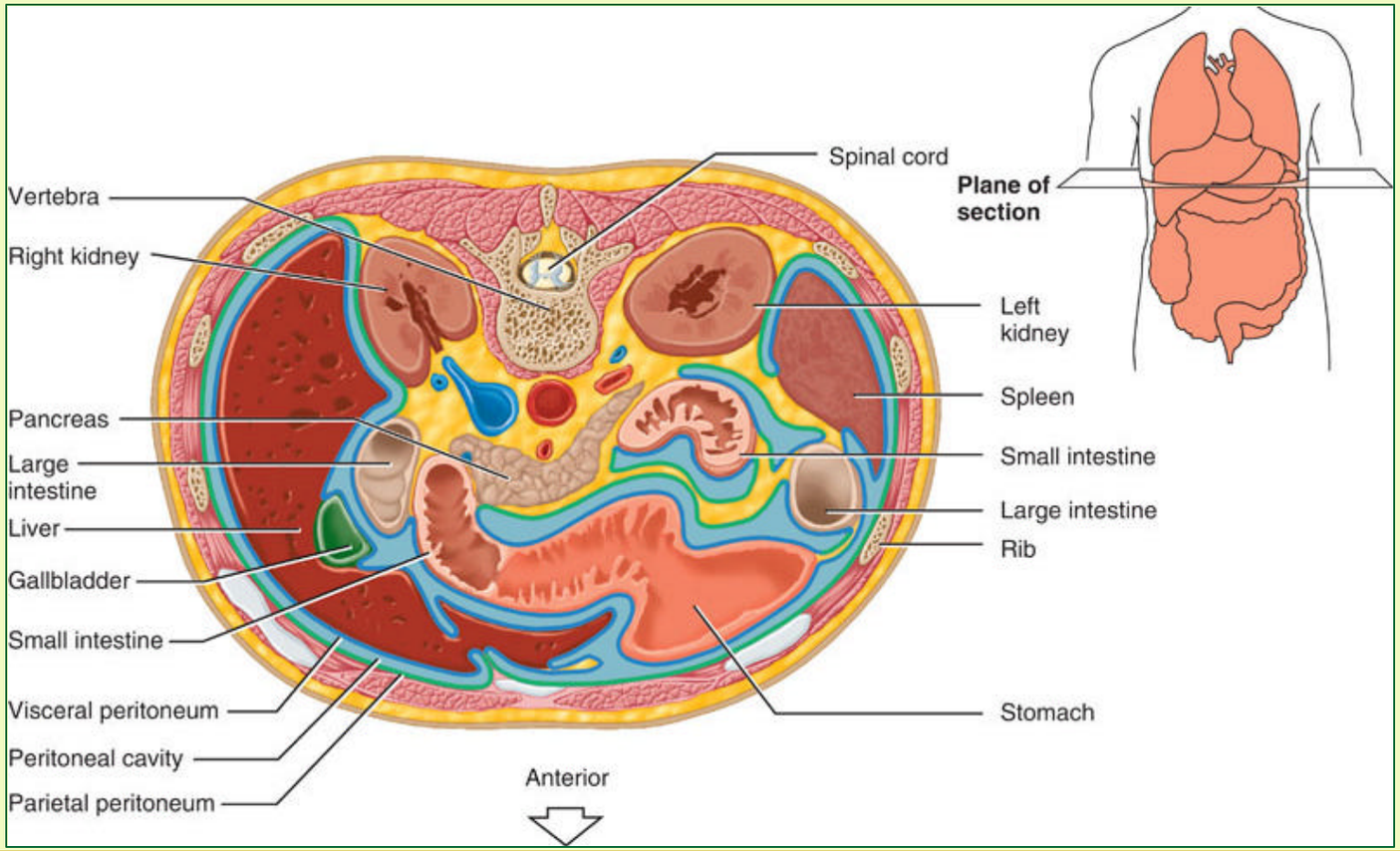
ANTERIOR

MIDSAGITAL

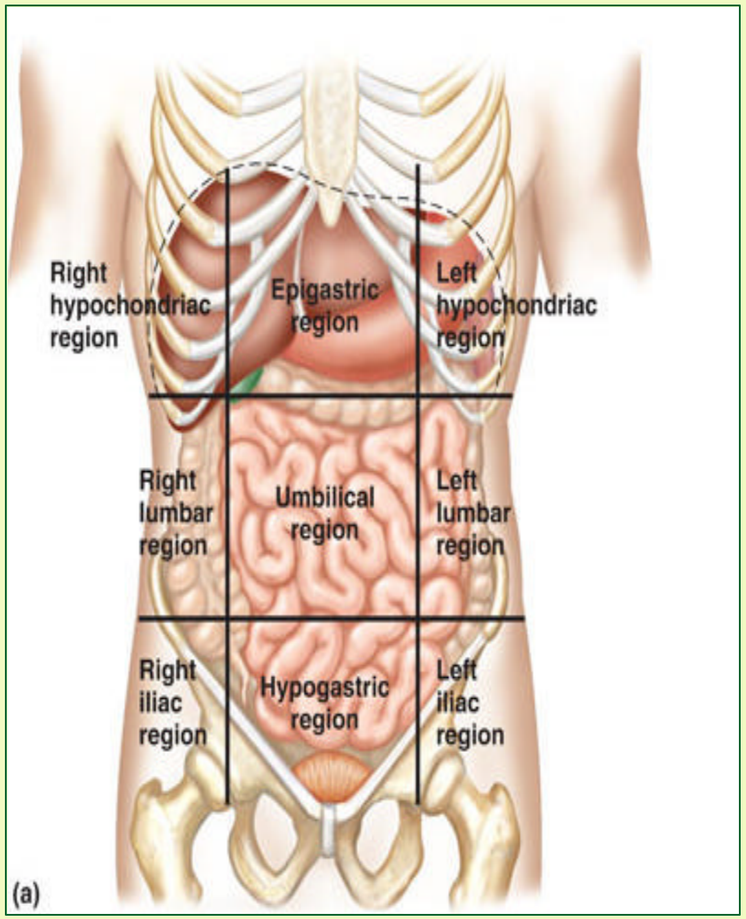
SECCION TRANSVERSAL TORACICA

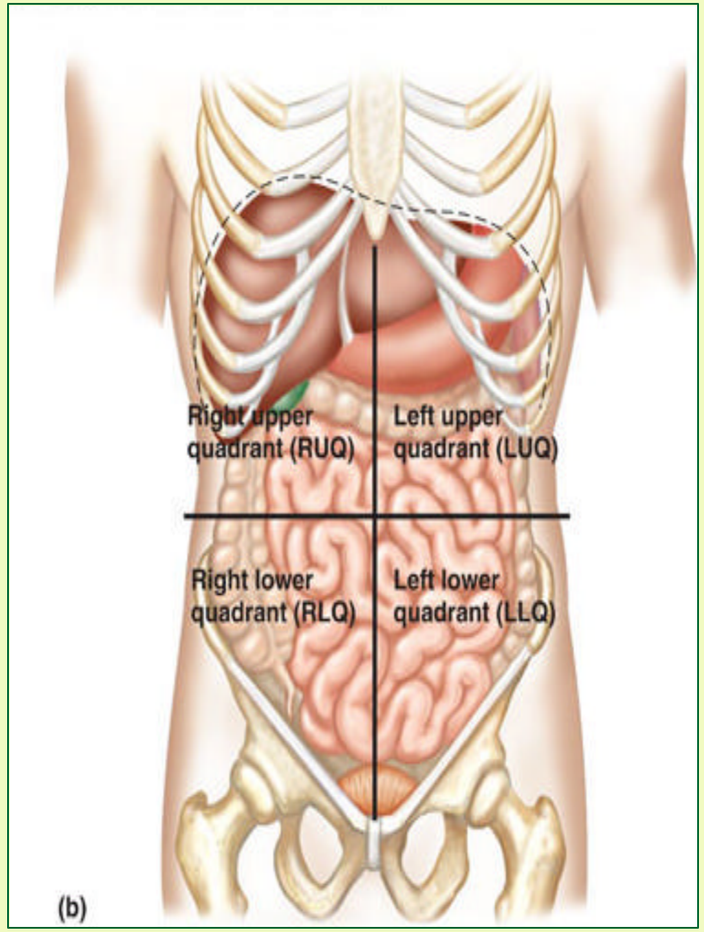


SECCION TRANSVERSAL ABDOMINAL



REGIONES CORPORALES

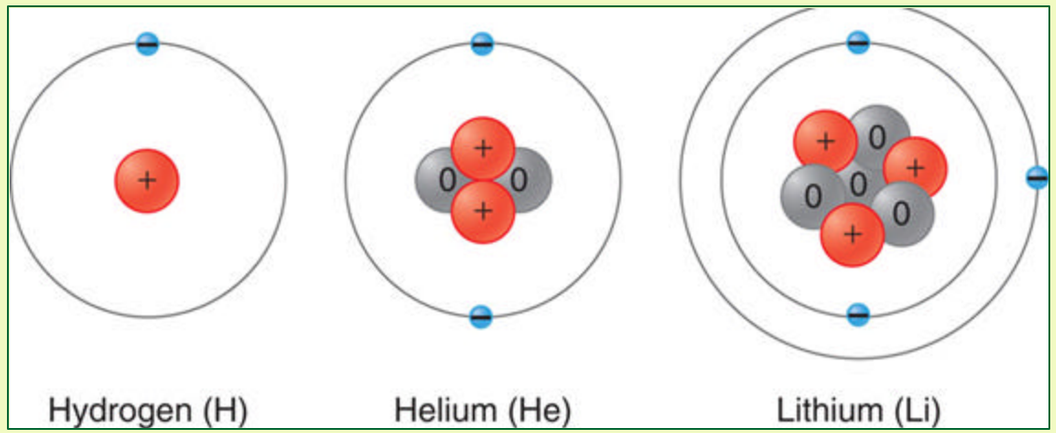


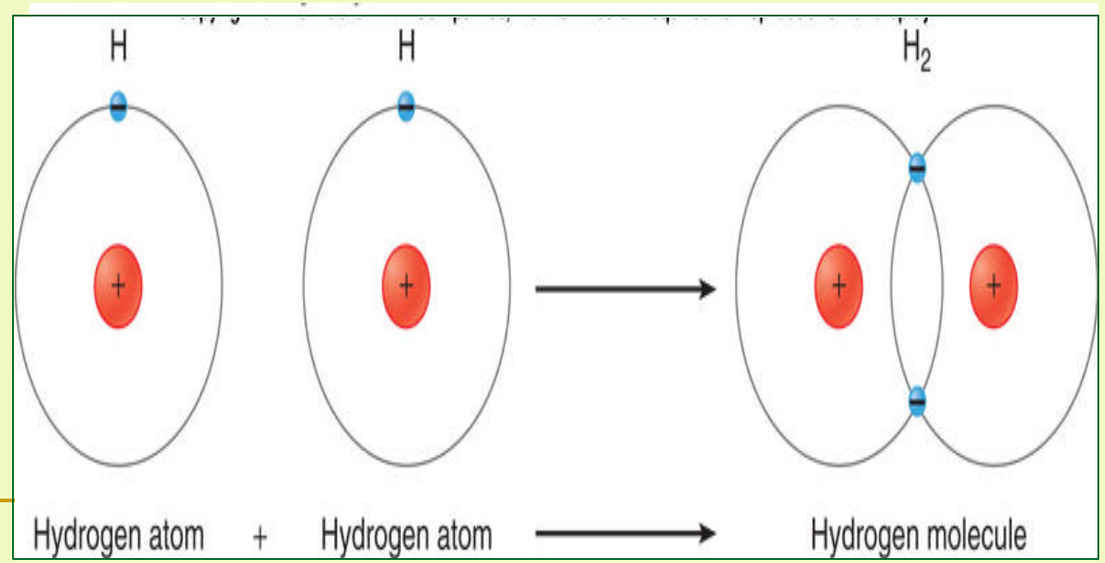


QUIMICA BASICA

DEFINICIONES

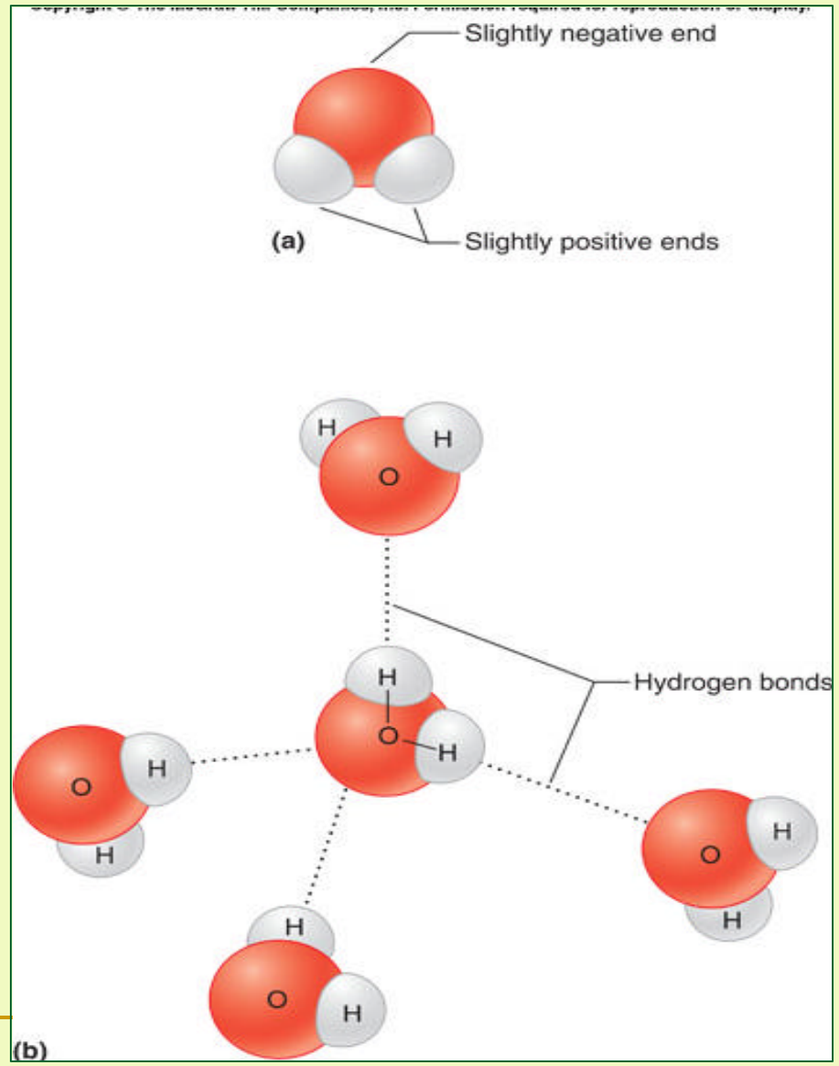
- ELEMENTO
- ATOMO
- ION
  - Anión
  - Catión
