

Epithelial Tissue

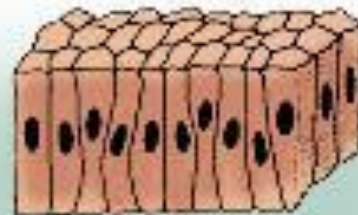
Types of Epithelium



Simple squamous

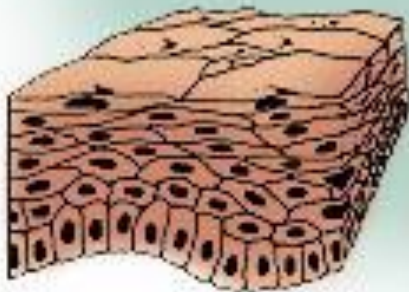
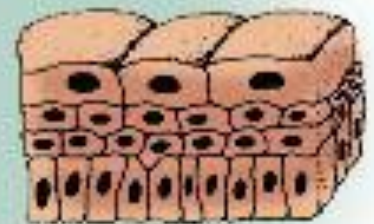


Simple cuboidal



Simple columnar

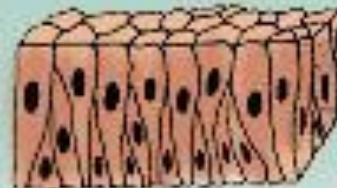
Transitional



Stratified squamous



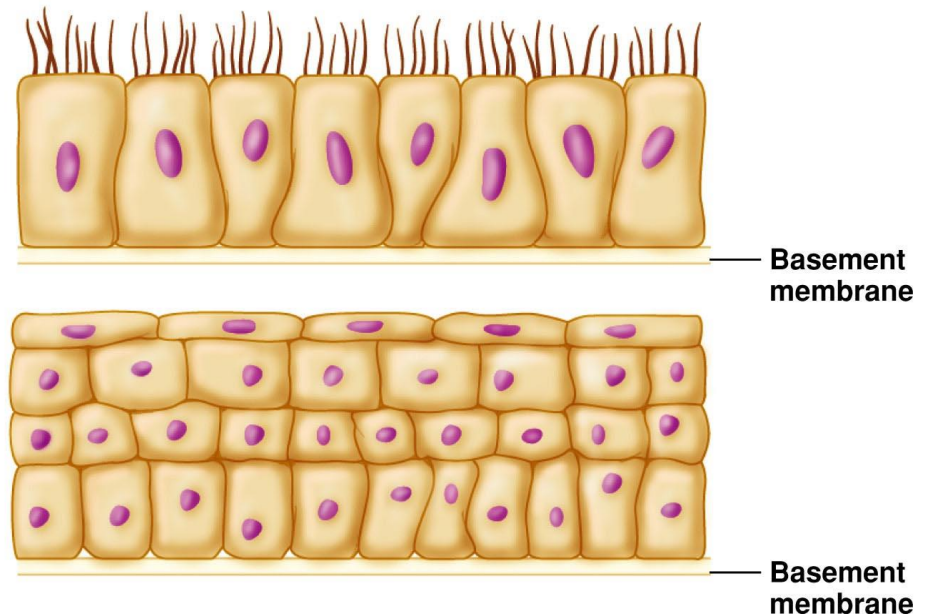
Stratified cuboidal



Pseudostratified columnar

Tissues

- Tissues are groups of cells that are similar in structure and function – protection, absorption, secretion, movement, electrical impulses, etc.



(c) Epithelial cells

Tissues

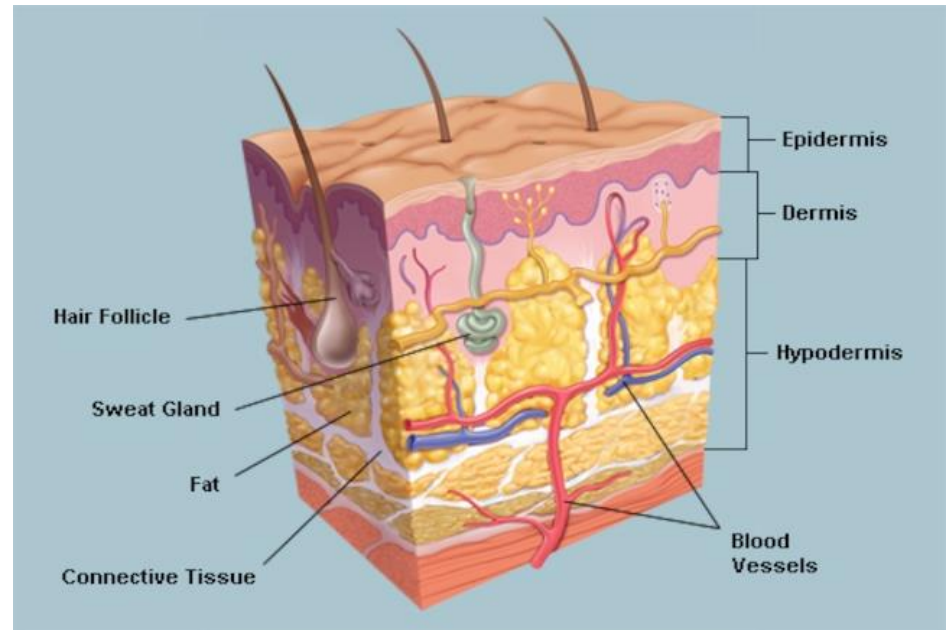
Four types of tissue

- **Epithelial** = covering
- **Connective** = support
- **Muscle** = movement
- **Nervous** = control

Epithelial Tissues

A group of cells that covers the body surface or line the cavities.

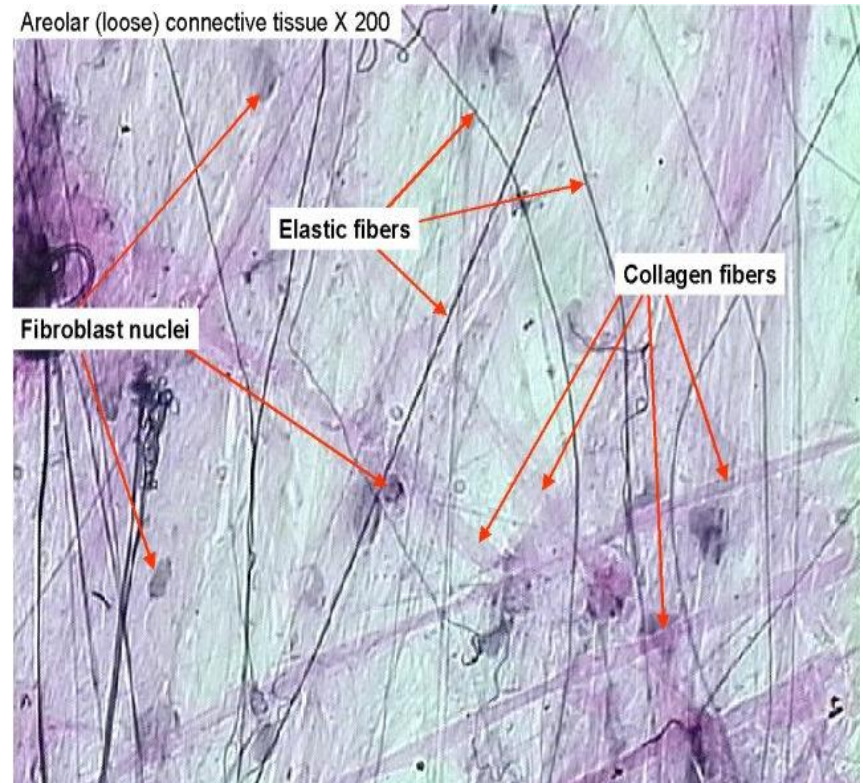
- Covers body surfaces
- Lines body cavities
- Lines hollow organs
- Ducts
- Forms glands



