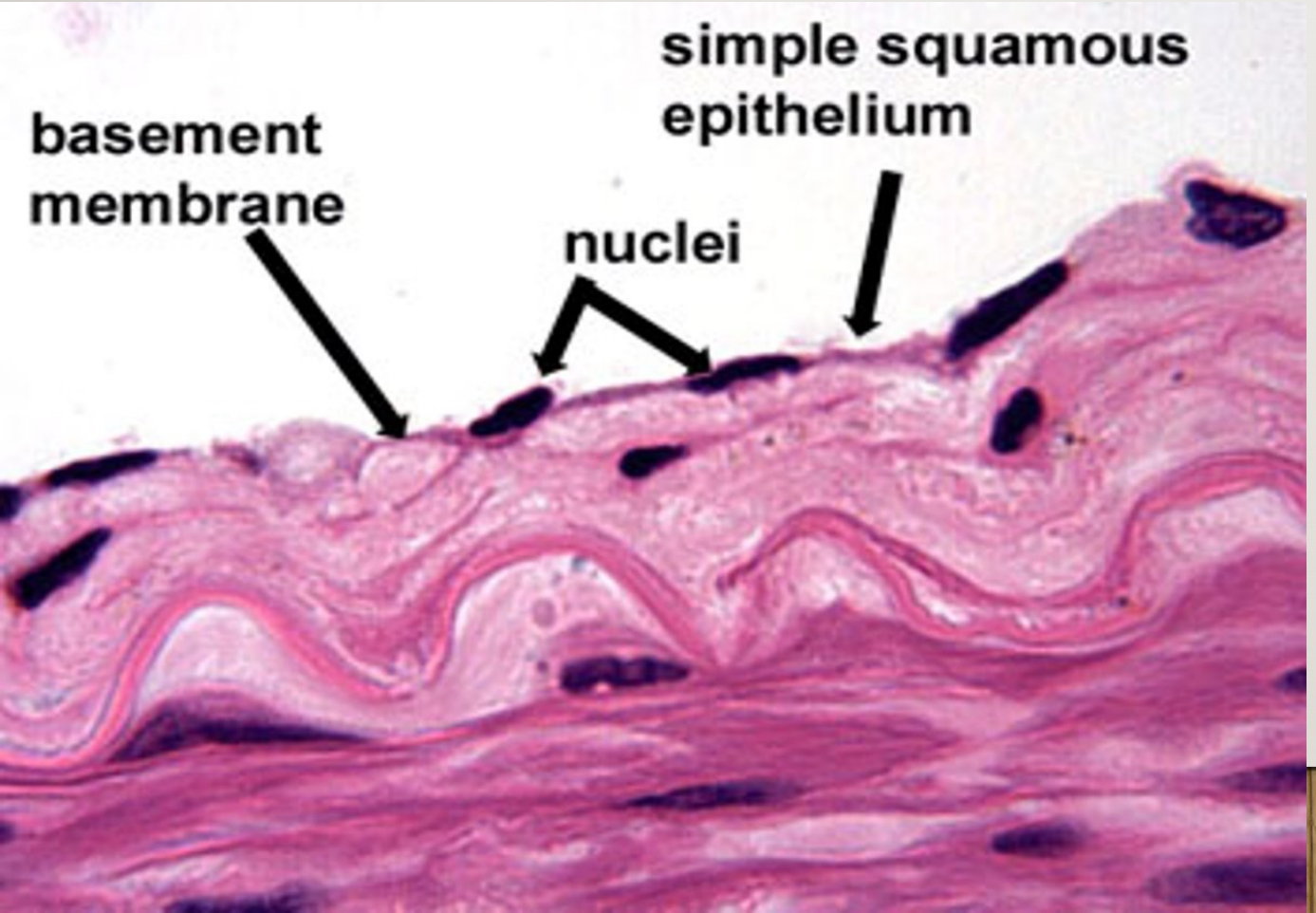
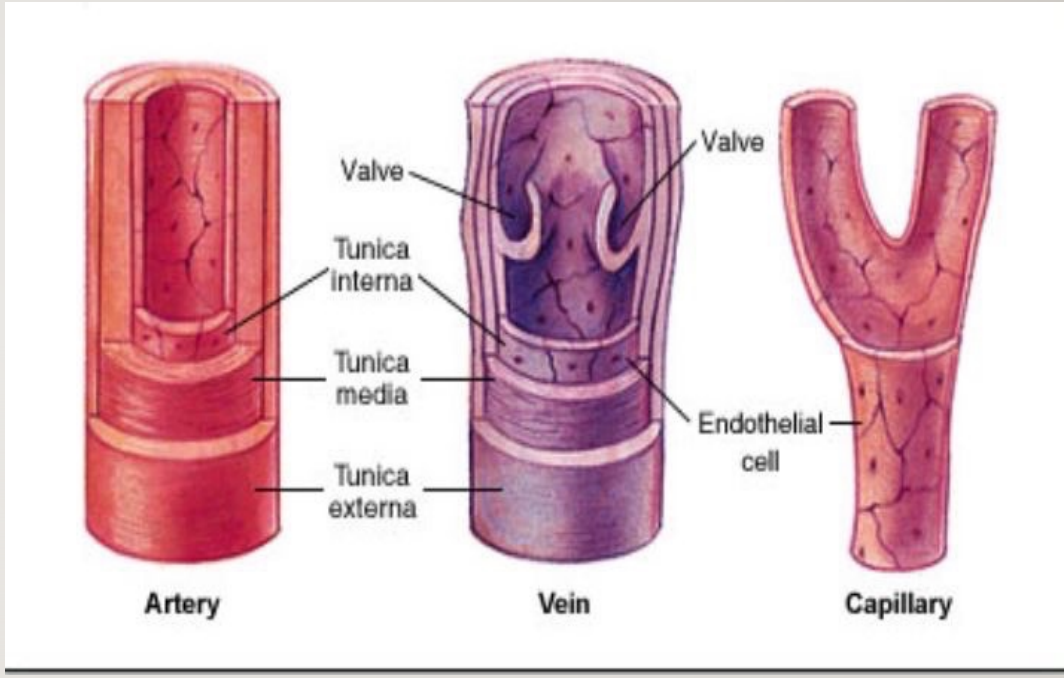
EPITHELIUM-2/2

TYPES

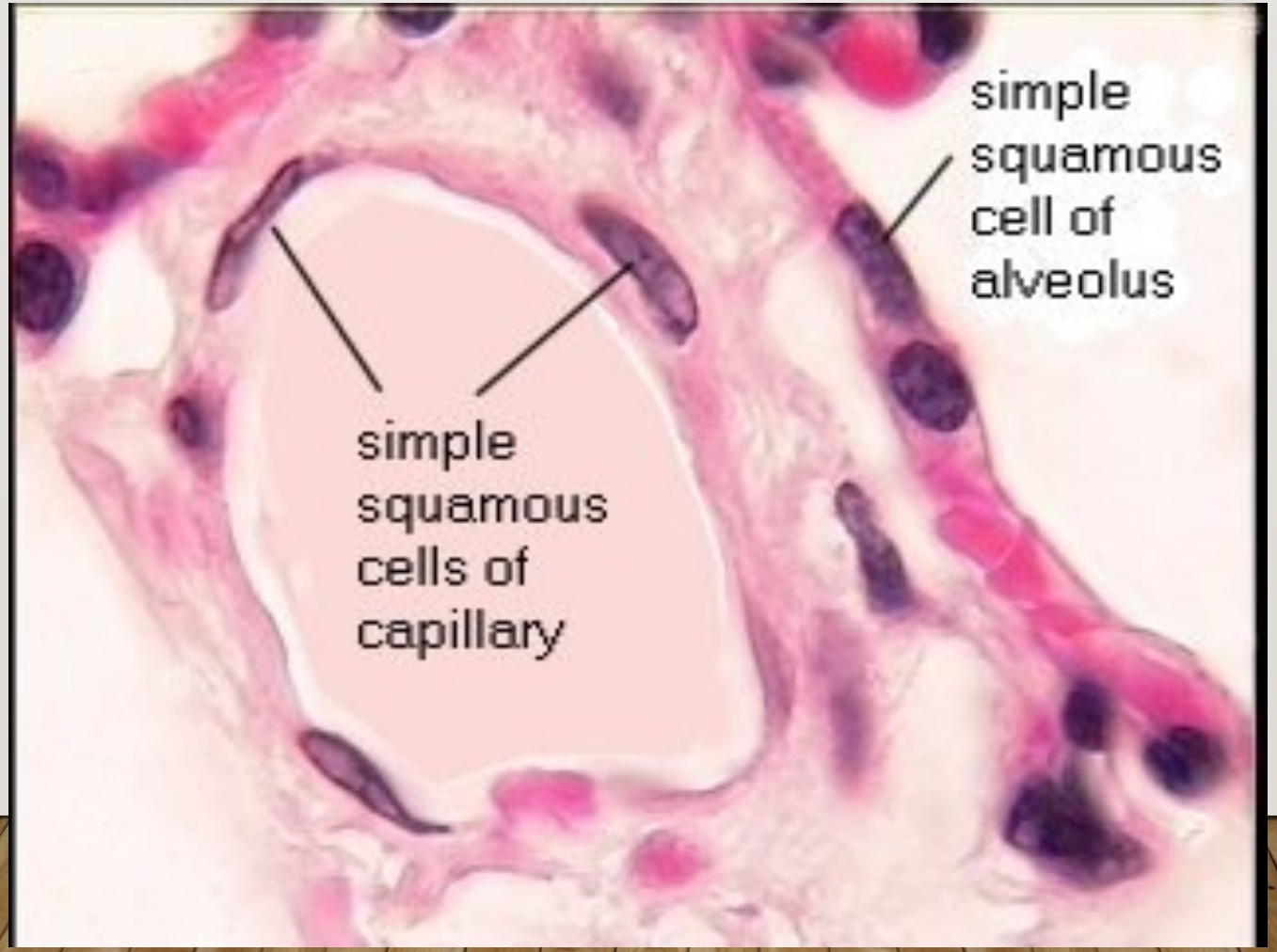
Simple squamous epithelium: Endothelium





Blood vessels

SIMPLE SQUAMOUS EPITHELIUM : LUNG ALVEOLII



MESOTHELIUM

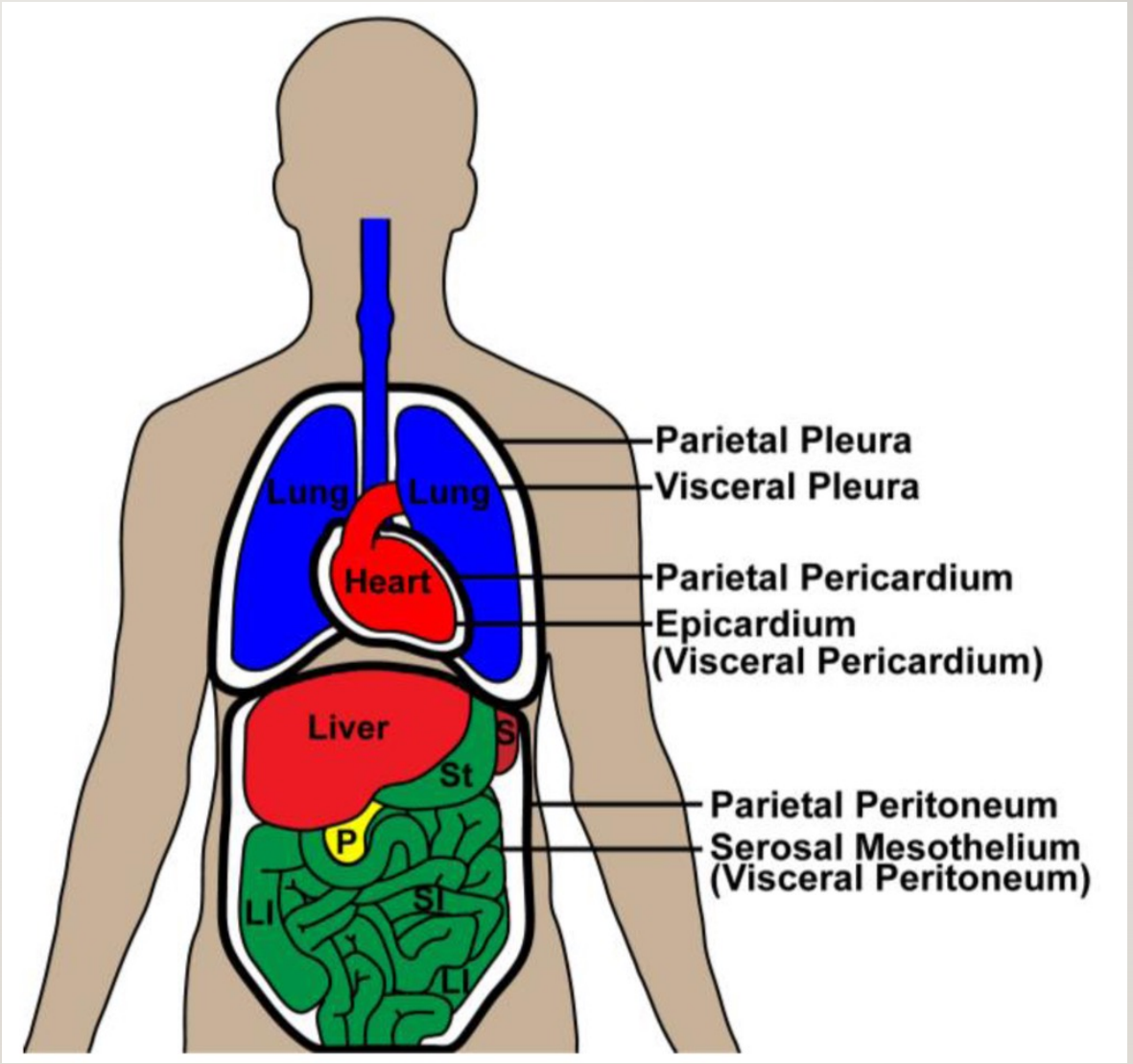
SIMPLE SQUAMOUS EPITHELIUM.