- ENLACE IONICO
- ENLACE COVALENTE



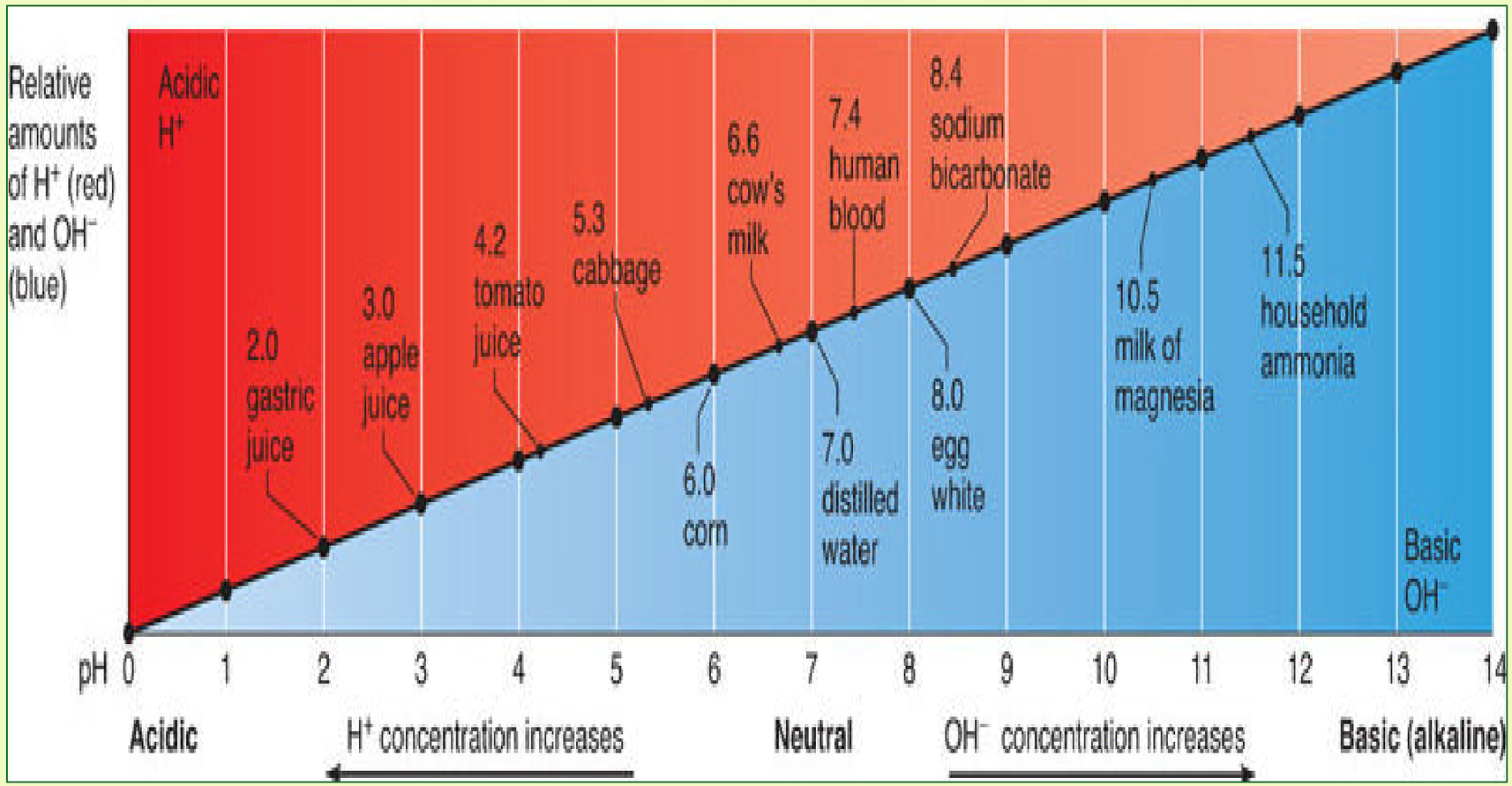


MOLECULAS Y COMPUESTOS

- MOLECULA
  - 2 átomos del mismo elemento
- COMPUESTO
- AGUA
  - POLAR



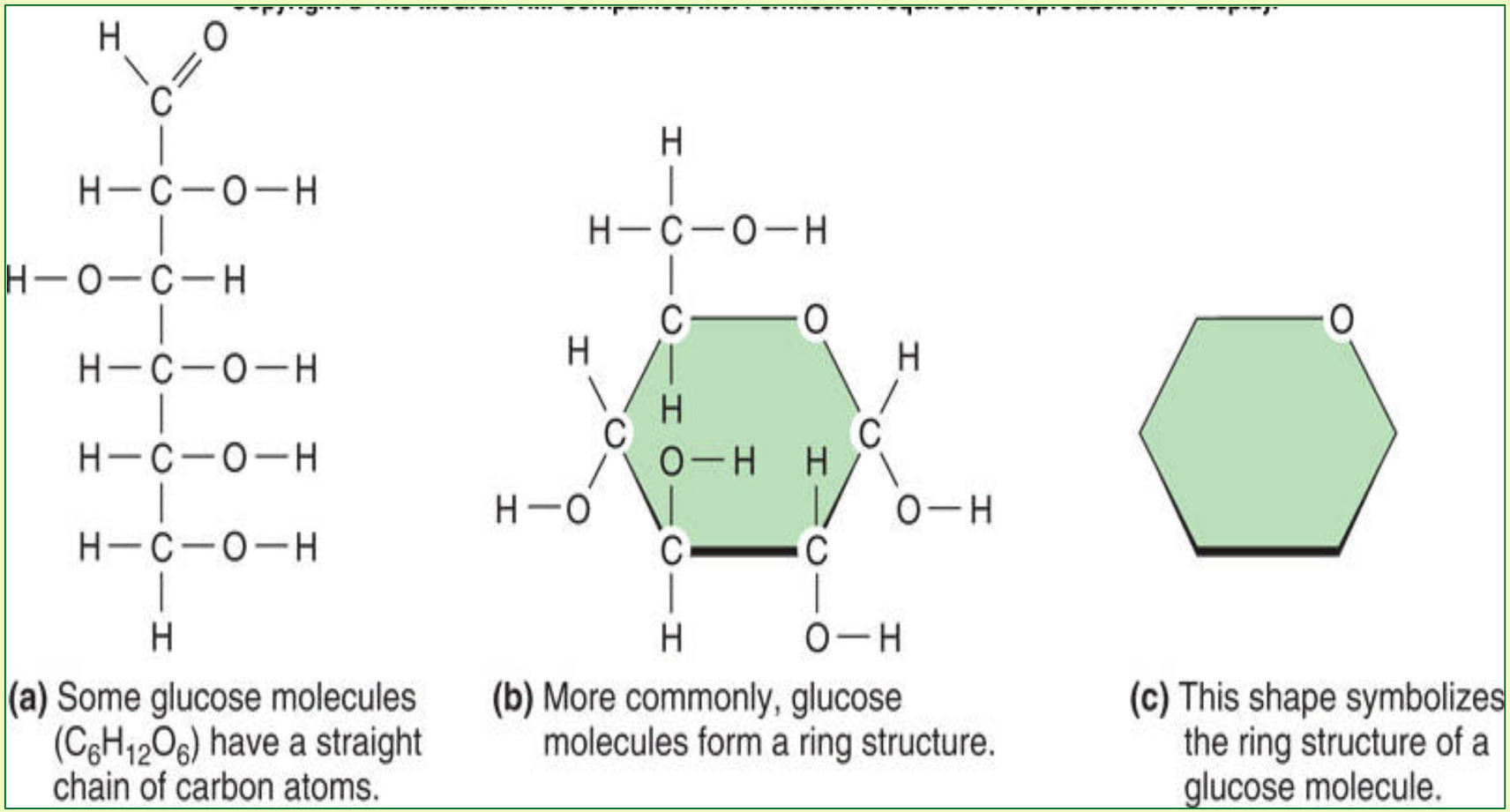
ACIDOS Y BASES



CONSTITUYENTES QUIMICOS DE LA CELULA

- MOLECULAS INORGANICAS
  - AGUA, OXIGENO
- IONES INORGANICOS
- SUSTANCIAS ORGANICAS
  - CARBOHIDRATOS
  - LIPIDOS
  - PROTEINAS
  - ACIDOS NUCLEICOS