Tissues

Connective

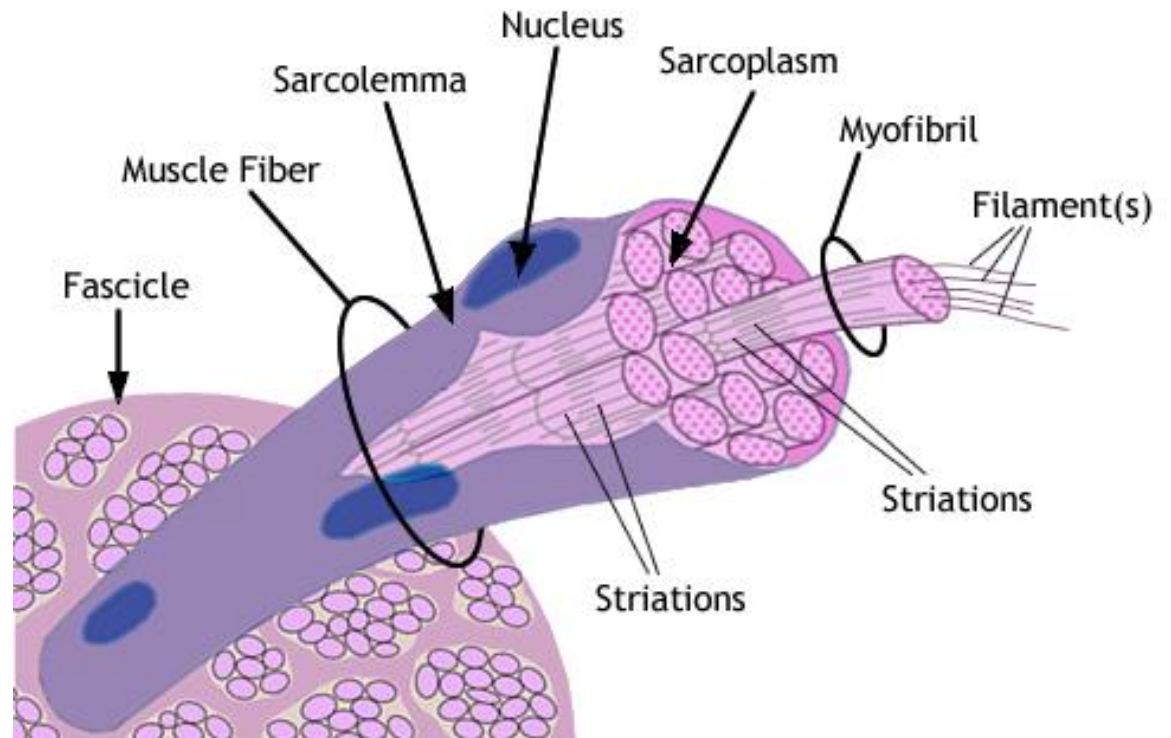
- Protection and support
- Binds organs together



Tissues

Muscle

➤ Movement



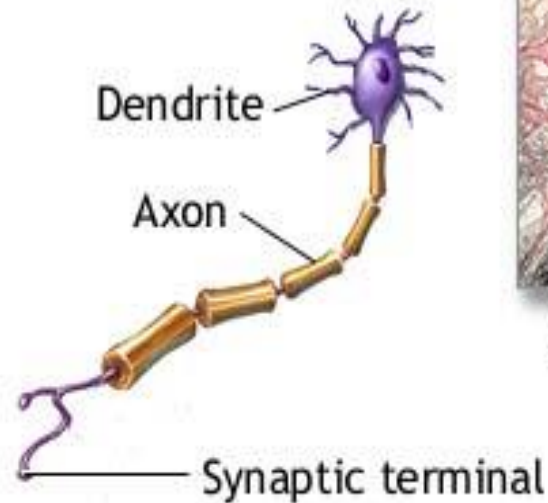
Tissues

Nervous

- Detects change
- Nerve impulses



Aging brain



Neurons in aging brain

Epithelial Tissue

- A collection of closely packed cells with very small amount of extracellular matrix rest on a membrane known as *basement membrane*.
- Epithelium is an avascular tissue.
- Composed of cells that cover the exterior body surfaces and line cavities (including the vascular system) and body tubes (the alimentary, respiratory and genitourinary tracts).

Classification

Two types:

1. Covering and lining epithelium

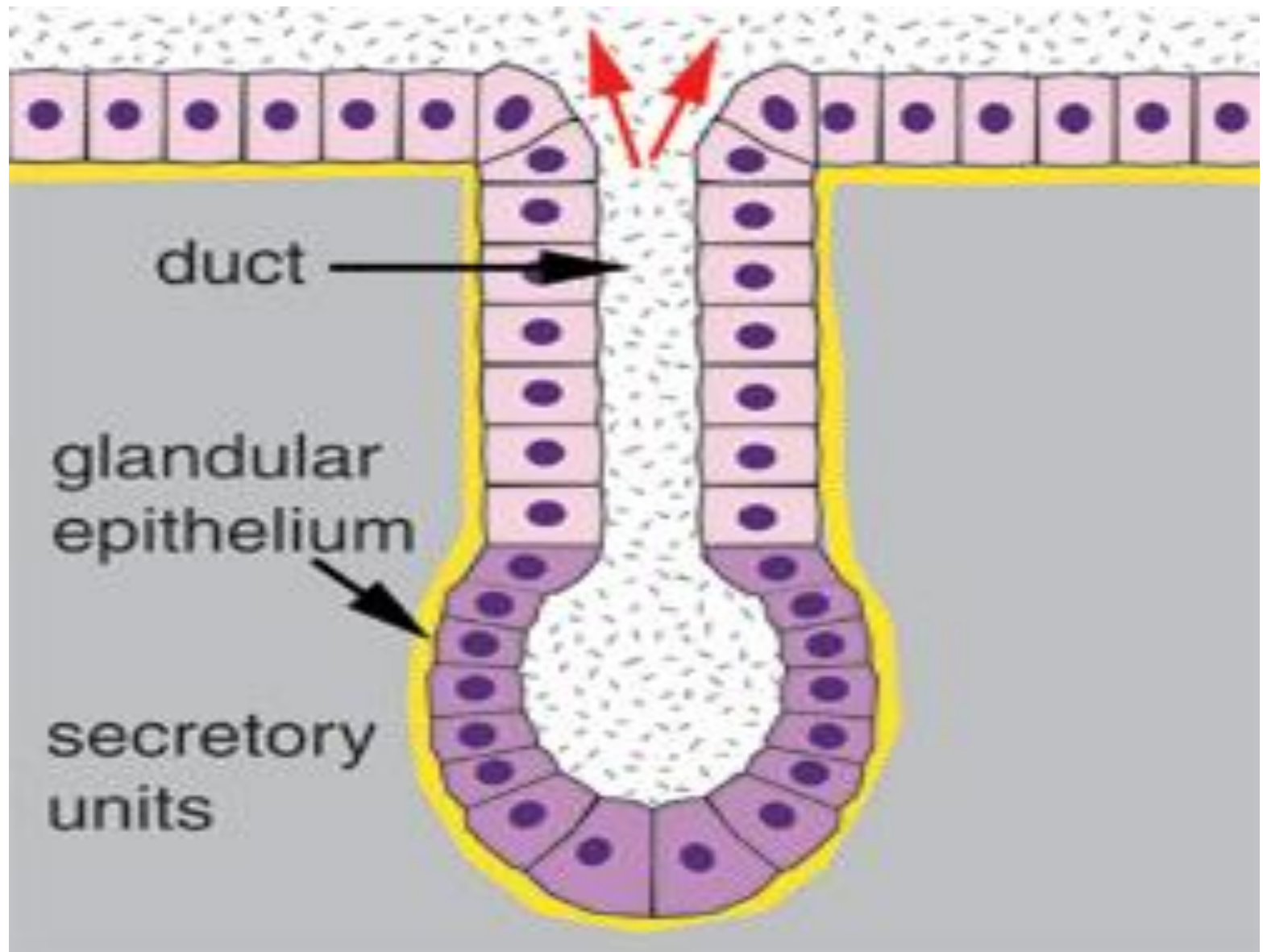
- Outer covering of skin, and internal organs
- Body cavities
- Blood vessels and ducts
- Interior of respiratory, digestive, urinary and reproductive organs

2. Glandular epithelium

- Secreting portion of glands

Glandular Epithelium

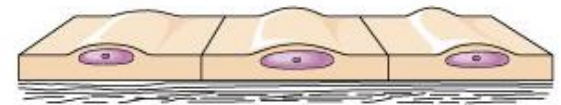
- **Glandular epithelium** is a type of **epithelial** tissue which covers the glands of our body. The main function is secretion and excretion.



Classification of Epithelium

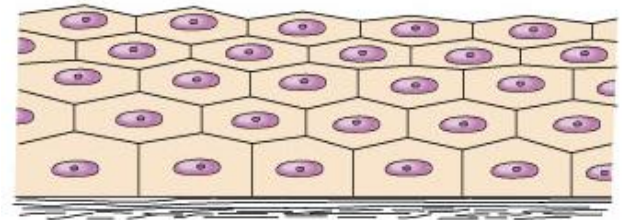
Number of cell layers

Simple: Which consist of only a single layer of cells.



