

TEJIDOS

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NURS 1231

TEJIDOS

- DEFINICION
- TIPOS:
 - TEJIDO EPITELIAL
 - TEJIDO CONECTIVO
 - TEJIDO MUSCULAR
 - TEJIDO NERVIOSO

TEJIDOS EPITELIALES

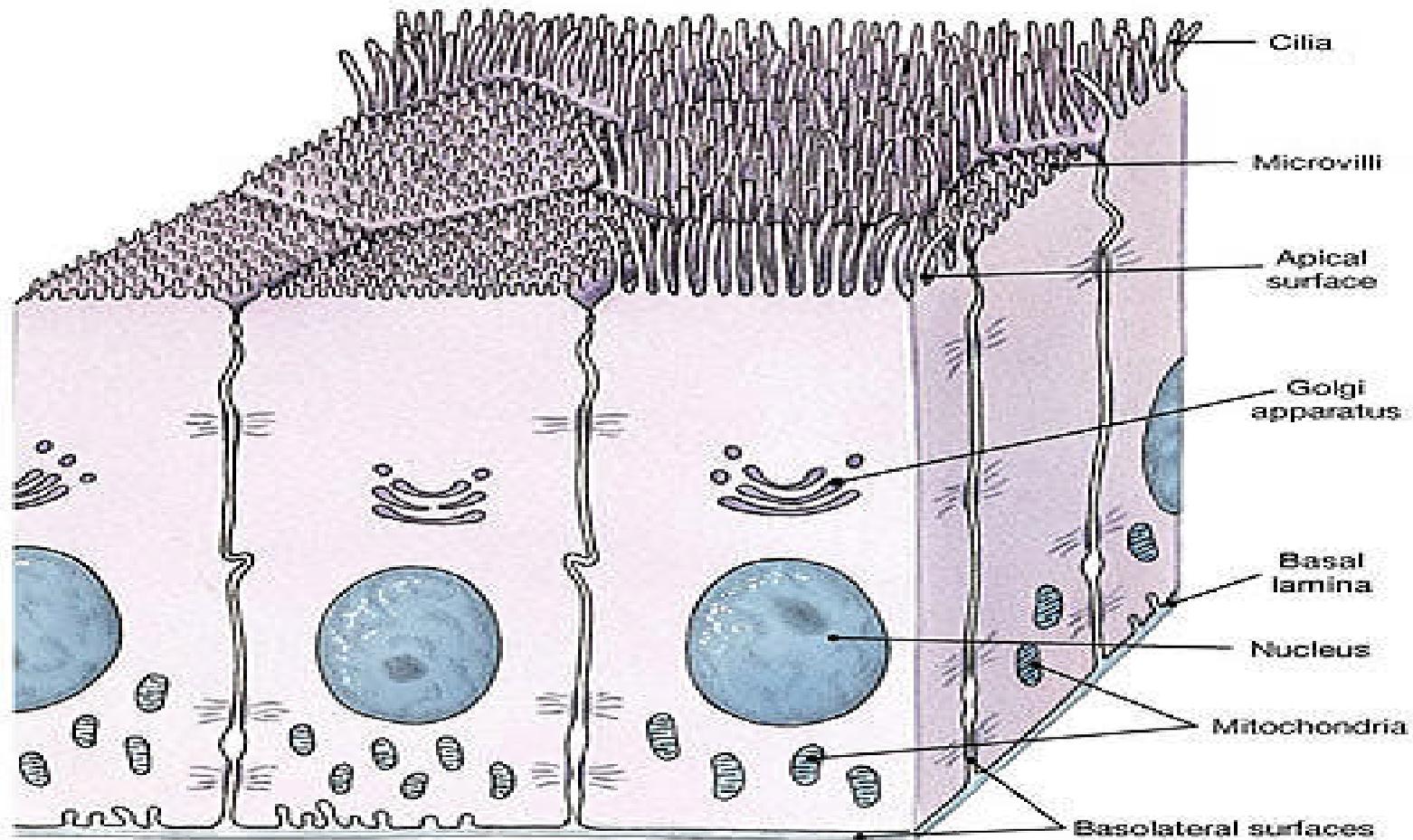
- Cubren superficies
- Uniones especializadas
- Avascular
- Regeneración
- Producción de secreciones

FUNCIONES

- Protección
- Permeabilidad absorción
- Filtración
- Secreción
- Recepción sensorial
- - Tipos:
 - Epitelios de revestimiento
 - Epitelios glandulares.

REGIONES FUNCIONALES

- Superficie Apical
- Superficie Basolateral



UNIONES INTERCELULARES

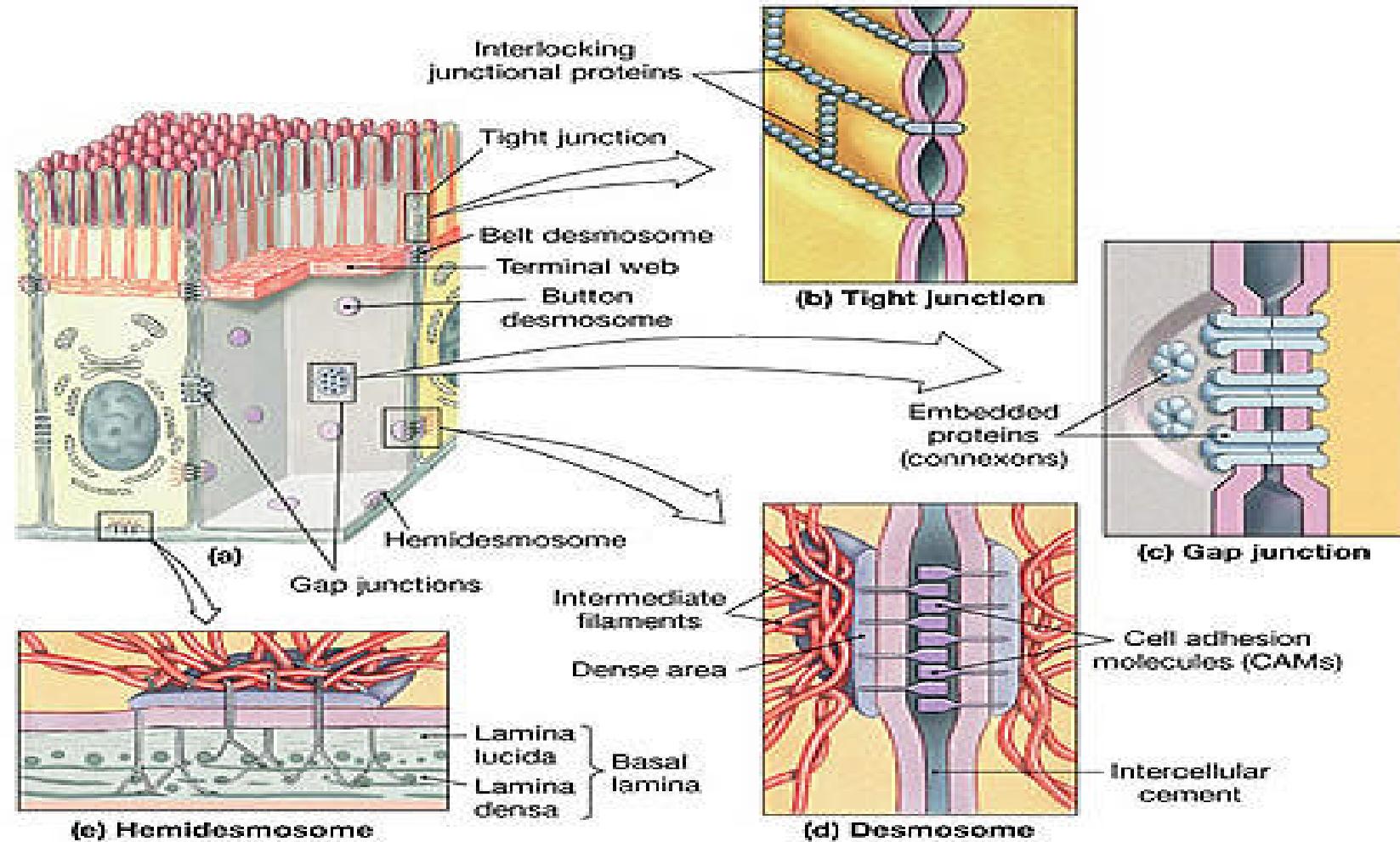


Table. 5.01

TABLE 5.1 TYPES OF TISSUE

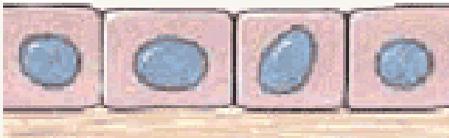
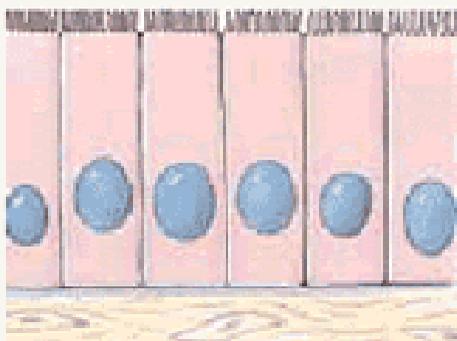
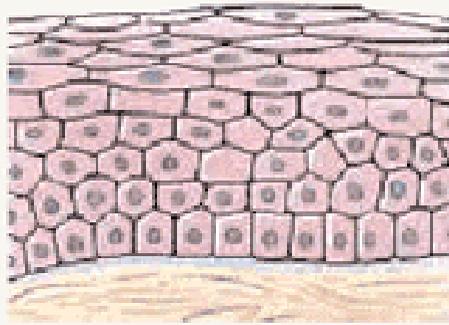
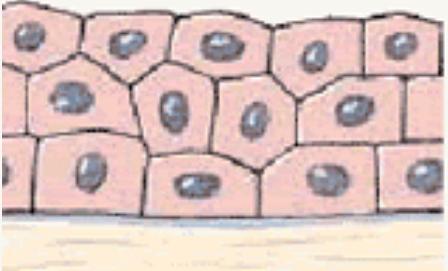
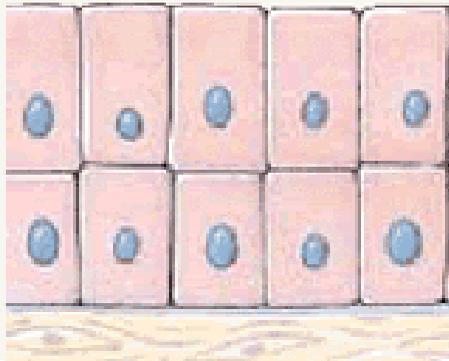
TYPE	FUNCTION	LOCATION	DISTINGUISHING CHARACTERISTICS
Epithelial	Protection, secretion, absorption, excretion	Cover body surfaces, cover and line internal organs, compose glands	Lack blood vessels, readily divide; cells are tightly packed
Connective	Bind, support, protect, fill spaces, store fat, produce blood cells	Widely distributed throughout body	Mostly have good blood supply; cells are farther apart than epithelial cells with extracellular matrix in between
Muscle	Movement	Attached to bones, in the walls of hollow internal organs, heart	Able to contract in response to specific stimuli
Nervous	Transmit impulses for coordination, regulation, integration, and sensory reception	Brain, spinal cord, nerves	Cells connect to each other and to other body parts

CRITERIOS DE CLASIFICACIÓN

- **Forma de las células:**
 - *planas,*
 - *cúbicas*
 - *cilíndricas*
- La superficie puede presentar diferenciaciones:
 - capa mucosa
 - cilios o microvellosidades.
- **Número de capas de células:**
 - *simples*
 - *estratificados*

Squamous	
Cuboidal	
Columnar	
Simple	
Stratified	

TABLE 4-1 CLASSIFYING EPITHELIA

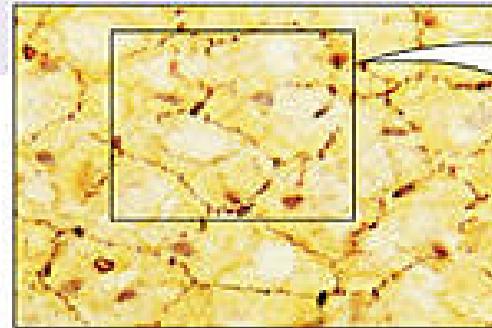
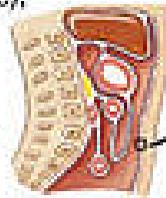
	Squamous	Cuboidal	Columnar
Simple	 <p>Simple squamous epithelium</p>	 <p>Simple cuboidal epithelium</p>	 <p>Simple columnar epithelium</p>
Stratified	 <p>Stratified squamous epithelium</p>	 <p>Stratified cuboidal epithelium</p>	 <p>Stratified columnar epithelium</p>

EPITELIO ESCAMOSO

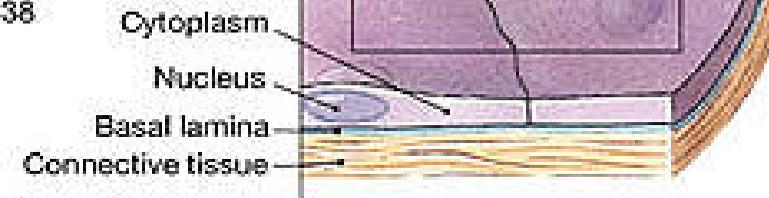
SIMPLE SQUAMOUS EPITHELIUM

LOCATIONS: Mesothelia lining ventral body cavities; endothelia lining heart and blood vessels; portions of kidney tubules (thin sections of loop of Henle); inner lining of cornea; alveoli of lungs

FUNCTIONS: Reduces friction; controls vessel permeability; performs absorption and secretion



LM × 238

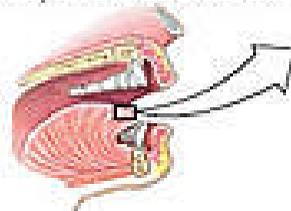


(a) Lining of peritoneal cavity

STRATIFIED SQUAMOUS EPITHELIUM

LOCATIONS: Surface of skin; lining of mouth, throat, esophagus, rectum, anus, and vagina

FUNCTIONS: Provides physical protection against abrasion, pathogens, and chemical attack



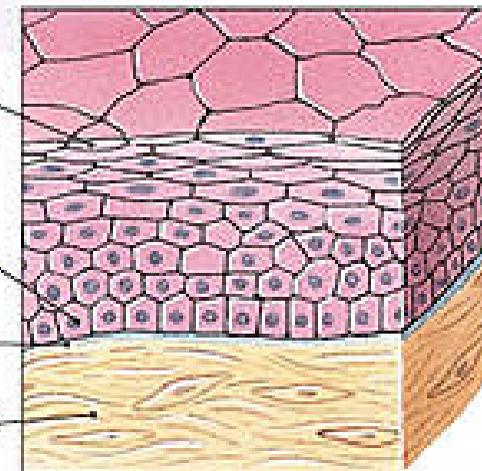
LM × 310

Squamous superficial cells

Stem cells

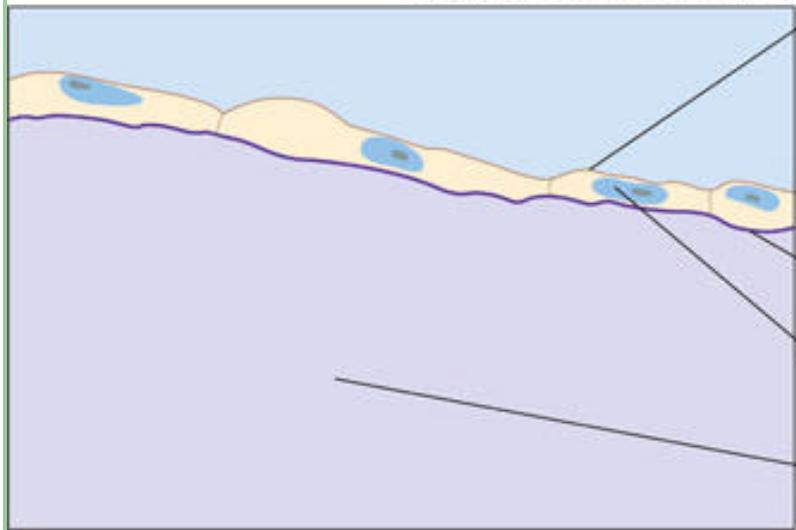
Basal lamina

Connective tissue

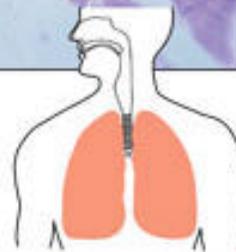


(b) Surface of tongue

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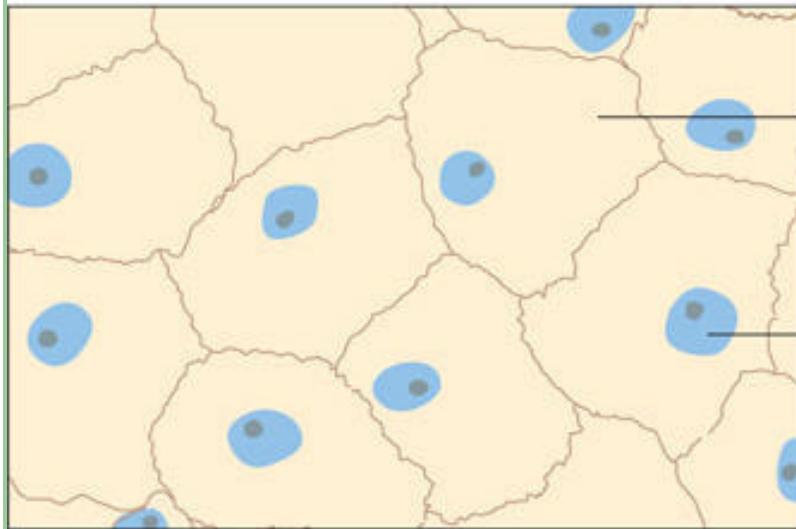


Free surface of tissue
Simple squamous epithelium
Basement membrane
Nucleus
Connective tissue

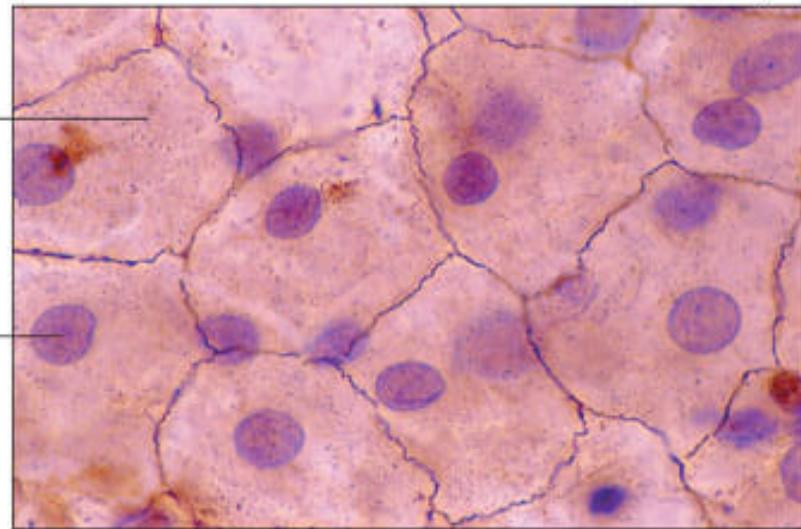


(a)