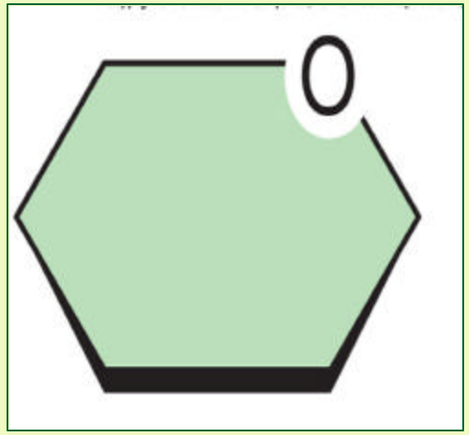
CARBOHIDRATOS

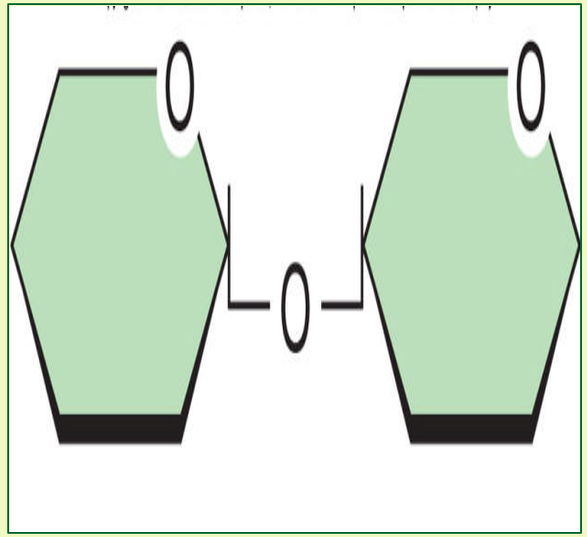


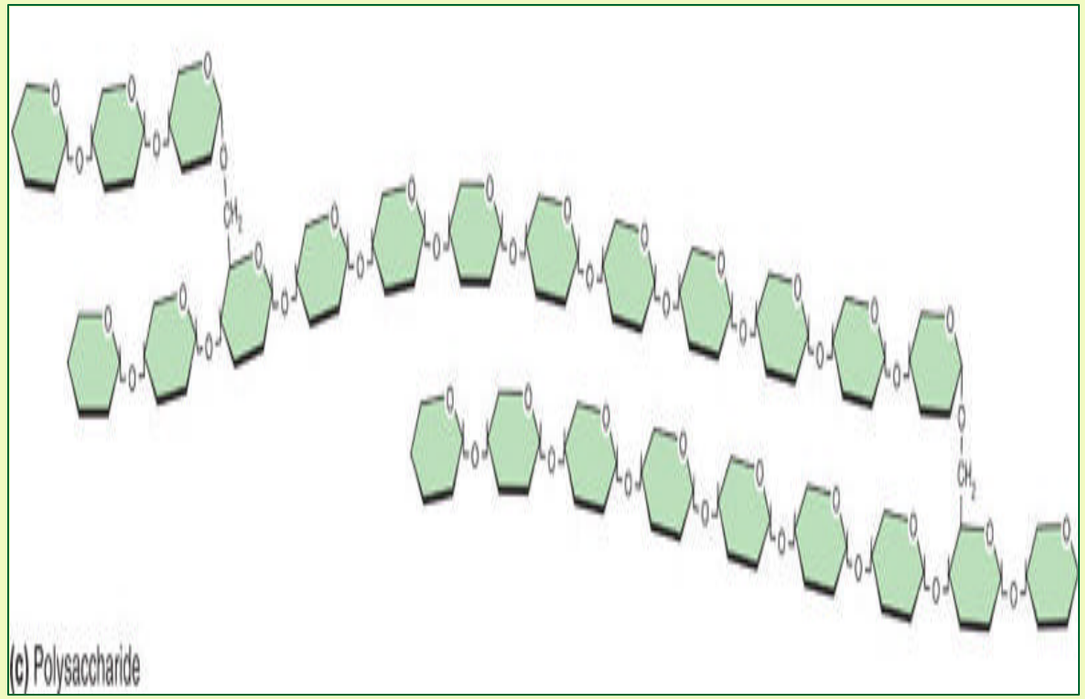
(a) Some glucose molecules ($C_6H_{12}O_6$) have a straight chain of carbon atoms.

(b) More commonly, glucose molecules form a ring structure.

(c) This shape symbolizes the ring structure of a glucose molecule.