1- PLEURA

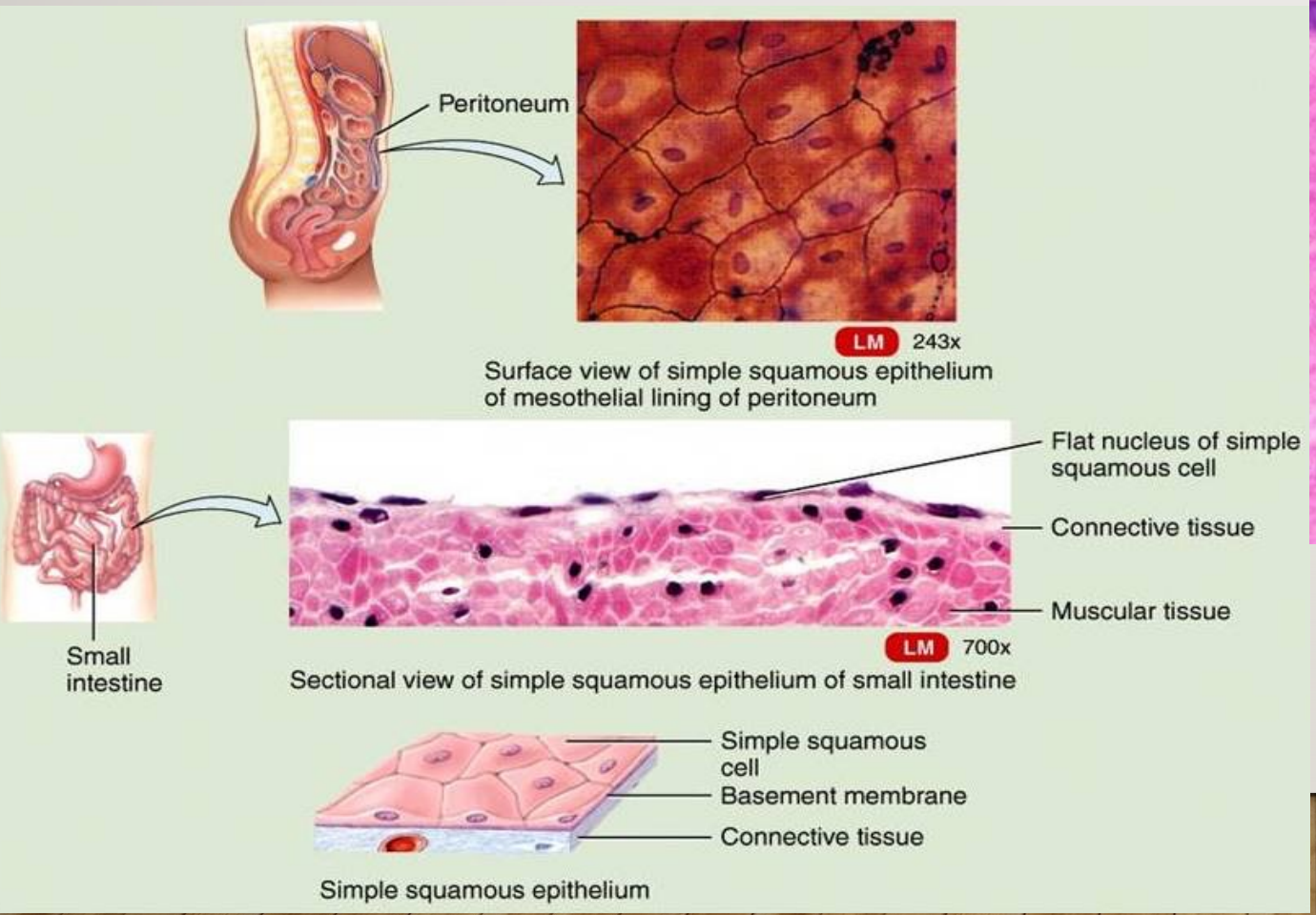
2- PERITONEUM

3- PERICARDIUM

4- MEDIASTINUM



MESOTHELIUM

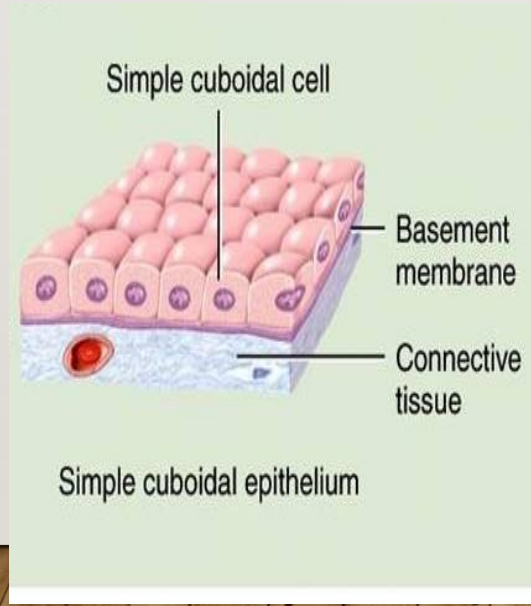


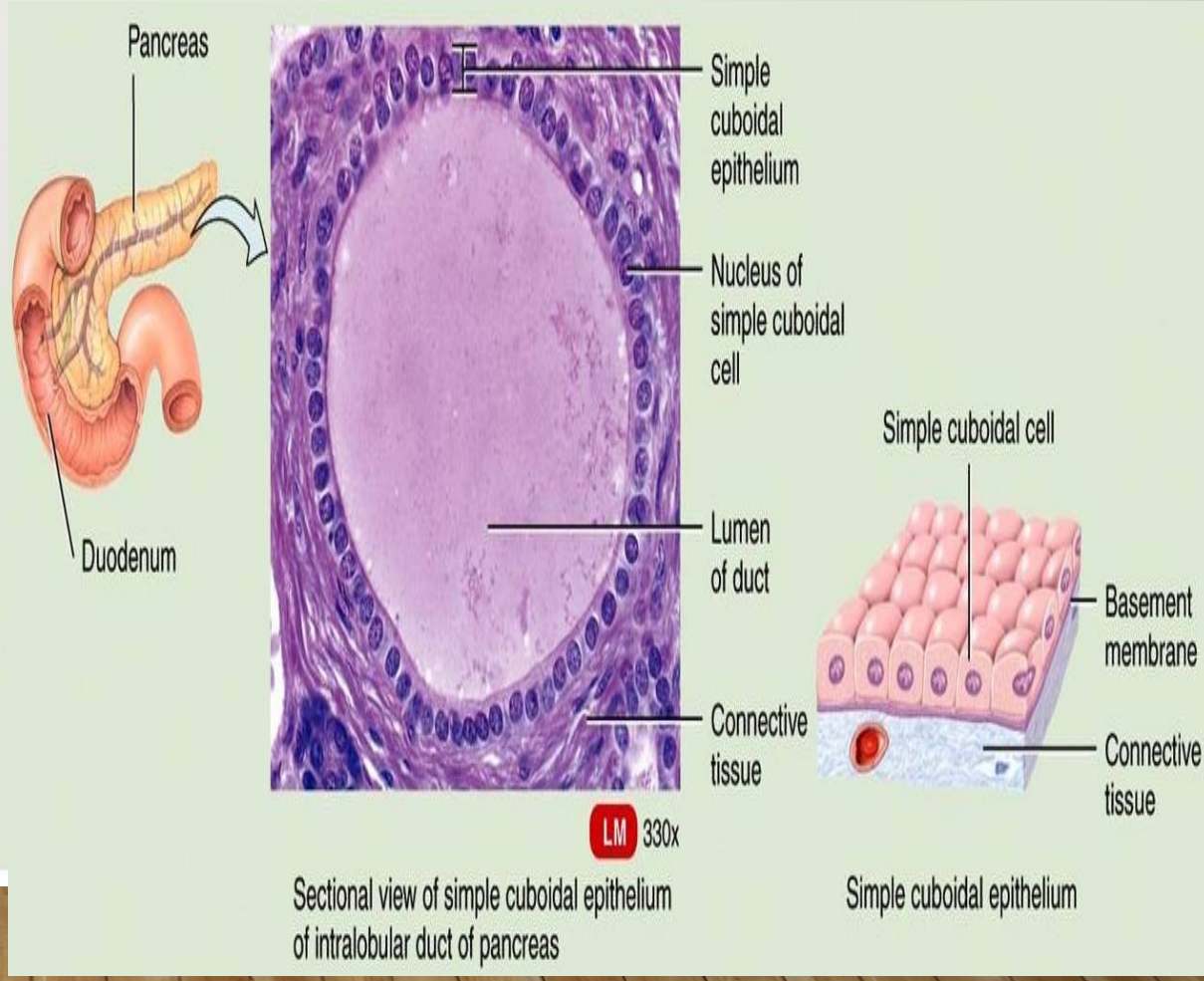
SIMPLE CUBOIDAL EPITHELIUM

LOCATION

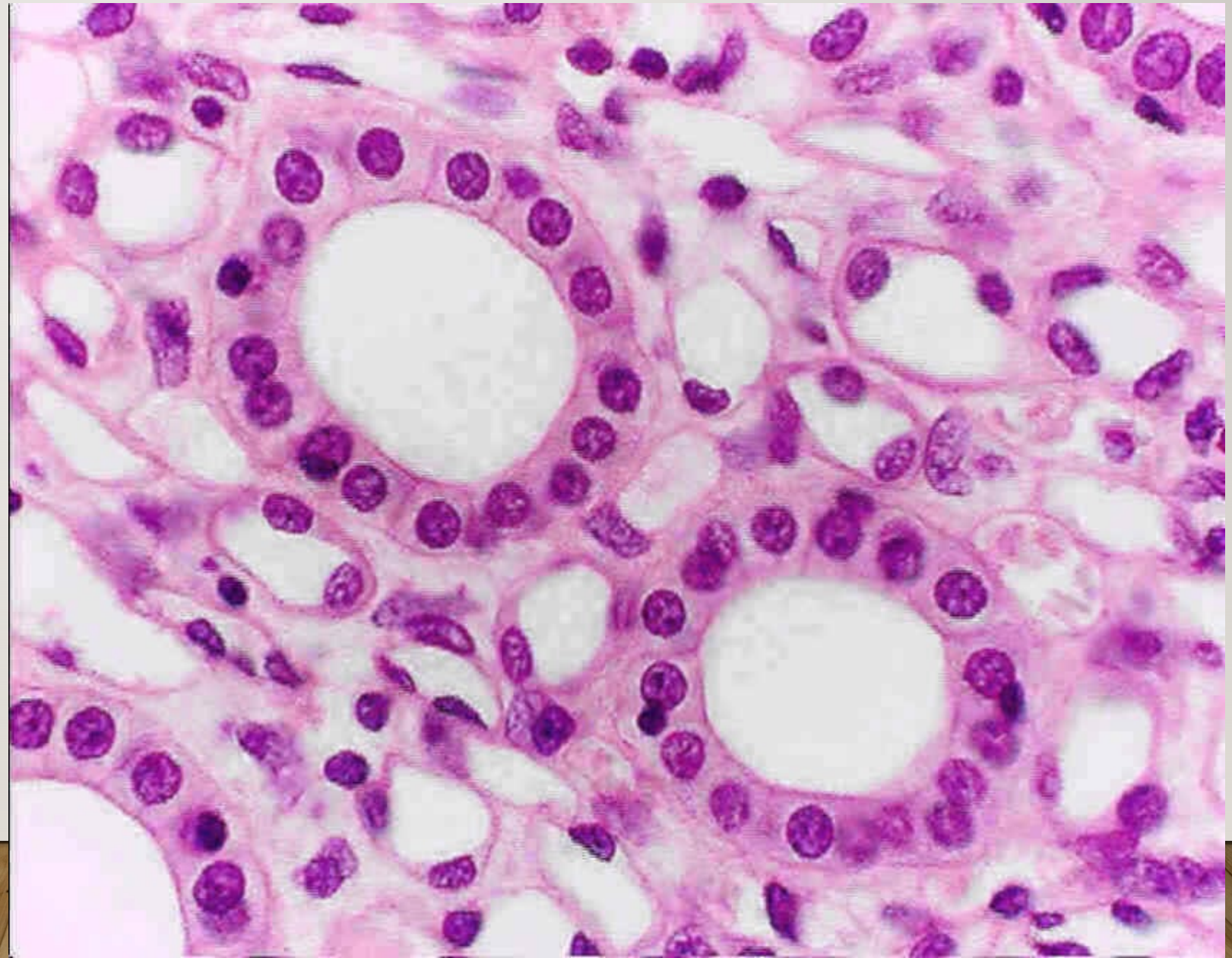
- SMALL COLLECTING DUCTS OF KIDNEY
- GLANDS AND DUCTS :