(b)

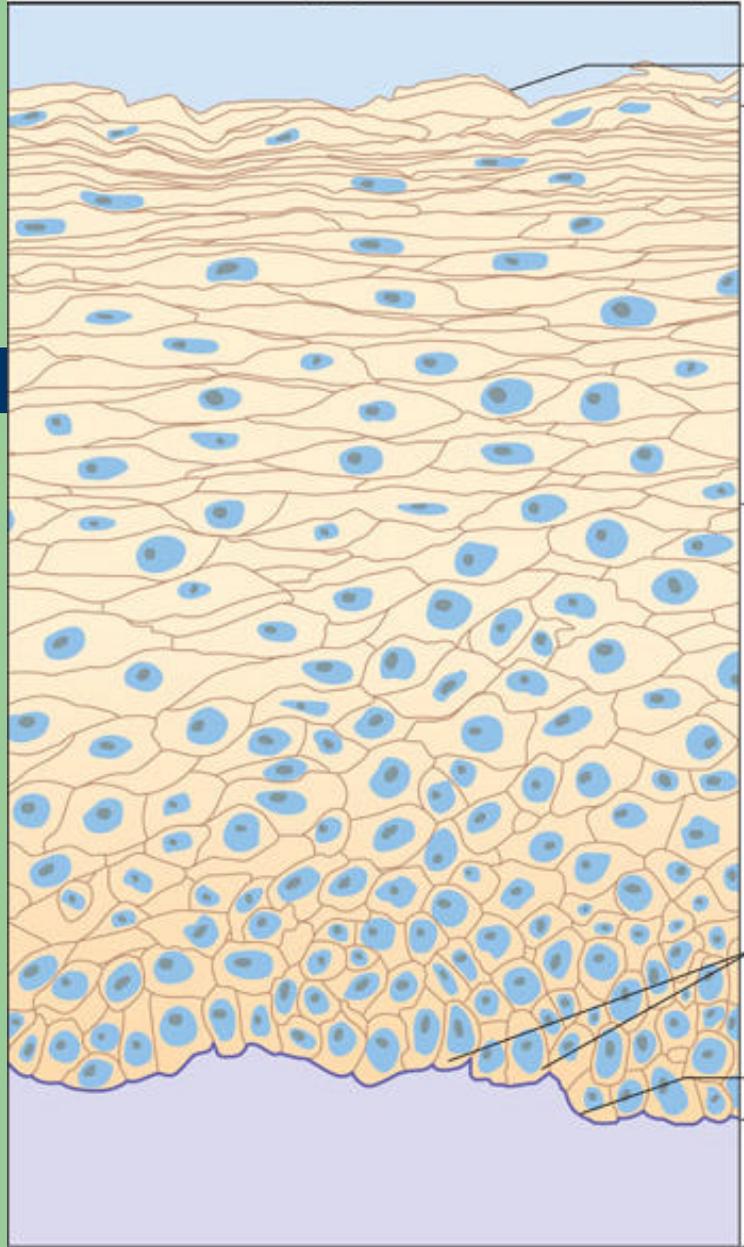


Free surface of simple squamous epithelium
Nucleus

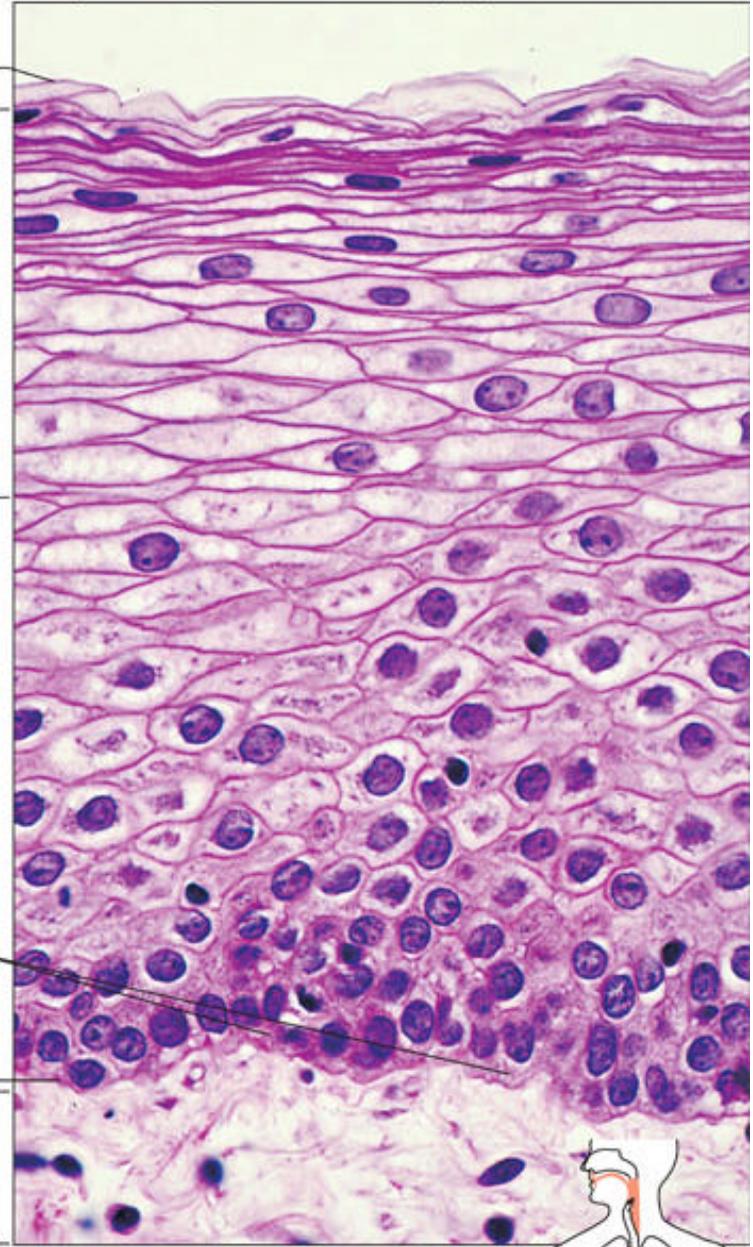


(c)

(d)



(a)



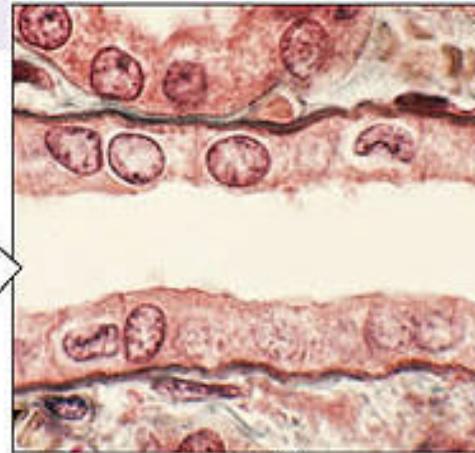
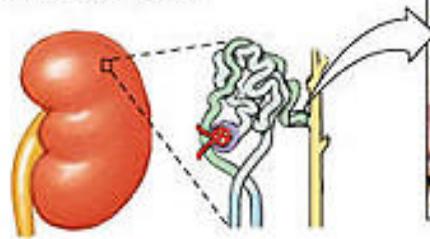
(b)

EPITELIO CUBOIDAL

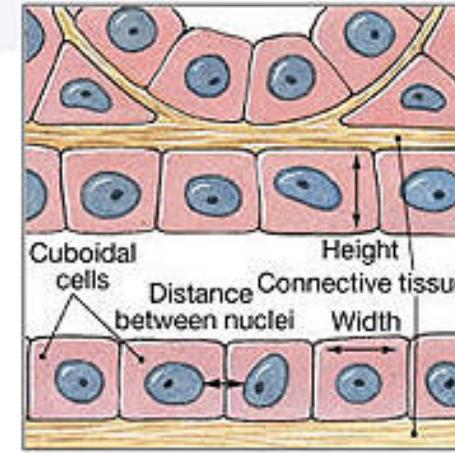
SIMPLE CUBOIDAL EPITHELIUM

LOCATIONS: Glands; ducts; portions of kidney tubules; thyroid gland

FUNCTIONS: Limited protection, secretion, absorption



LM × 1426



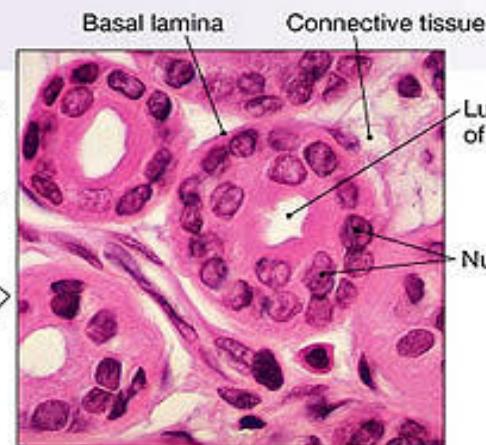
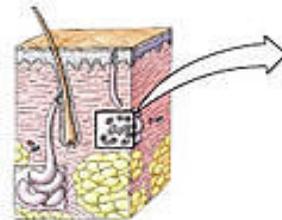
(a) Kidney tubule

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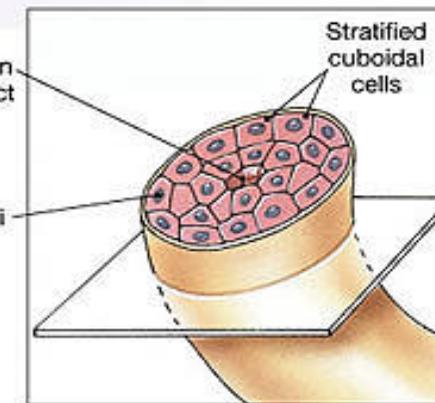
STRATIFIED CUBOIDAL EPITHELIUM

LOCATIONS: Lining of some ducts (rare)

FUNCTIONS: Protection, secretion, absorption

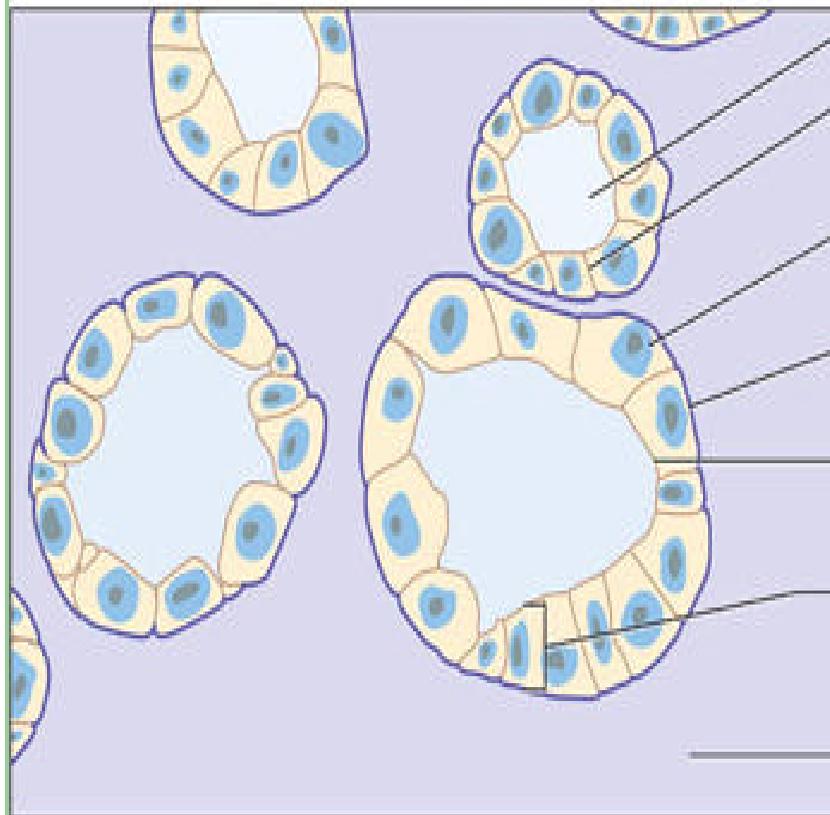


LM × 1413



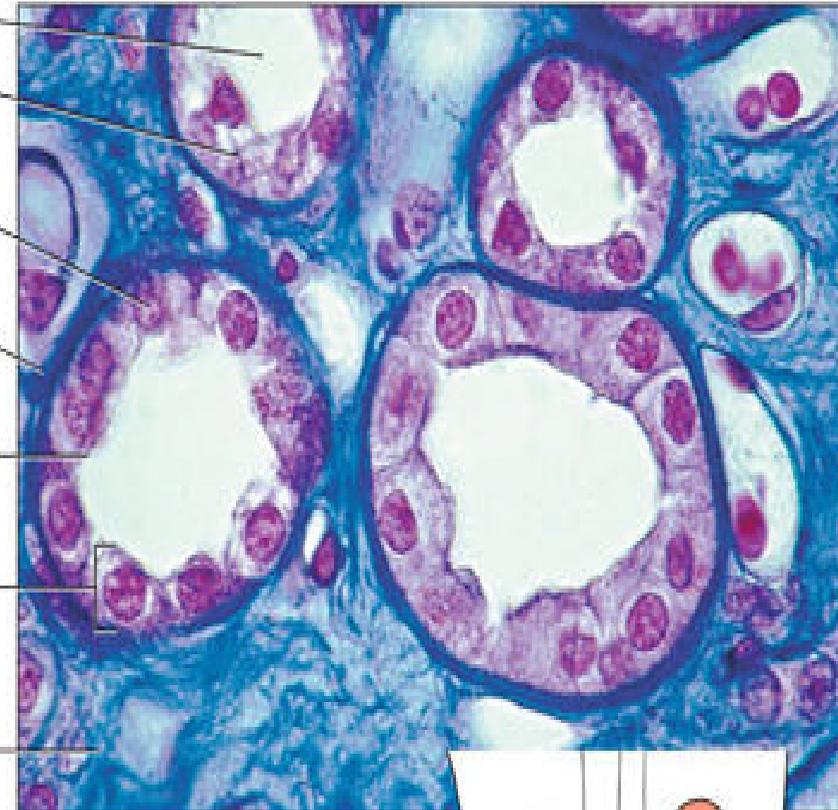
(b) Sweat gland duct

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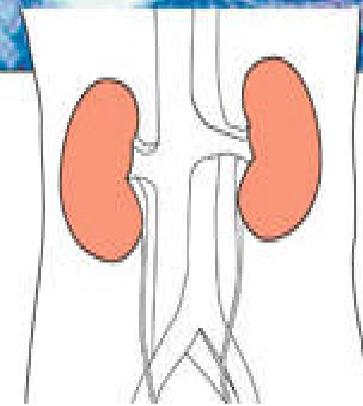


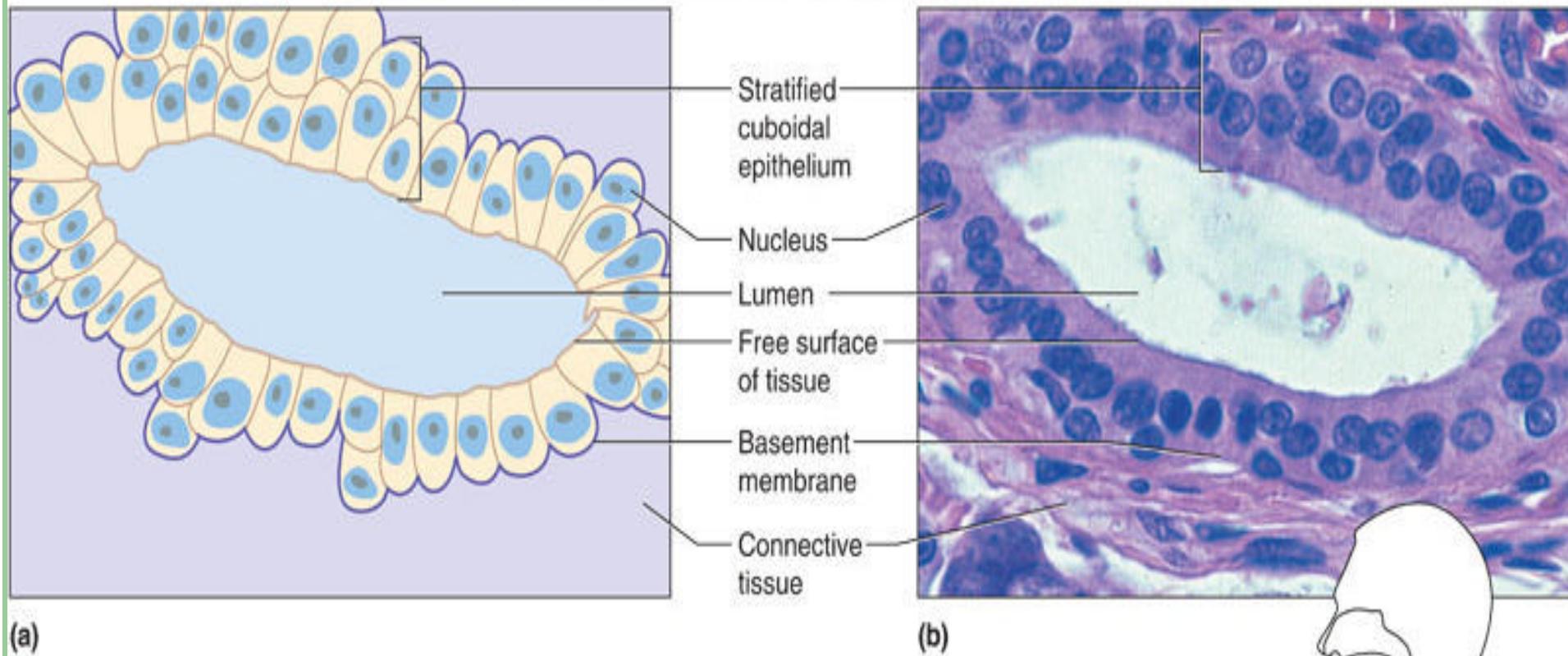
(a)

- Lumen
- Cell membrane
- Nucleus
- Basement membrane
- Free surface of tissue
- Simple cuboidal epithelium
- Connective tissue



(b)