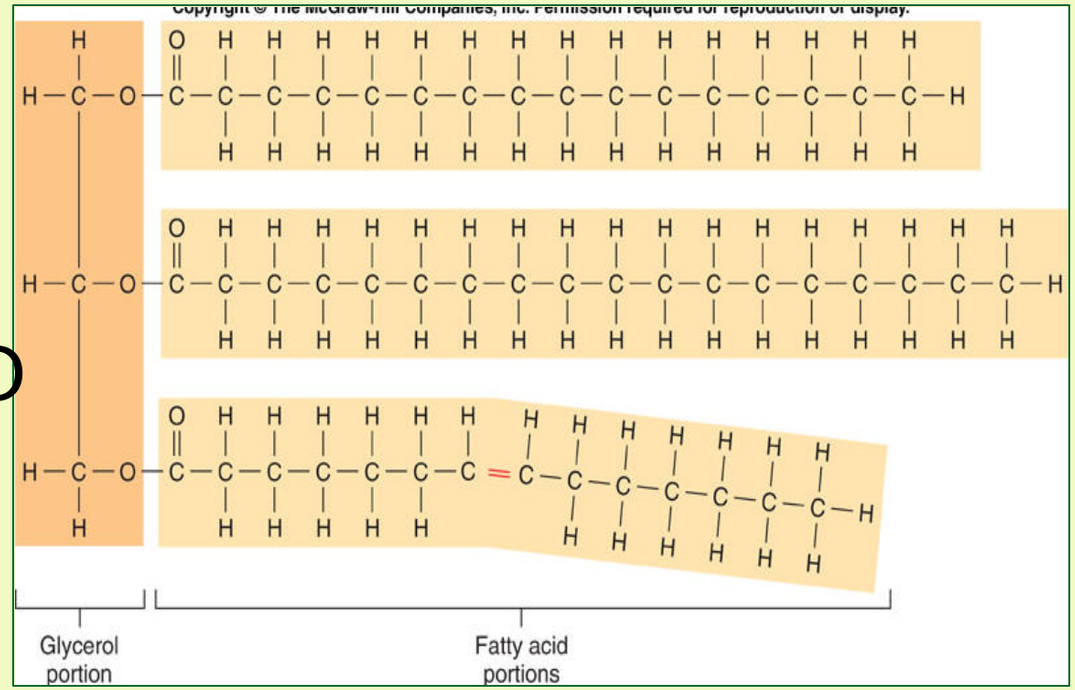


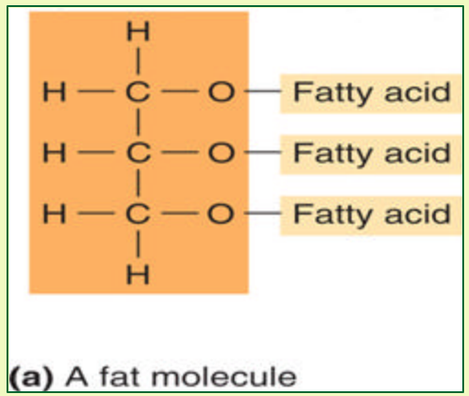


CARBOHIDRATOS

LIPIDOS

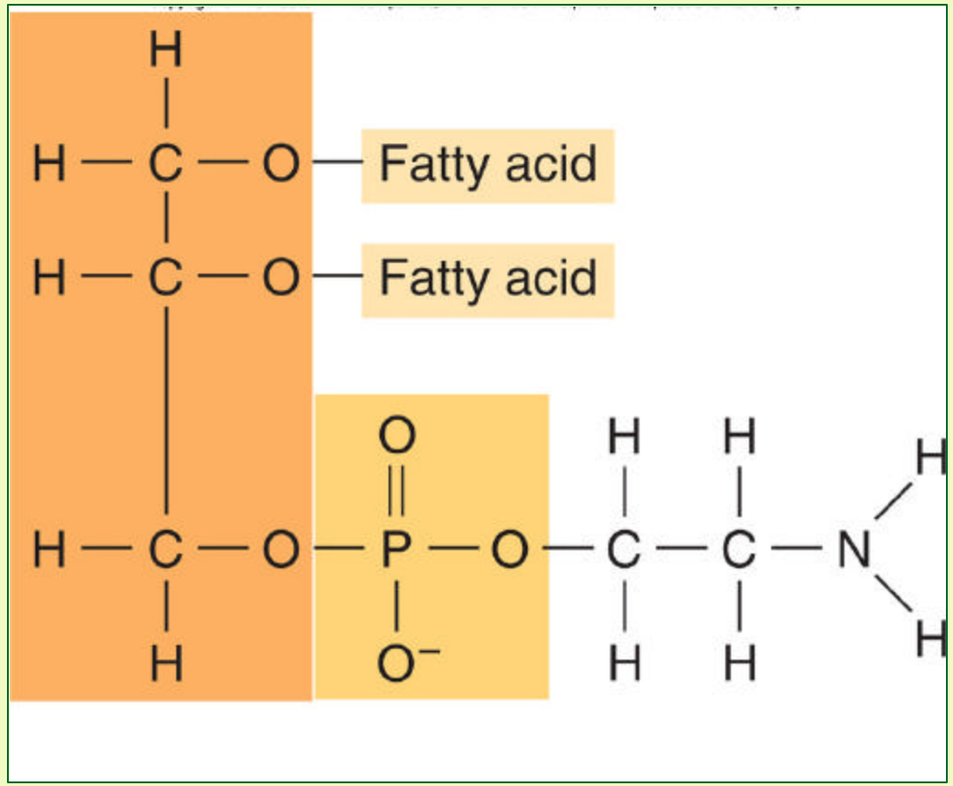
- ACIDOS GRASOS
- SATURADOS
- NO- SATURADOS
- TRIGLICERIDO

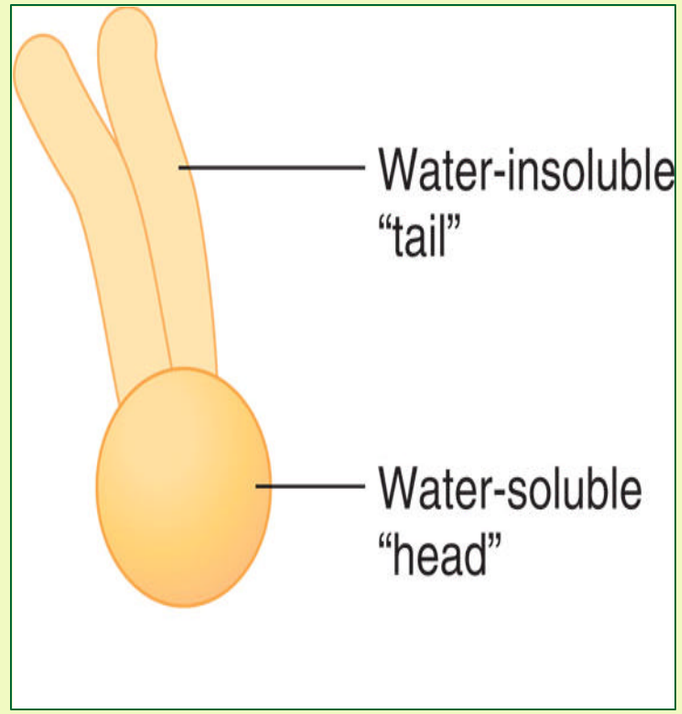




(a) A fat molecule

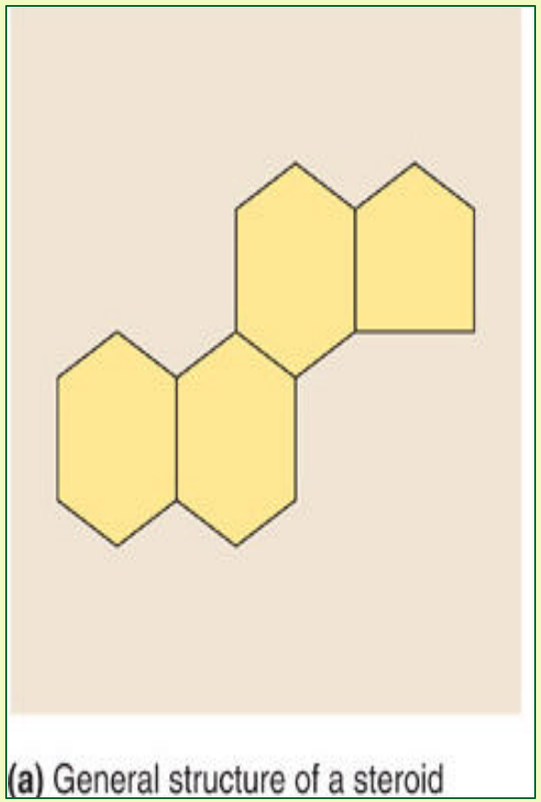
FOSFOLIPIDO



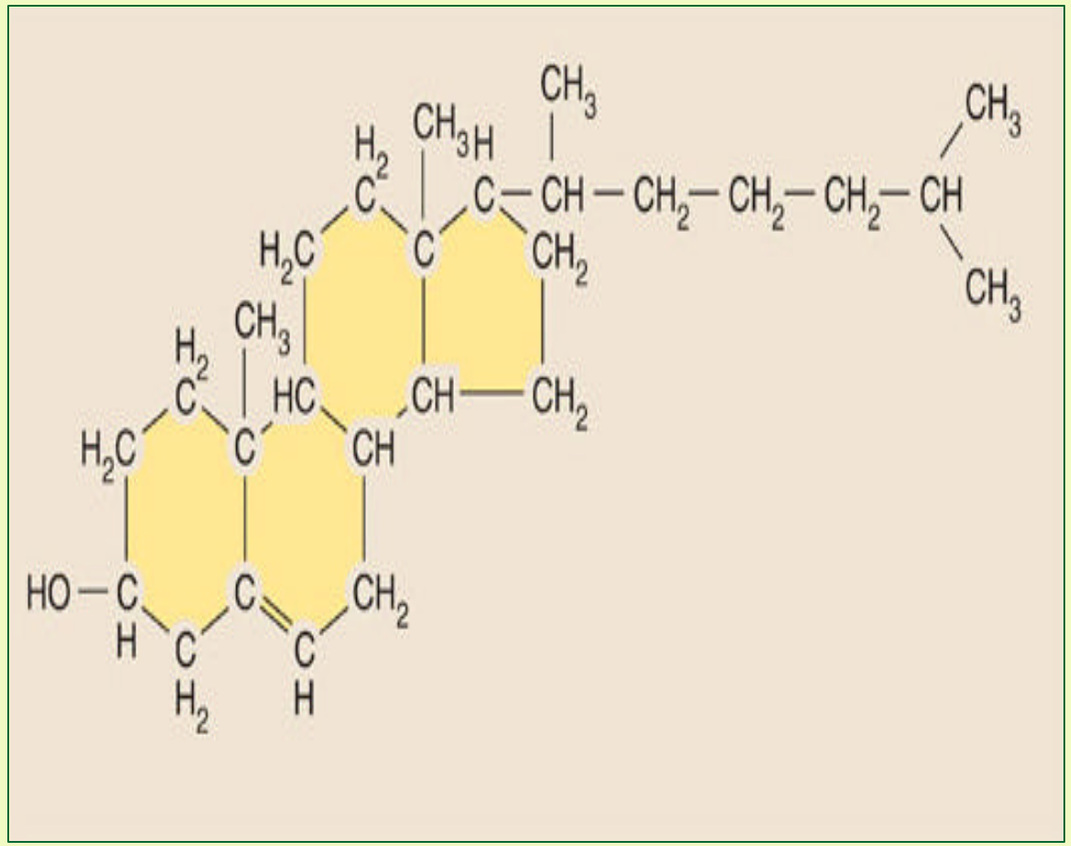


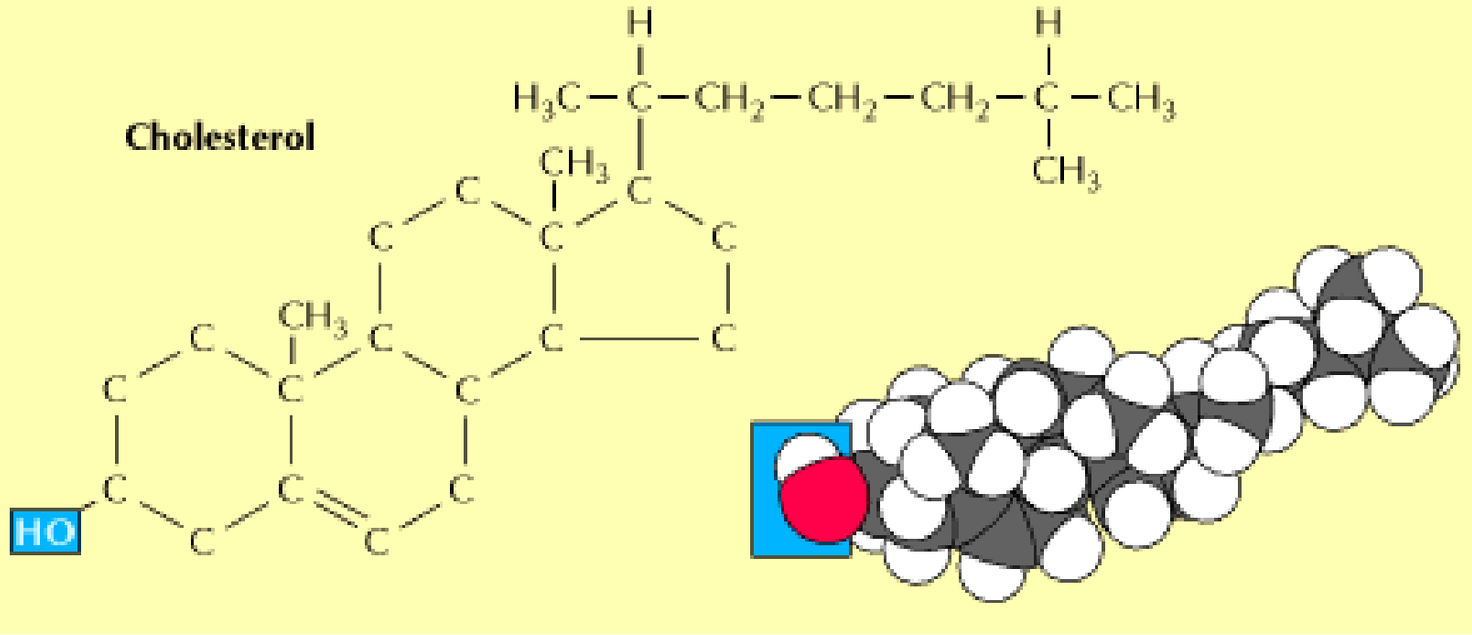
LIPIDOS

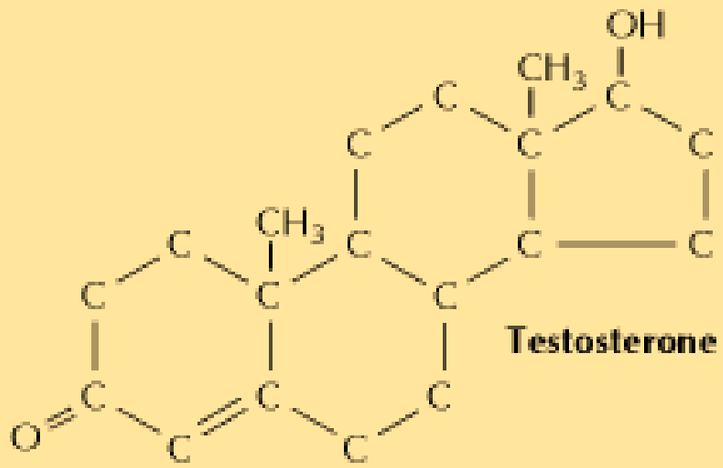
- ESTEROIDES

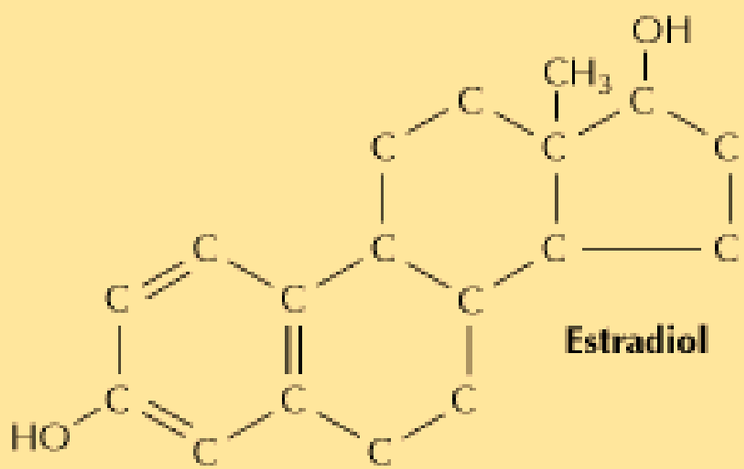


(a) General structure of a steroid



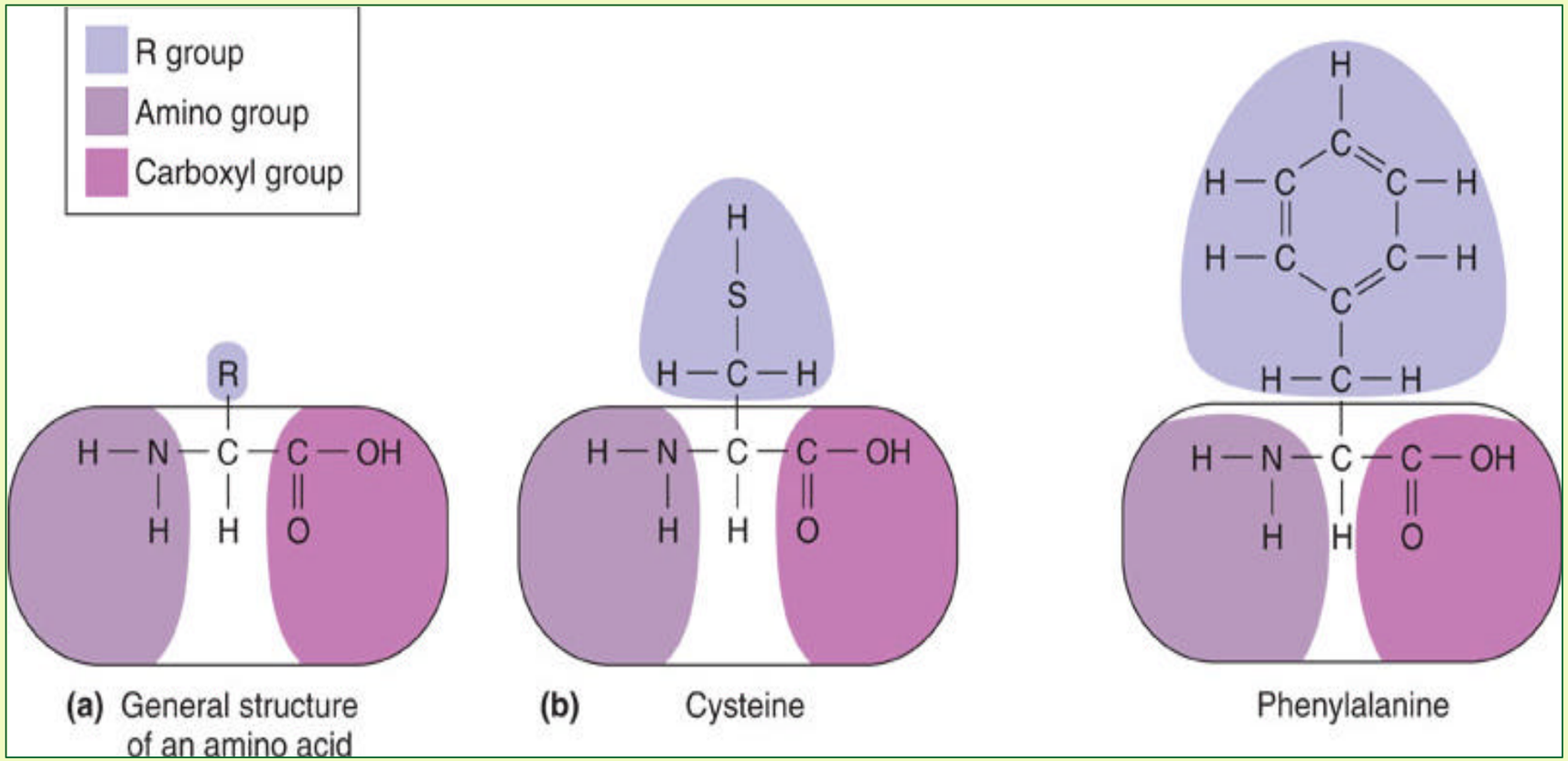

Cholesterol
HO