  (PANCREAS & SALIVARY)
- KIDNEY TUBULES
- COVER OVARIES





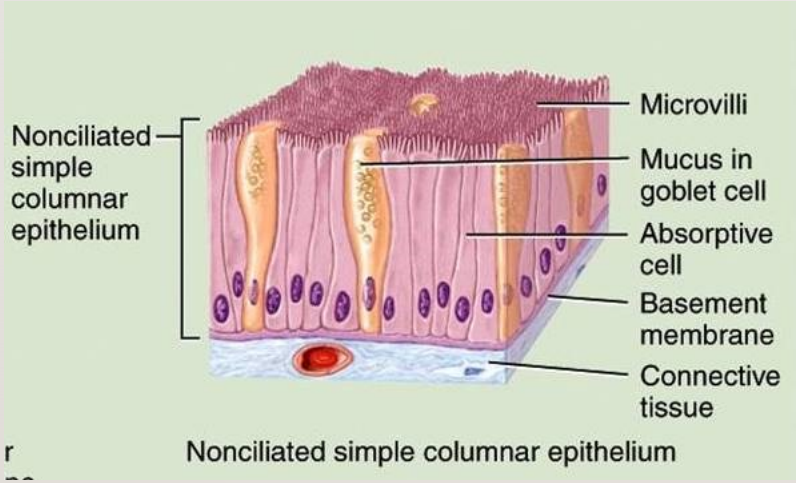
SIMPLE CUBOIDAL EPITHELIUM



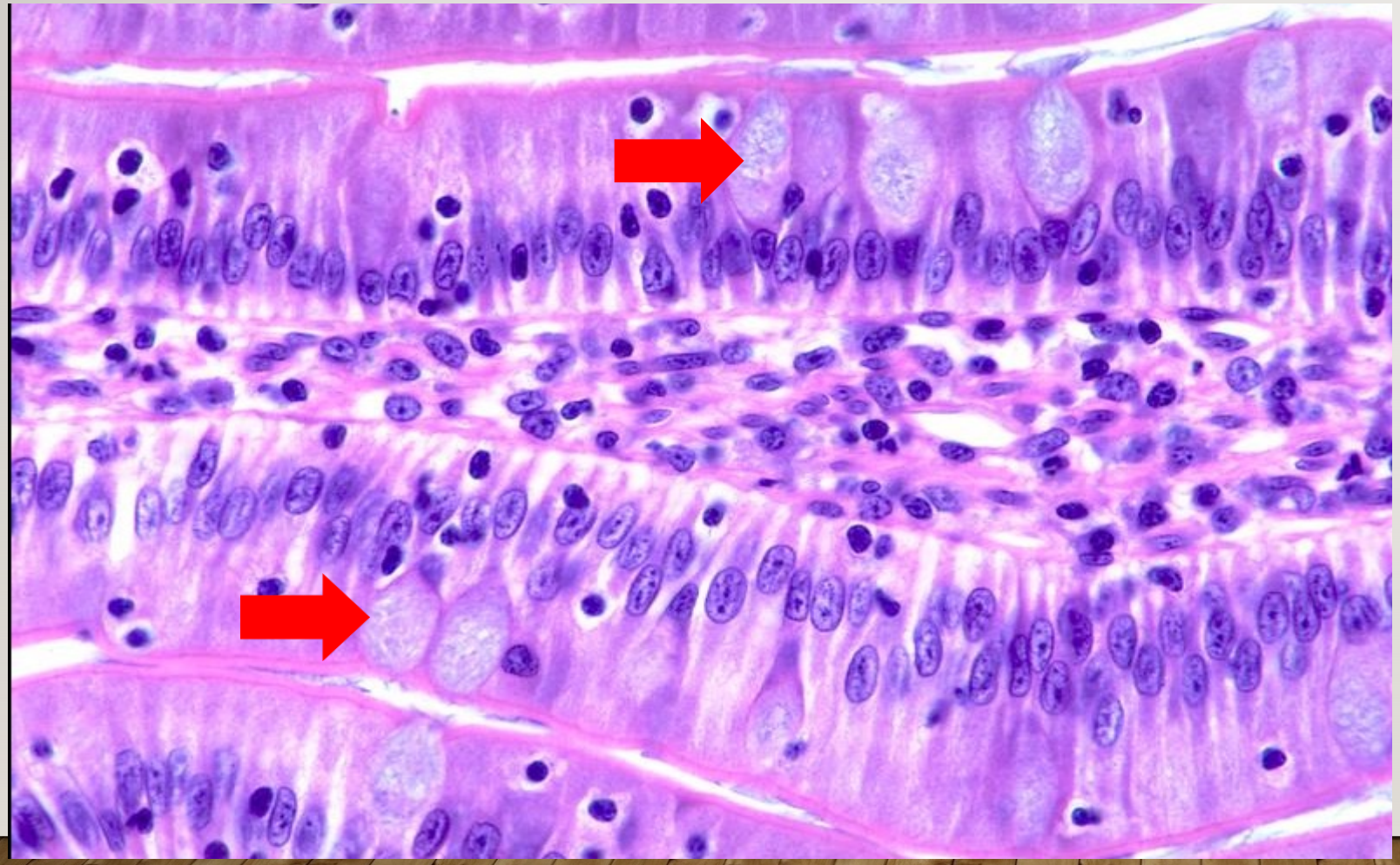
SIMPLE COLUMNAR EPITHELIUM

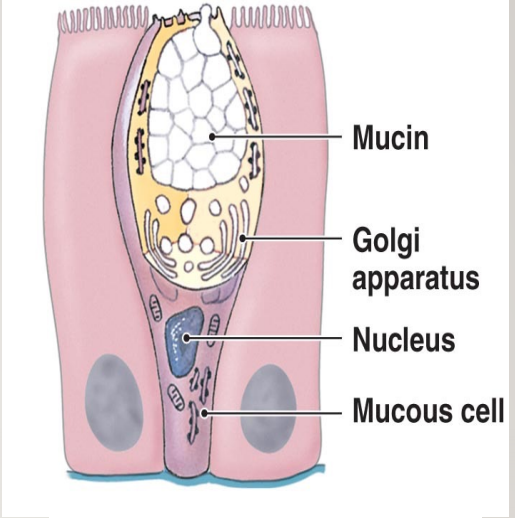
Location

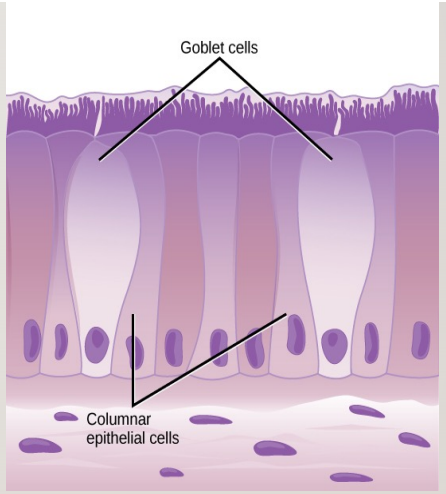
- Small intestine
- Stomach
- Gallbladder



Goblet cells







FUNCTION OF SIMPLE COLUMNAR EPITHELIUM

- Engaged in the protection of wet surfaces, absorption and secretion.
- Forms major ducts of exocrine glands.
- When ciliated (**Fallopian tube, Uterus)**, it helps in movement of fluid in the female genital tract.

PSEUDOSTRATIFIED COLUMNAR EPITHELIUM

Locations:

- Respiratory tract

(trachea and bronchi)

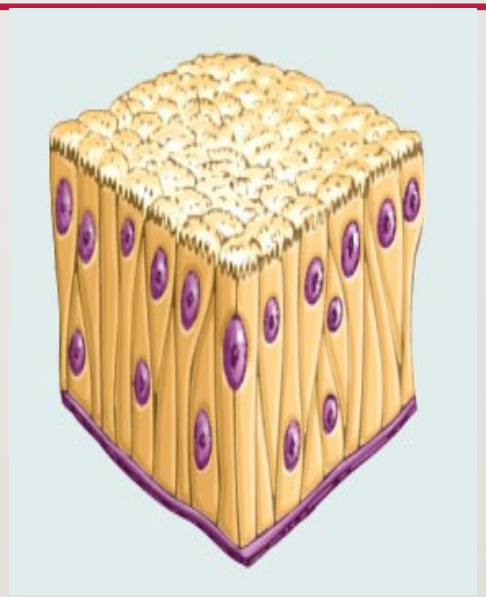
- Male genital tract.

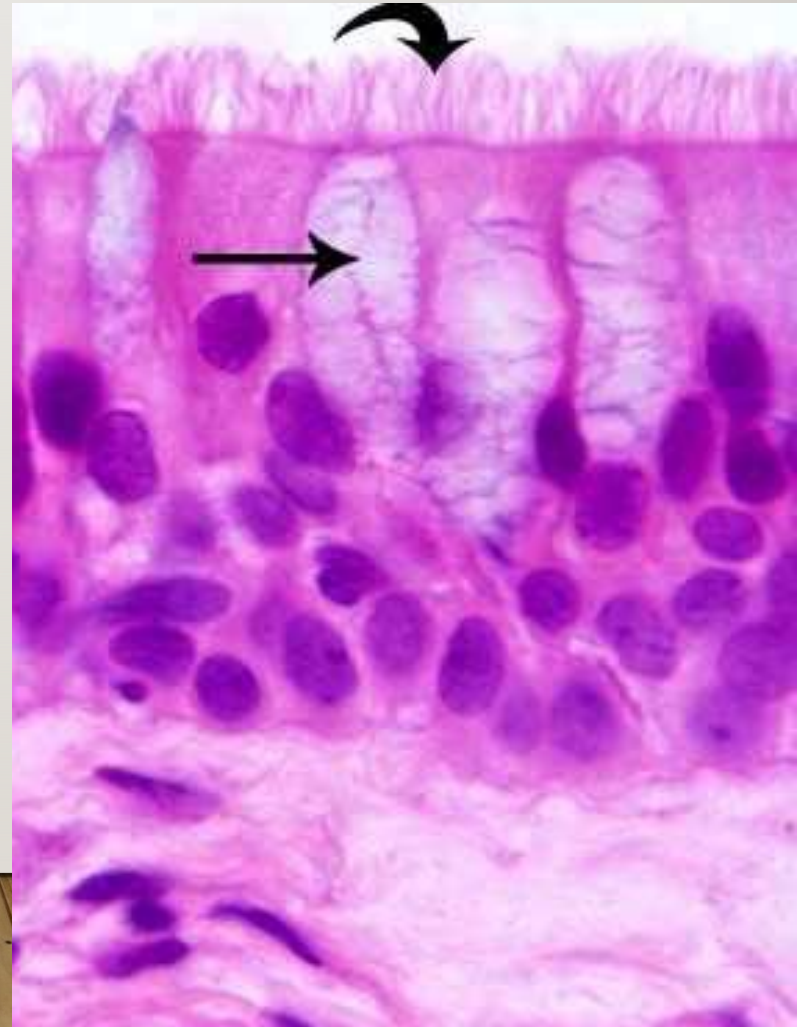
Goblet cells: produce mucus.