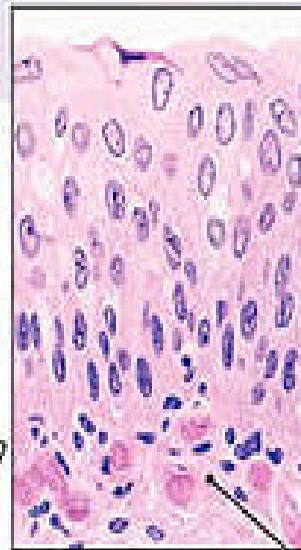
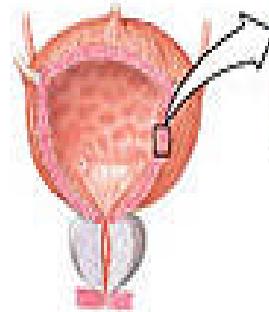
- Ductos de glándulas (mamarias, sudoríparas, salivares y páncreas)
- Folículos ováricos y túbulos seminíferos

Epitelio transcional

TRANSITIONAL EPITHELIUM

LOCATIONS: Urinary bladder; renal pelvis; ureters

FUNCTIONS: Permits expansion and recoil after stretching



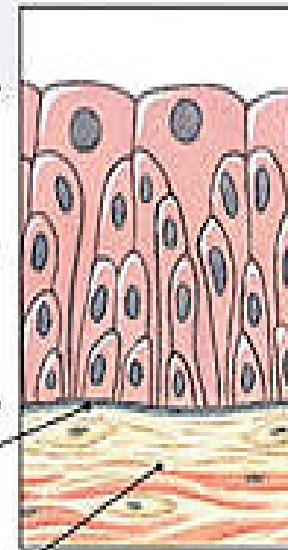
LM X 394

Epithelium (relaxed)

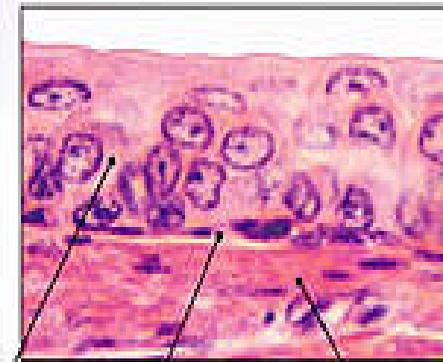
Basal lamina

Connective tissue and smooth muscle layers

EMPTY BLADDER



(c) Urinary bladder

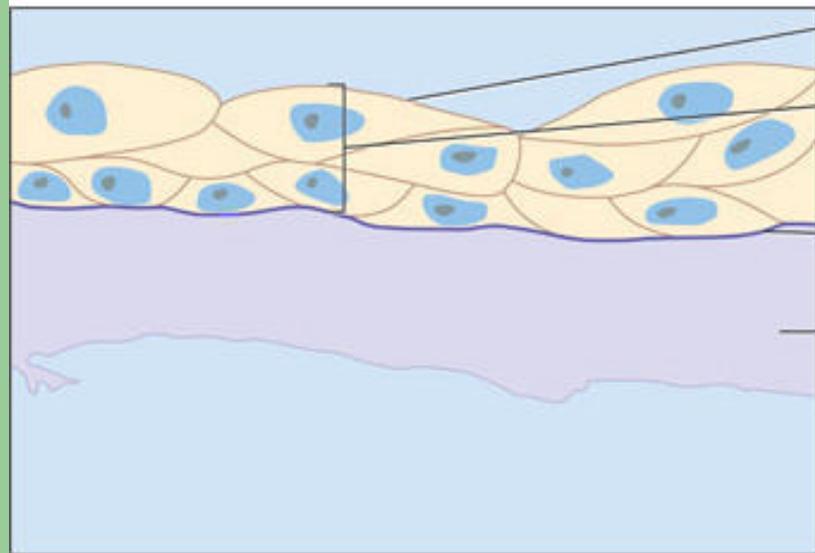


Epithelium (stretched)

Basal lamina

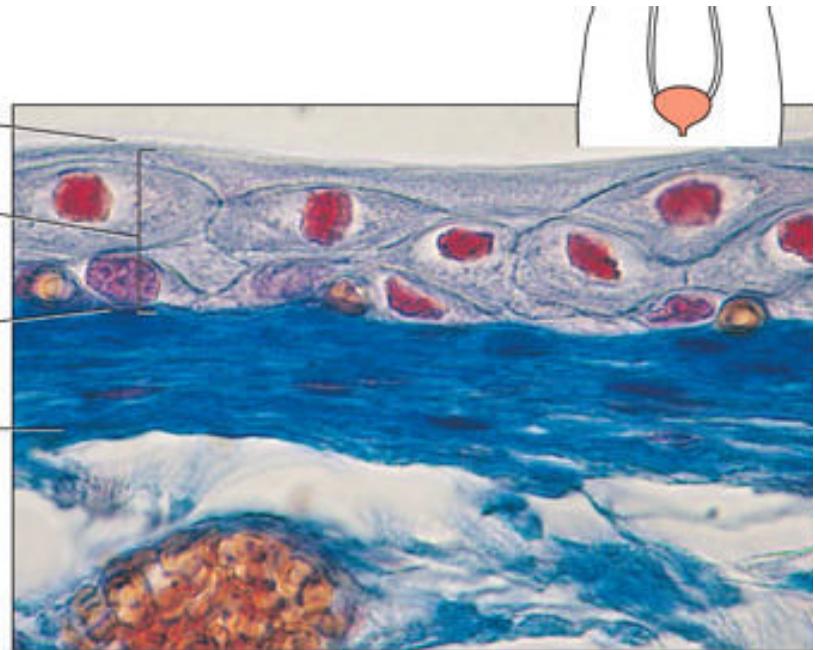
Connective tissue and smooth muscle layers

FULL BLADDER



(c)

- Free surface of tissue
- Stretched transitional epithelium
- Basement membrane
- Underlying connective tissue



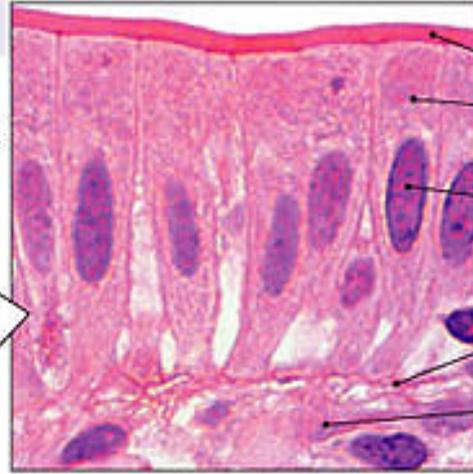
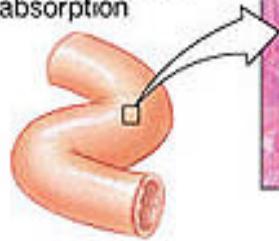
(d)

EPITELIO COLUMNAR

SIMPLE COLUMNAR EPITHELIUM

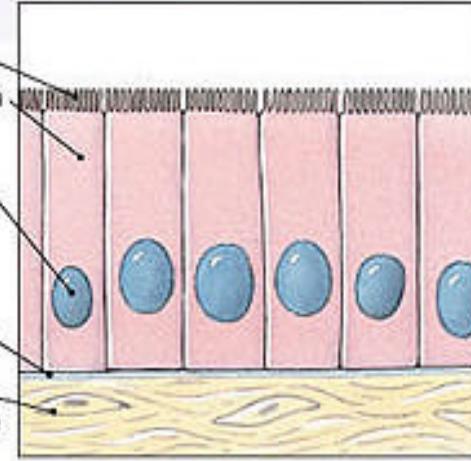
LOCATIONS: Lining of stomach, intestine, gallbladder, uterine tubes, and collecting ducts of kidneys

FUNCTIONS: Protection, secretion, absorption



LM × 350

Microvilli
Cytoplasm
Nucleus
Basal lamina
Loose connective tissue



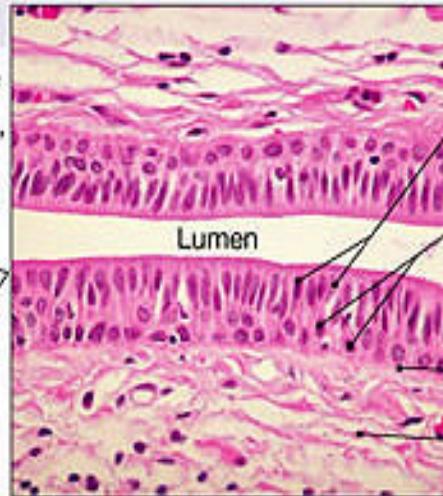
(a) Intestinal lining

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STRATIFIED COLUMNAR EPITHELIUM

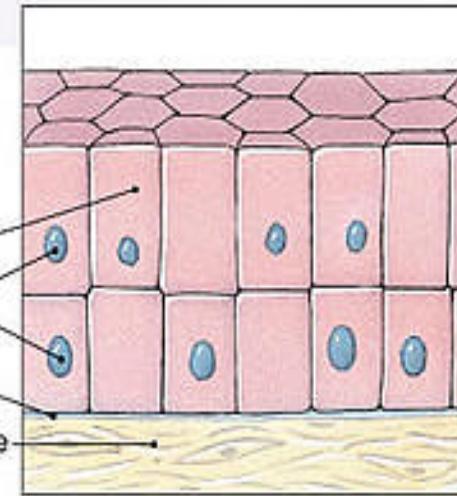
LOCATIONS: Small areas of the pharynx, epiglottis, anus, mammary gland, salivary gland ducts, and urethra

FUNCTION: Protection



Lumen

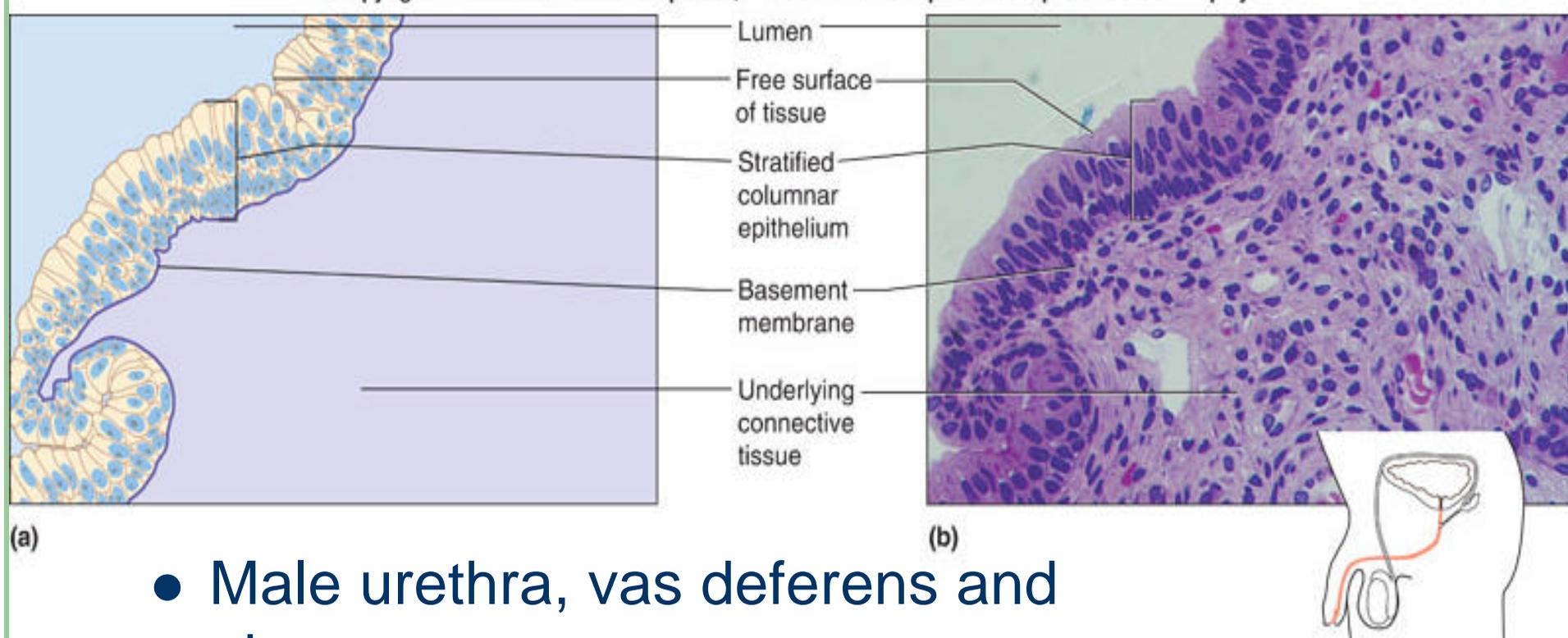
Superficial columnar cells
Deeper basal cells
Cytoplasm
Nuclei
Basal lamina
Loose connective tissue



(c) Salivary gland duct

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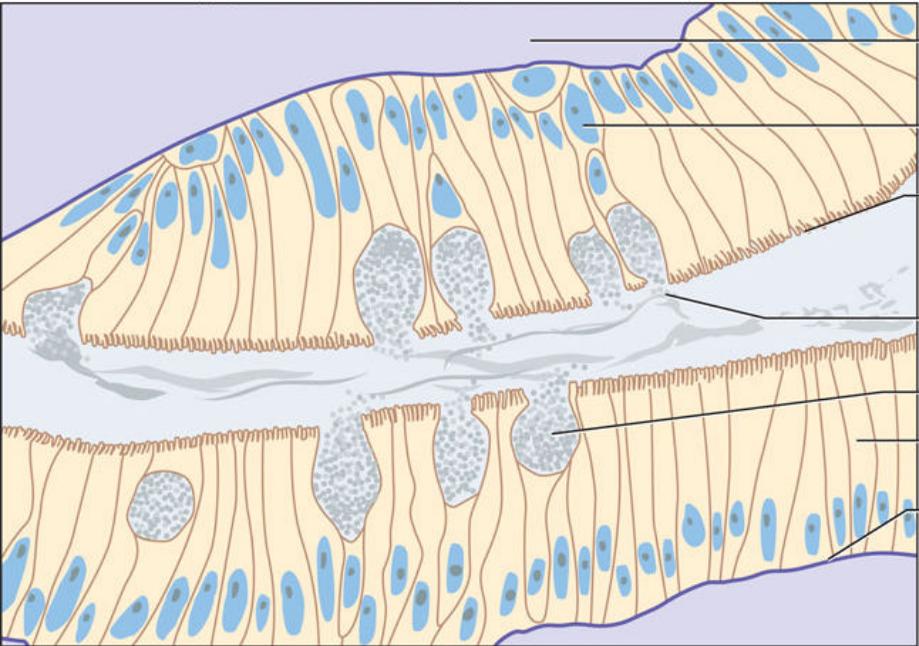
Epitelio columnar estrafificado



Epitelio columnar simple

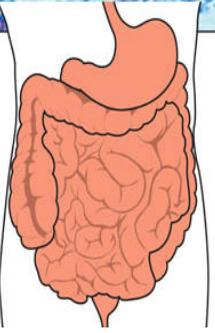
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(a)

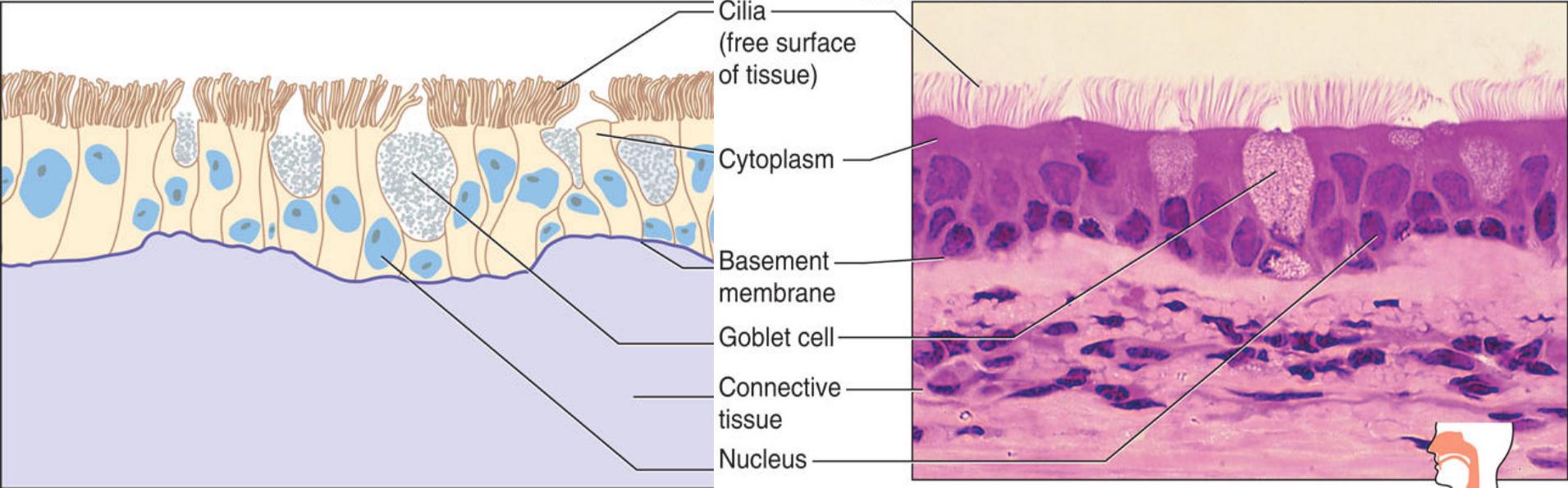
(b)



Epitelio columnar pseudoestratificado

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(a)

(b)

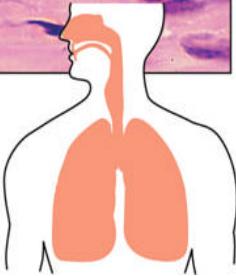


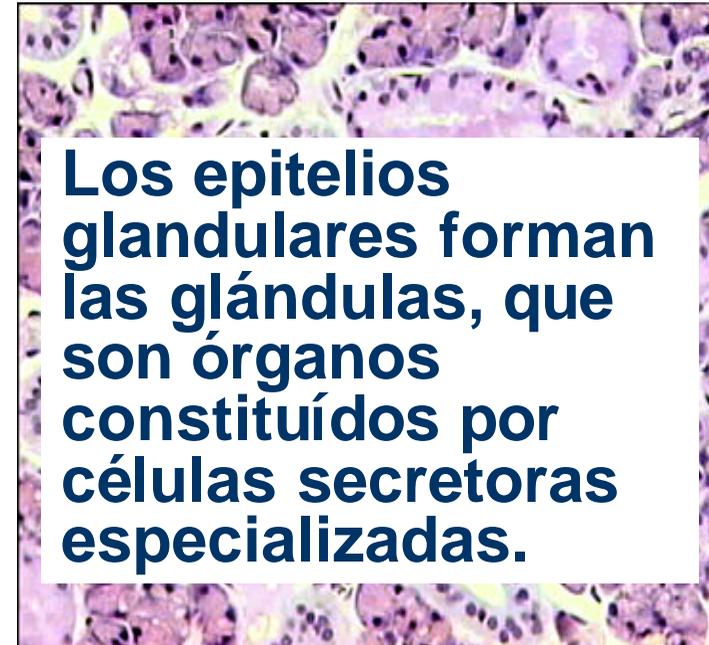
TABLE 5.3 EPITHELIAL TISSUES

TYPE	FUNCTION	LOCATION
Simple squamous epithelium	Filtration, diffusion, osmosis; covers surface	Air sacs of the lungs, walls of capillaries, linings of blood and lymph vessels
Simple cuboidal epithelium	Secretion, absorption	Surface of ovaries, linings of kidney tubules, and linings of ducts of certain glands
Simple columnar epithelium	Absorption, secretion, protection	Linings of uterus, stomach, and intestine
Pseudostratified columnar epithelium	Protection, secretion, movement of mucus	Linings of respiratory passages
Stratified squamous epithelium	Protection	Outer layer of skin, linings of oral cavity, throat, vagina, and anal canal
Stratified cuboidal epithelium	Protection	Linings of larger ducts of mammary glands, sweat glands, salivary glands, and pancreas
Stratified columnar epithelium	Protection, secretion	Vas deferens, part of the male urethra, parts of the pharynx
Transitional epithelium	Distensibility, protection	Inner lining of urinary bladder and linings of ureters and part of urethra
Glandular epithelium	Secretion	Salivary glands, sweat glands, endocrine glands