Testosterone


Estradiol

PROTEINAS

- AMINOACIDOS



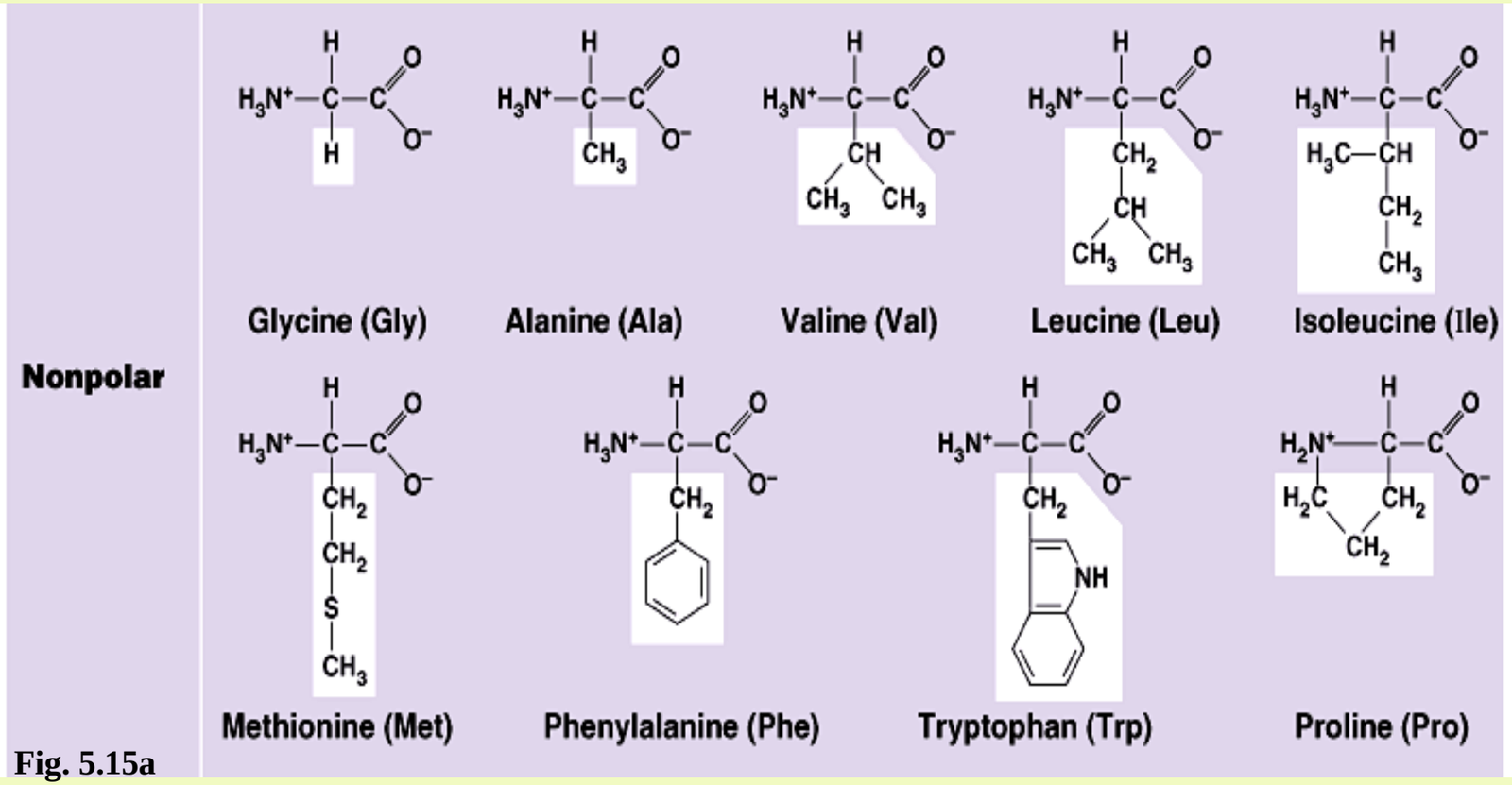
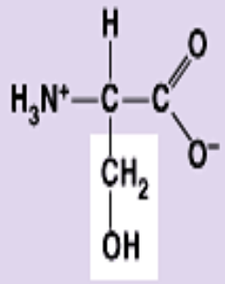
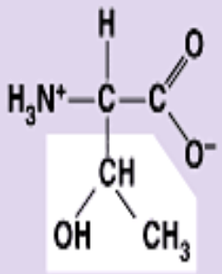

Nonpolar
Glycine (Gly)
Alanine (Ala)
Valine (Val)
Leucine (Leu)
Isoleucine (Ile)
Methionine (Met)
Phenylalanine (Phe)
Tryptophan (Trp)
Proline (Pro)

Fig. 5.15a

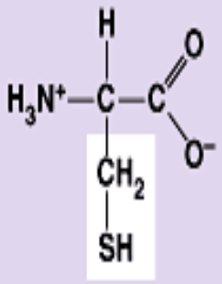
Polar



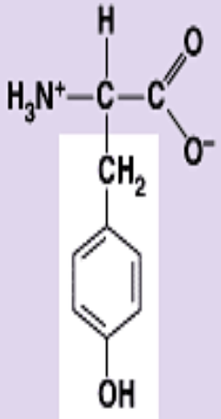
Serine (Ser)



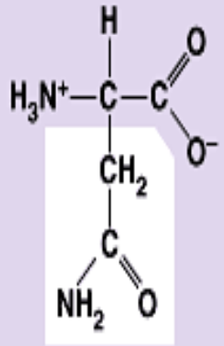
Threonine (Thr)



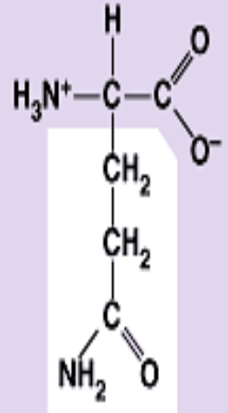
Cysteine (Cys)



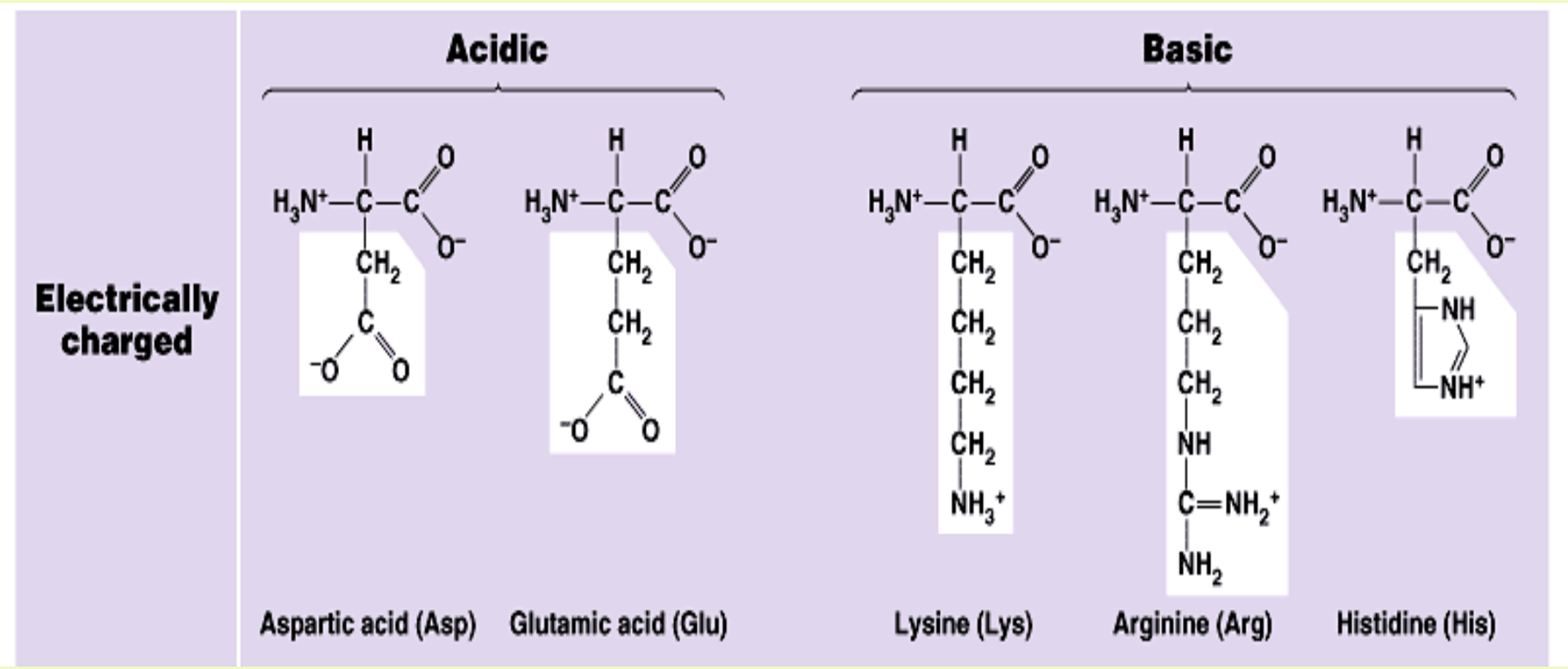
Tyrosine (Tyr)