Simple

Stratified: More than one layer of epithelial cell



Stratified

(a)

Classification of Epithelium

Shape of cells

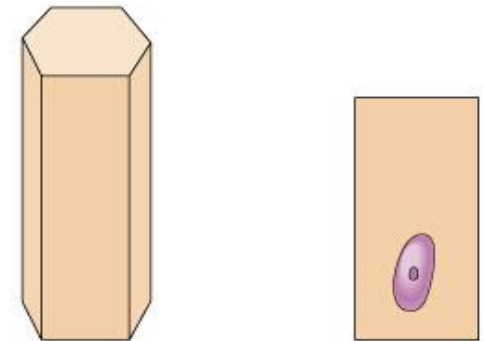
- **Squamous** – flattened
- **Cuboidal** – cube-shaped
- **Columnar** – column-like



Squamous



Cuboidal



Columnar

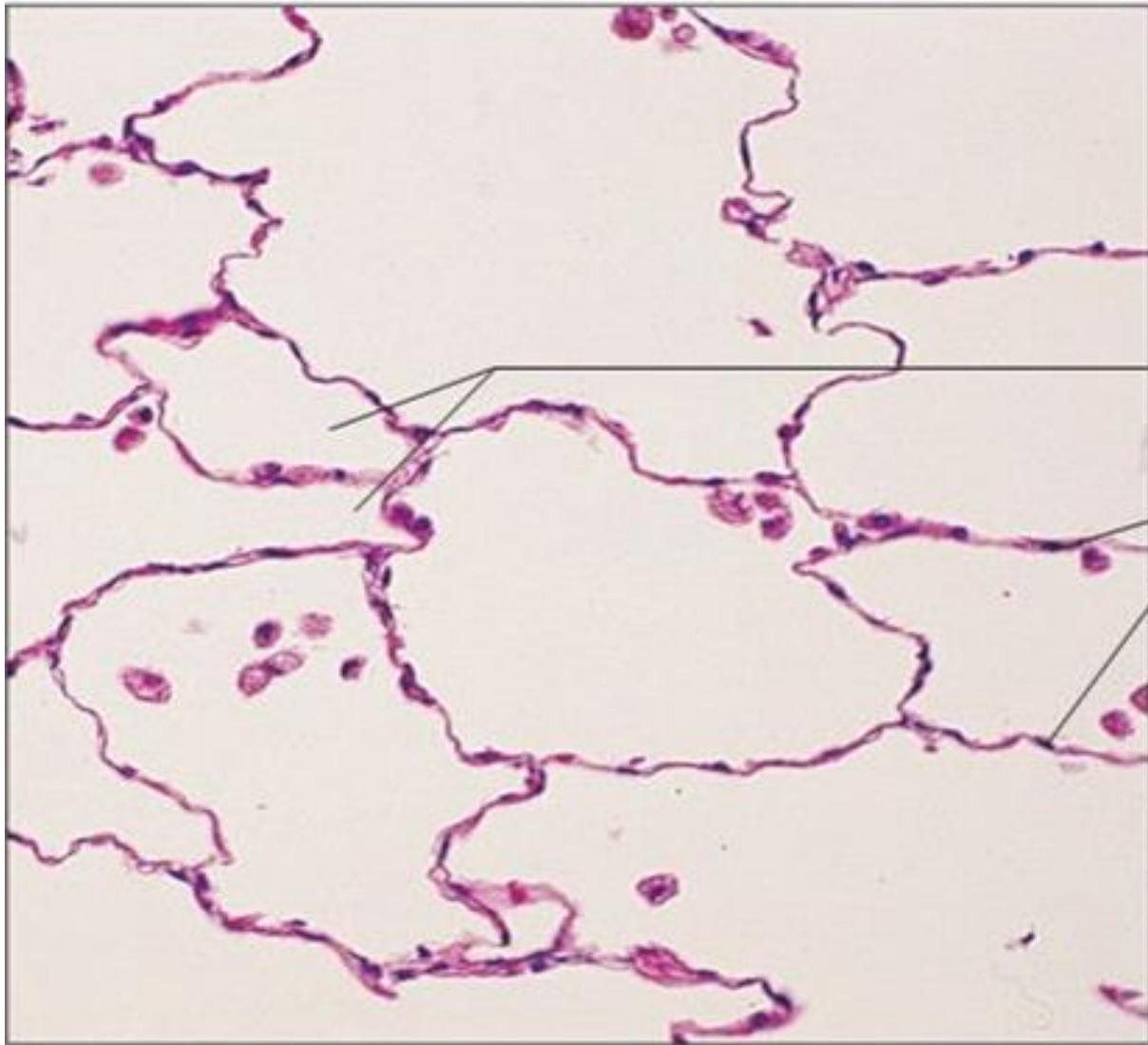
(b)

Simple Squamous epithelium

- Single layer of flat cells with disc-shaped nuclei in the centre of cell.
- On surface view cells appear polygonal like tiles in the floor.
- On lateral view cells appear as spindle shape

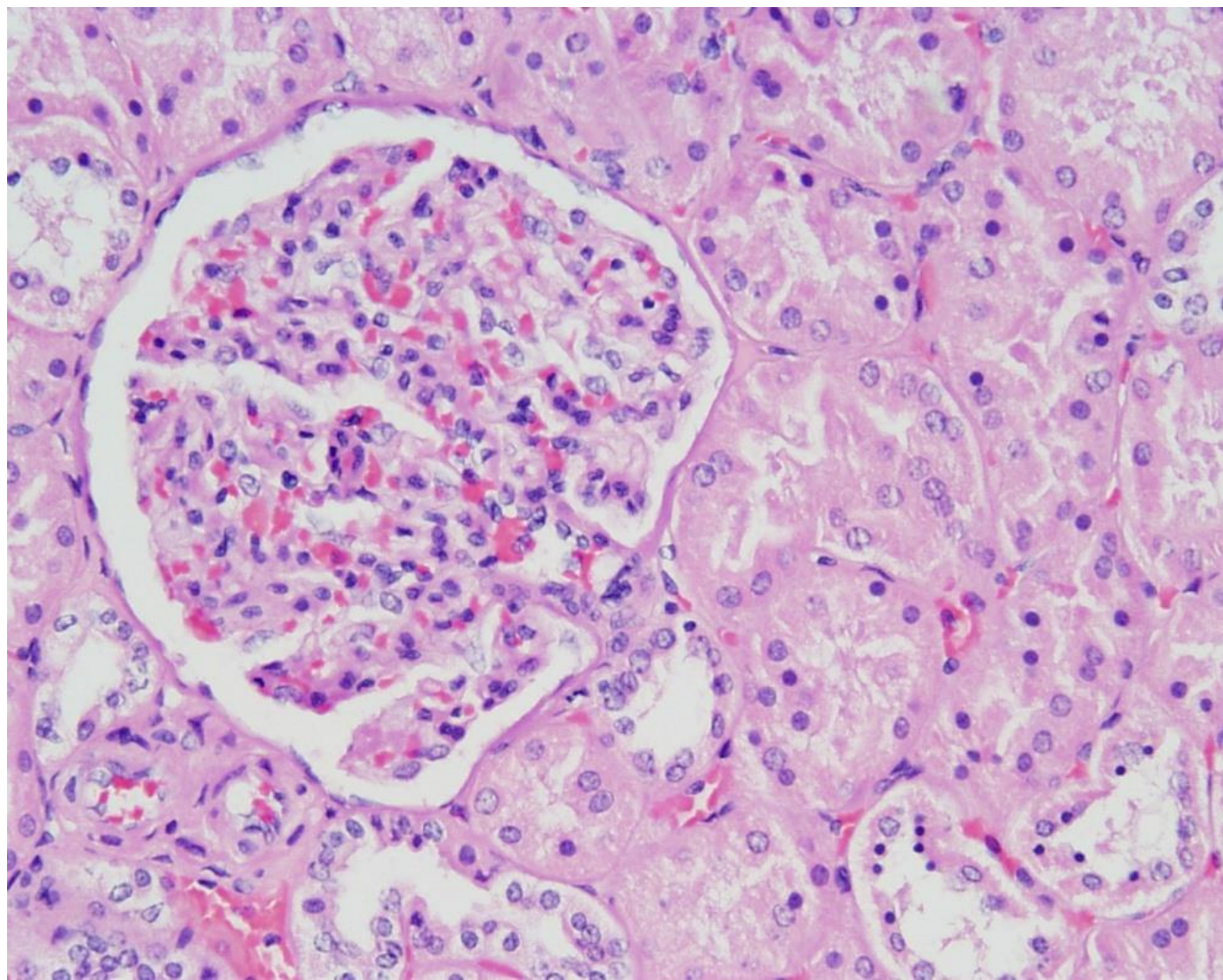
Examples:

- Blood vessels/lymph vessels
- Alveoli of lungs
- Pleural cavity
- Pericardial cavity
- Peritoneal cavity
- Renal corpuscles (kidneys)



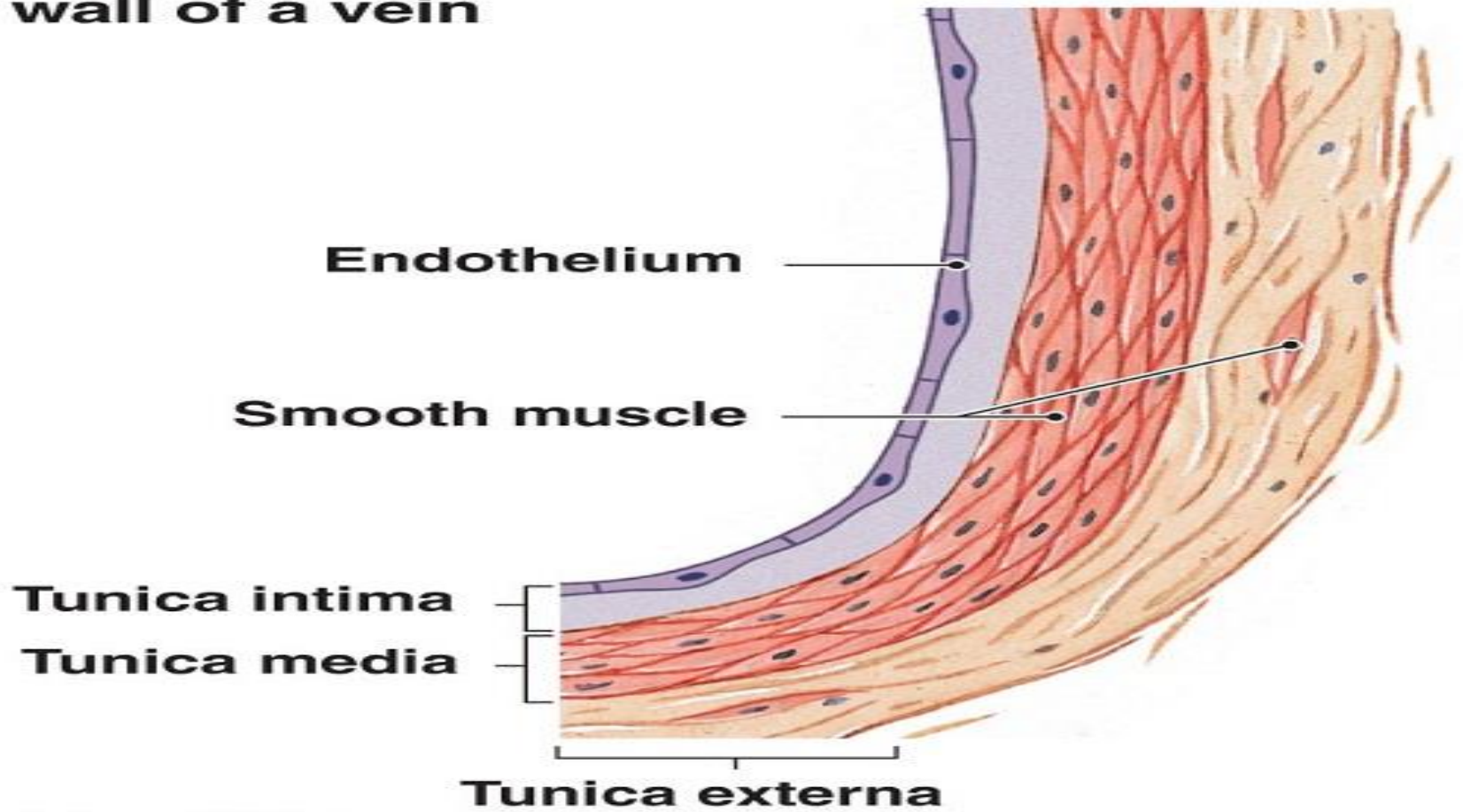
**Air sacs of
lung tissue**

**Nuclei of
squamous
epithelial
cells**



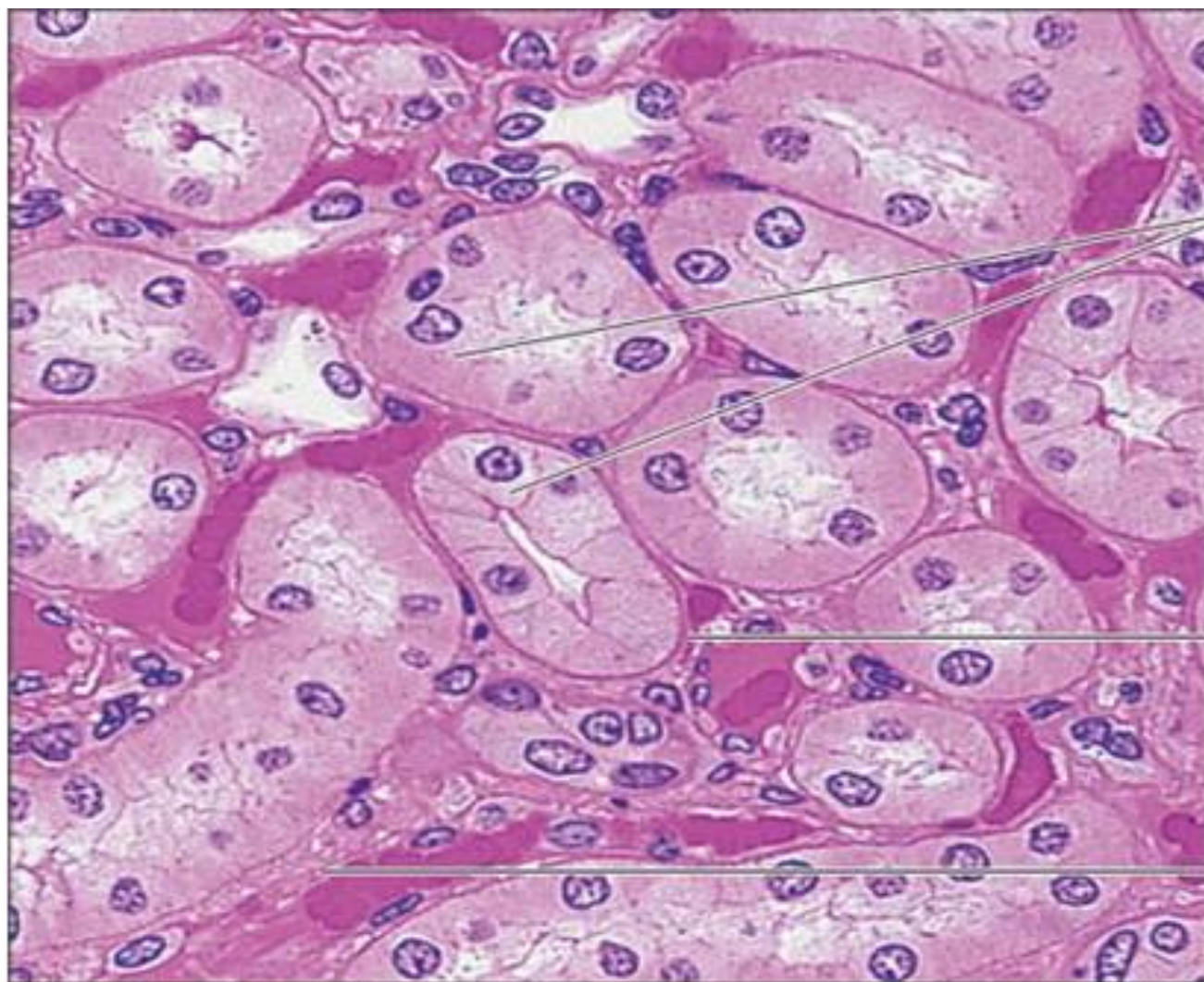
The structure of the wall of a vein

Vein



Simple Cuboidal Epithelium

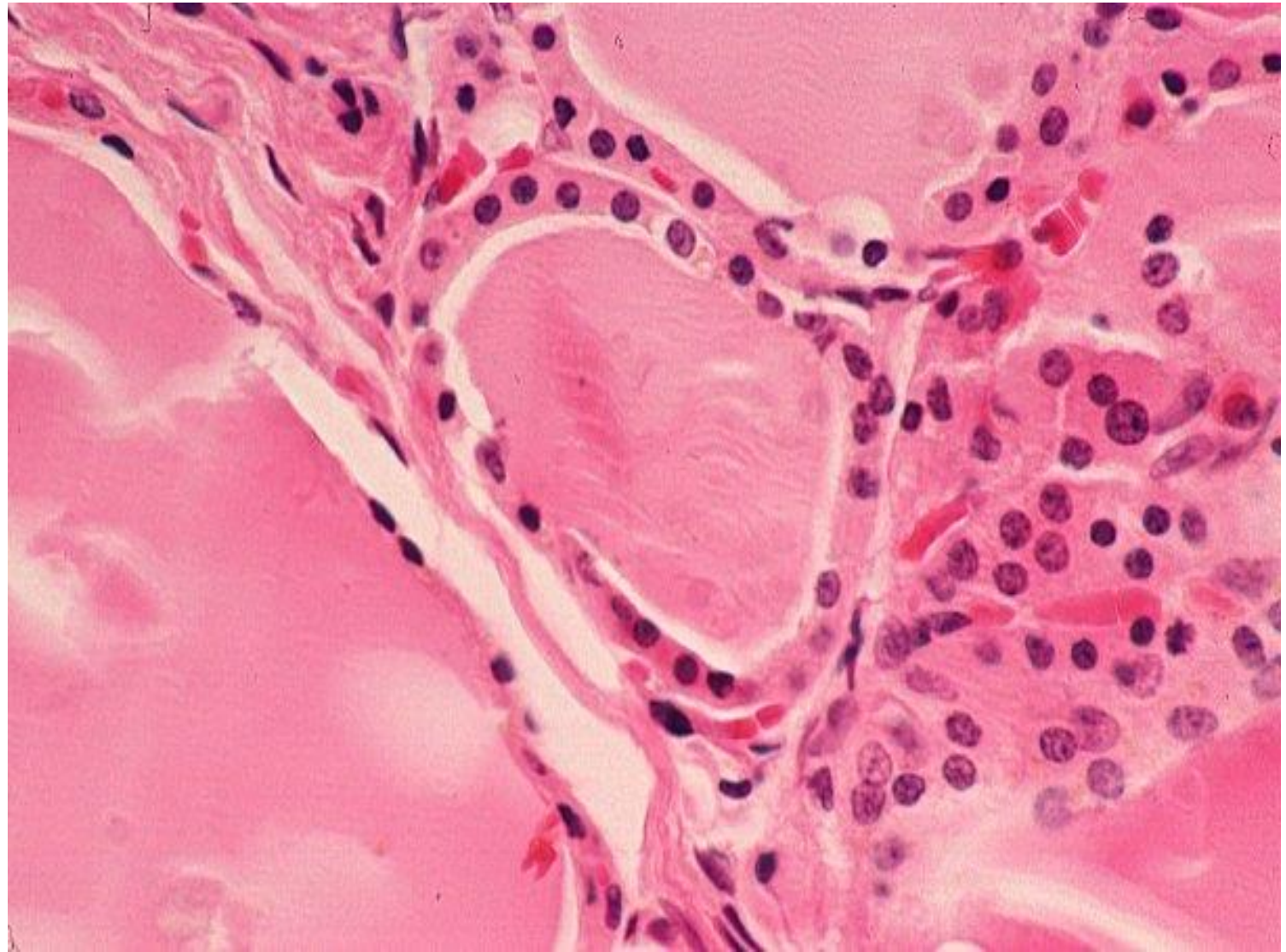
- Single layer of cube-like cells with large, spherical central nuclei
 - The cell give a roughly square outline the height and width of each cell nearly equal.
 - On surface view the cells are rather hexagonal or polygonal in shape.
- Lines small excretory ducts of glands
 - Ducts of salivary and pancreas
 - Distal convulated tubules
 - Outer surface of ovary
 - Respiratory bronchioles
 - Thyroid follicles