GLANDULAS

CLASIFICACION DEPENDIENDO DEL LUGAR DONDE SECRETAN

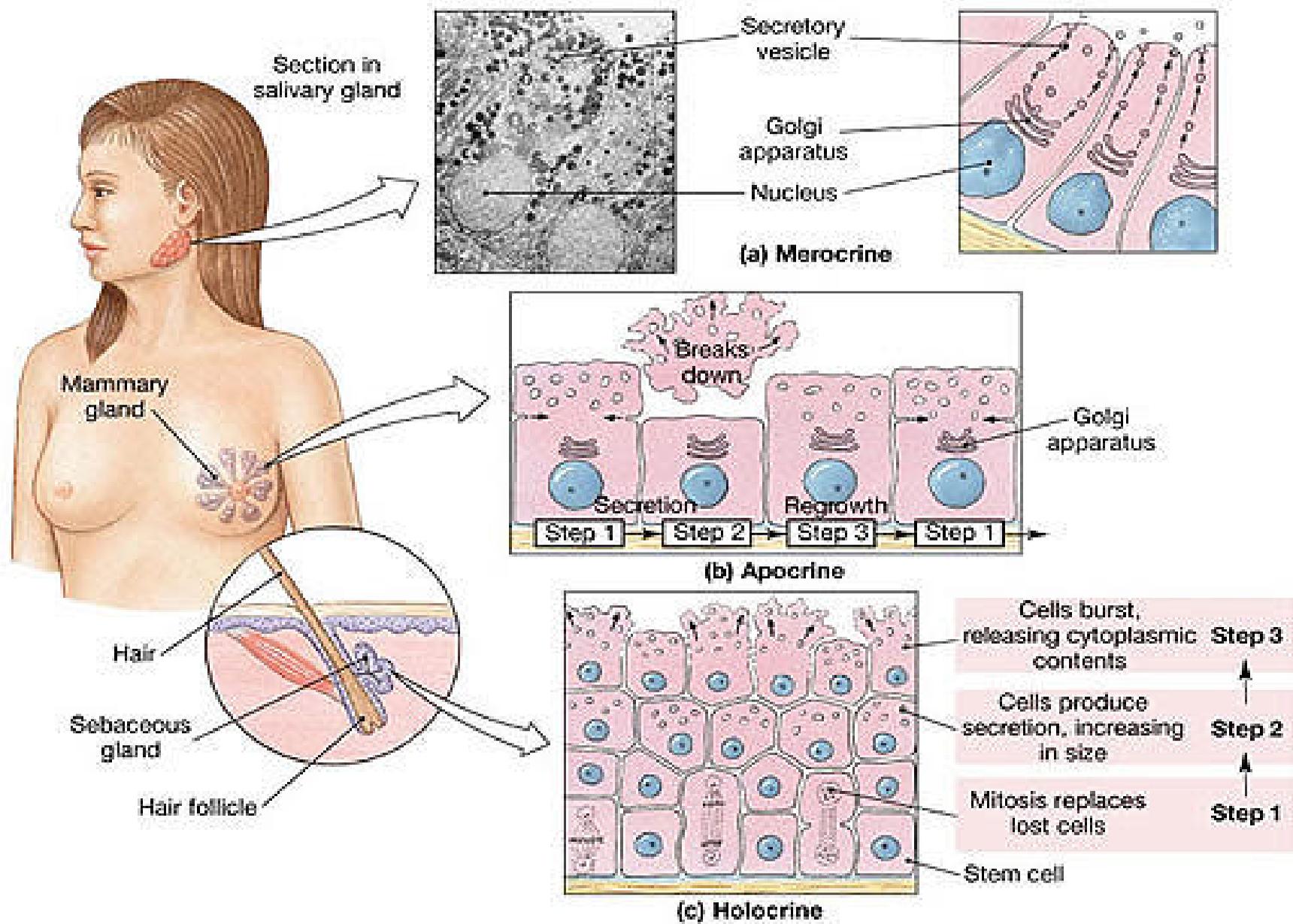
- **Glándulas exocrinas:**
 - glándulas sudoríparas, glándulas salivales.
- **Glándulas endocrinas**
 - hipófisis, tiroides.
- **Glándulas mixtas**
 - páncreas = segrega el jugo pancreático que va al intestino e insulina que va a la sangre.



MODOS DE SECRECION

La secreción se produce según tres modalidades:

- - **Merocrina:** la sustancia secretada sale de la célula sin que ésta pierda citoplasma.
- - **Apocrina:** la sustancia secretada se libera con la porción de citoplasma celular que la rodea.
- - **Holocrina:** la secreción se efectúa por la ruptura de la célula secretora.



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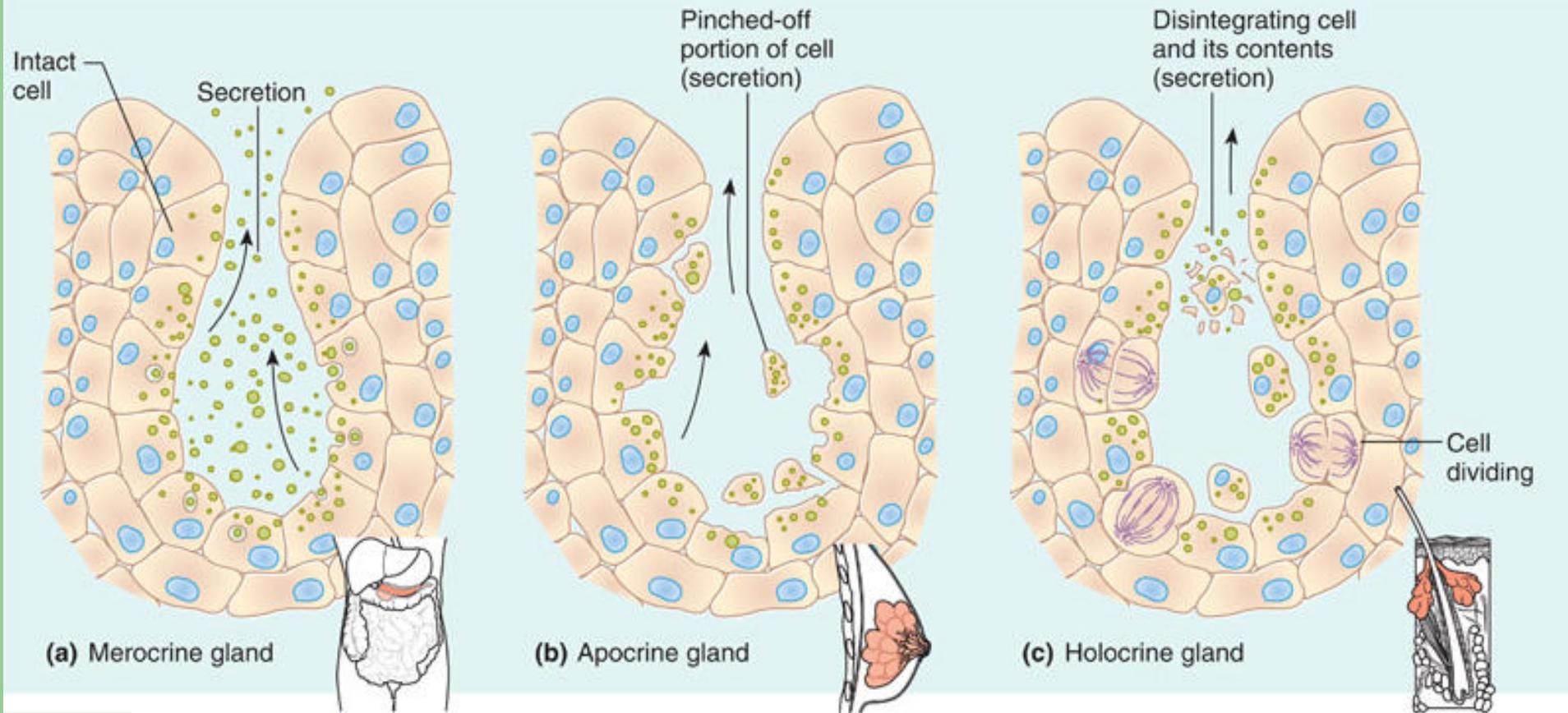


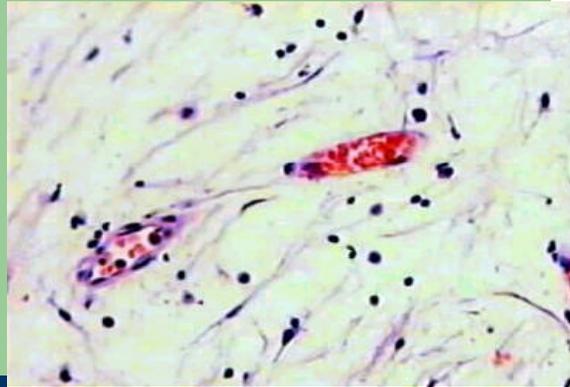
Table. 5.02

TABLE 5.2 TYPES OF EXOCRINE GLANDULAR SECRETIONS

TYPE OF GLAND	DESCRIPTION OF SECRETION	EXAMPLE
Merocrine glands	A fluid product released through the cell membrane by exocytosis	Salivary glands, pancreatic glands, sweat glands of the skin
Apocrine glands	Cellular product and portions of the free ends of glandular cells pinched off during secretion	Mammary glands, ceruminous glands lining the external ear canal
Holocrine glands	Entire cells filled with secretory products disintegrate	Sebaceous glands of the skin

TIPOS DE SECRECION

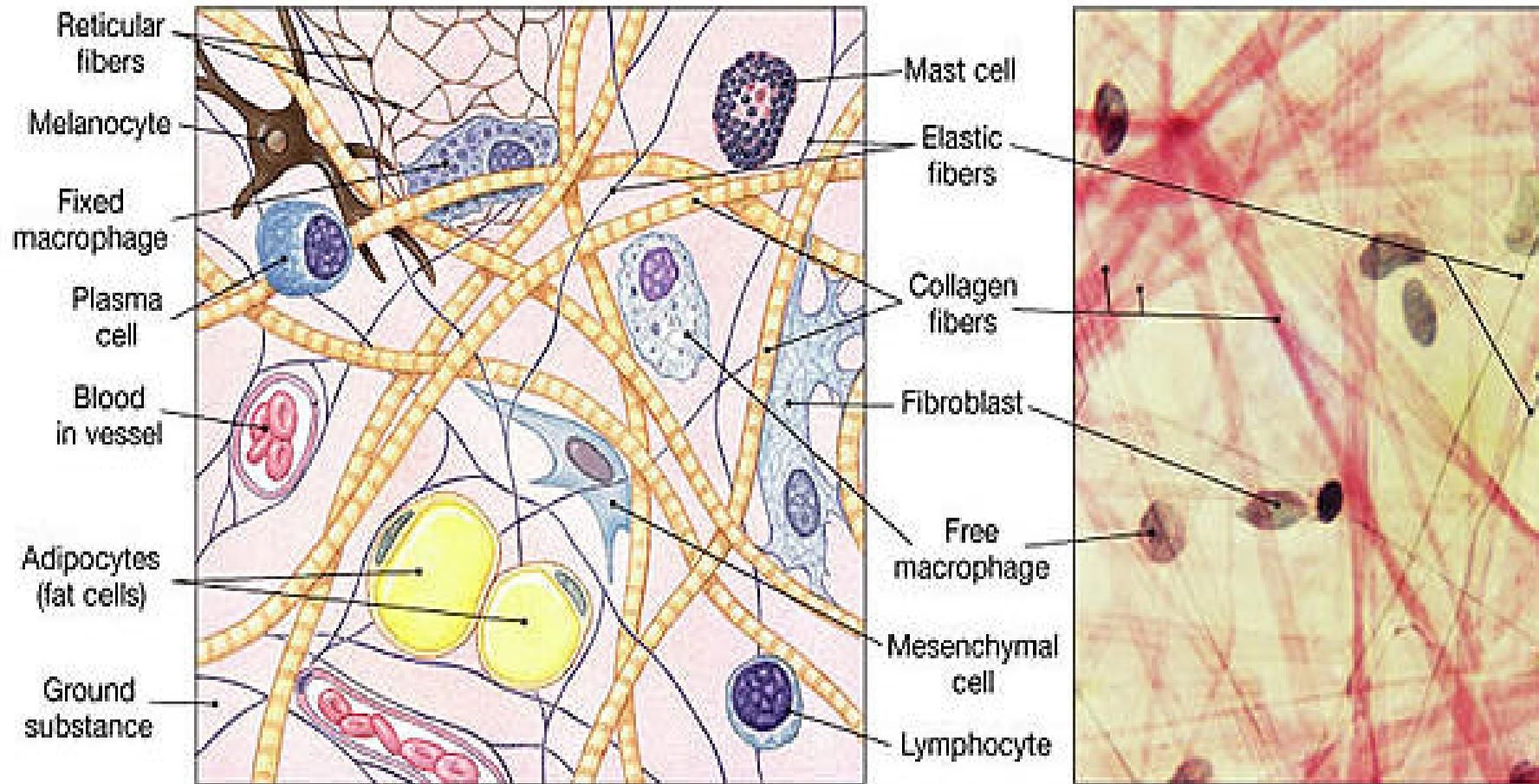
- SEROSA
 - acuosa
- MUCOSA
- MIXTA



TEJIDOS CONECTIVOS

- Series de tejidos muy diferentes entre sí, pero que tienen un origen común
- Funciones: rellenar, unir y sostener

TEJIDO CONECTIVO

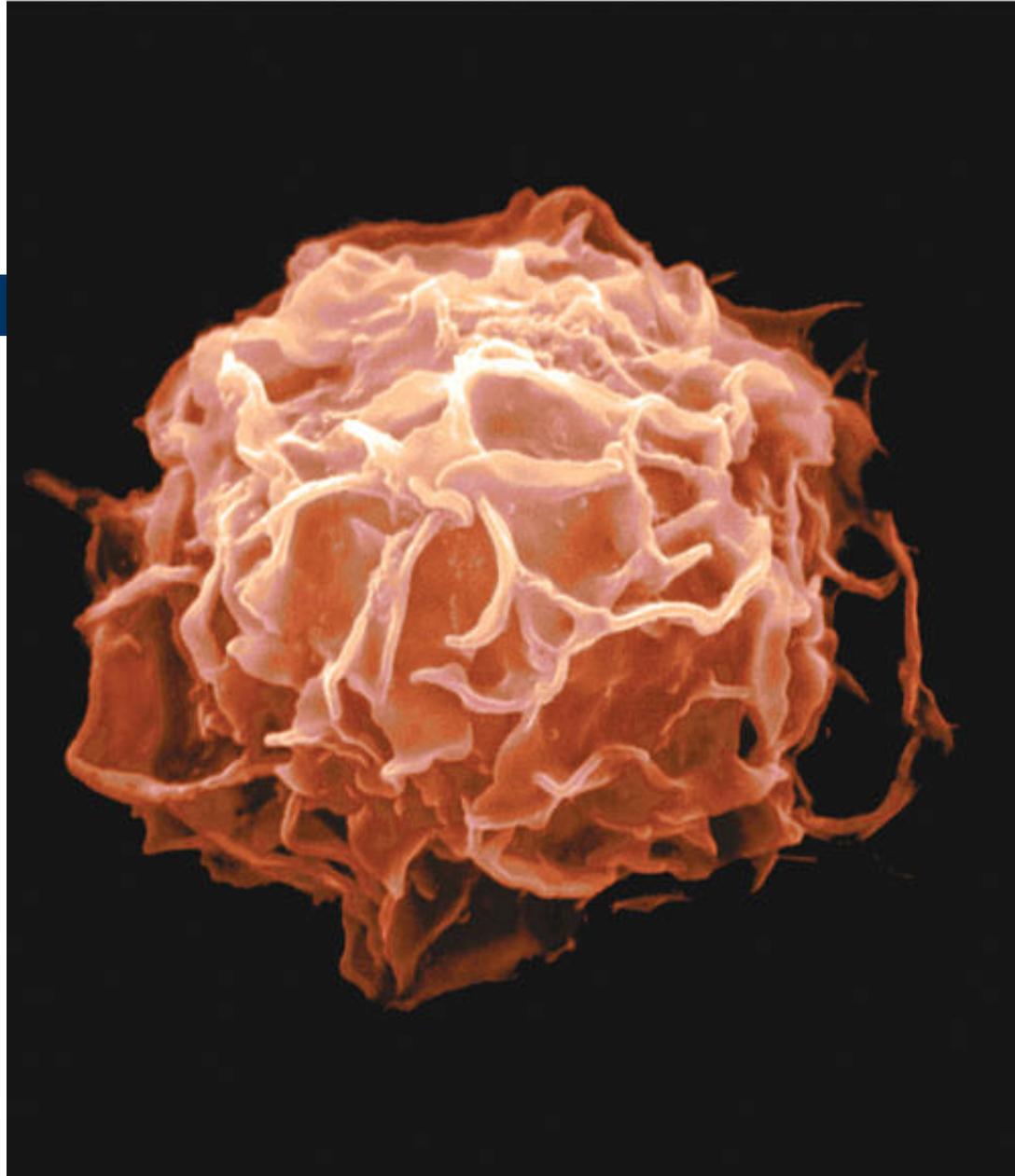


Connective tissue proper (areolar tissue)