Mucous:

- It entraps foreign particles in the respiratory tract

.





STRATIFIED EPITHELIUM

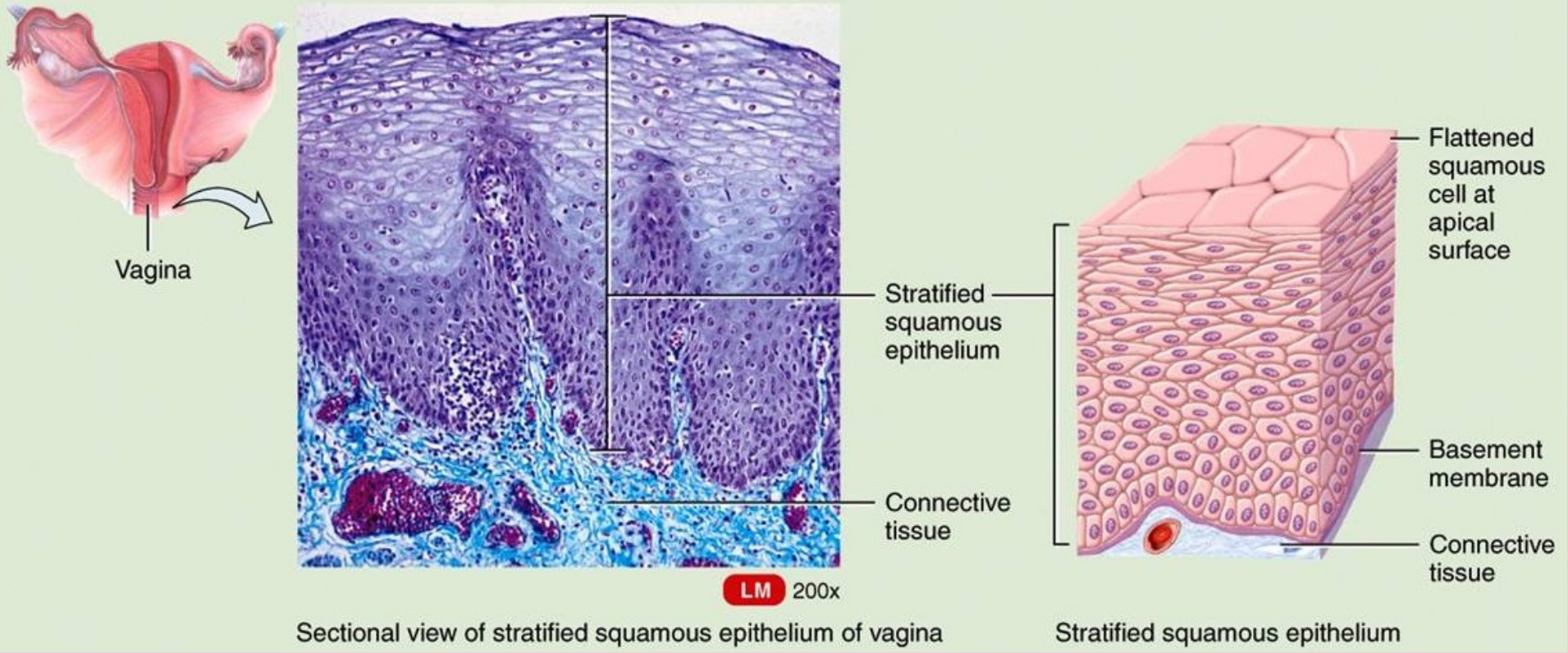
- Stratified Squamous Epithelium

  (keratinized, non-keratinized)
- Stratified Cuboidal Epithelium
- Stratified Columnar Epithelium
- Transitional Epithelium

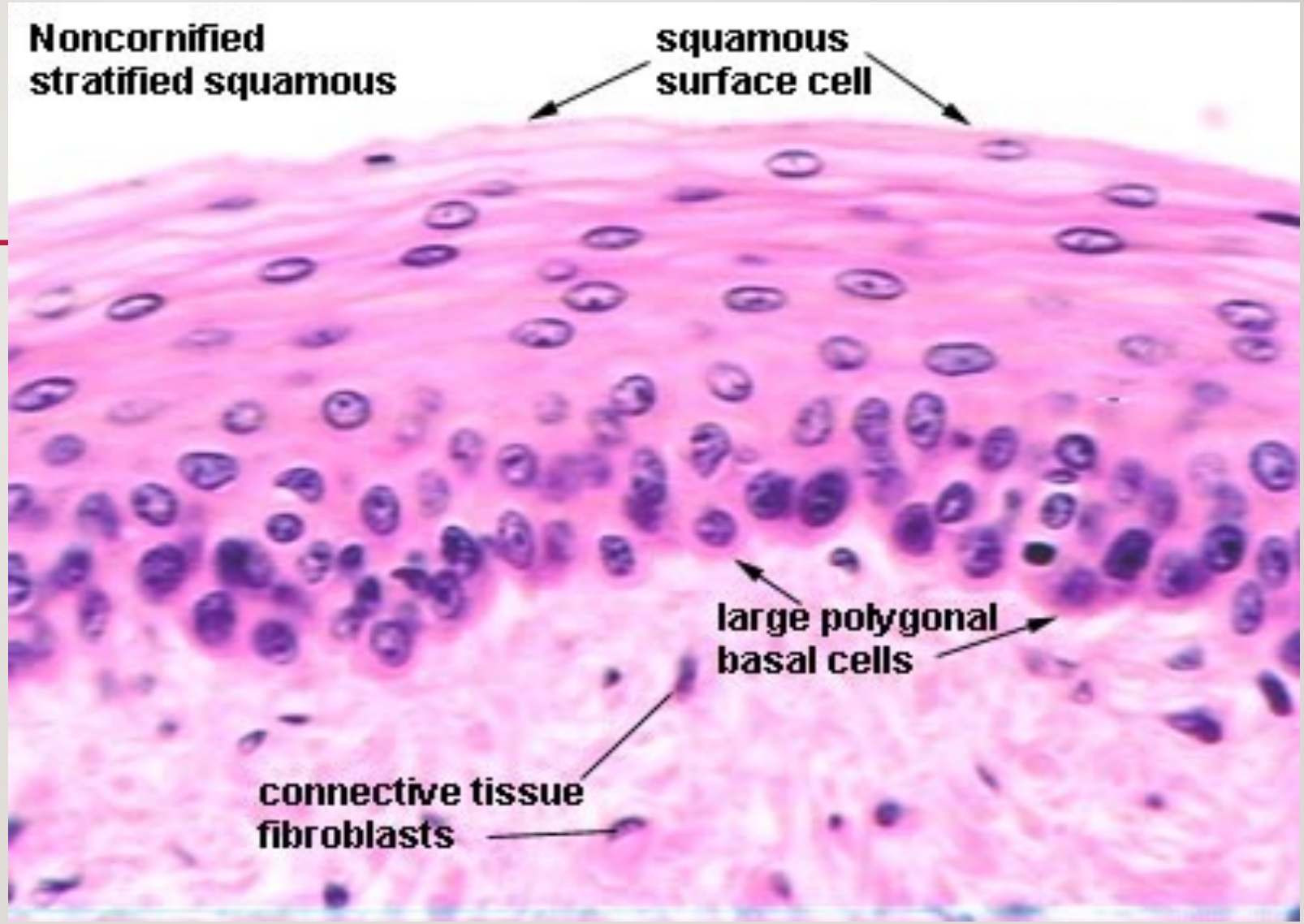
STRATIFIED SQUAMOUS NON-KERATINIZED

Locations:

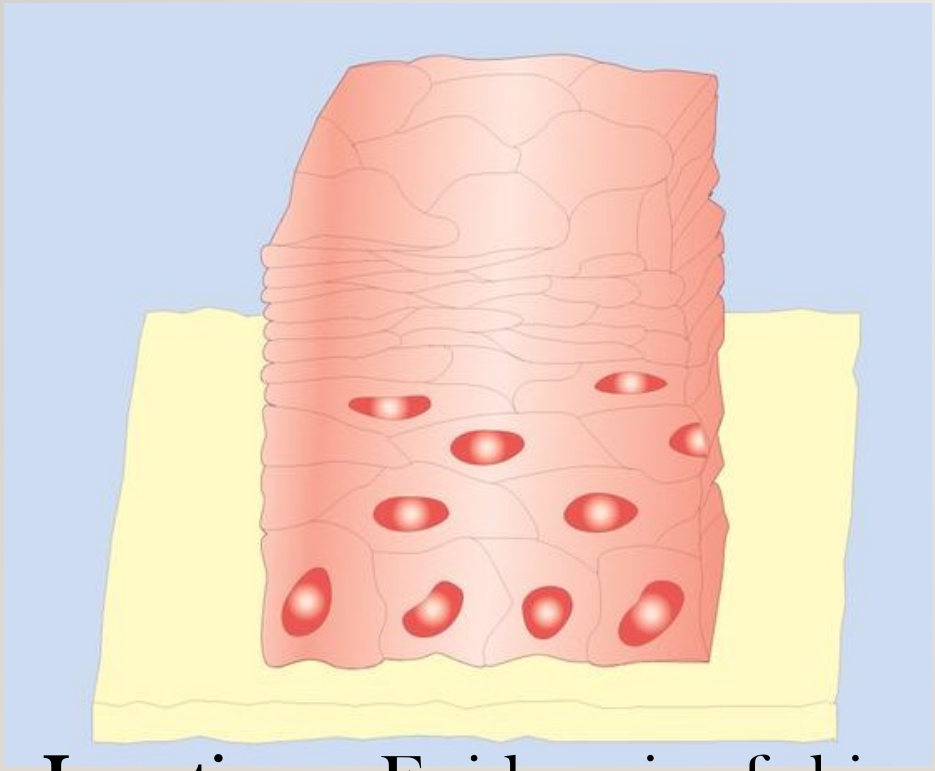
- Oral cavity
- Pharynx
- Esophagus
- Anal canal
- Uterine cervix
- Vagina