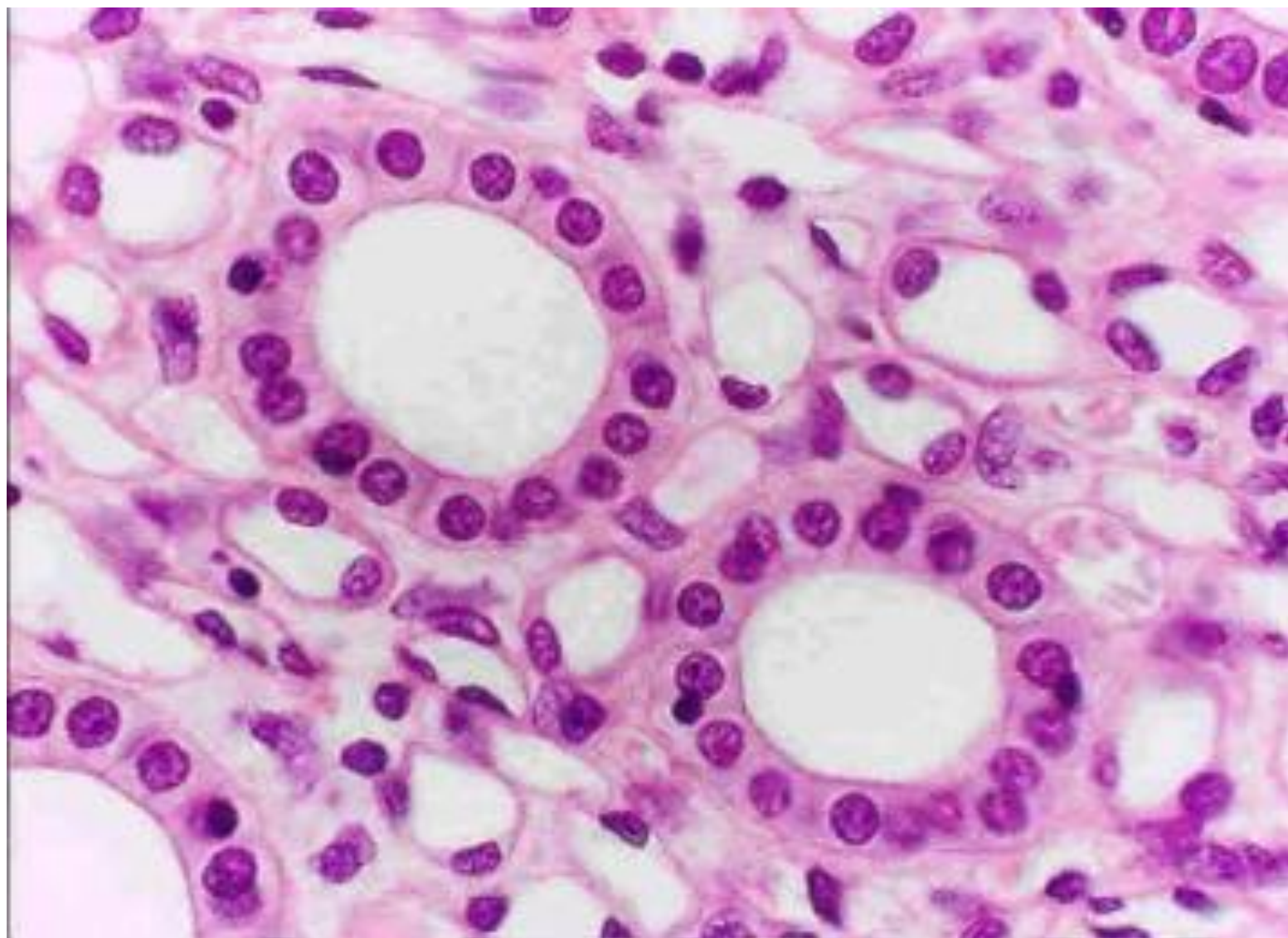


**Simple
cuboidal
epithelial
cells**

**Basement
membrane**

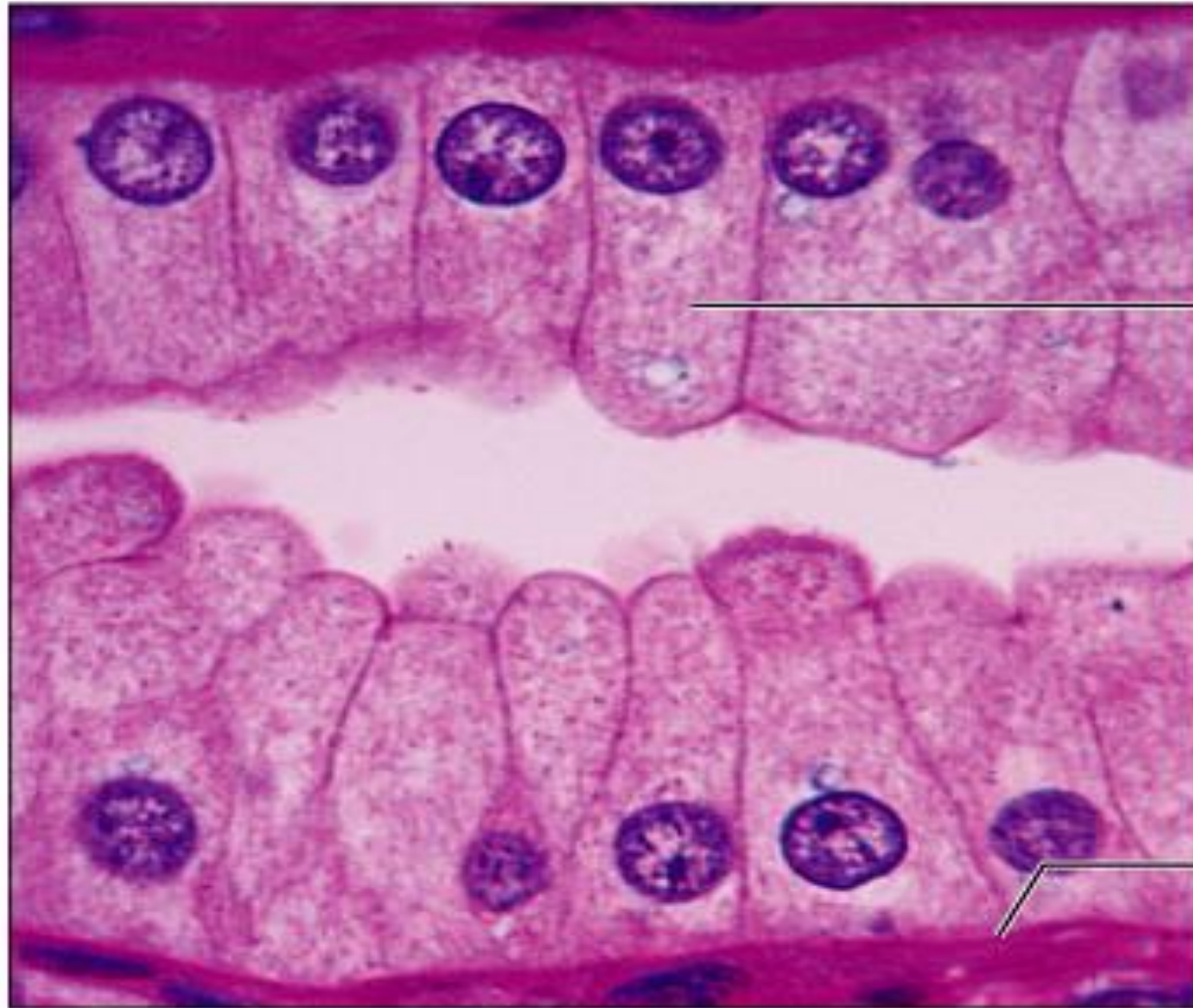
**Connective
tissue**





Simple Columnar Epithelium

- Consist of a single layer of column shaped cells.
 - The height is greater than its width and the nucleus is located near the base of cell.
- Stomach
 - Small and large Intestine
 - Gall bladder
 - Uterus

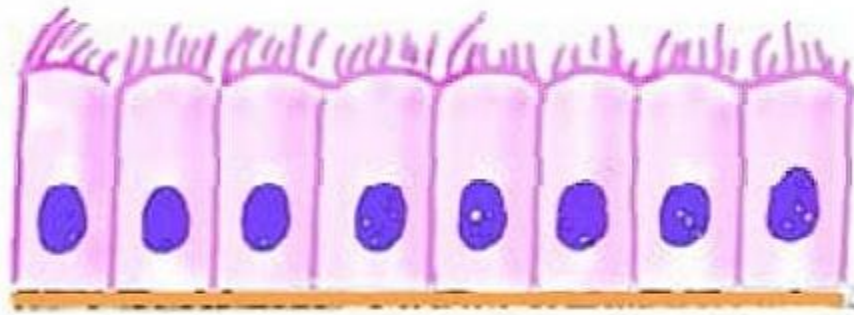


Simple
columnar
epithelial
cell

Basement
membrane

Photomicrograph: Simple columnar epithelium of the stomach mucosa (1300 \times).