LM × 384

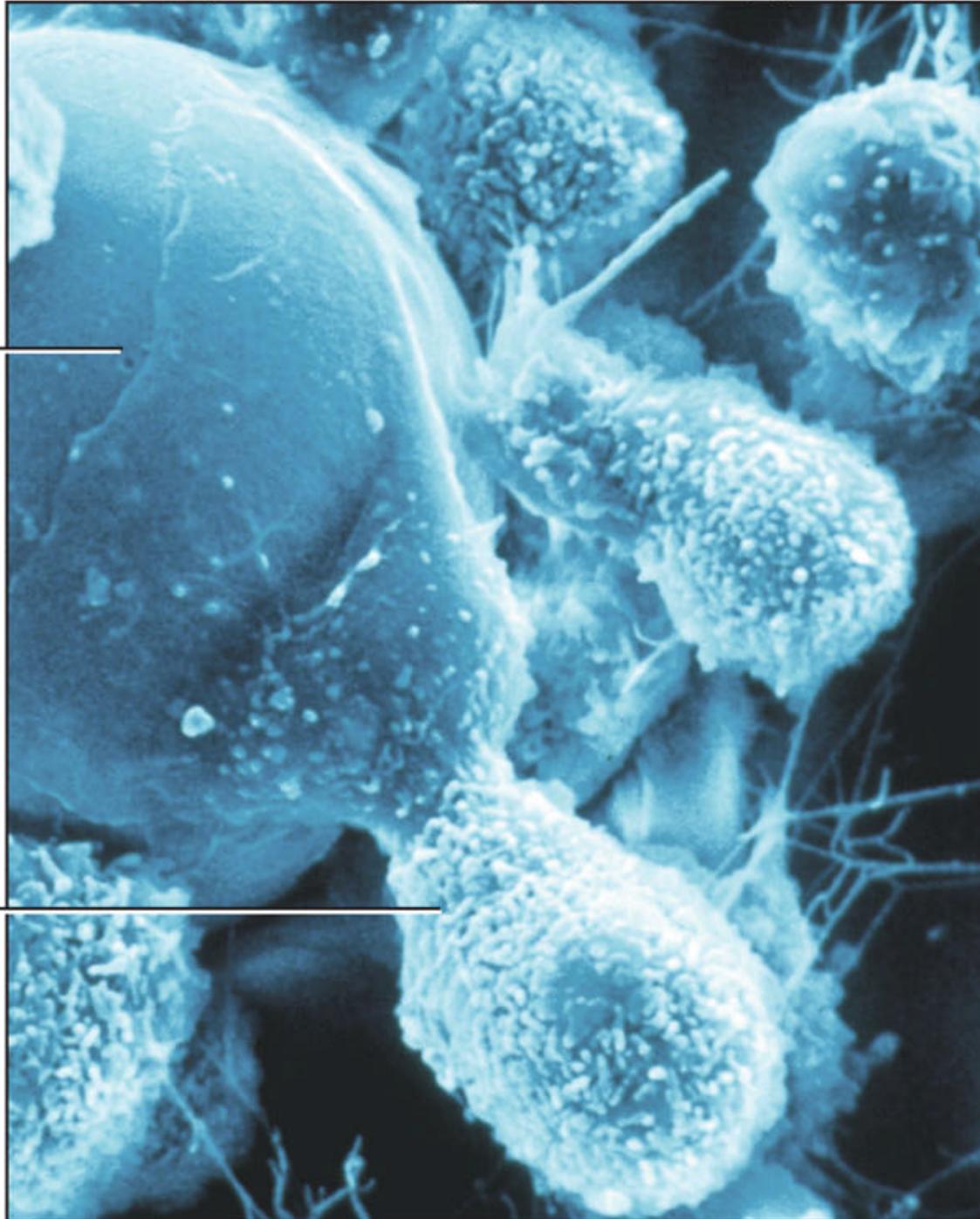
Mast cell

- Release heparin and histamine



Cell being engulfed

Macrophage



Fibroblasto



TABLE 5.4 COMPONENTS OF CONNECTIVE TISSUE

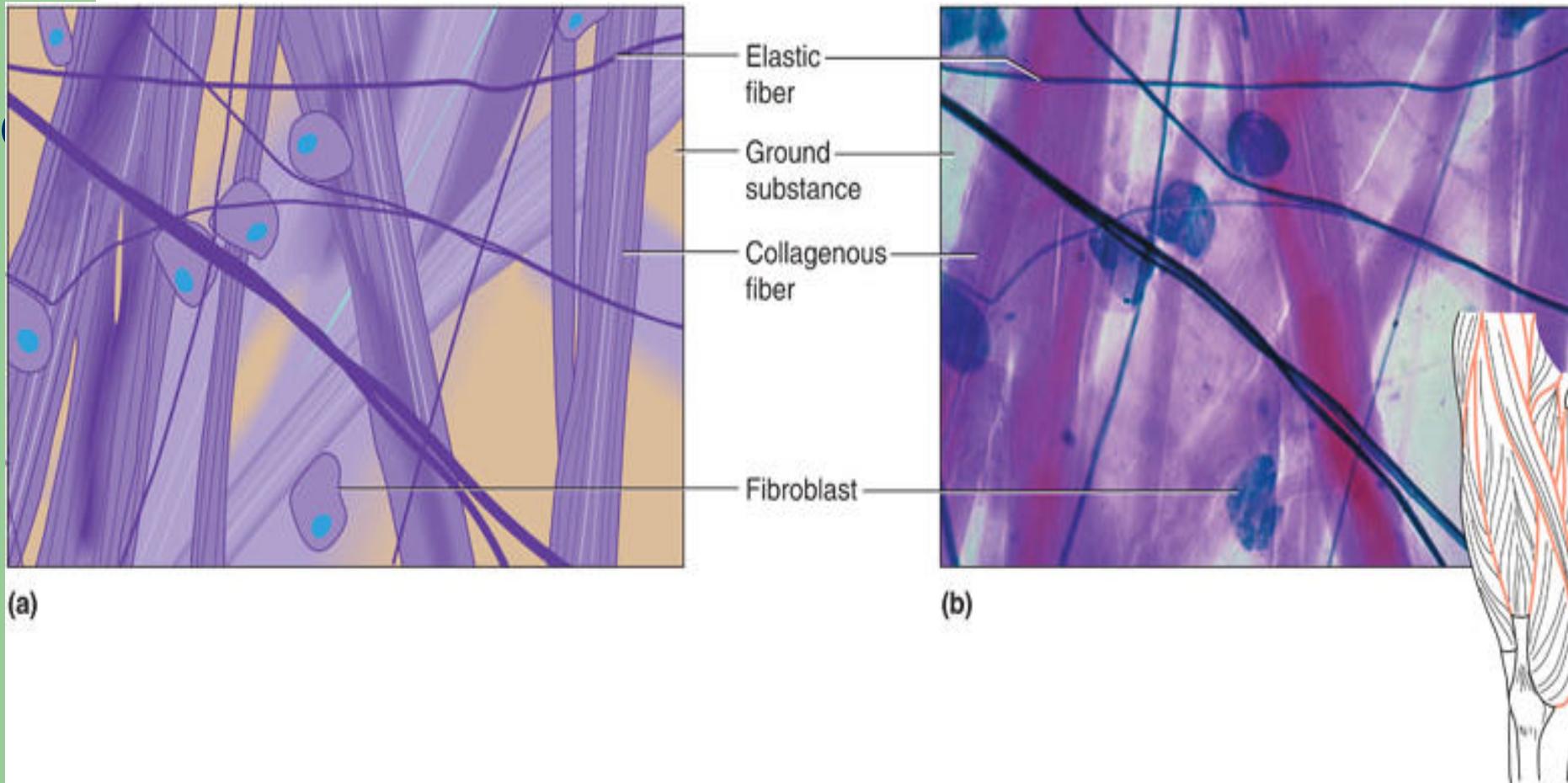
CELL TYPE	FUNCTION
Fibroblasts	Produce fibers
Macrophages	Carry on phagocytosis
Mast cells	Secrete heparin and histamine
TISSUE FIBERS	FUNCTION
Collagenous	Provide great tensile strength
Elastic	Stretch easily
Reticular	Lend delicate support

Tejidos conectivos

TABLE 5.5 CONNECTIVE TISSUES

TYPE	FUNCTION	LOCATION
Loose connective tissue	Binds organs together, holds tissue fluids	Beneath skin, between muscles, beneath epithelial tissues
Adipose tissue	Protects, insulates, stores fat	Beneath skin, around kidneys, behind eyeballs, on surface of heart
Dense connective tissue	Binds organs together	Tendons, ligaments, deeper layers of skin
Hyaline cartilage	Supports, protects, provides framework	Nose, ends of bones, rings in the walls of respiratory passages
Elastic cartilage	Supports, protects, provides flexible framework	Framework of external ear and parts of larynx
Fibrocartilage	Supports, protects, absorbs shock	Between bony parts of spinal column, parts of pelvic girdle and knee
Bone	Supports, protects, provides framework	Bones of skeleton
Blood	Transports substances, helps maintain stable internal environment	Throughout body within a closed system of blood vessels and heart chambers

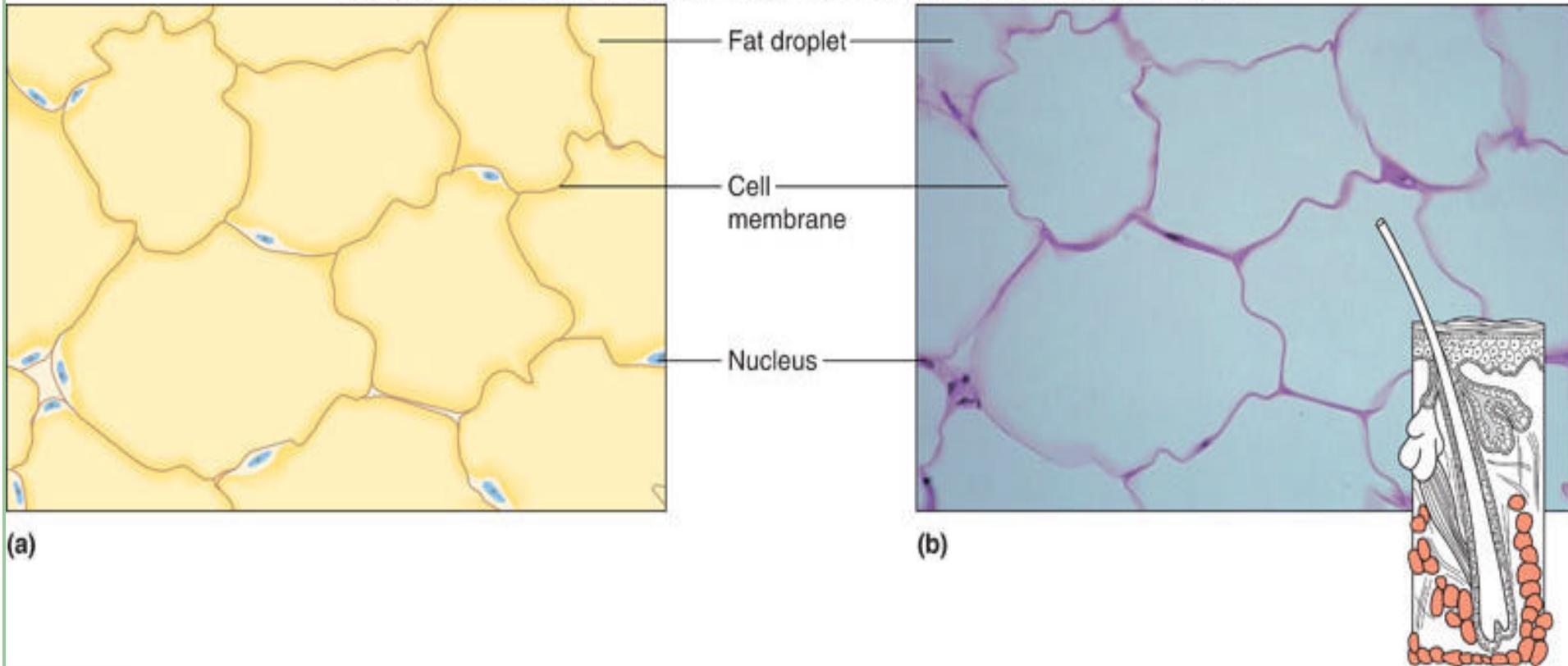
Tejido conectivo suelto (aerolar)



- Entre los musculos

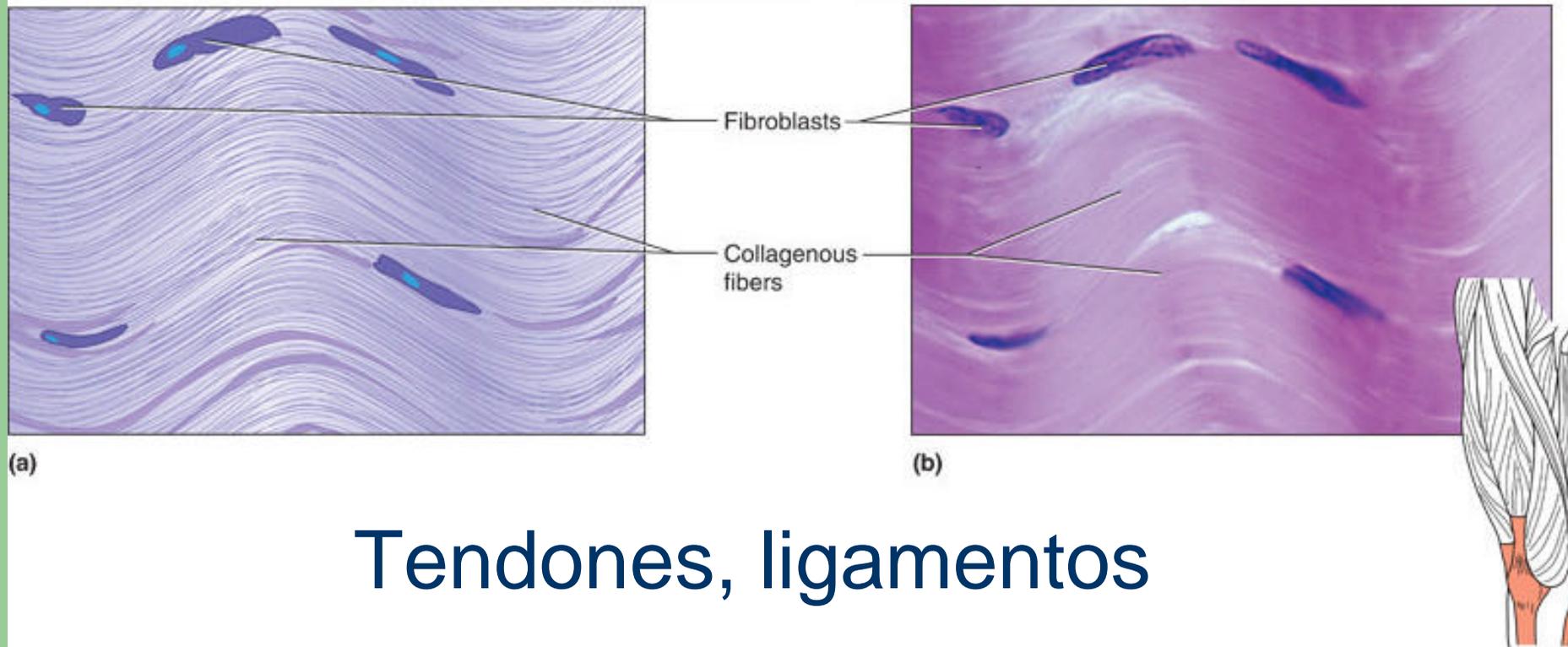
Tejido adiposo

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TEJIDO CONECTIVO DENSO REGULAR

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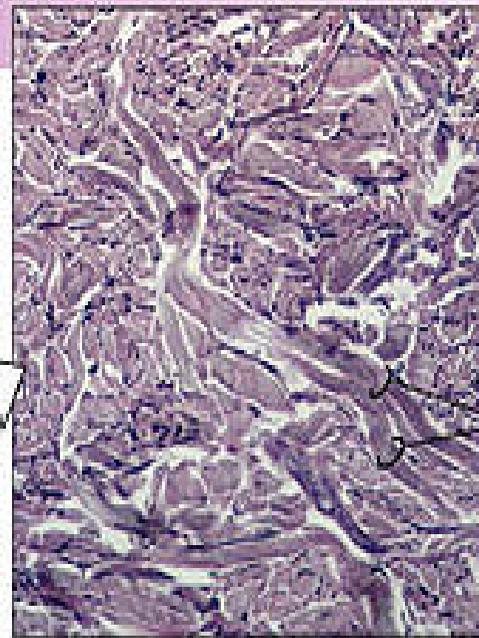
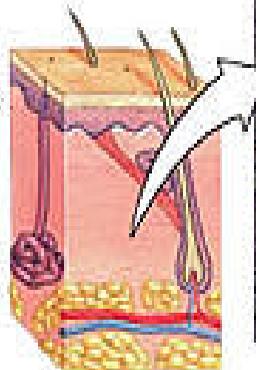
Tendones, ligamentos

TEJIDO CONECTIVO DENSO IRREGULAR

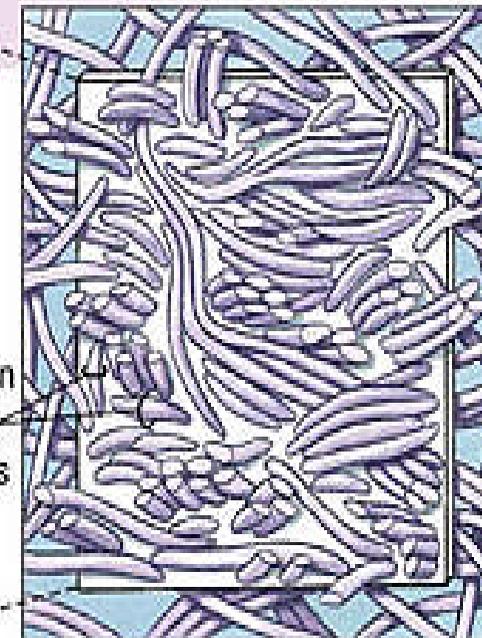
DENSE IRREGULAR CONNECTIVE TISSUE

LOCATIONS: Capsules of visceral organs; periosteum and perichondria; nerve and muscle sheaths; dermis

FUNCTIONS: Provides strength to resist forces applied from many directions; helps prevent overexpansion of organs such as the urinary bladder