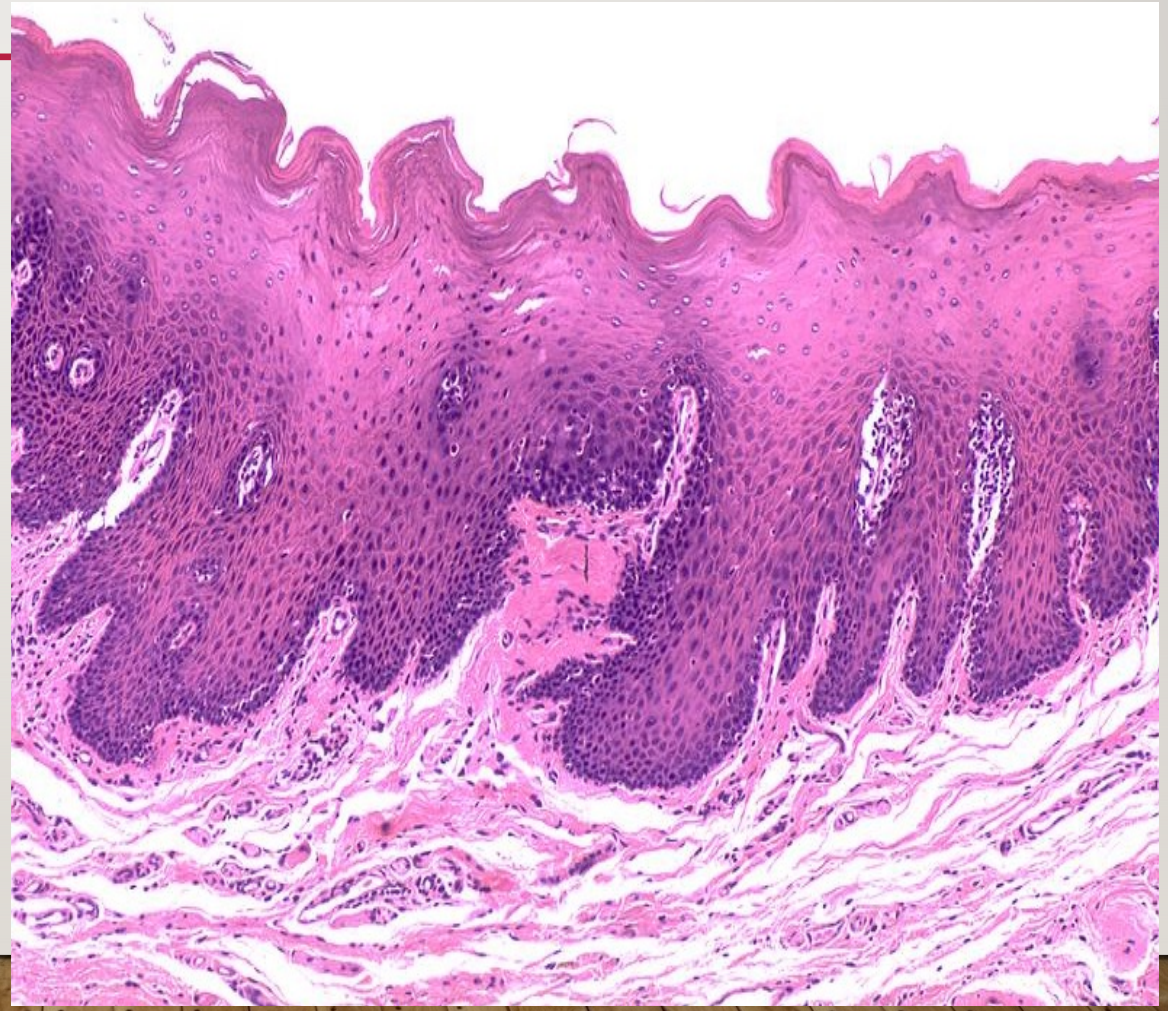


STRATIFIED SQUAMOUS NON-KERATINIZED



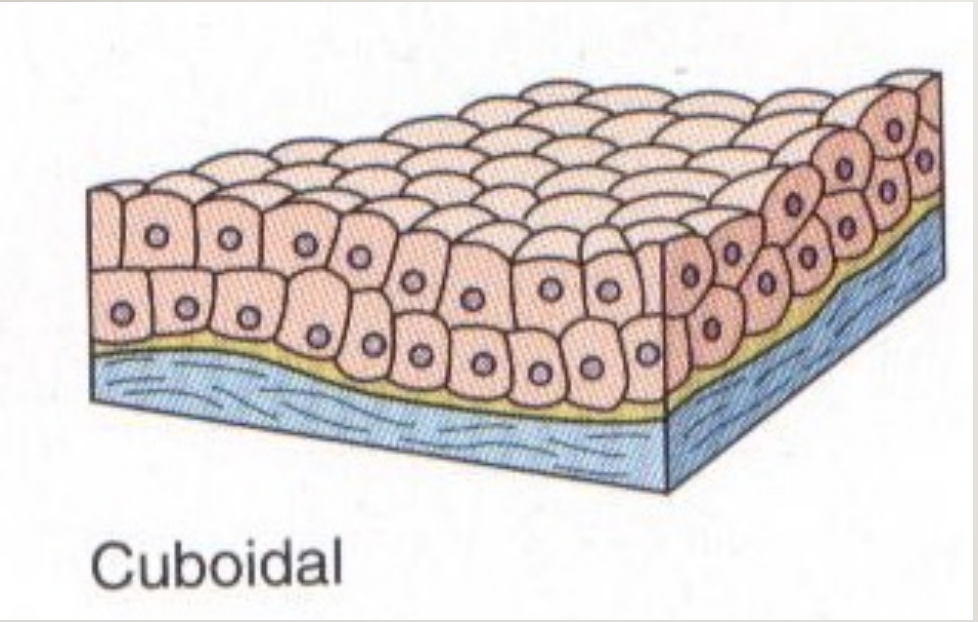
STRATIFIED SQUAMOUS KERATINIZED EPITHELIUM

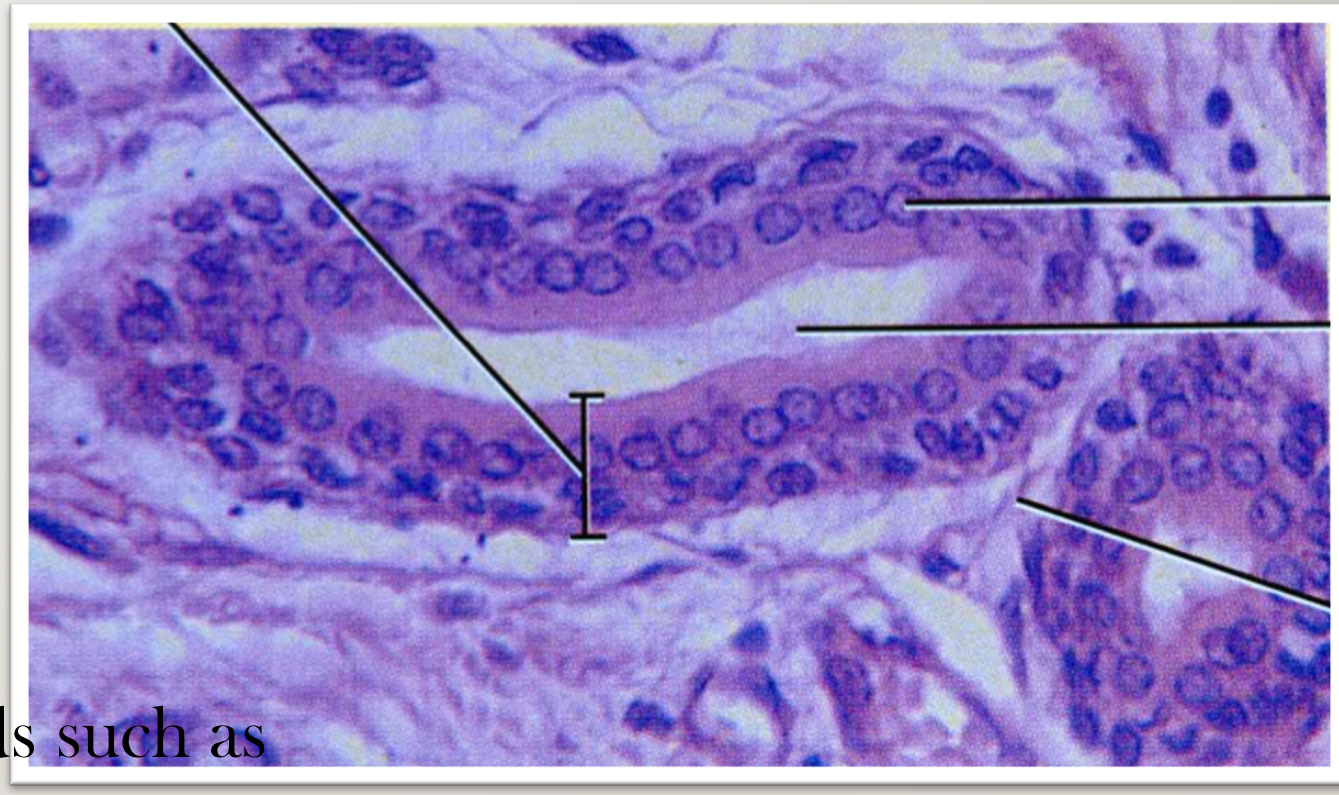




Location: Epidermis of skin

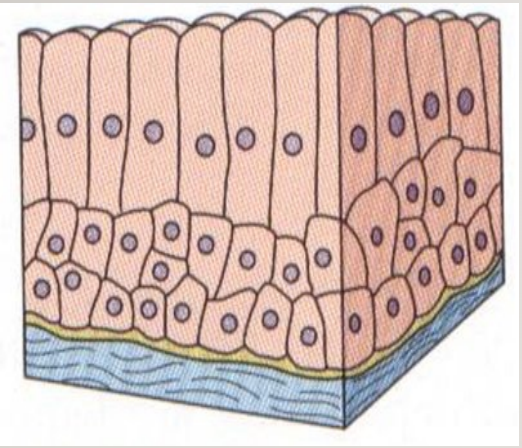
STRATIFIED CUBOIDAL EPITHELIUM

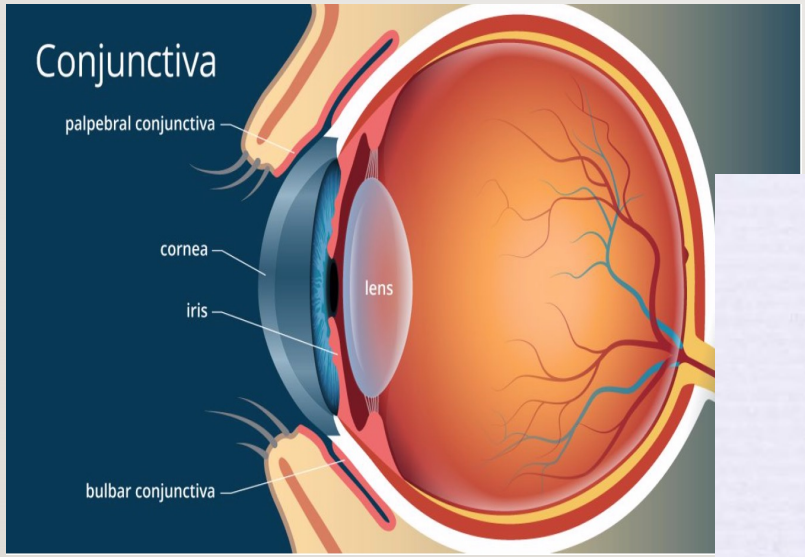


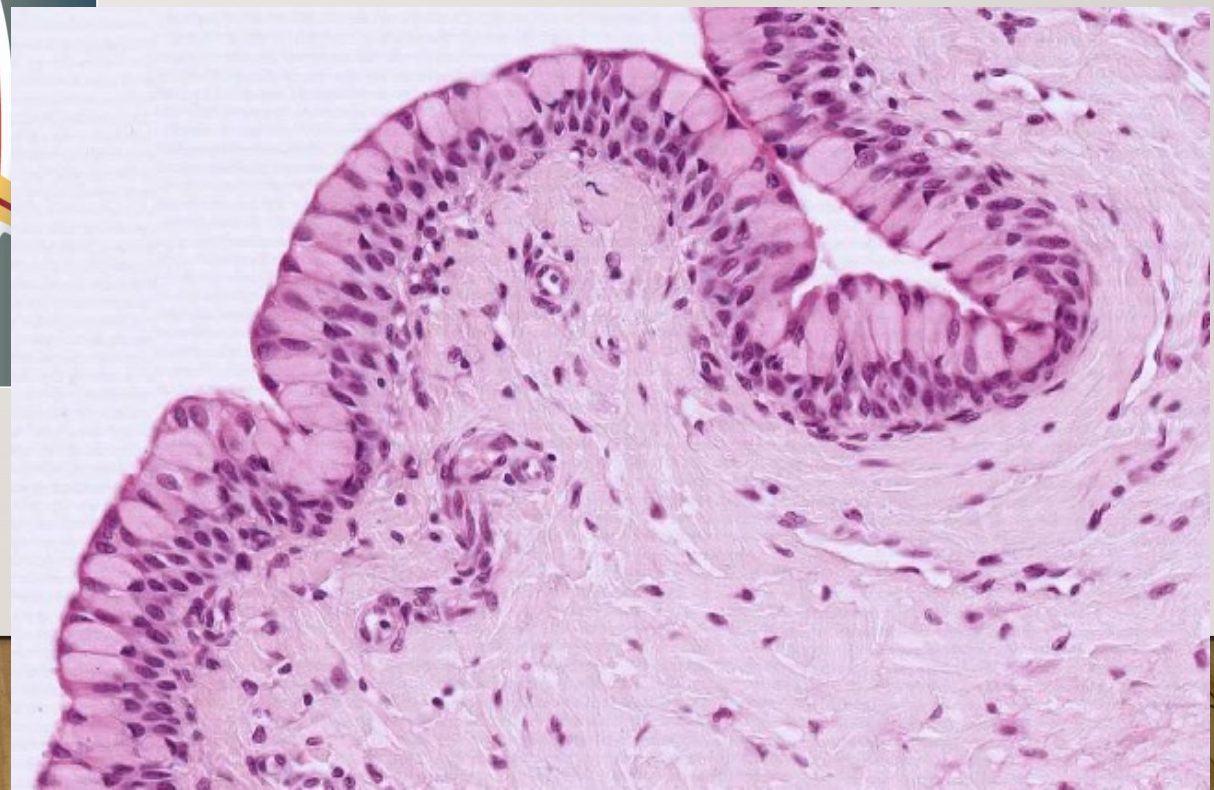


Location : Larger ducts of exocrine glands such as salivary glands

STRATIFIED COLUMNAR EPITHELIUM







Location : Conjunctiva, large ducts

TRANSITIONAL EPITHELIUM

Location

- Urinary tract (urinary bladder & ureters, urethra).

Function

- Allows stretching (change size).
- Protection of inner tissues.