Asparagine (Asn)

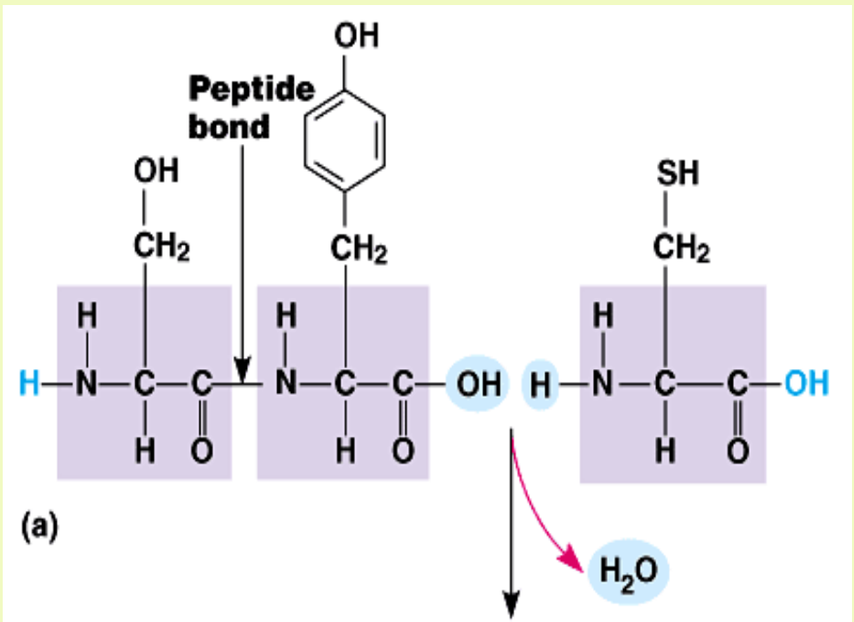


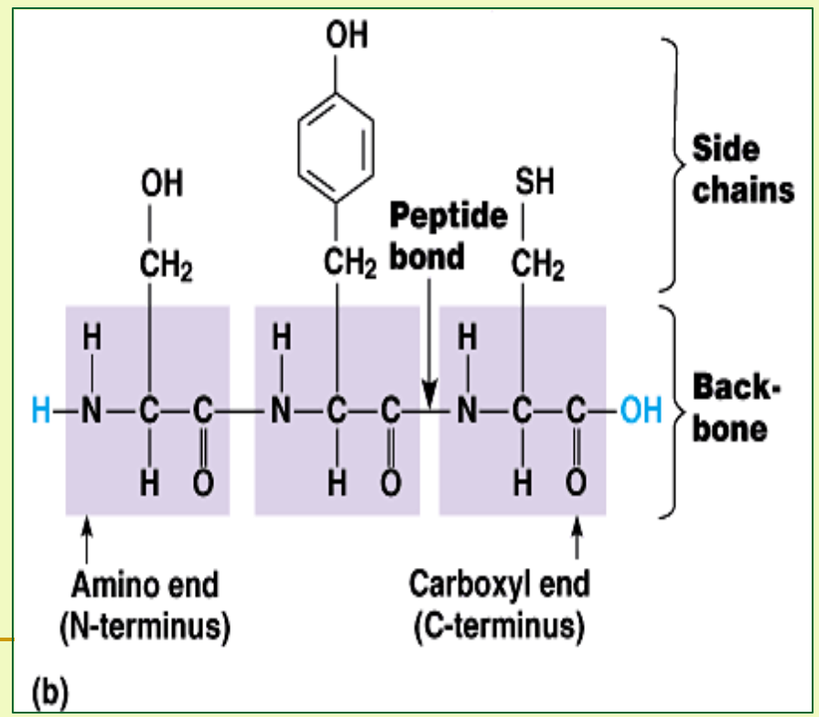
Glutamine (Gln)


Electrically charged
Acidic
Basic
Aspartic acid (Asp)
Glutamic acid (Glu)
Lysine (Lys)
Arginine (Arg)
Histidine (His)

ENLACE PEPTIDICO

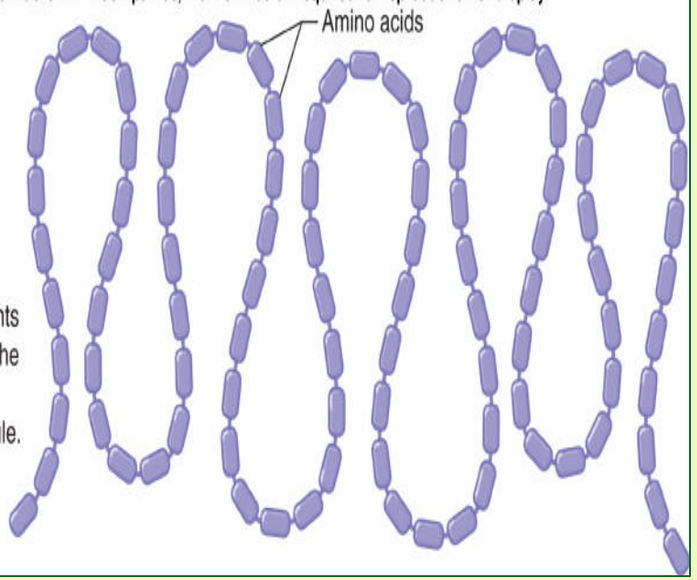
- deshidratación
- Enlace covalente



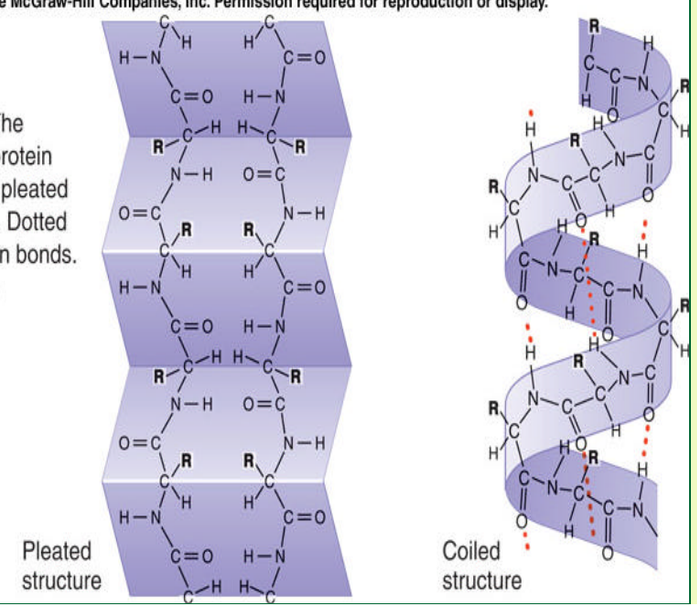


PROTEINAS

- FUNCIONES
  - RECEPTORES
  - ANTICUERPOS
  - ENZIMAS
- ESTRUCTURA
  - PRIMARIA
  - SECUNDARIA



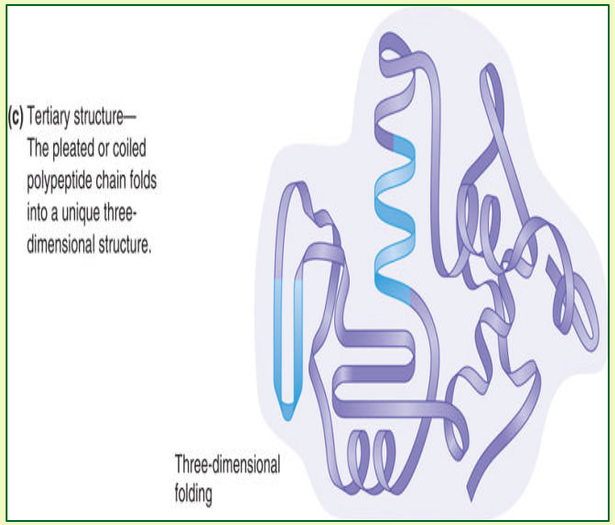
(a) Primary structure—Each oblong shape in this polypeptide chain represents an amino acid molecule. The whole chain represents a portion of a protein molecule.

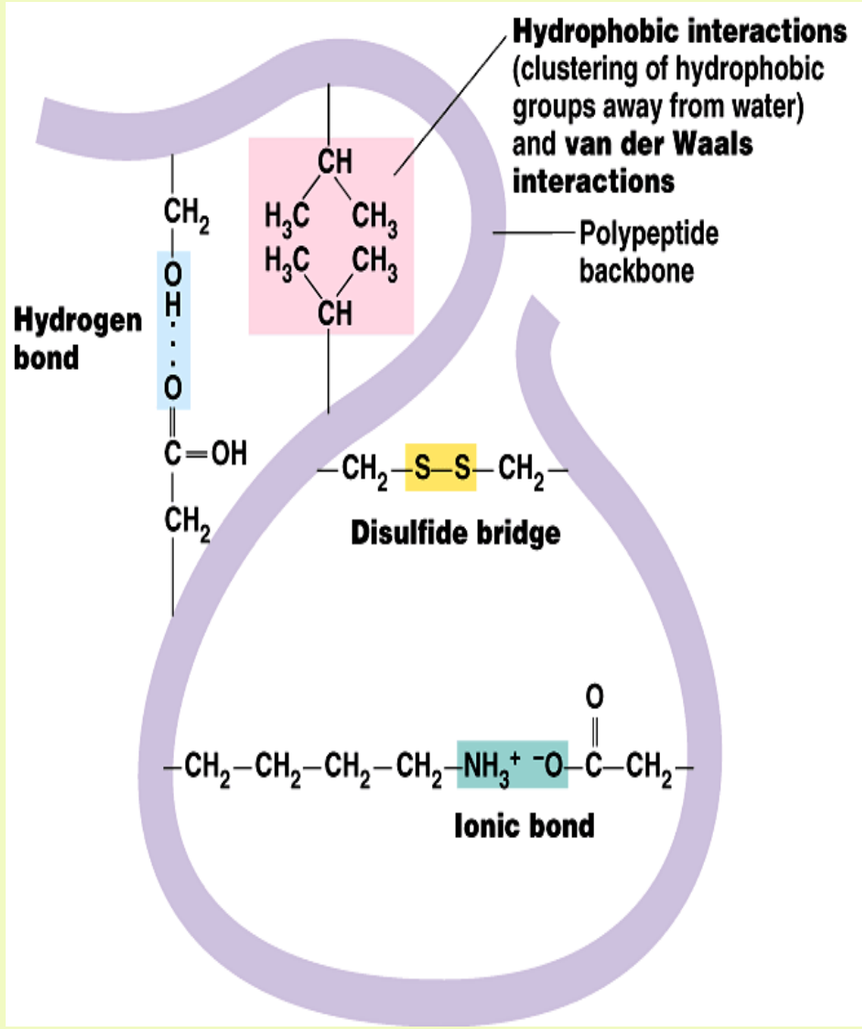


(b) Secondary structure—The polypeptide chain of a protein molecule is often either pleated or twisted to form a coil. Dotted lines represent hydrogen bonds. R groups (see fig. 2.16) are indicated in bold.