LM × 111



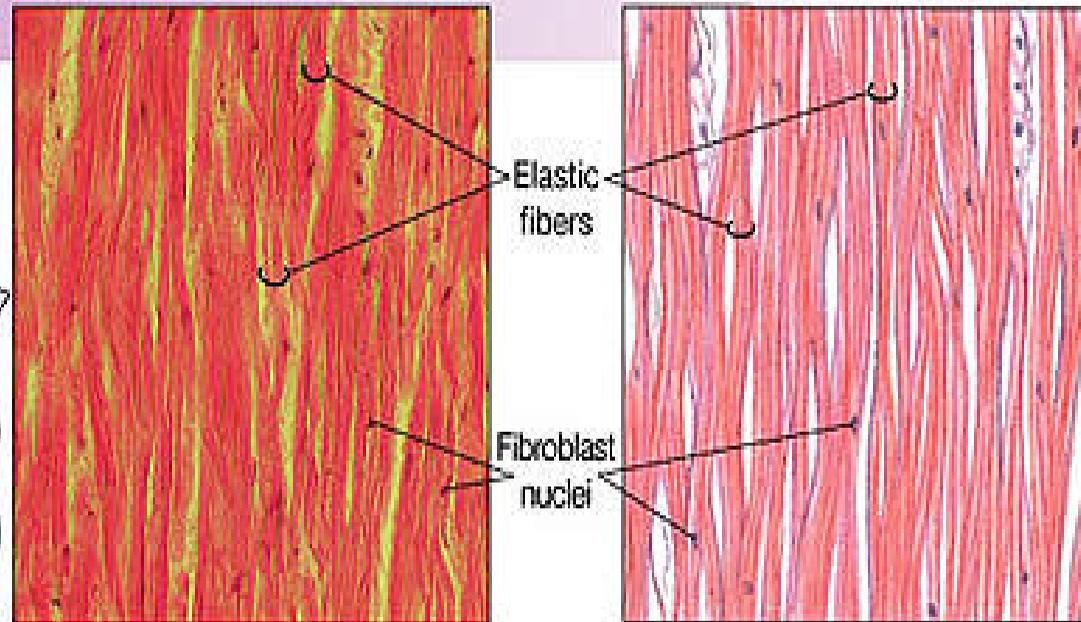
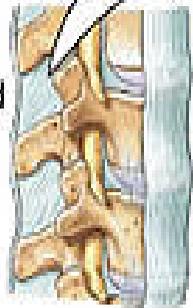
(b) Deep dermis

TEJIDO ELASTICO

ELASTIC TISSUE

LOCATIONS: Between vertebrae of the spinal column (ligamentum flavum and ligamentum nuchae); ligaments supporting penis; ligaments supporting transitional epithelia; in blood vessel walls

FUNCTIONS: Stabilizes positions of vertebrae and penis; cushions shocks; permits expansion and contraction of organs

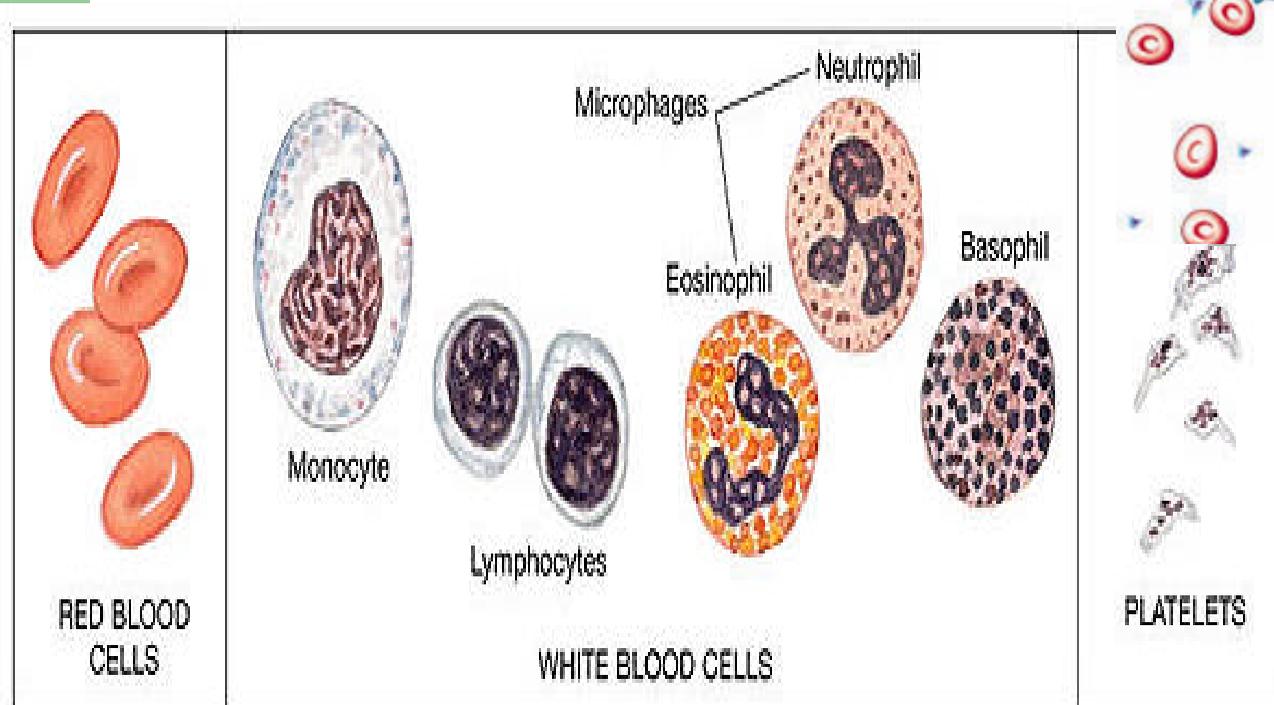
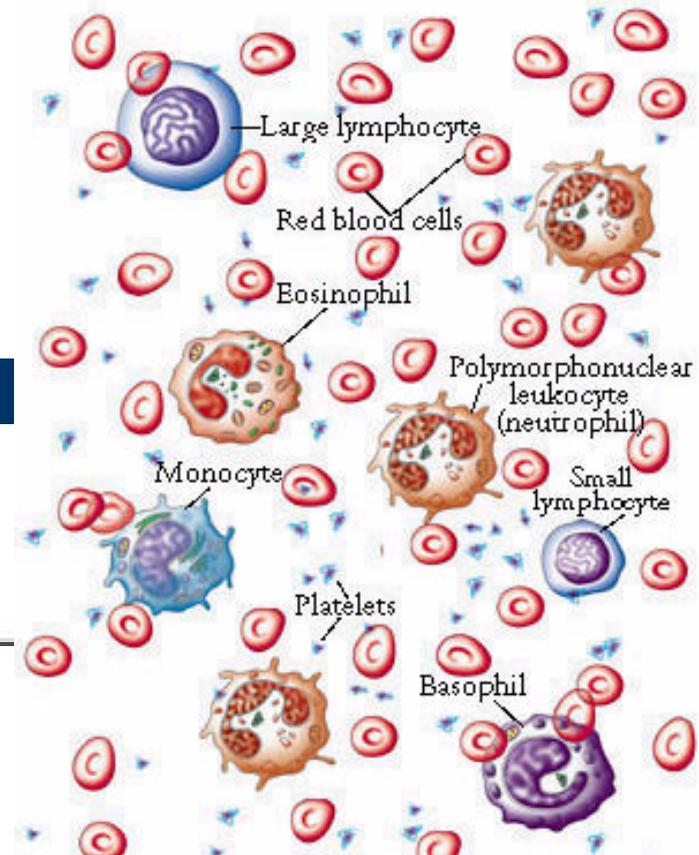


LM x 887

(c) Elastic ligament

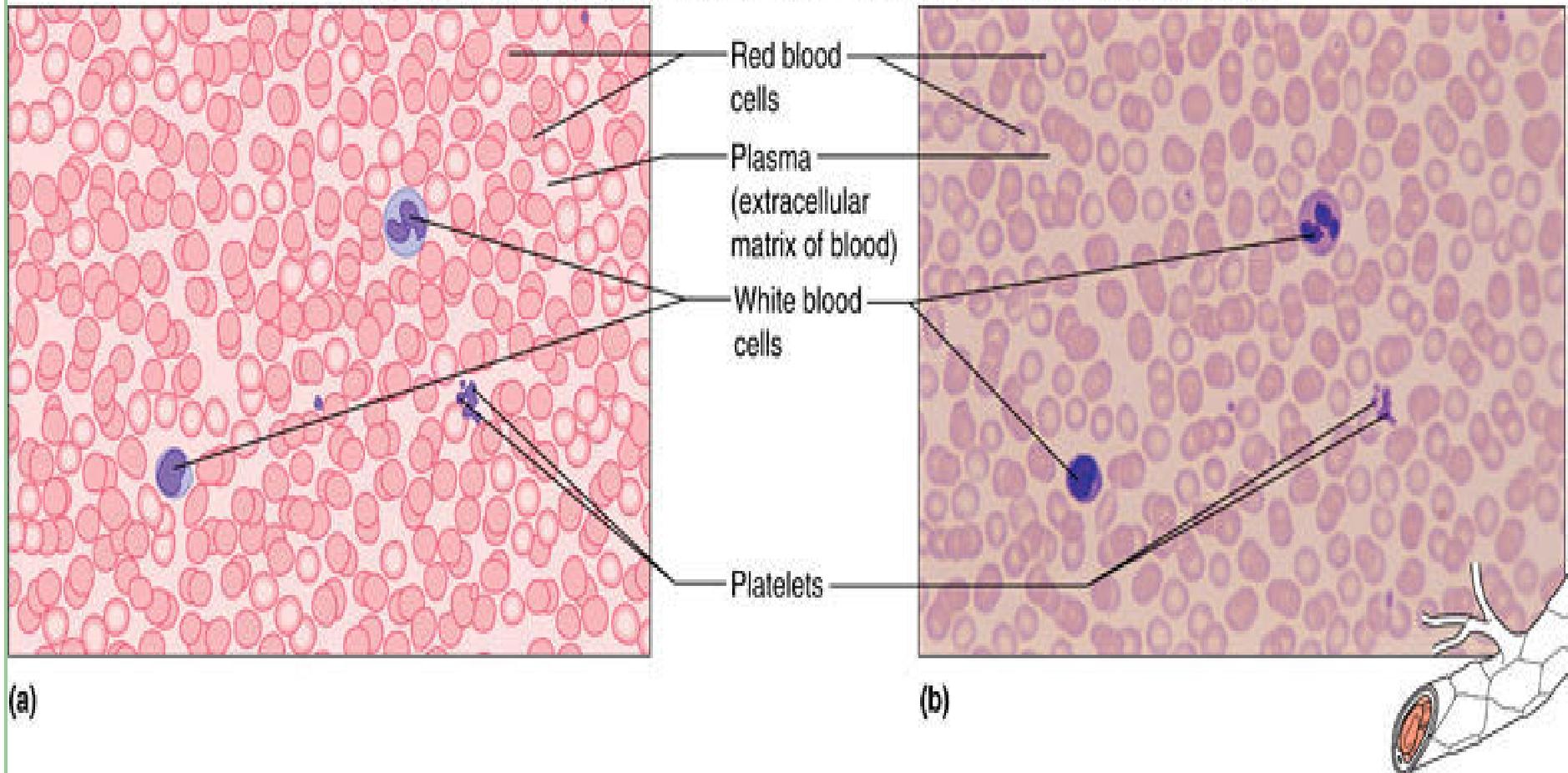
TEJIDO CONECTIVO

FLUIDO SANGRE



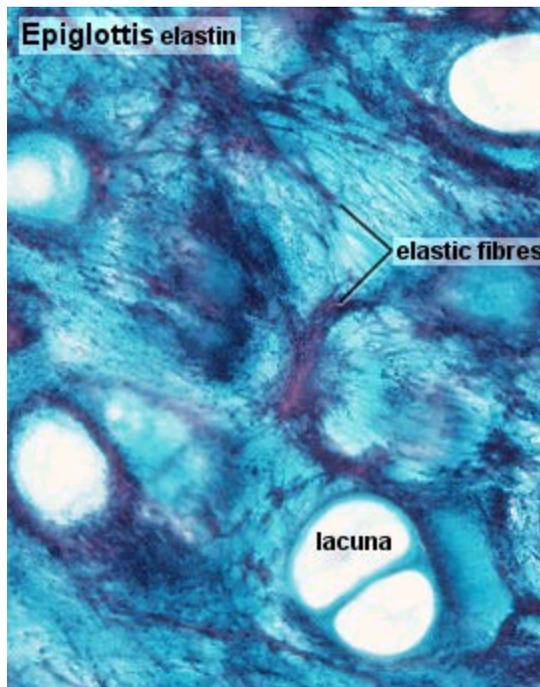
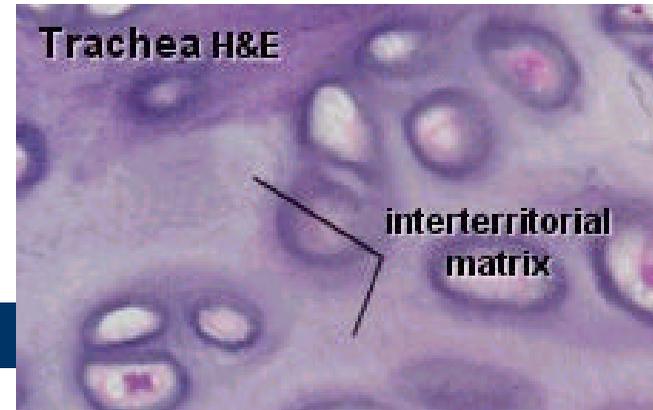
sangre

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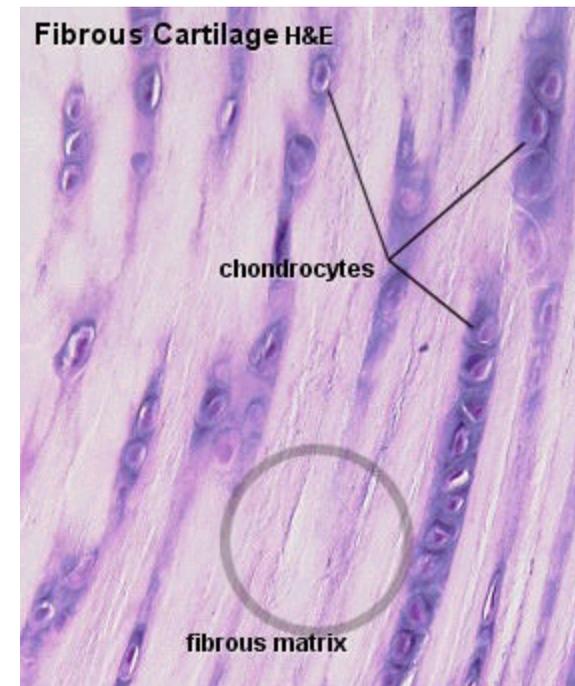


TIPOS DE CARTILAGO

Hialino



Elastico



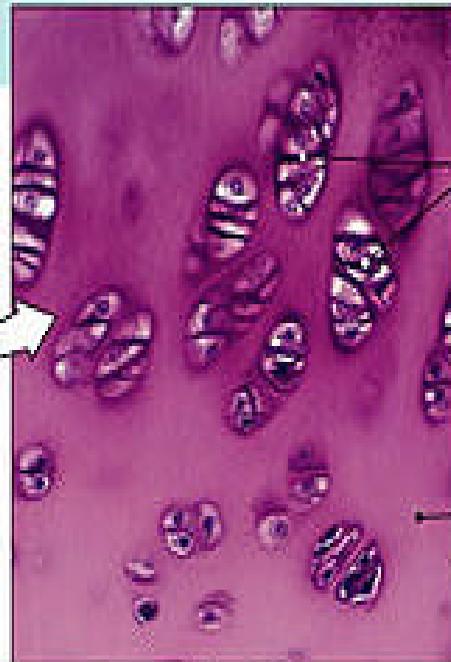
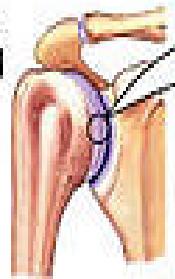
Fibroso

CARTILAGO HIALINO

HYALINE CARTILAGE

LOCATIONS: Between tips of ribs and bones of sternum; covering bone surfaces at synovial joints; supporting larynx (voice box), trachea, and bronchi; forming part of nasal septum

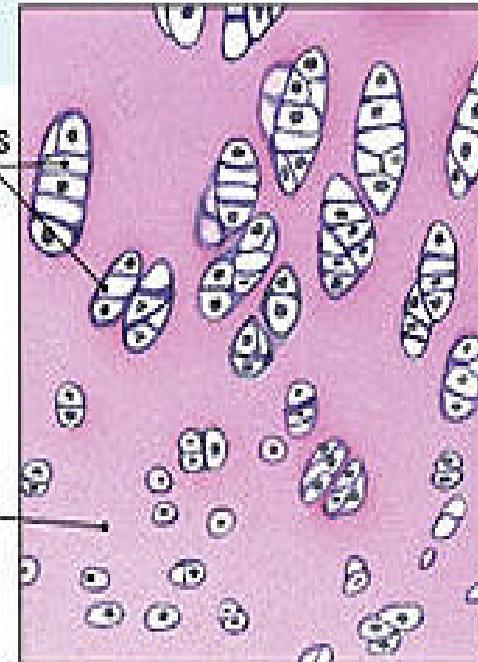
FUNCTIONS: Provides stiff but somewhat flexible support; reduces friction between bony surfaces



LM × 500

Chondrocytes
in lacunae

Matrix



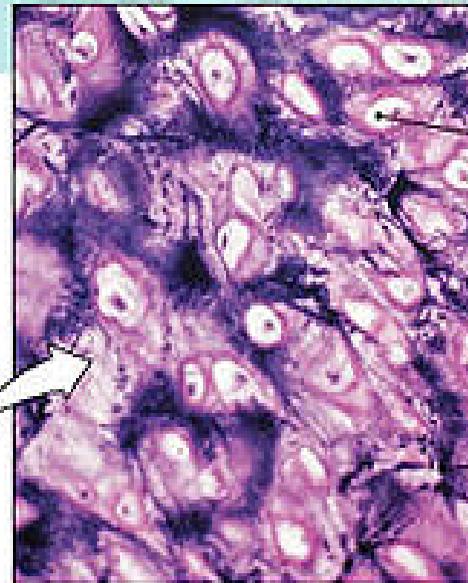
(b) Hyaline cartilage

CARTILAGO ELASTICO

ELASTIC CARTILAGE

LOCATIONS: Auricle of external ear; epiglottis; auditory canal; cuneiform cartilages of larynx

FUNCTIONS: Provides support, but tolerates distortion without damage and returns to original shape



LM × 358

Chondrocyte
in lacuna

Elastic fibers
in matrix



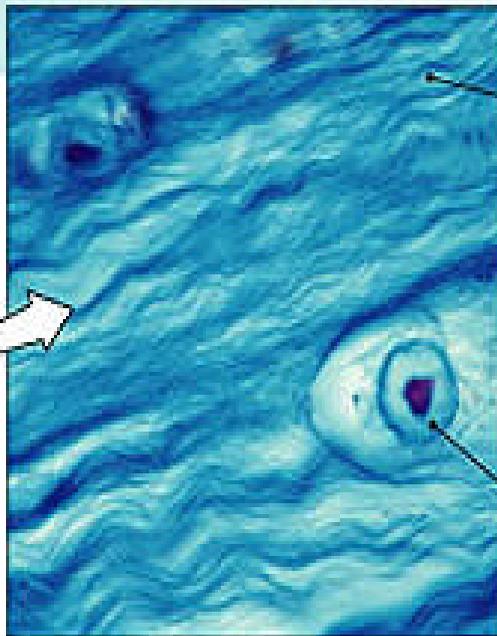
(c) Elastic cartilage

FIBROCARTILAGE

FIBROCARTILAGE

LOCATIONS: Pads within knee joint; between pubic bones of pelvis; intervertebral discs