TRANSITIONAL EPITHELIUM

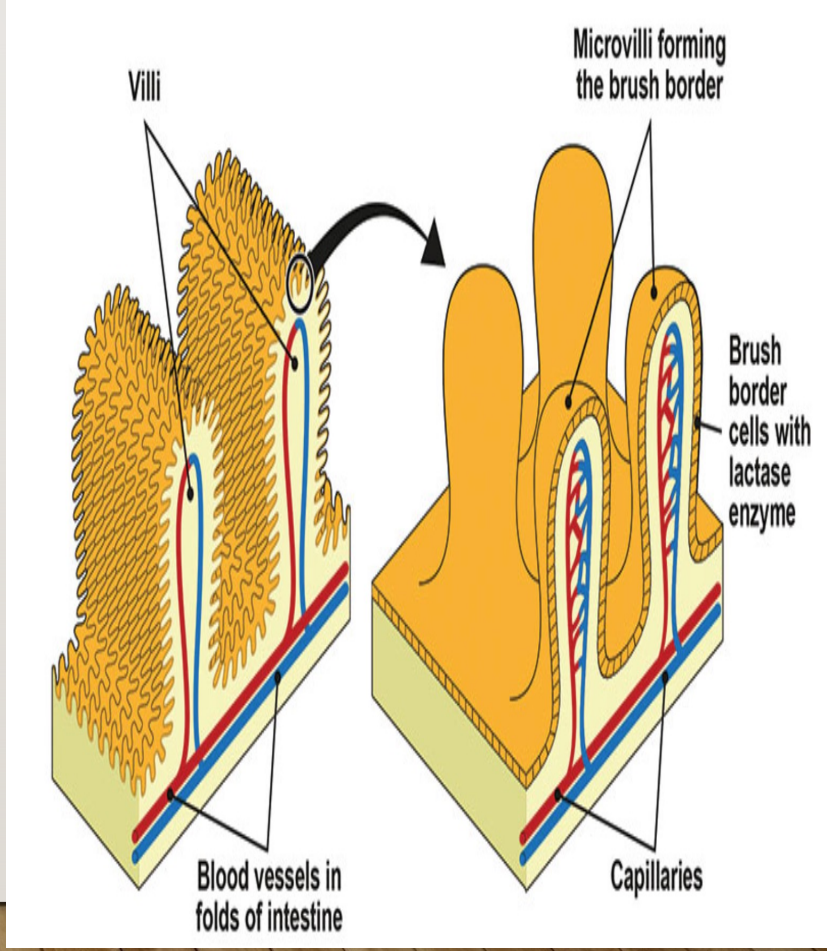
- A single layer of small basal cells resting on a very thin basement membrane,
- An intermediate region containing from one to several layers of cuboidal or low columnar cells, and
- A superficial layer of large bulbous or elliptical umbrella cells, sometimes binucleated, which are highly differentiated to protect the underlyin cells against the potentially cytotoxic effects of hypertonic urine.

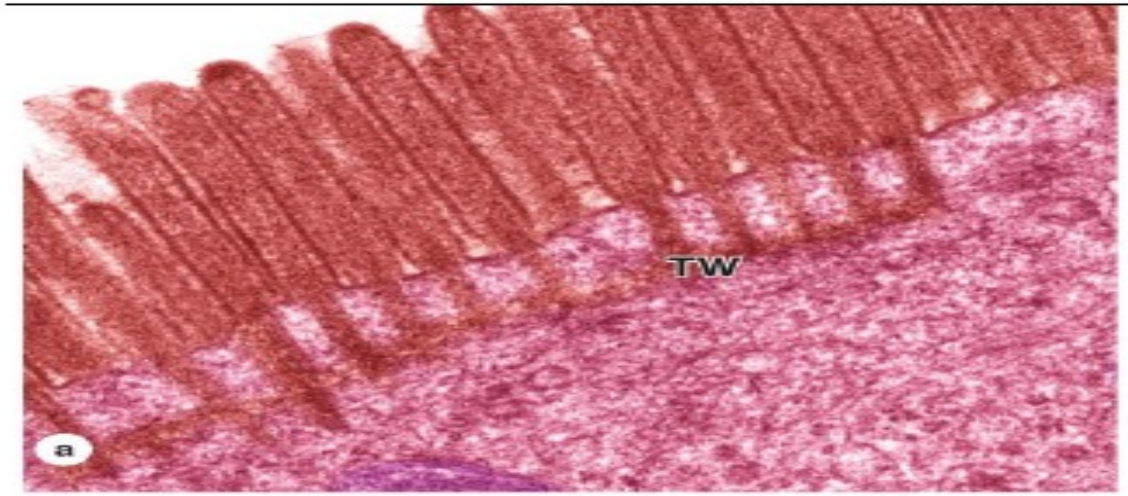
SPECIALIZED APICAL STRUCTURES

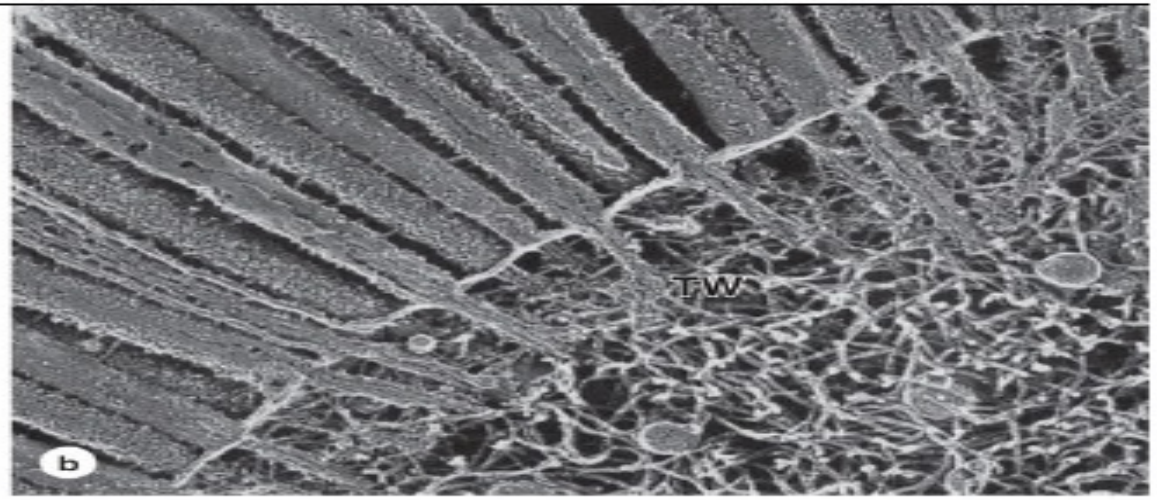
- Microvilli
- Cilia
- Stereocilia

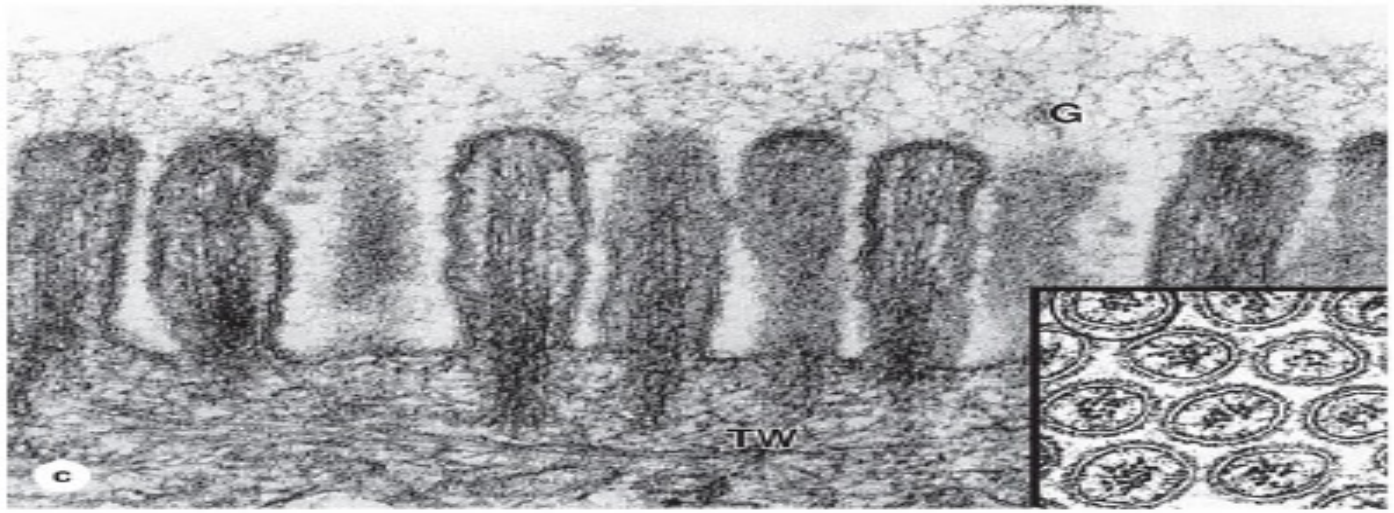
Microvilli

- Finger-like extensions of plasma membrane of apical epithelial cell.
- Present mainly in **absorptive cells (columnar/cuboidal)**.
- Main function is the absorption of nutrients from intestines and glomerular filtrate:
  Striated border in the intestine.
  Bruch border in the kidney).
- **Increase the surface area for absorption.**