Simple Columnar with Cilia

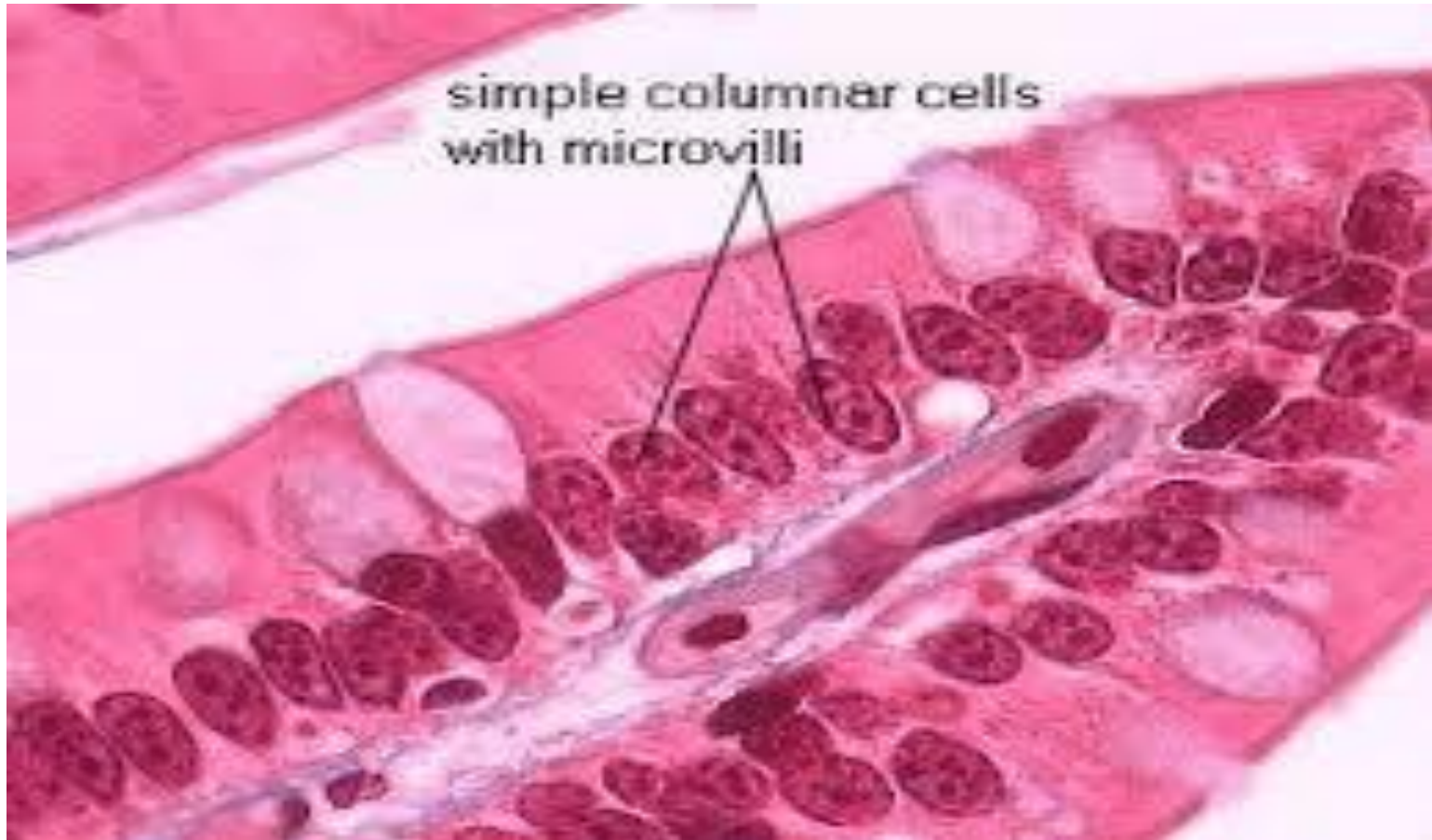


Lining of uterus

Fallopian tube

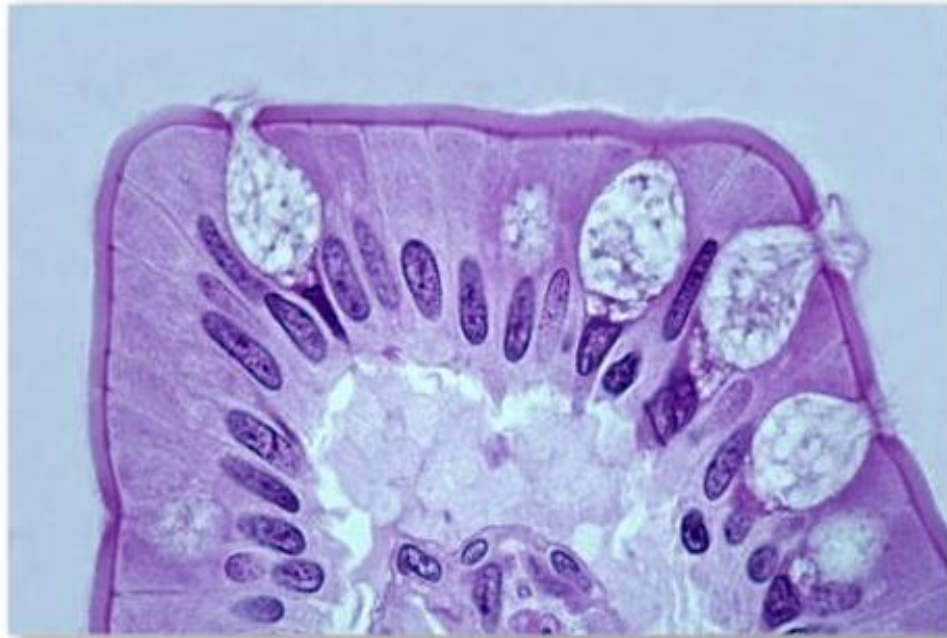
Tympanic cavity and auditory tube

Simple columnar with Microvilli



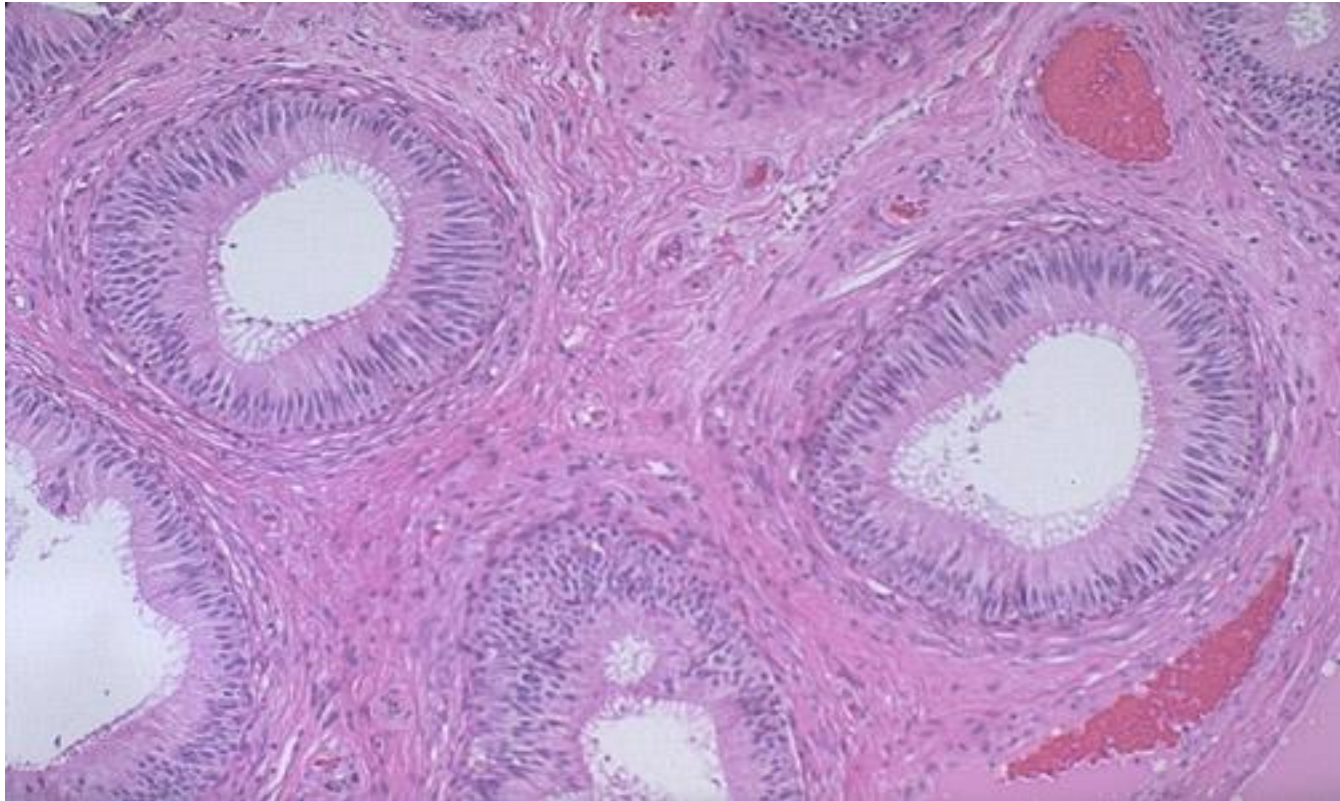
Small intestine
Gall bladder

Goblet cells



Lining of small intestine and large intestine

Simple Columnar Epithelium with stereocilia



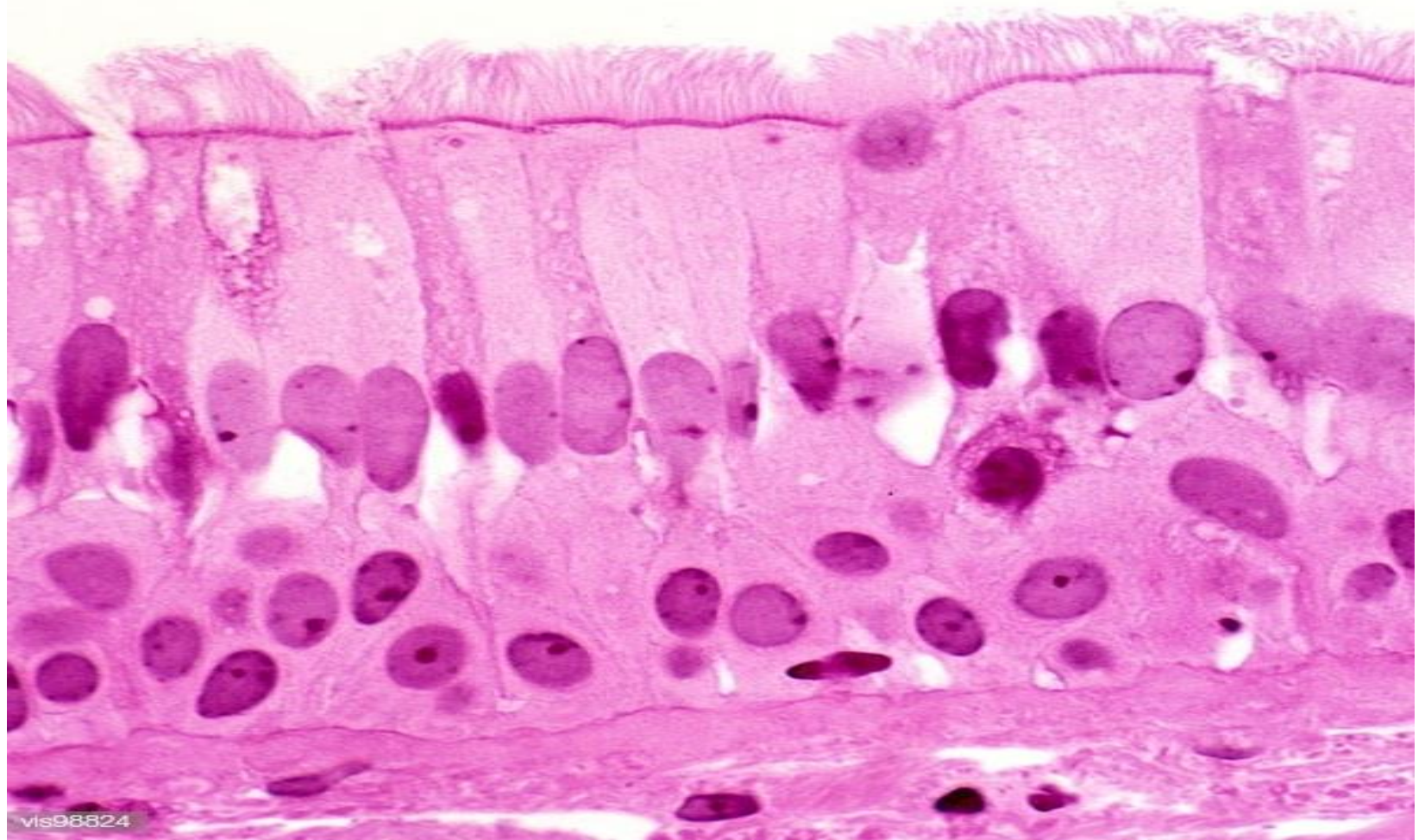
Lining of epididymis

Vas deferens