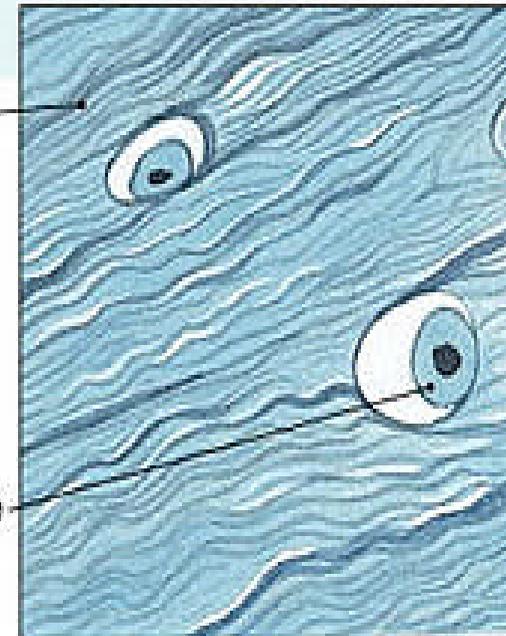
FUNCTIONS: Resists compression; prevents bone-to-bone contact; limits relative movement



LM × 750

Collagen fibers in matrix

Chondrocyte in lacuna

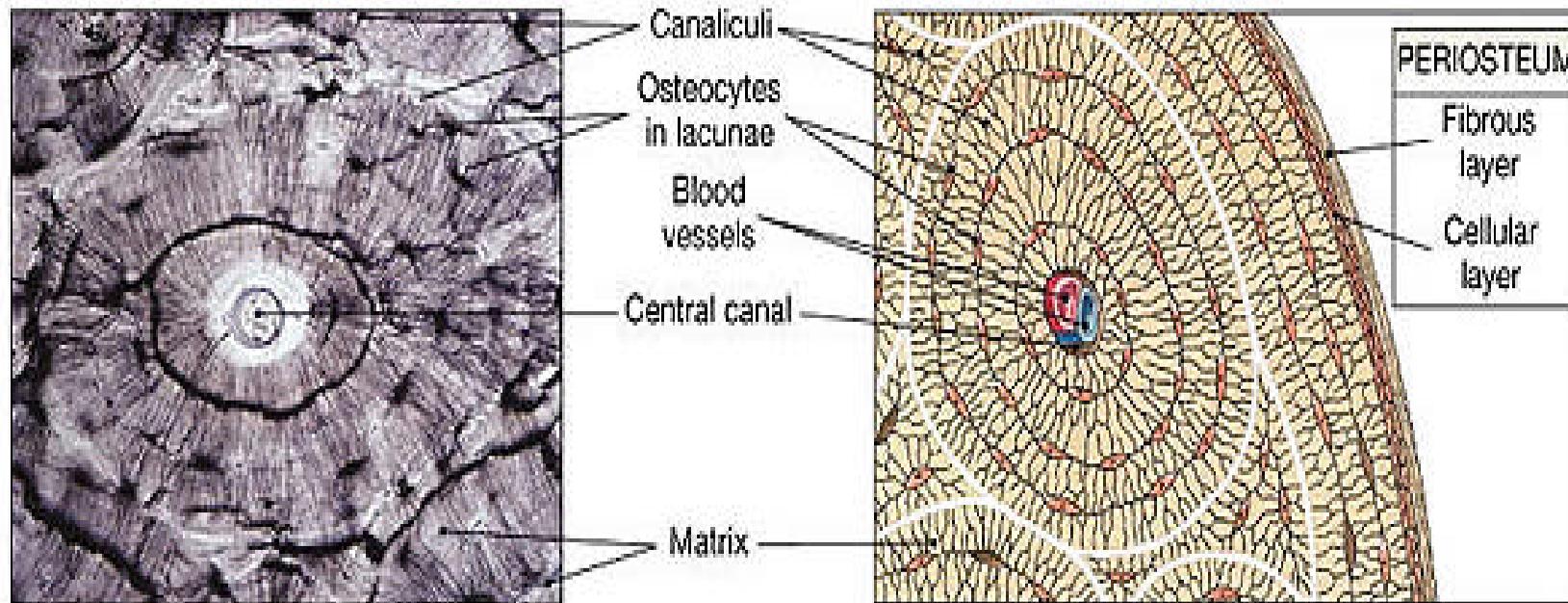


(d) Fibrocartilage

TABLE 5.6 MUSCLE AND NERVOUS TISSUES

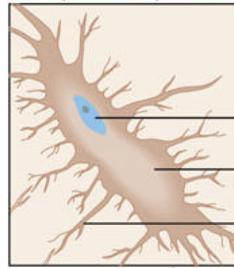
TYPE	FUNCTION	LOCATION
Skeletal muscle tissue (striated)	Voluntary movements of skeletal parts	Muscles usually attached to bones
Smooth muscle tissue (lacks striations)	Involuntary movements of internal organs	Walls of hollow internal organs
Cardiac muscle tissue (striated)	Heart movements	Heart muscle
Nervous tissue	Sensory reception and conduction of nerve impulses	Brain, spinal cord, and peripheral nerves

HUESO

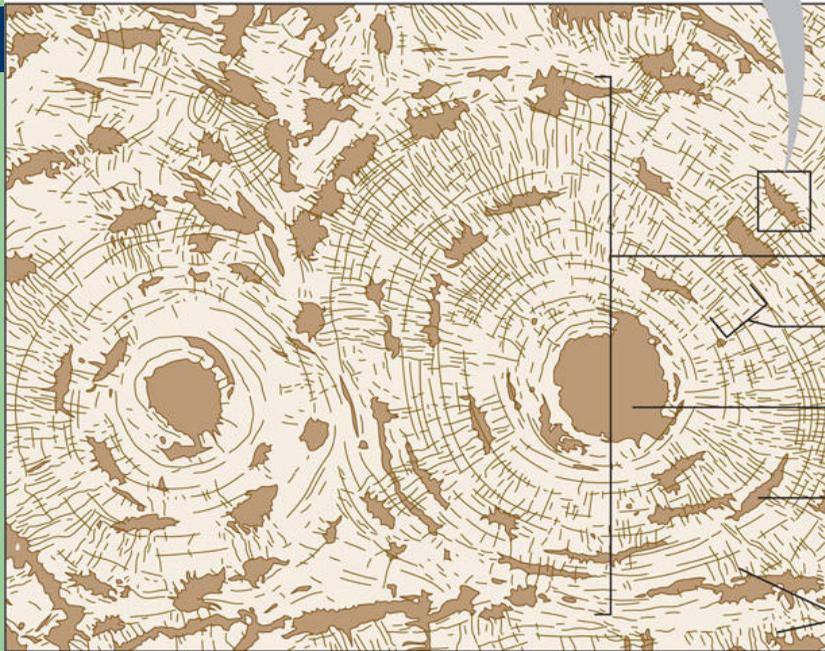


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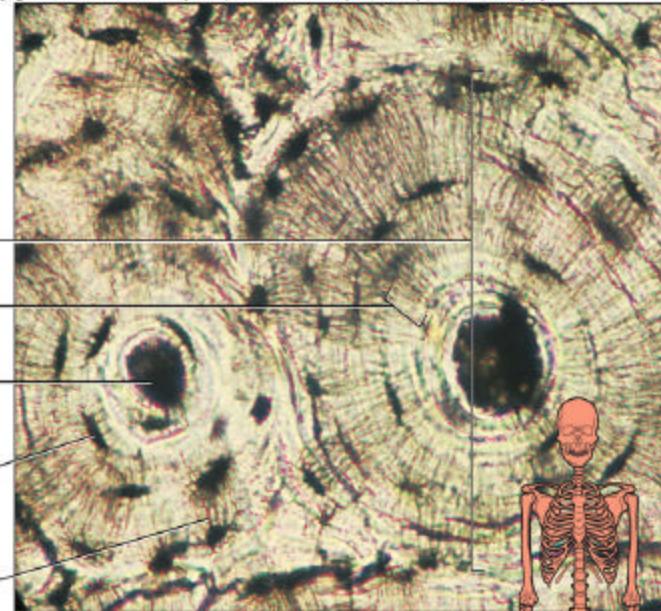


Nucleus
Osteocyte
Cell process in
canaliculus



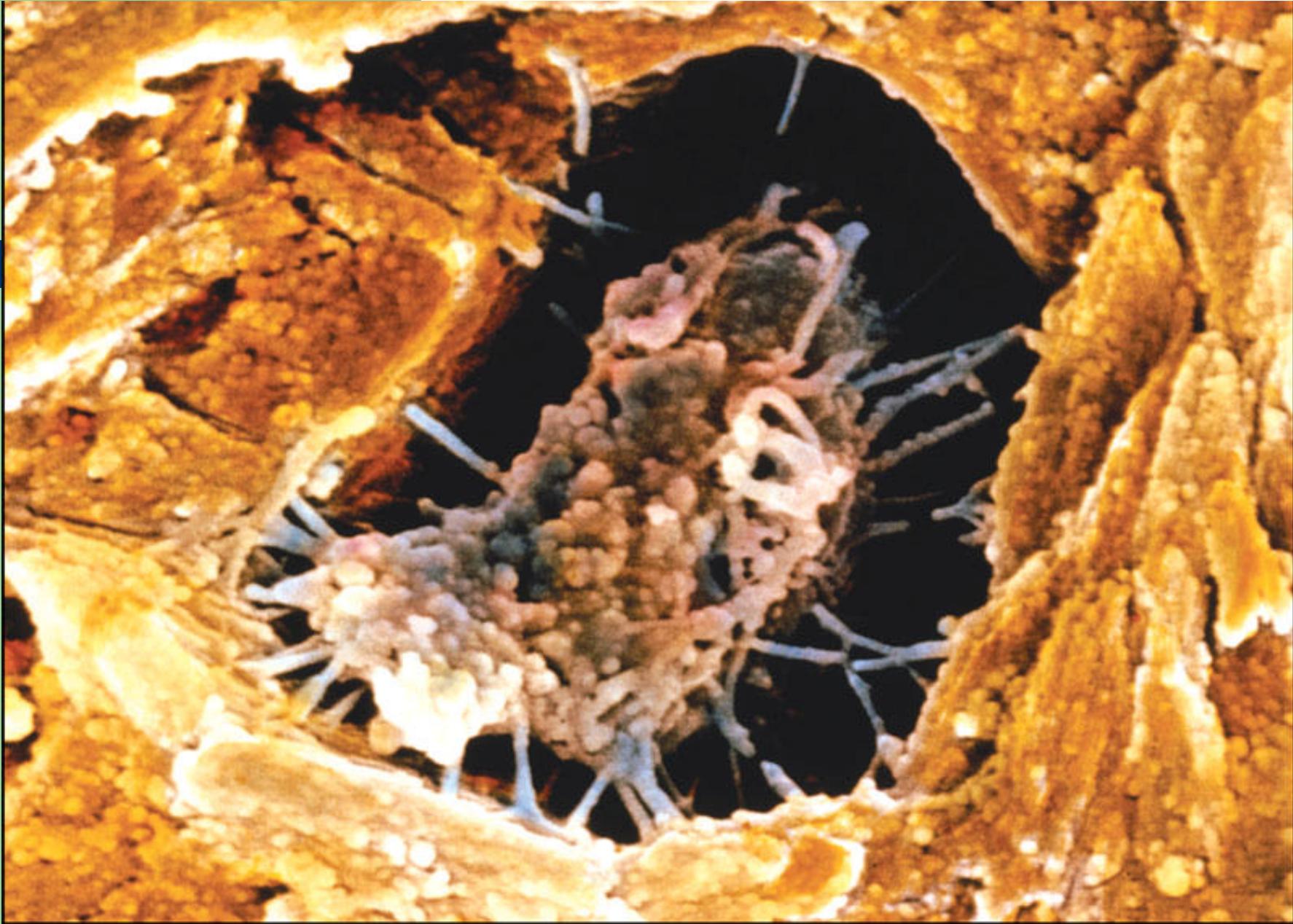
(a)

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Osteon
Lamella
Central canal
Osteocyte
in lacuna
Canaliculi

(b)



(c)

TEJIDOS MUSCULARES

- Contractilidad
- movimiento de las diversas partes del cuerpo
- Sus células están organizadas como largas unidades estructurales denominadas *fibras musculares*.
- Se clasifican en:
 - - **Tejido muscular liso involuntario.**
 - - **Tejido muscular estriado voluntario.**
 - - **Tejido muscular estriado involuntario o cardíaco.**

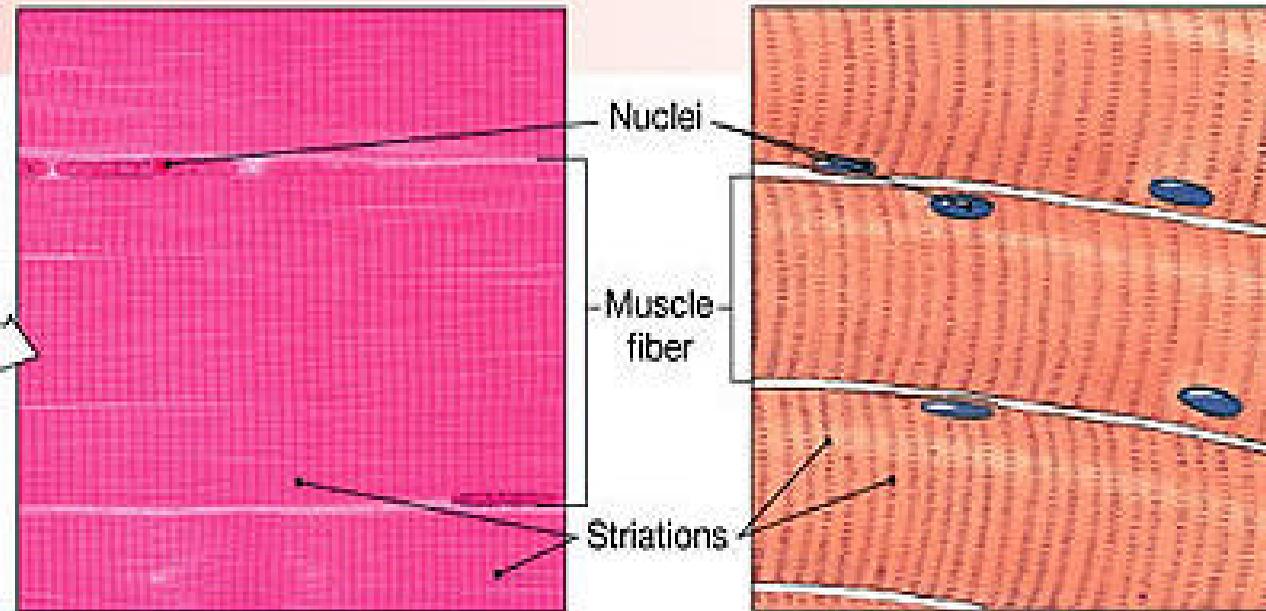
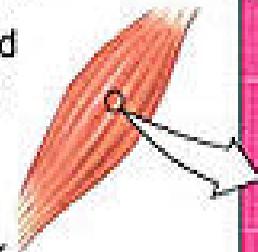
TEJIDO MUSCULAR ESQUELETAL

SKELETAL MUSCLE TISSUE

Cells are long, cylindrical, striated, and multinucleate.

LOCATIONS: Combined with connective tissues and nervous tissue in skeletal muscles

FUNCTIONS: Moves or stabilizes the position of the skeleton; guards entrances and exits to the digestive, respiratory, and urinary tracts; generates heat; protects internal organs



LM × 180

(a) Skeletamuscle

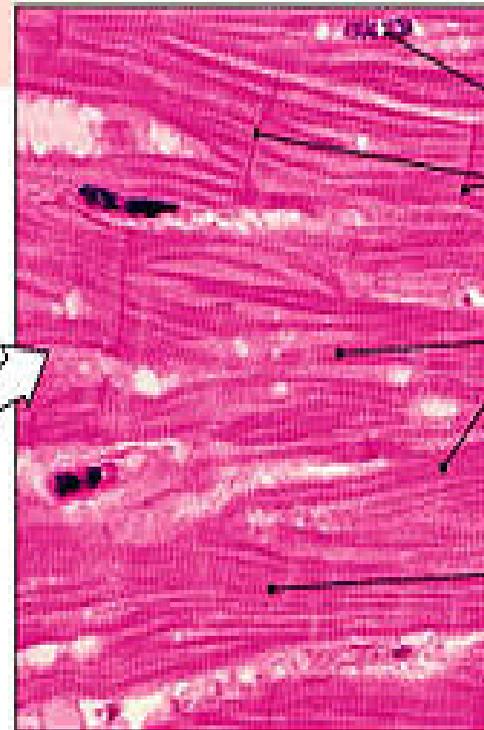
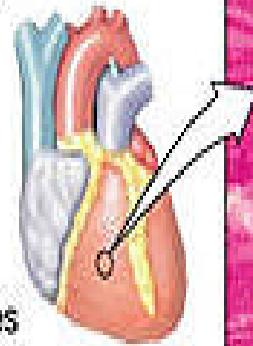
TEJIDO MUSCULAR CARDIACO

CARDIAC MUSCLE TISSUE

Cells are short, branched, and striated, usually with a single nucleus; cells are interconnected by intercalated discs.