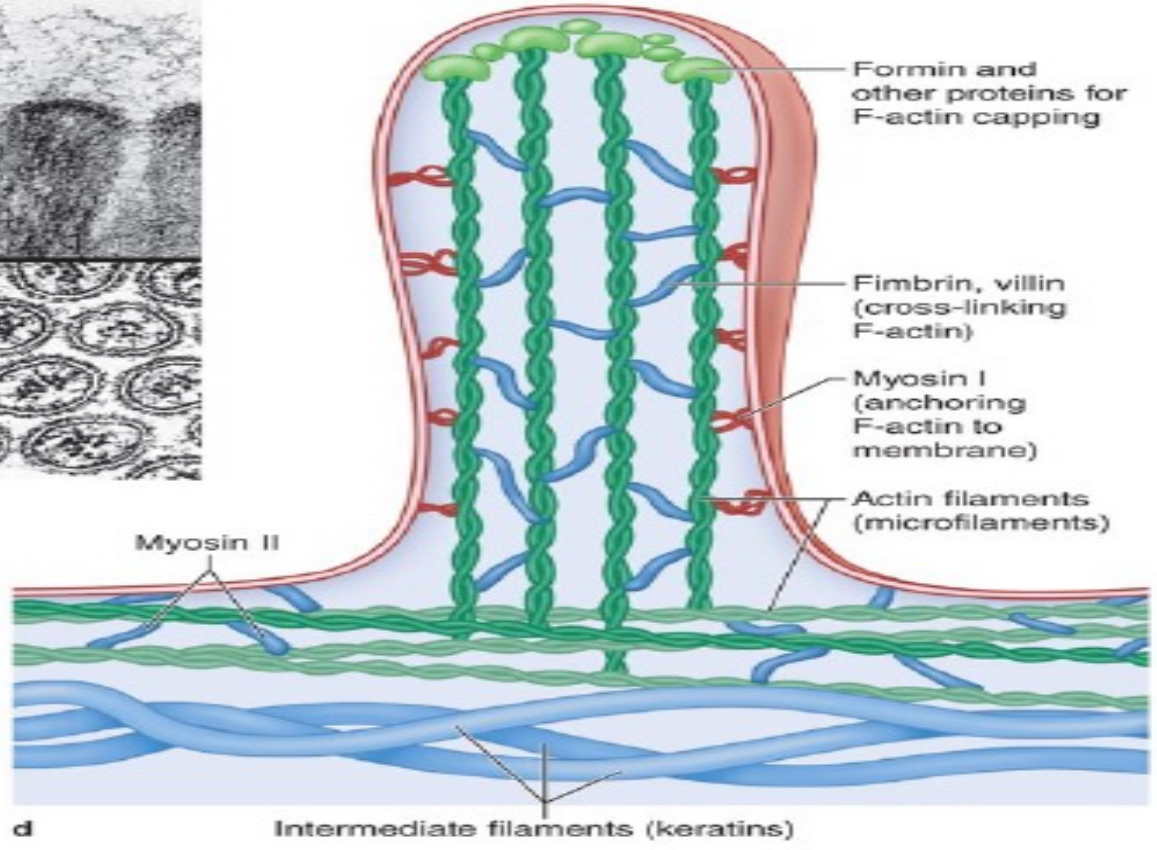




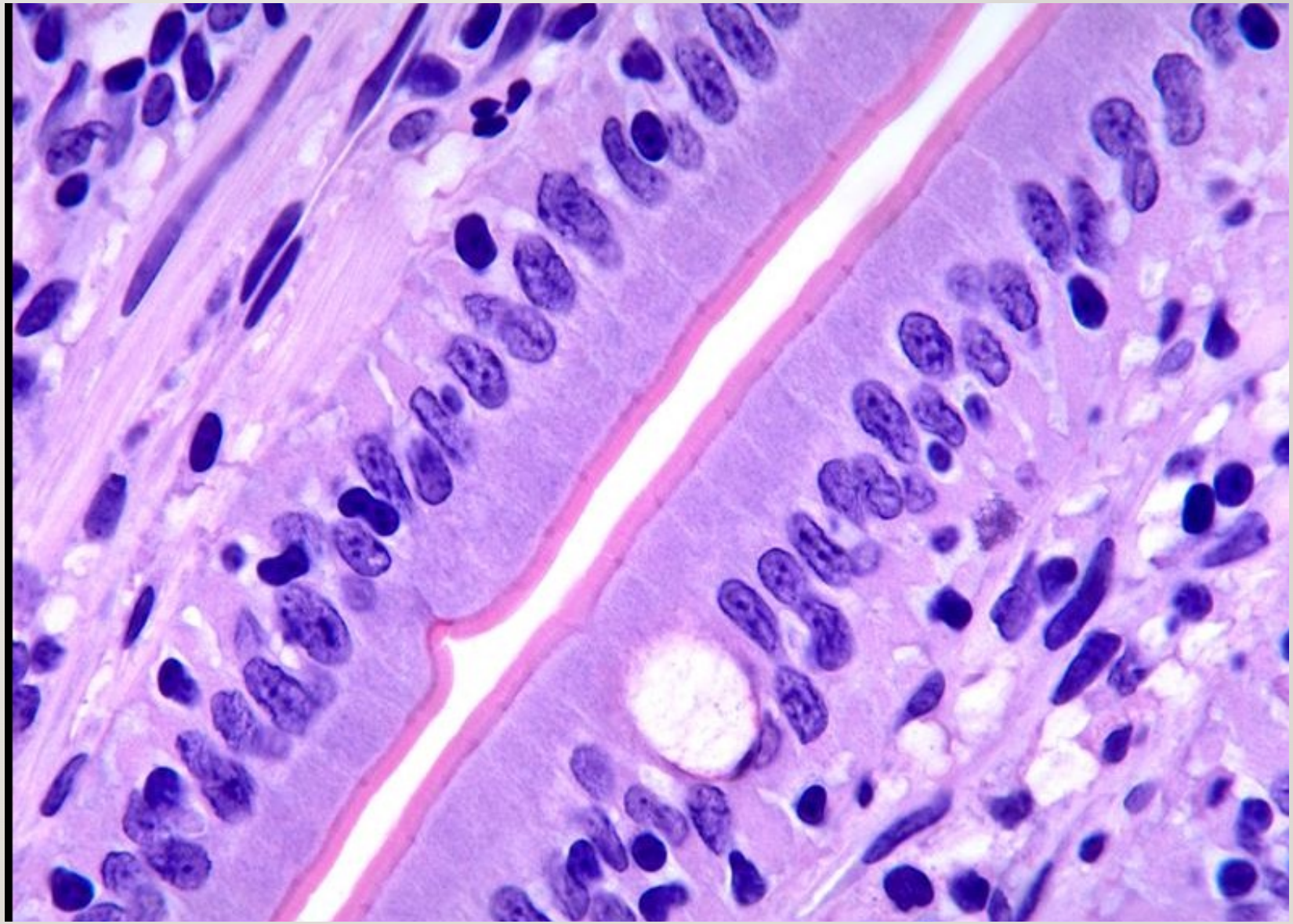


MICROVILLI

- Increase surface area
- Absorption.

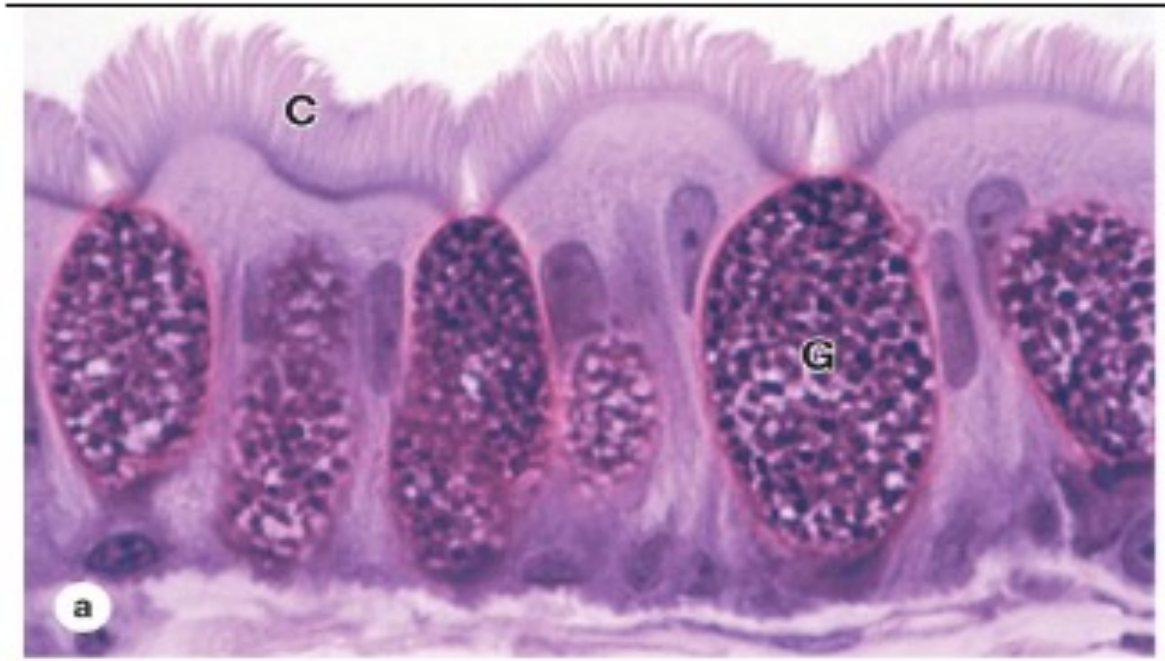


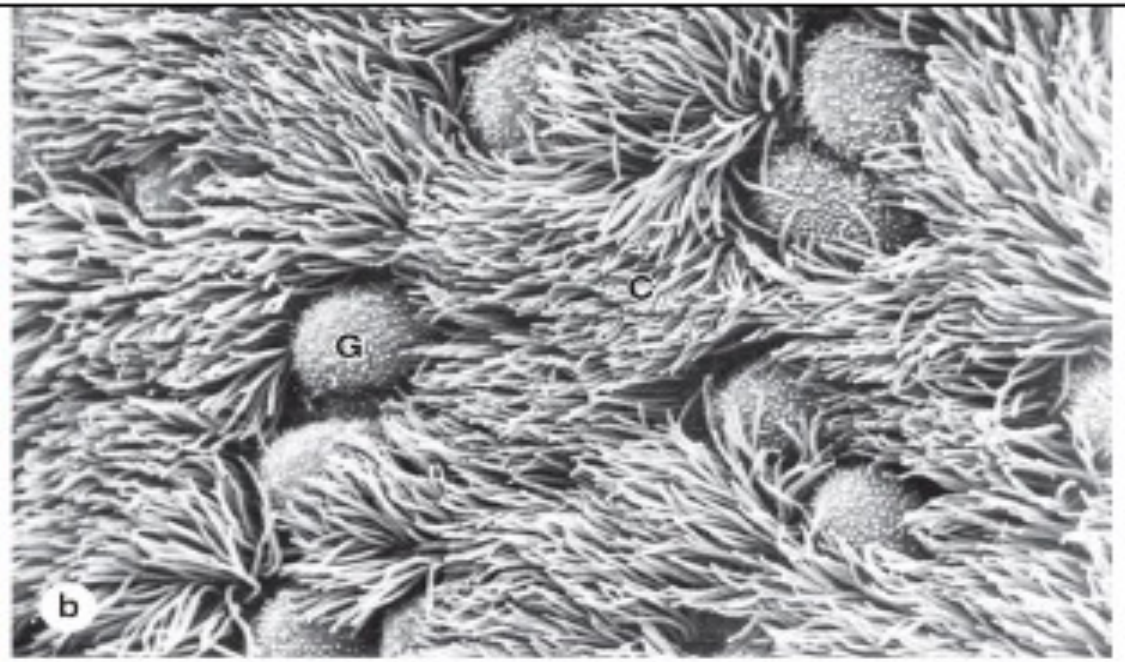
Microvilli

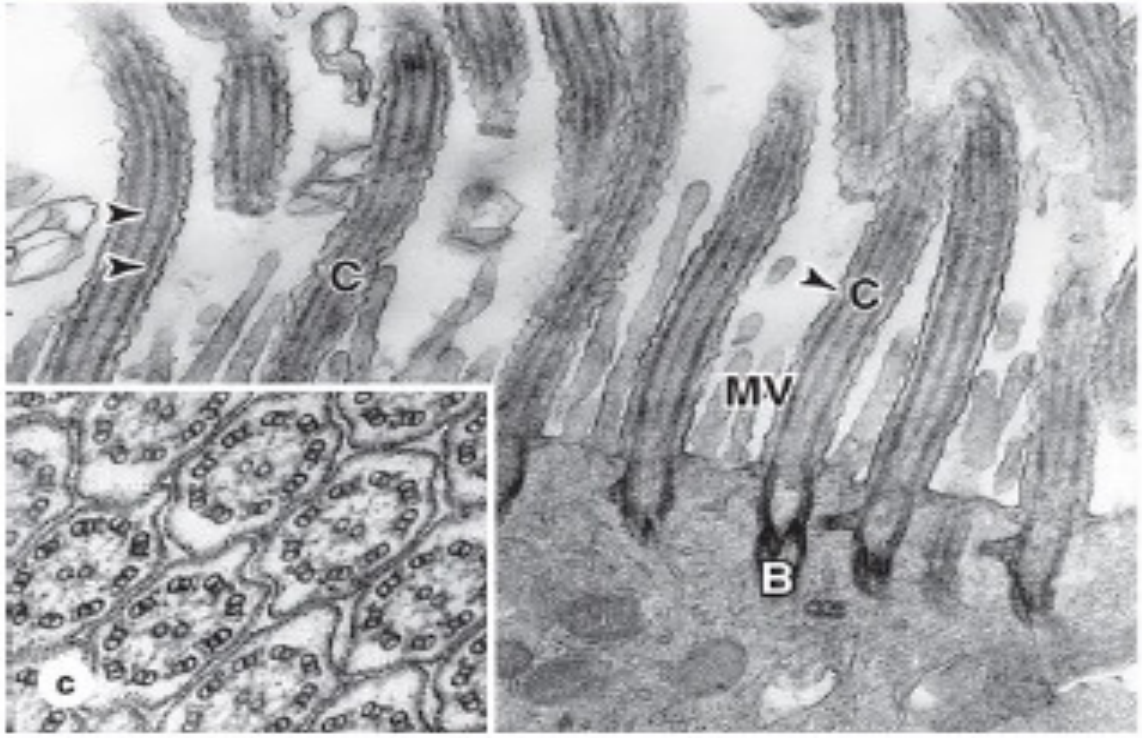


CILIA

- Motile cytoplasmic hair like projections capable of moving fluid and particles along epithelial surfaces.
- Line cells in the respiratory organs, uterine tubes, and efferent ducts in testes.
- They move rhythmically and rapidly in one direction.