PROTEINAS

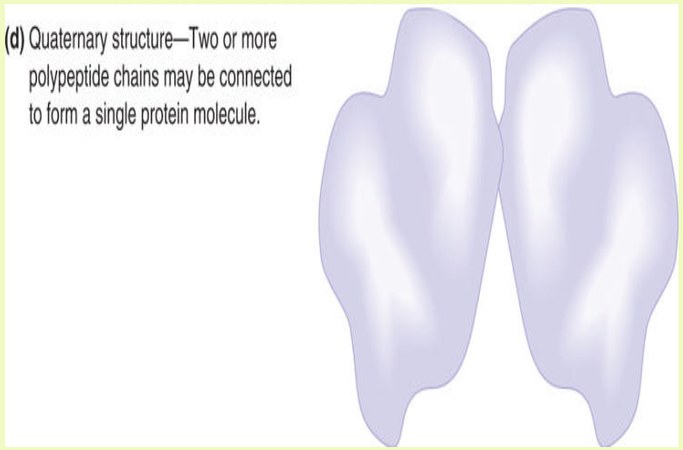
- ESTRUCTURA TERCIARIA

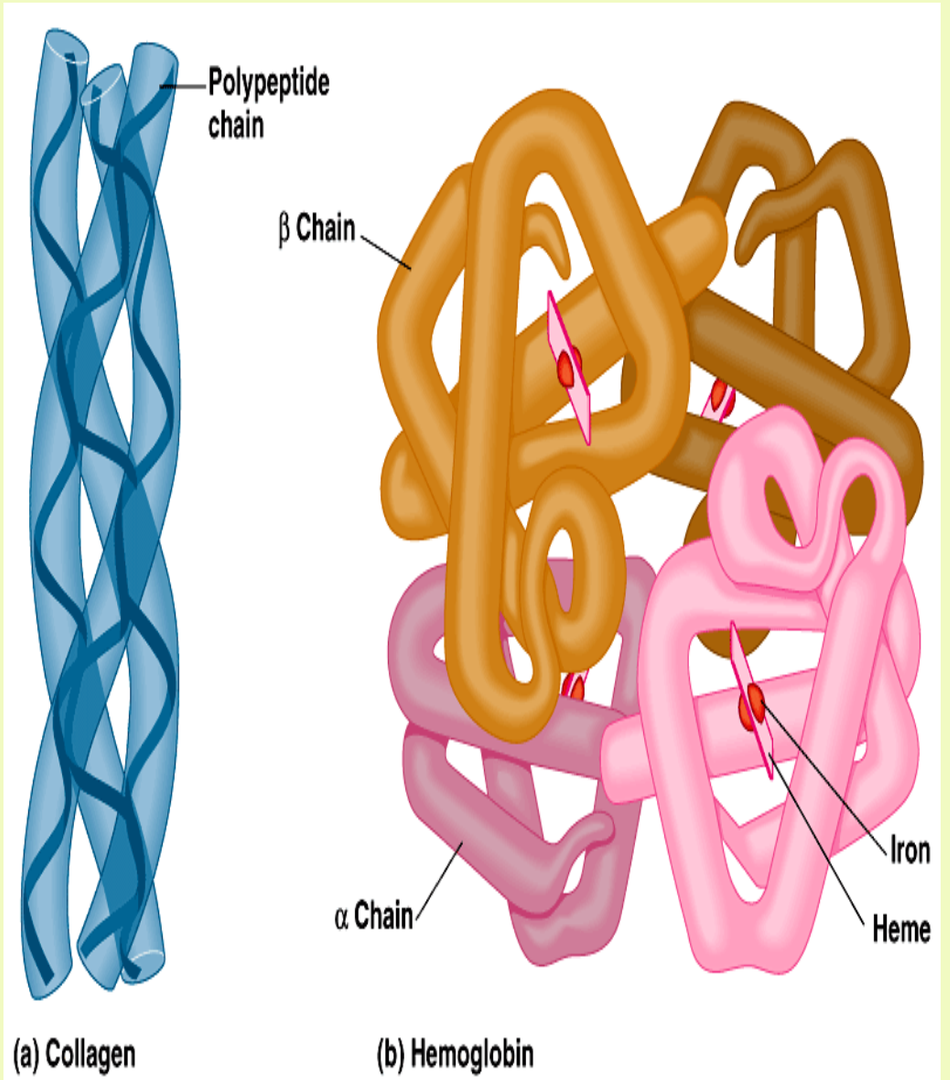


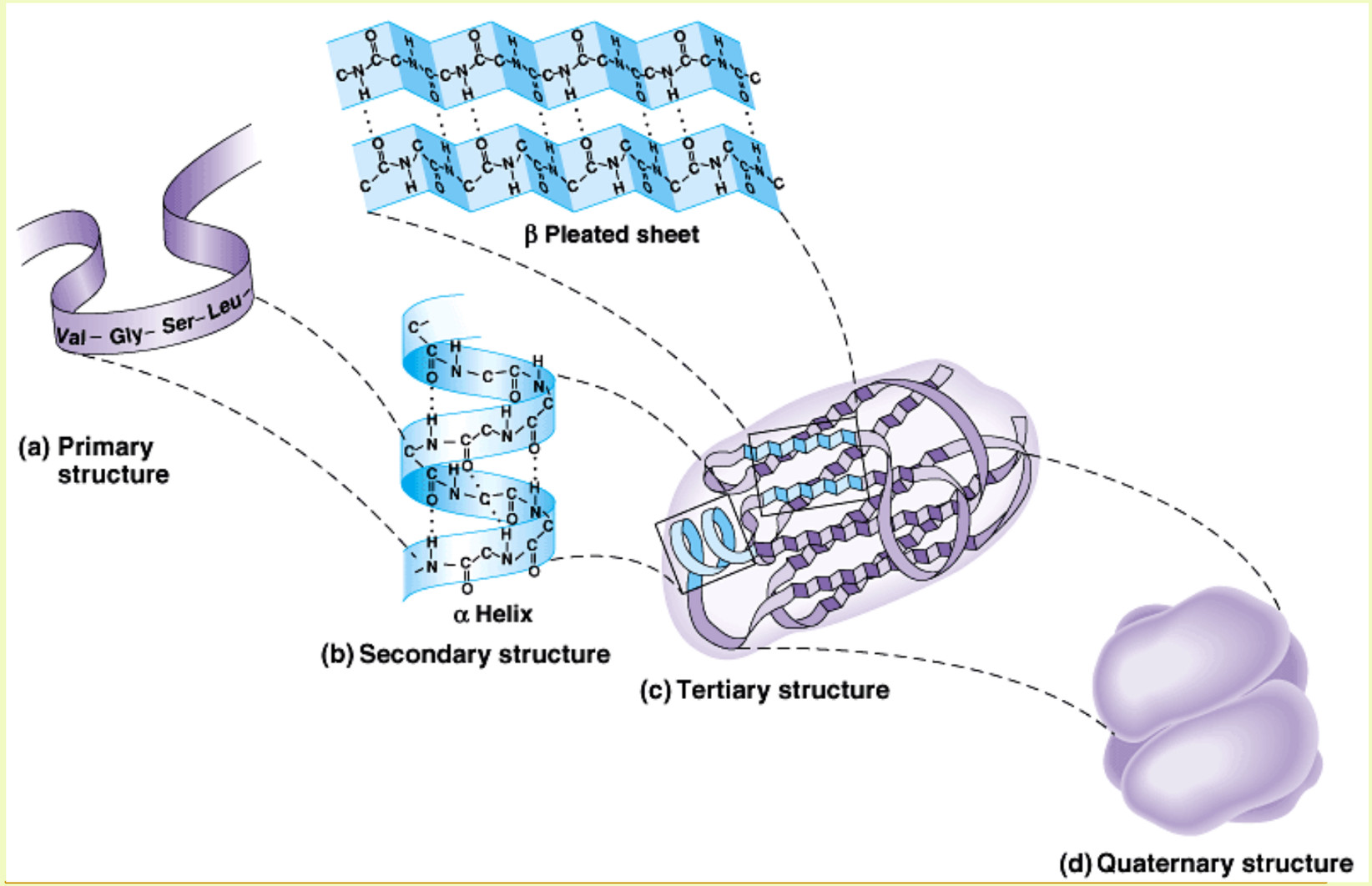


PROTEINAS

- ESTRUCTURA CUATERNARIA

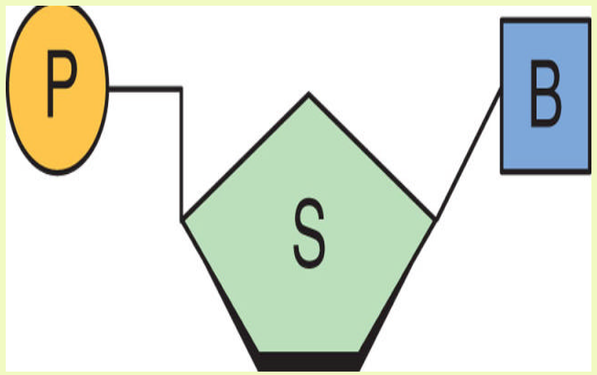


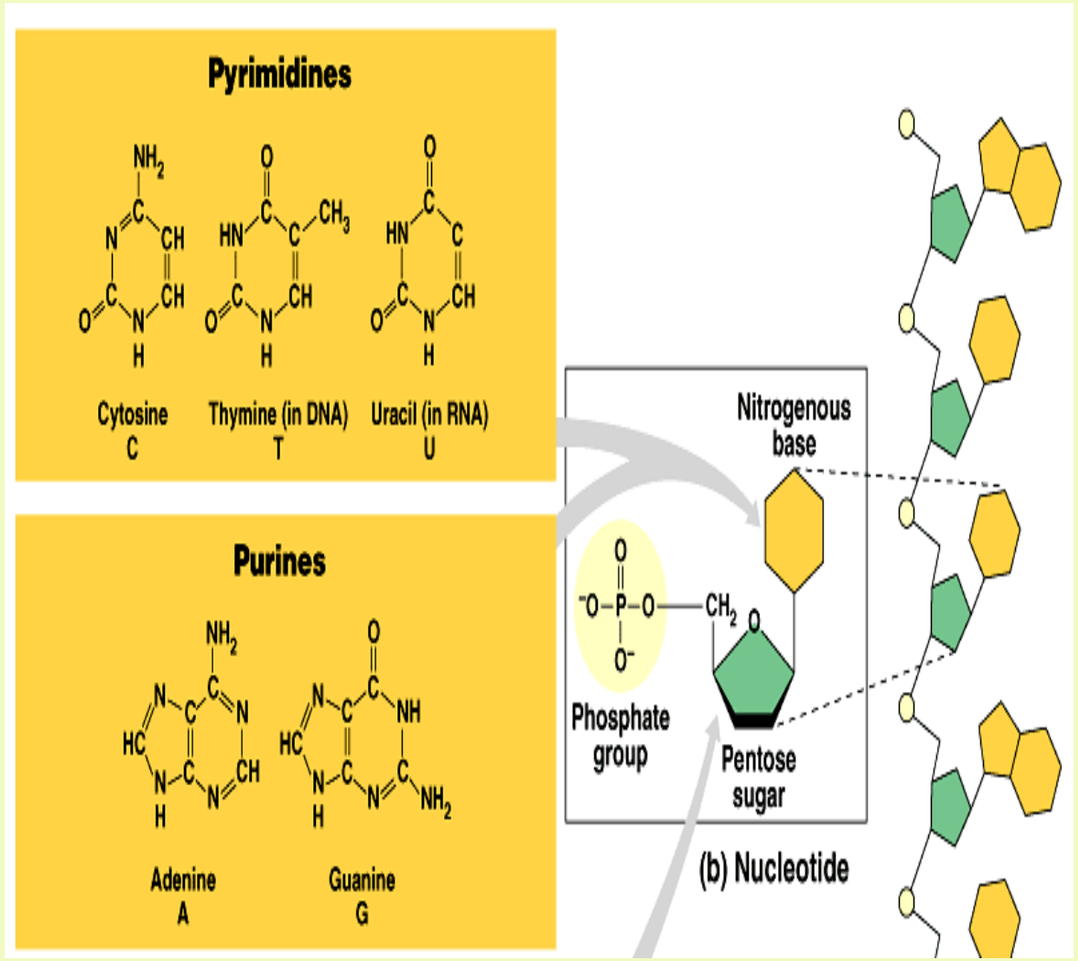



β Pleated sheet
Val – Gly– Ser–Leu–
(a) Primary structure
α Helix
(b) Secondary structure
(c) Tertiary structure
(d) Quaternary structure