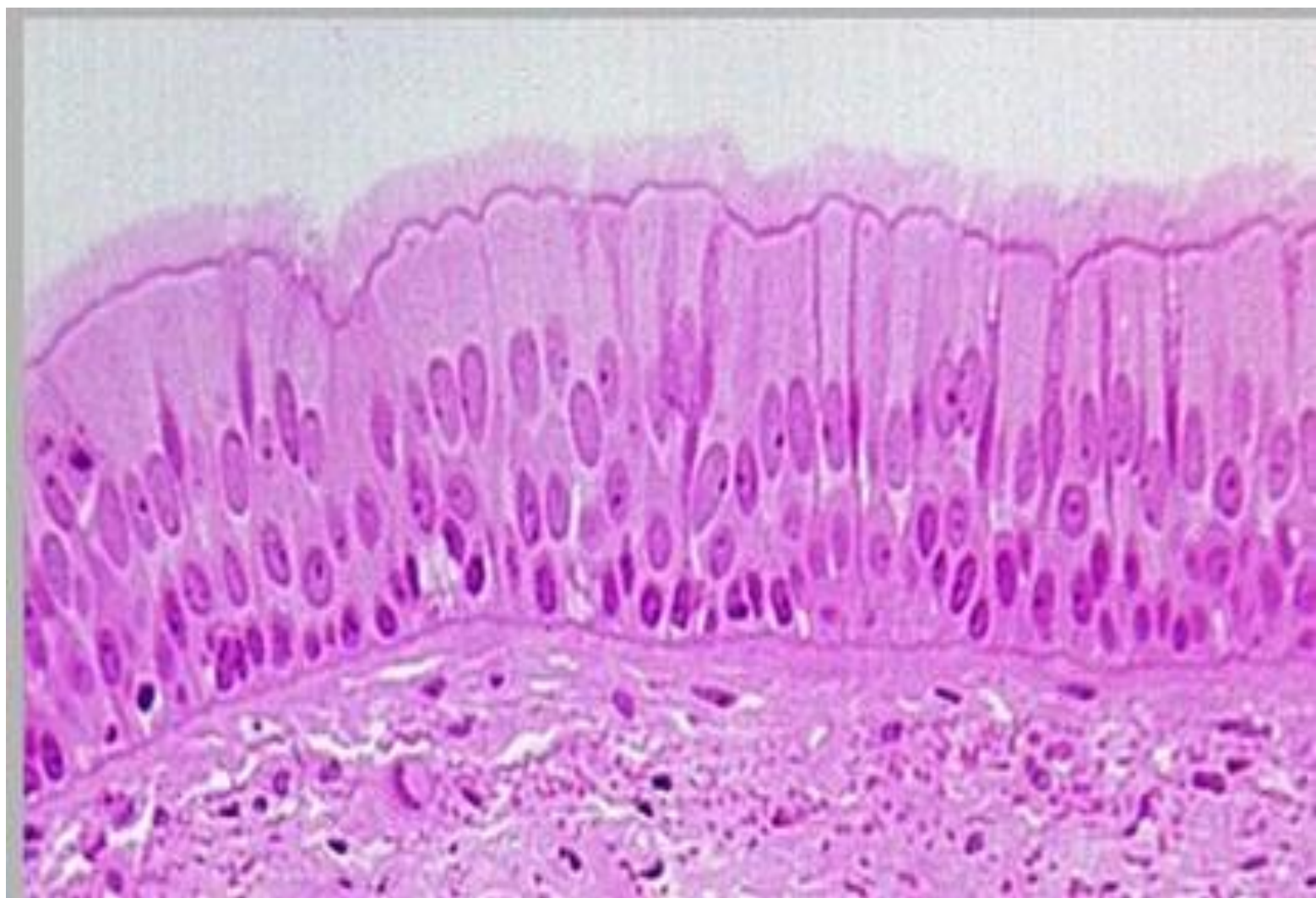
Seminal vesicle

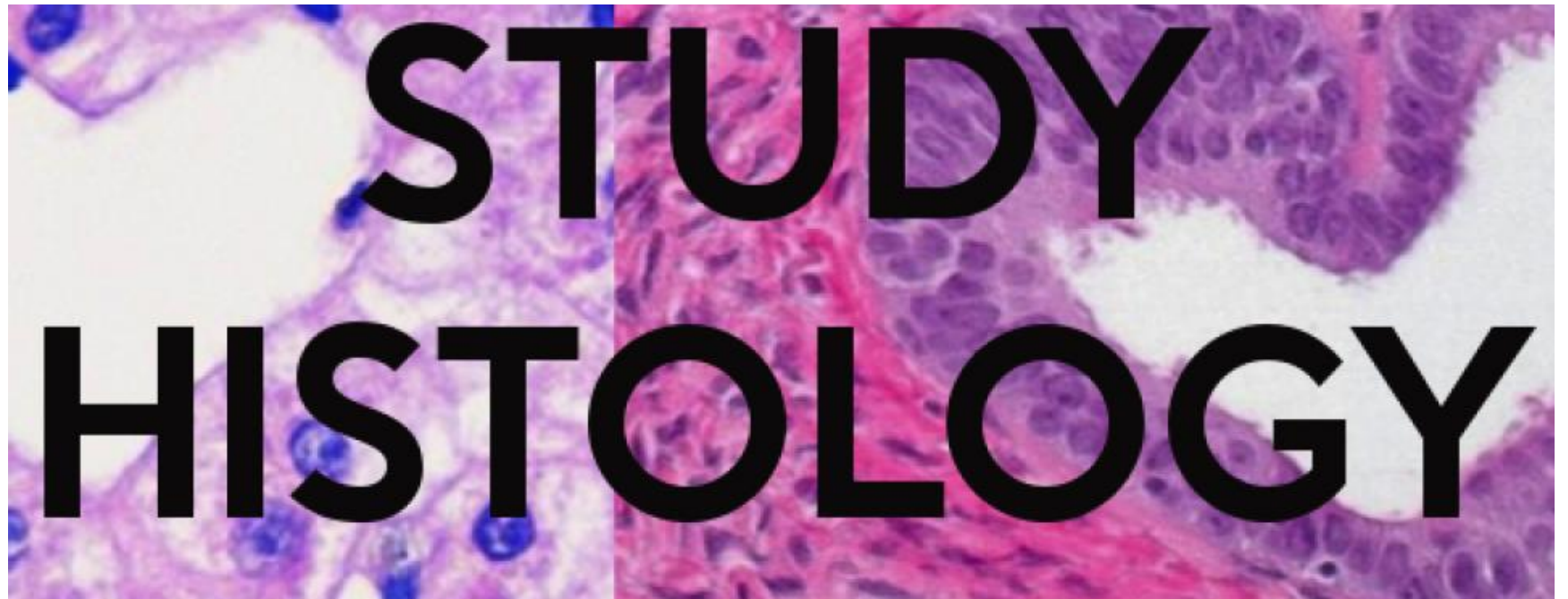
Pseudostratified Columnar Epithelium

- Not a true stratified tissue.
- All cells are attached to the basement membrane but not all reach the apical surface.
- When viewed from the side, it appears that they have several layers.
- The pseudostratified simple columnar epithelium lines the conducting part of respiratory system .
- Nose
- Nasopharynx
- Trachea
- Bronchi



vis98824





'