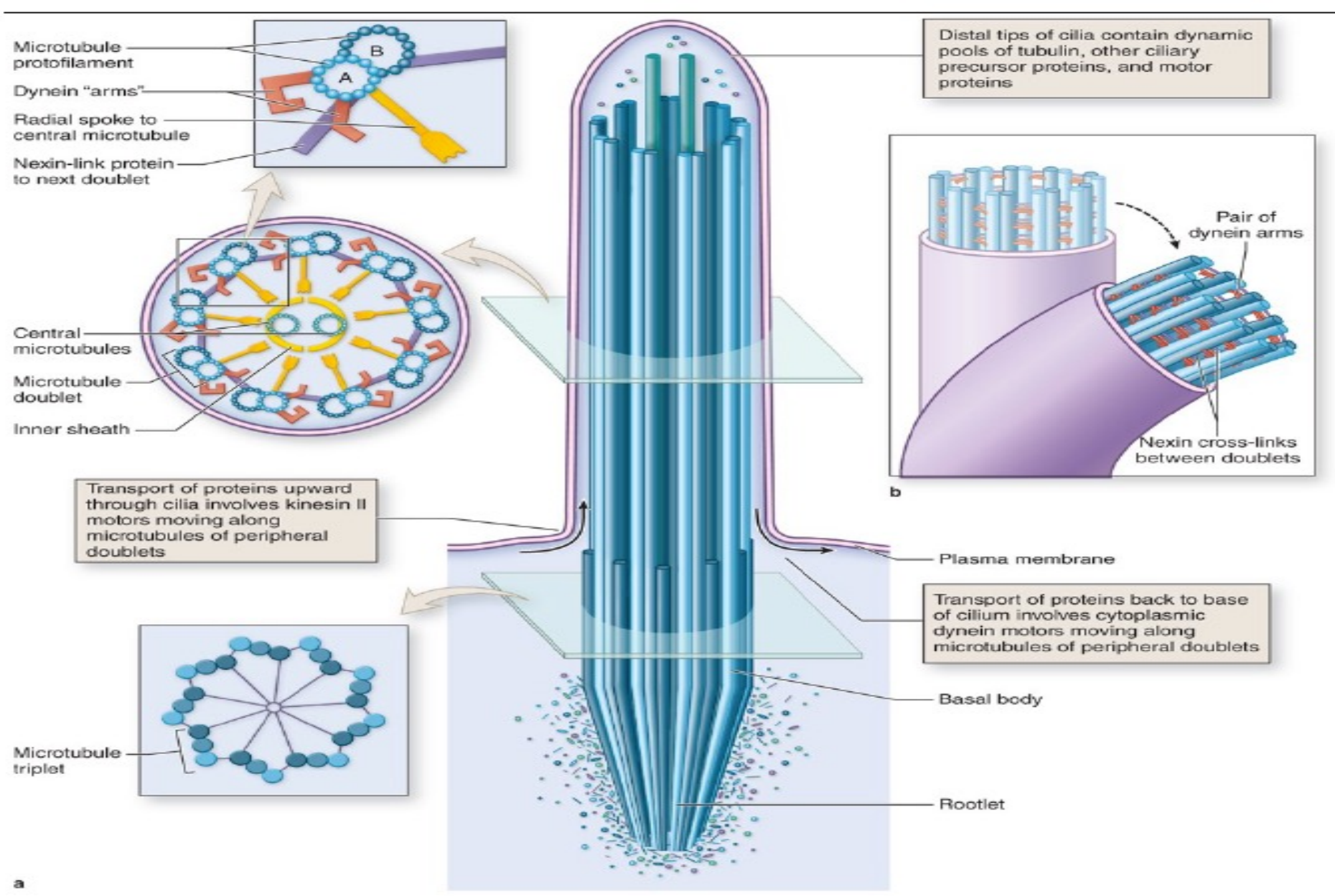




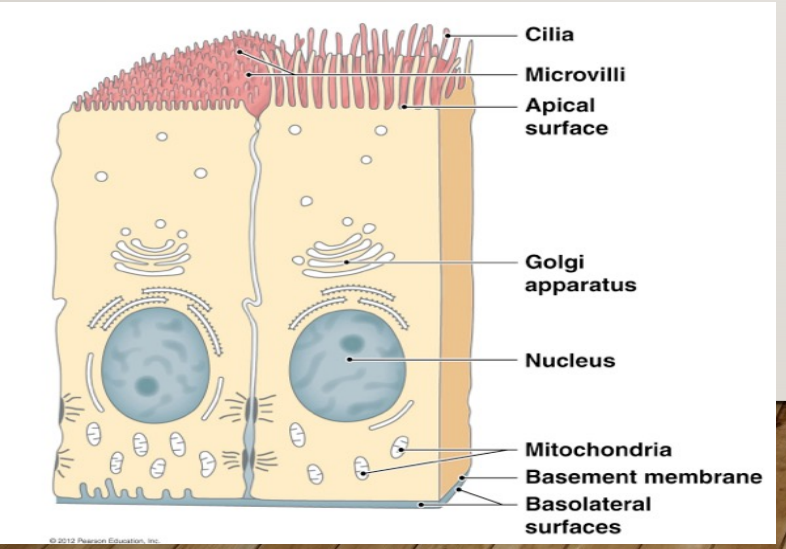


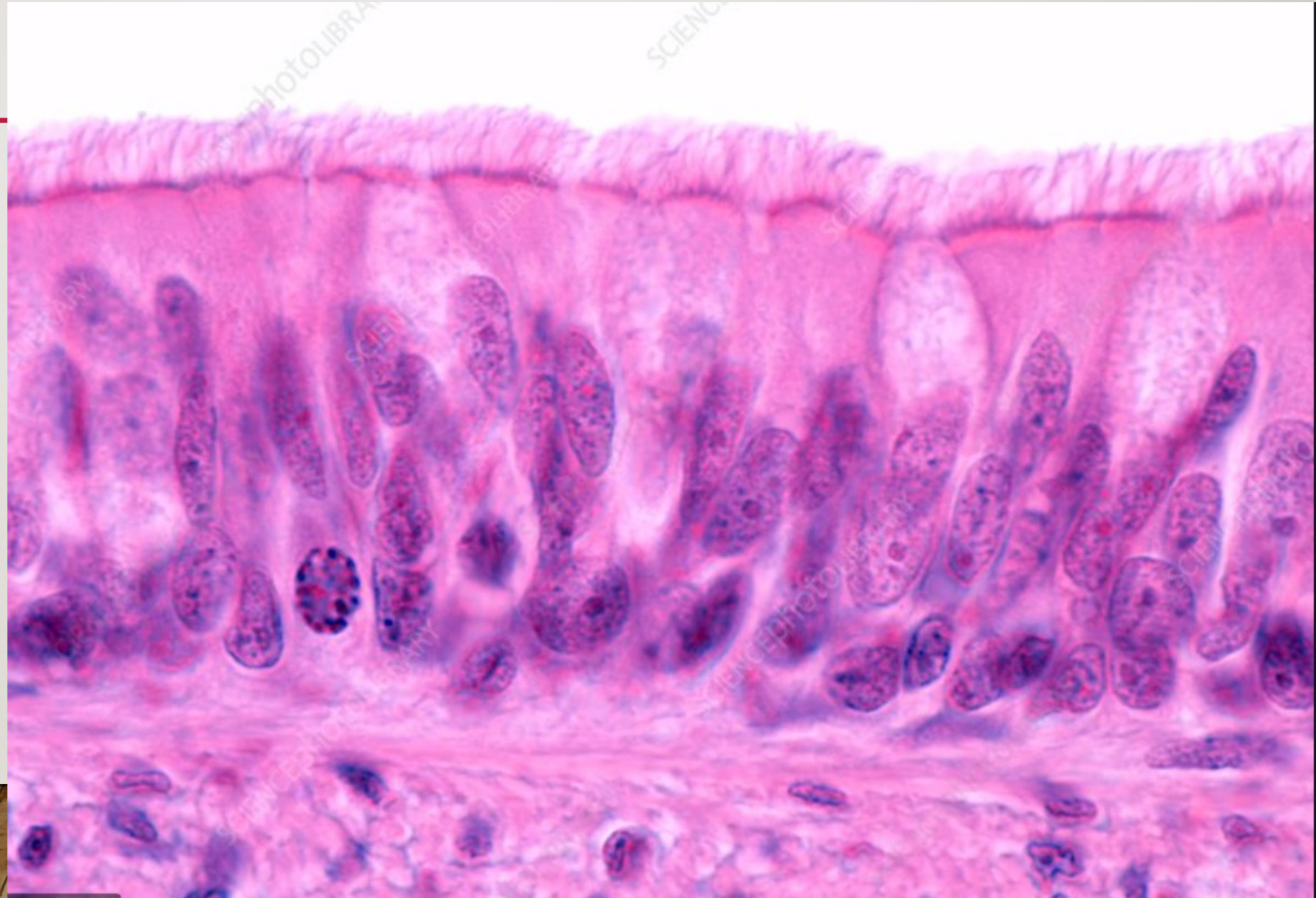
CILIA

CILIA


Microtubule protofilament
Dynein "arms"
Radial spoke to central microtubule
Nexin-link protein to next doublet
B
A
Central microtubules
Microtubule doublet
Inner sheath
Transport of proteins upward through cilia involves kinesin II motors moving along microtubules of peripheral doublets
Microtubule triplet
a
Distal tips of cilia contain dynamic pools of tubulin, other ciliary precursor proteins, and motor proteins
Pair of dynein arms
Nexin cross-links between doublets
b
Plasma membrane
Transport of proteins back to base of cilium involves cytoplasmic dynein motors moving along microtubules of peripheral doublets
Basal body
Rootlet

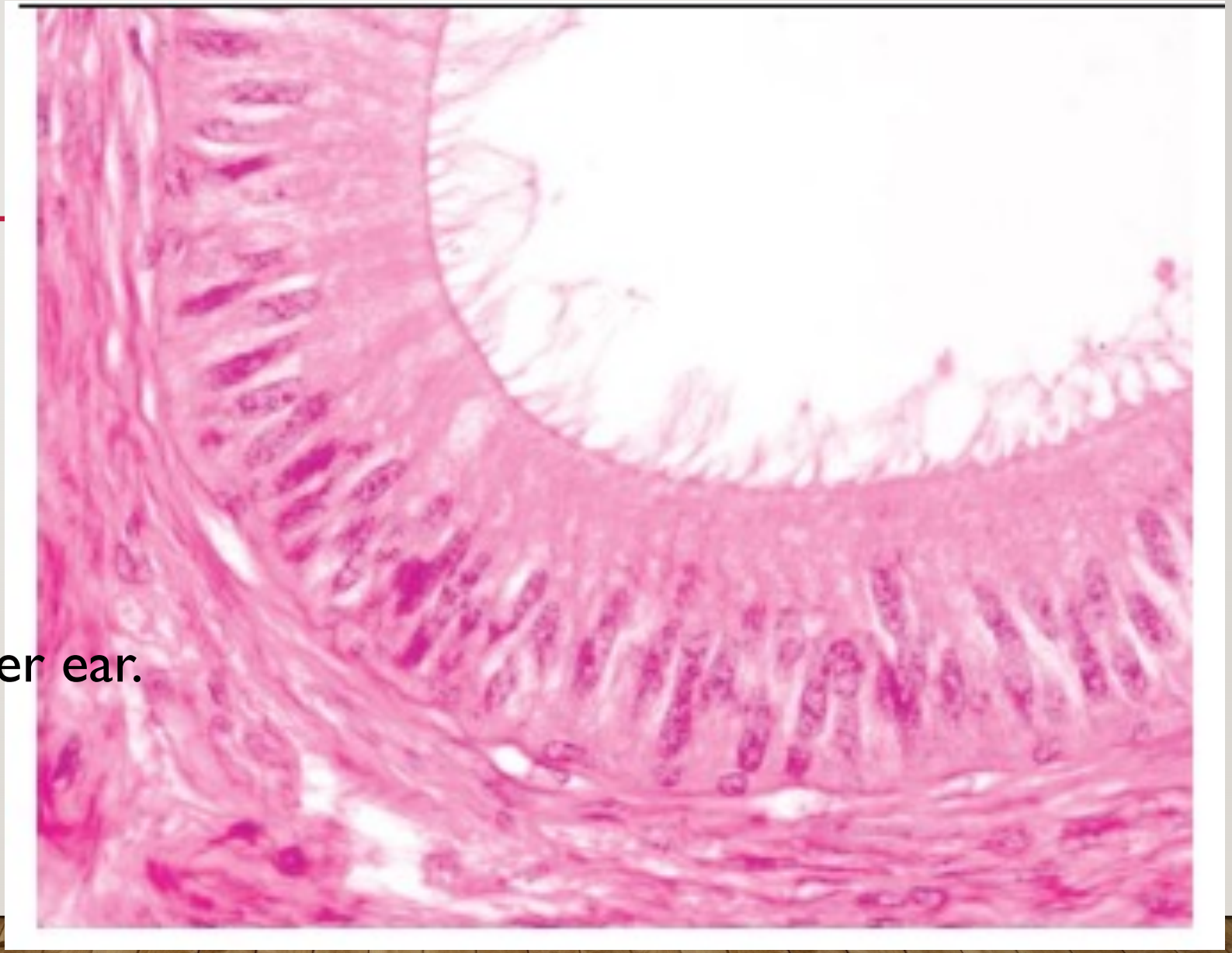
CILIA


Cilia
Microvilli
Apical surface
Golgi apparatus
Nucleus
Mitochondria
Basement membrane
Basolateral surfaces



STEREOCILLIA

- Increase surface area
- Absorption
- Branched and long.
- Motion detection.
- Male genital tract and inner ear.



STEREOCILIA