ACIDOS NUCLEICOS

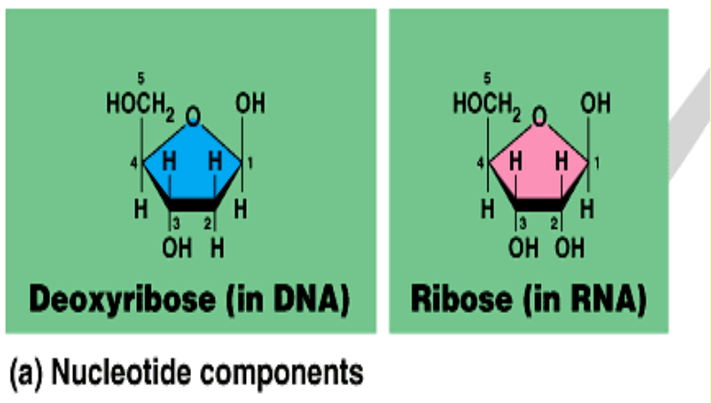
- NUCLEOTIDOS



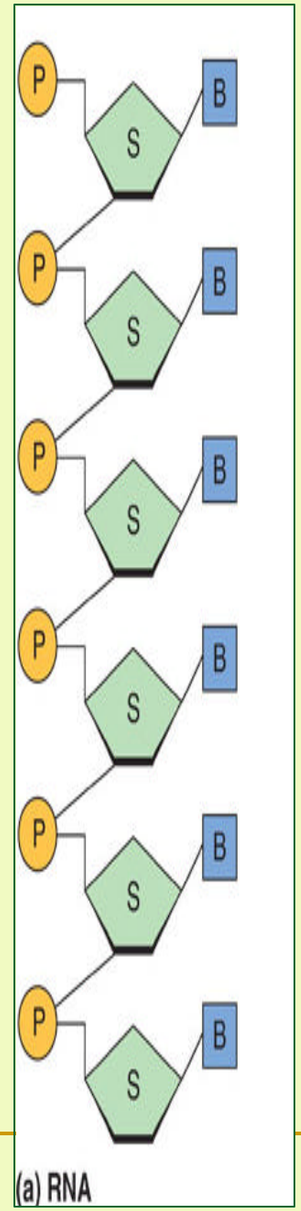


ACIDOS NUCLEICOS

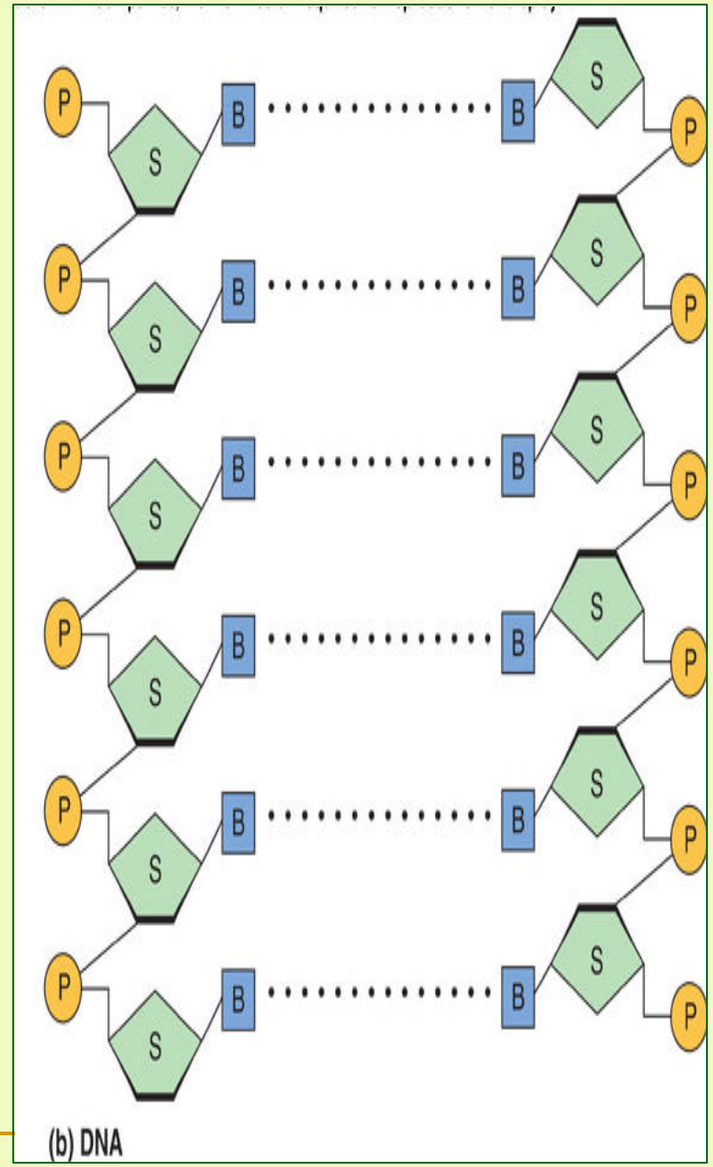
- DNA
- RNA



(a) Nucleotide components



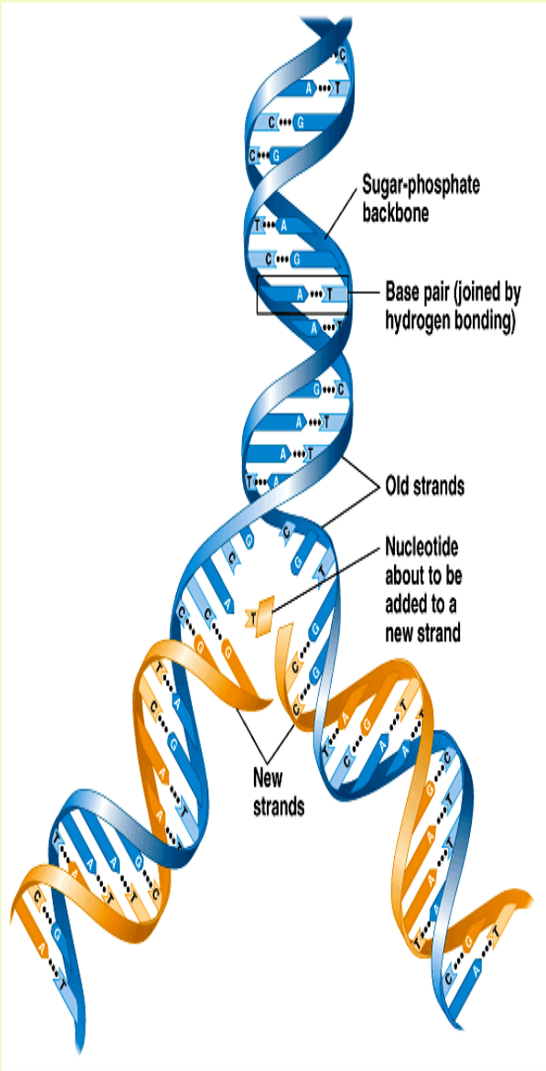
(a) RNA



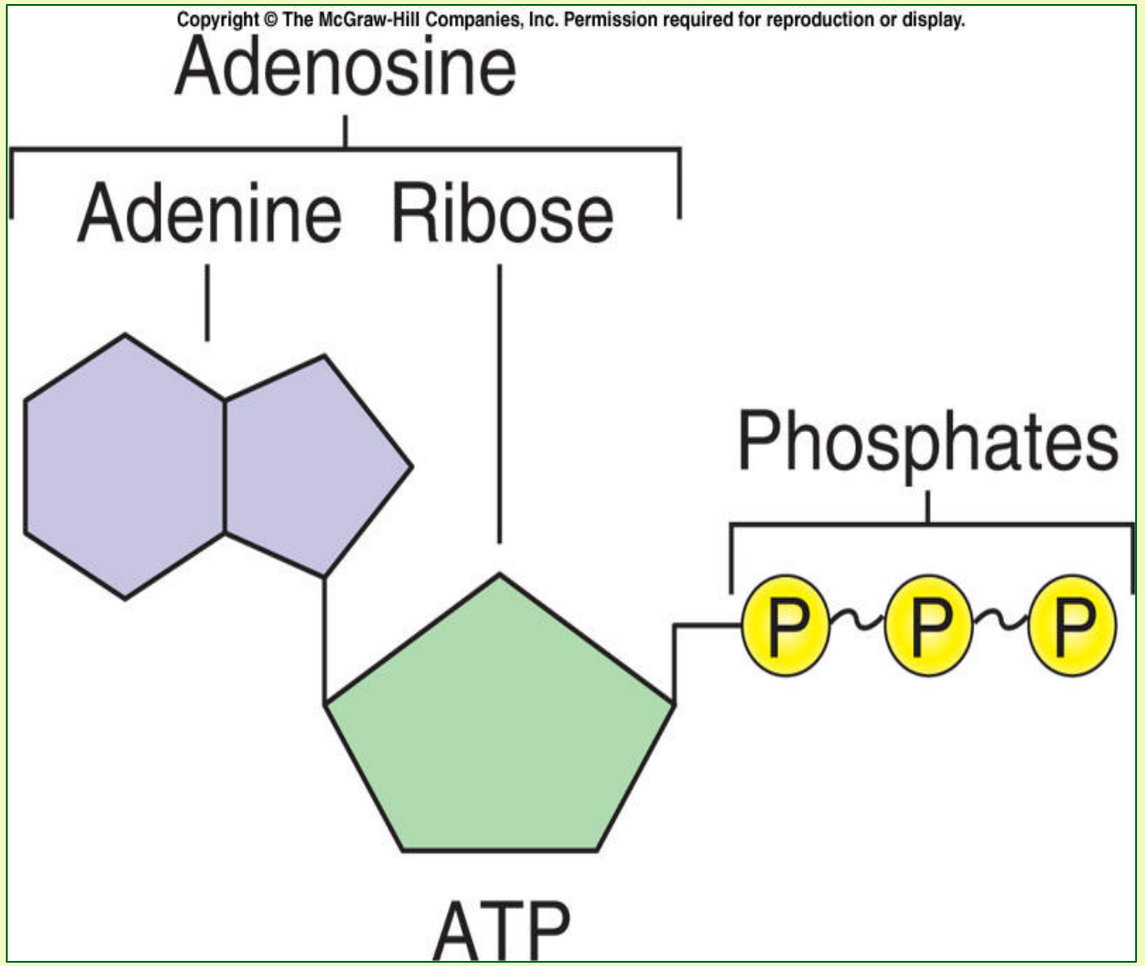
(b) DNA

DNA


(a) DNA double helix



ATP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Adenosine
Adenine
Ribose
Phosphates
P
P
P
ATP