LOCATION: Heart

FUNCTIONS: Circulates blood; maintains blood (hydrostatic) pressure



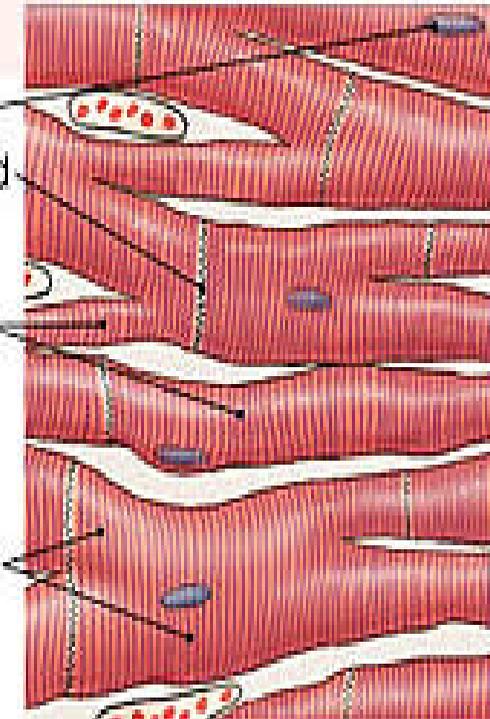
LM × 450

Nucleus

Intercalated discs

Cardiac muscle cells

Striations



(b) Cardiac muscle

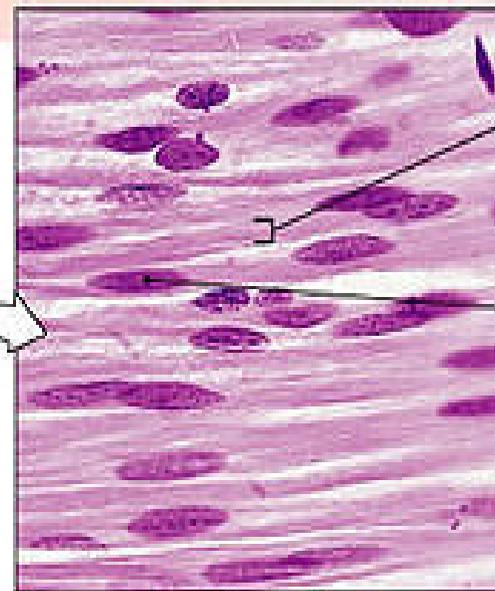
TEJIDO MUSCULAR LISO

SMOOTH MUSCLE TISSUE

Cells are short, spindle-shaped, and nonstriated, with a single, central nucleus

LOCATIONS: Encircles blood vessels; found in the walls of digestive, respiratory, urinary, and reproductive organs

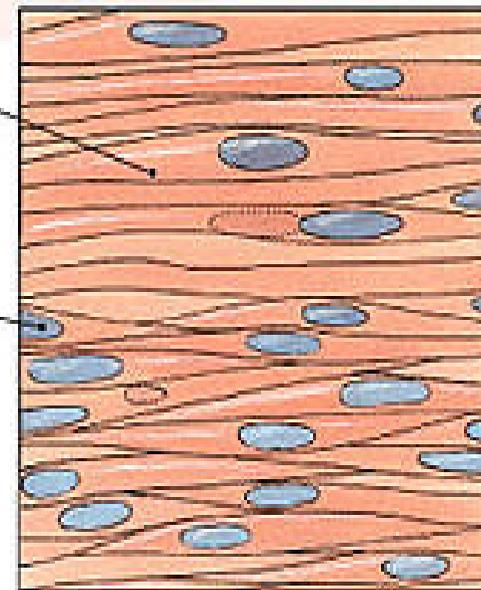
FUNCTIONS: Moves food, urine, and reproductive tract secretions; controls diameter of respiratory passageways; regulates diameter of blood vessels



LM × 235

Smooth muscle cell

Nucleus



(c) Smooth muscle

MEMBRANAS

- **BARRERA FISICA**
- CUBREN SUPERFICIES DEL CUERPO
- CONSISTEN DE EPITELIO Y TEJIDO CONECTIVO
- 4 TIPOS:
 - MUCOSA=delinea cavidades y tubos que dan para el exterior del cuerpo
 - SEROSA=cubre órganos internos: pleura, peritoneo
 - CUTANEA=piel
 - SINOVIAL=articulaciones

Membranas epiteliales

Membranas mucosas

Membrana cutánea (piel)

Membranas serosas

Capa parietal

Capa visceral

Pleura visceral

Pleura parietal

(Diafragma)

Peritoneo visceral

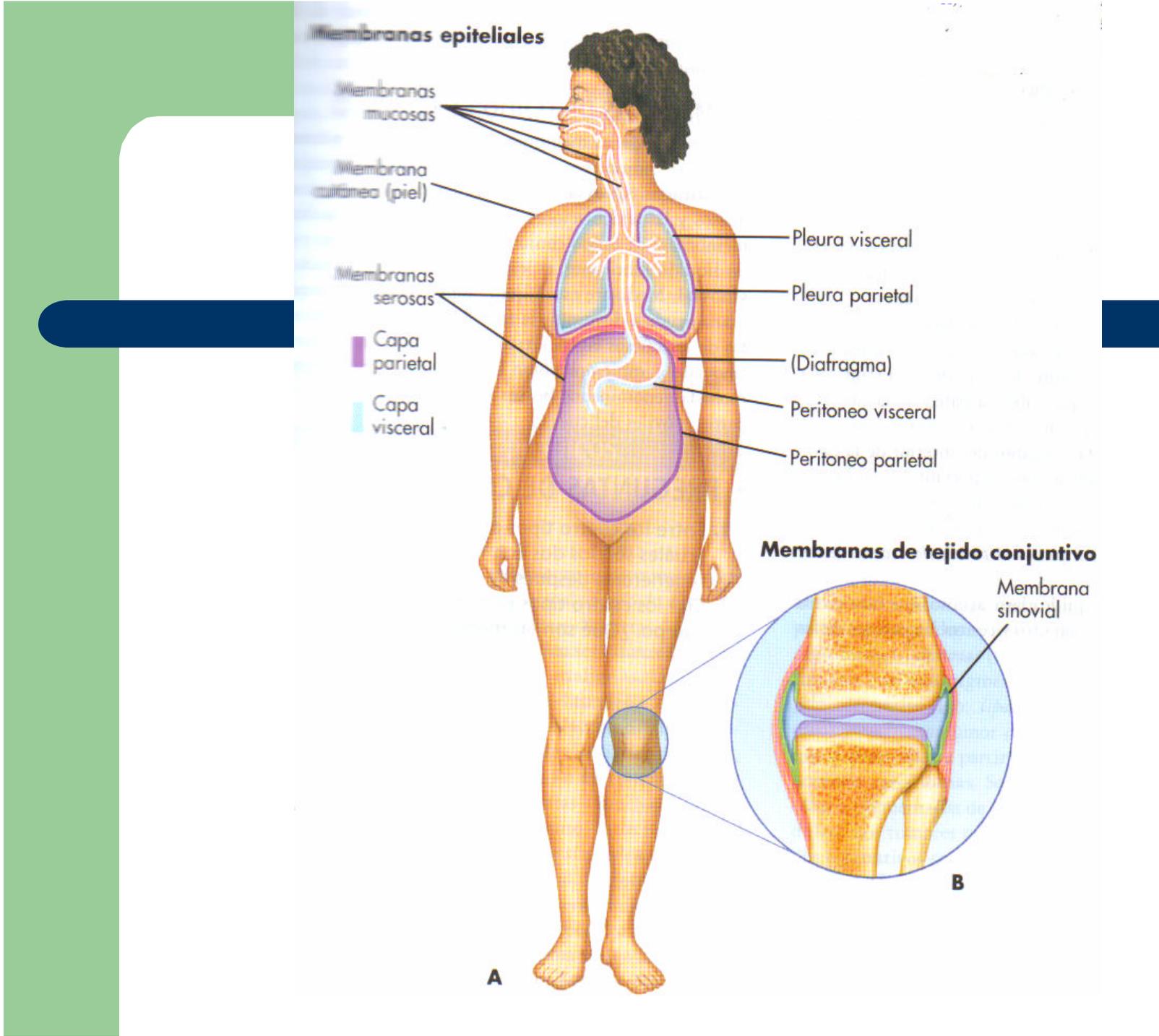
Peritoneo parietal

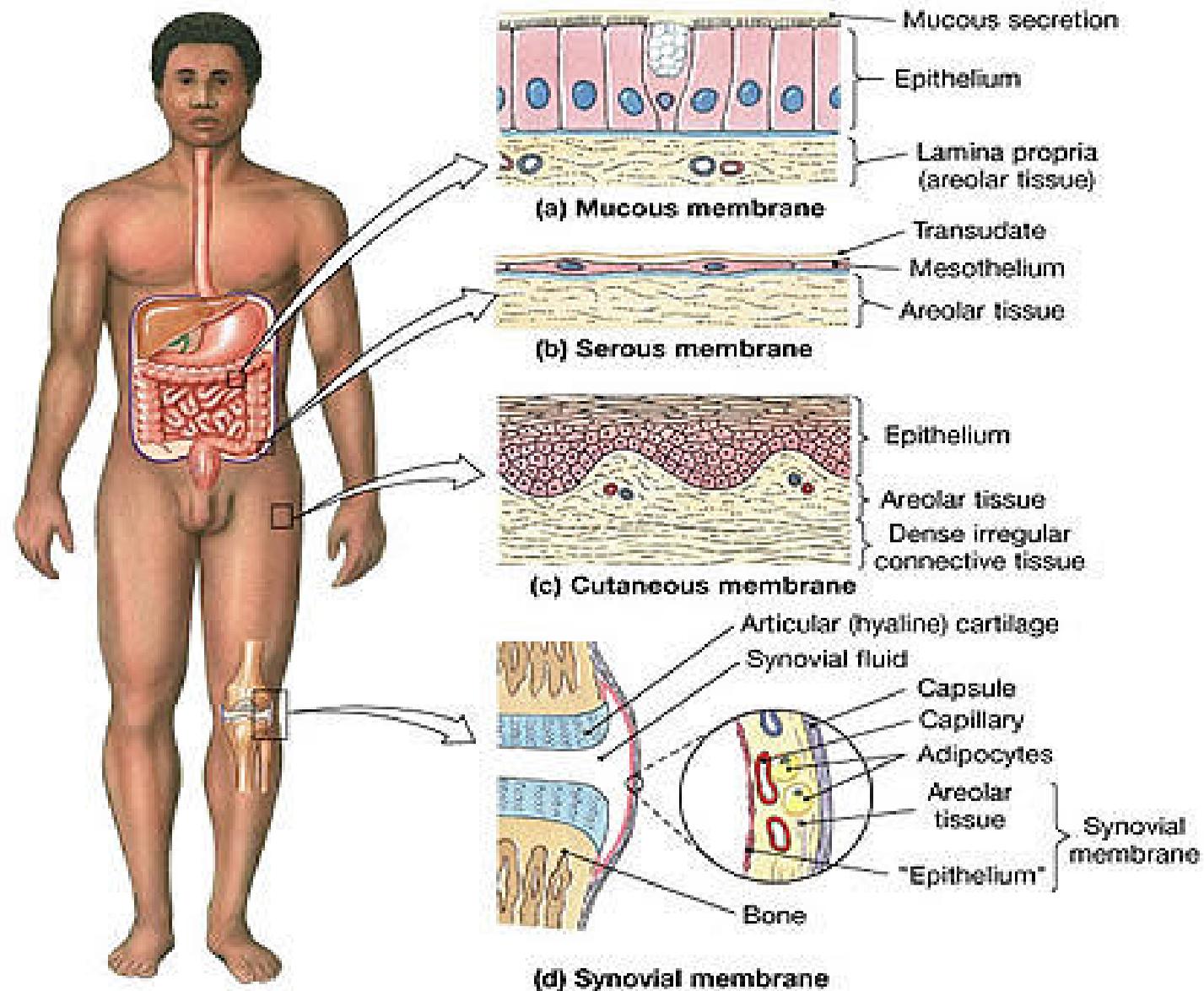
Membranas de tejido conjuntivo

Membrana sinovial

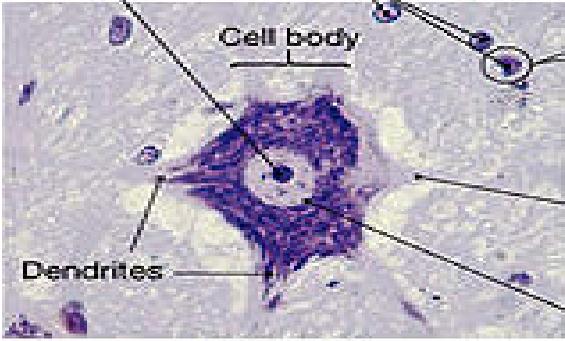
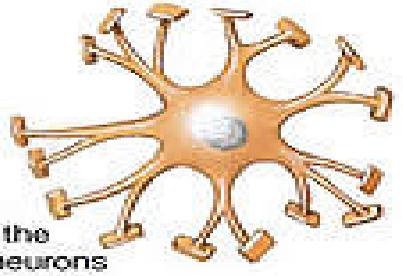
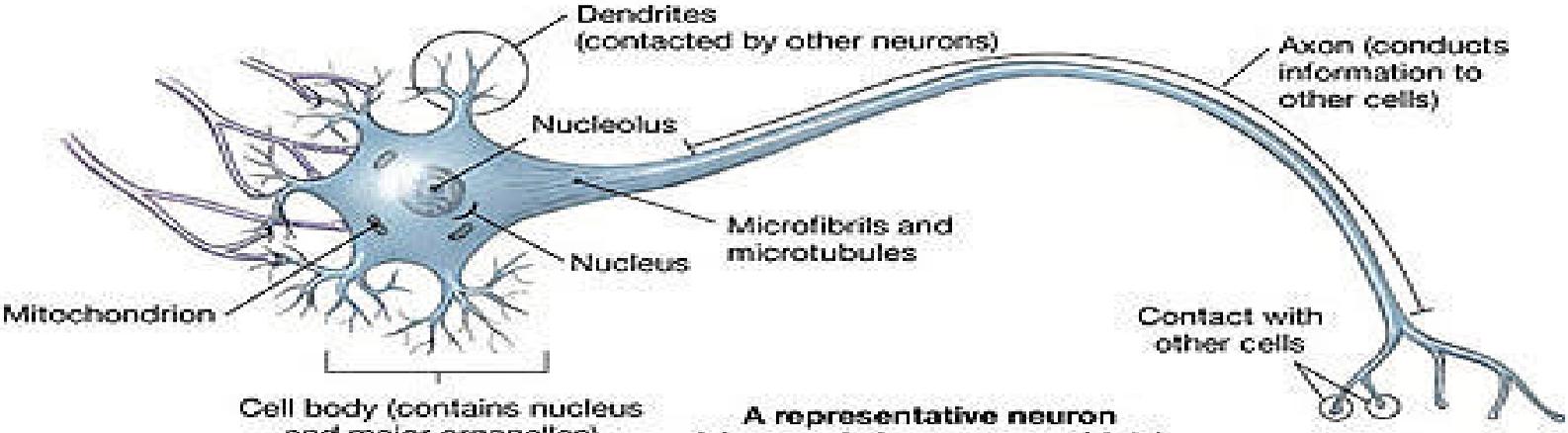
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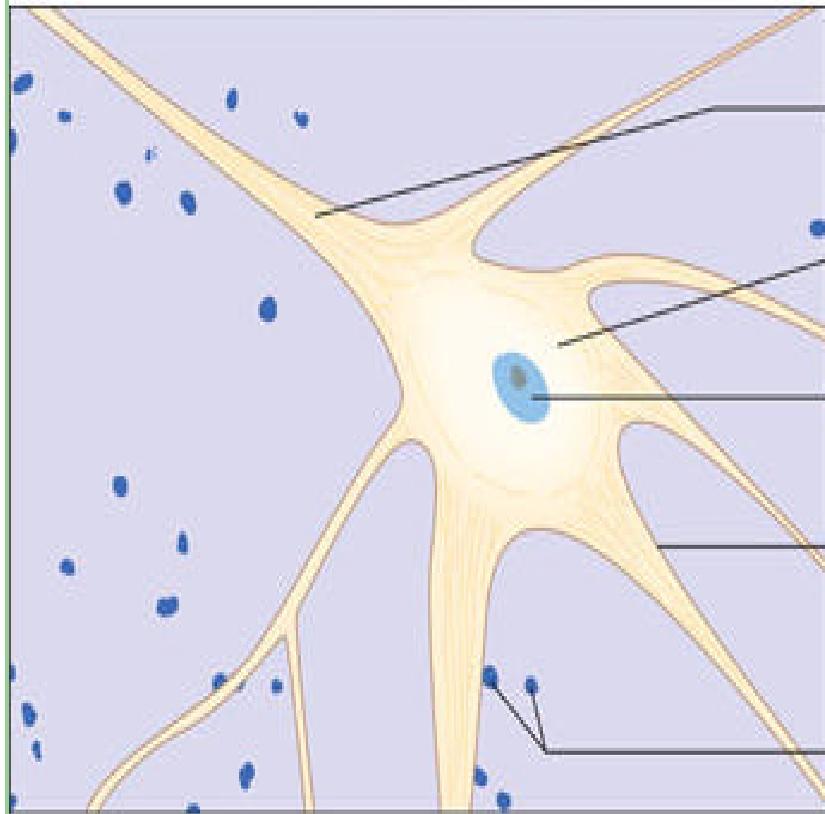
B





TEJIDO NERVIOSO

NEURONS	NEUROGLIA (supporting cells)
 <p>LM × 600</p>	<ul style="list-style-type: none"> • Maintain physical structure of tissues • Repair tissue framework after injury • Perform phagocytosis • Provide nutrients to neurons • Regulate the composition of the interstitial fluid surrounding neurons 
 <p>A representative neuron (sizes and shapes vary widely)</p>	



(a)

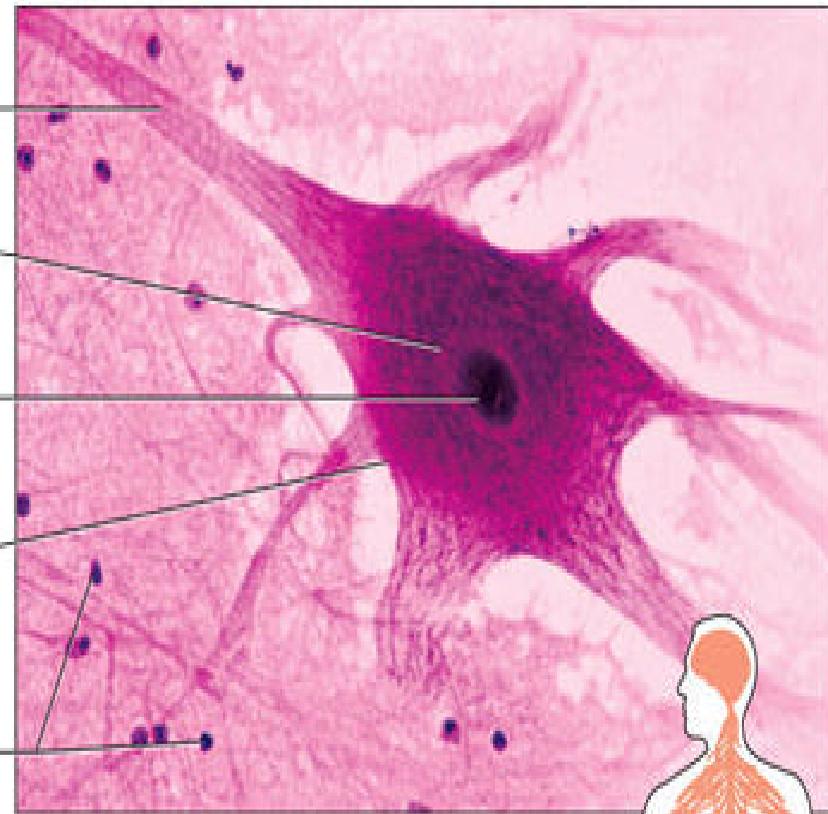
Cellular process

Cytoplasm

Nucleus

Cell membrane

Neuroglial cells



(b)

