

Islamic university

**Radiology techniques Department/
Third Stage**

Practical Pathology

Lab.4

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normal cells in the body

Main Topics of this lab:

- Types of epithelial cells

- **There are different types of cells in the body these cells are differentiated according the function and location**

1- Epithelial cells

- **Cells are arranged in continuous sheets**
- **Cells are held tightly together by cell junctions**
- **Basal surface adheres to basal lamina or basement membrane.**
- **Has high capability to regenerate.**

Classification of the epithelial tissue

: According to shape, arrangement and the specialization of their free surface:

- Simple**
- Stratified**
- Pseudostratified**
- Transitional**

Simple epithelium

1- Simple Squamous Epithelium

: composed of single layer of flattened cells laying on basement membrane

•Examples:

- Lung alveoli

-Bowman's capsule of kidney

- Function: Rapid transport of substances, secretion of fluid, diffusion of gases and osmosis

Simple Squamous Epithelium

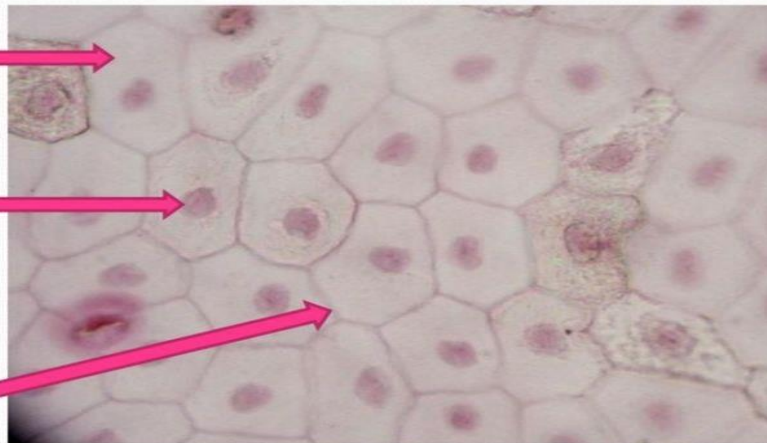
1.



2.



3.



Word Bank: Cytosol, Cell Membrane, Nucleus

2-Simple Cuboidal Epithelium

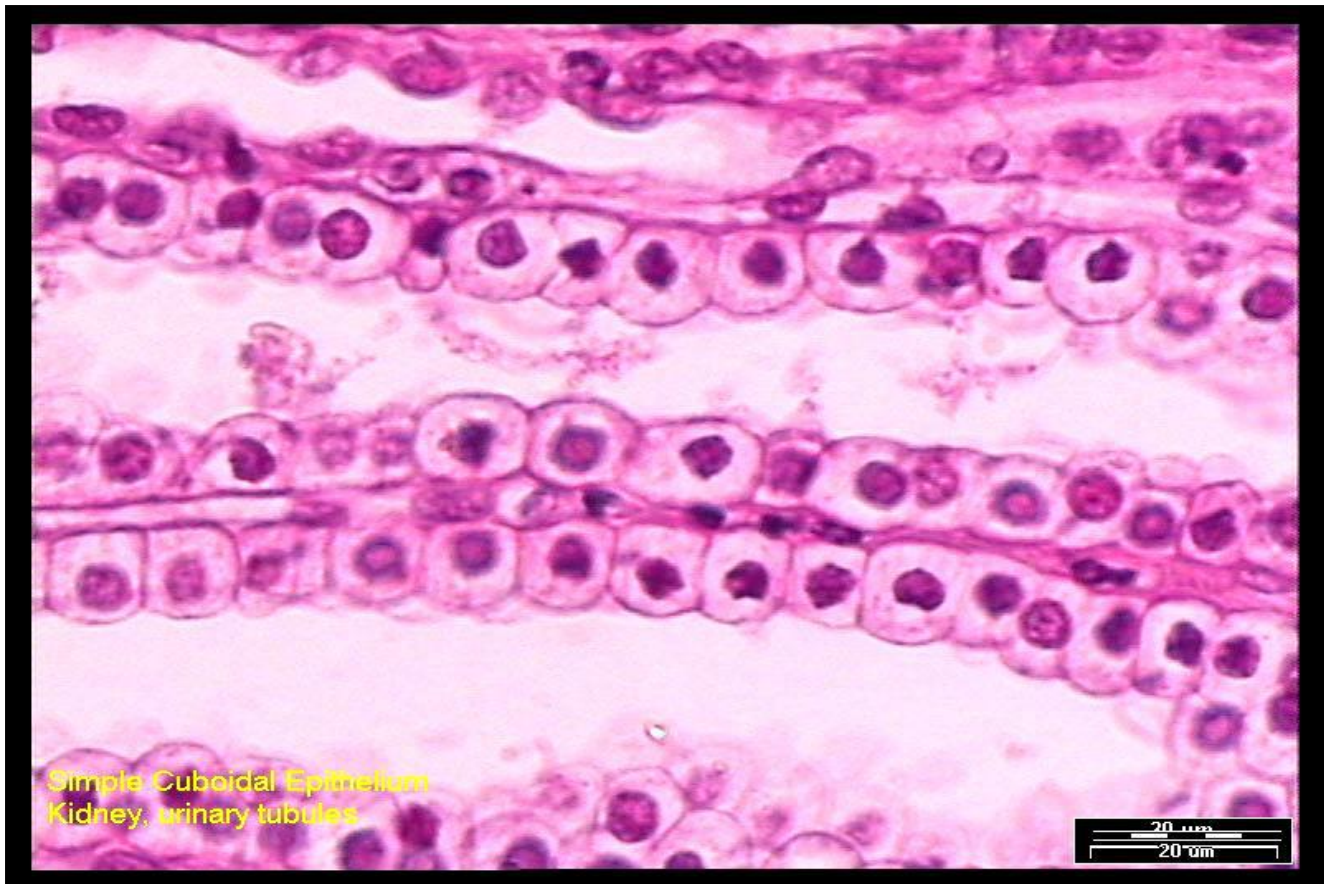
Single layer of cuboidal shaped cells

•On surface view, cells look like mosaic (hexagonal)

•Example:

-Tubules of nephrons

Function: Secretion and absorption



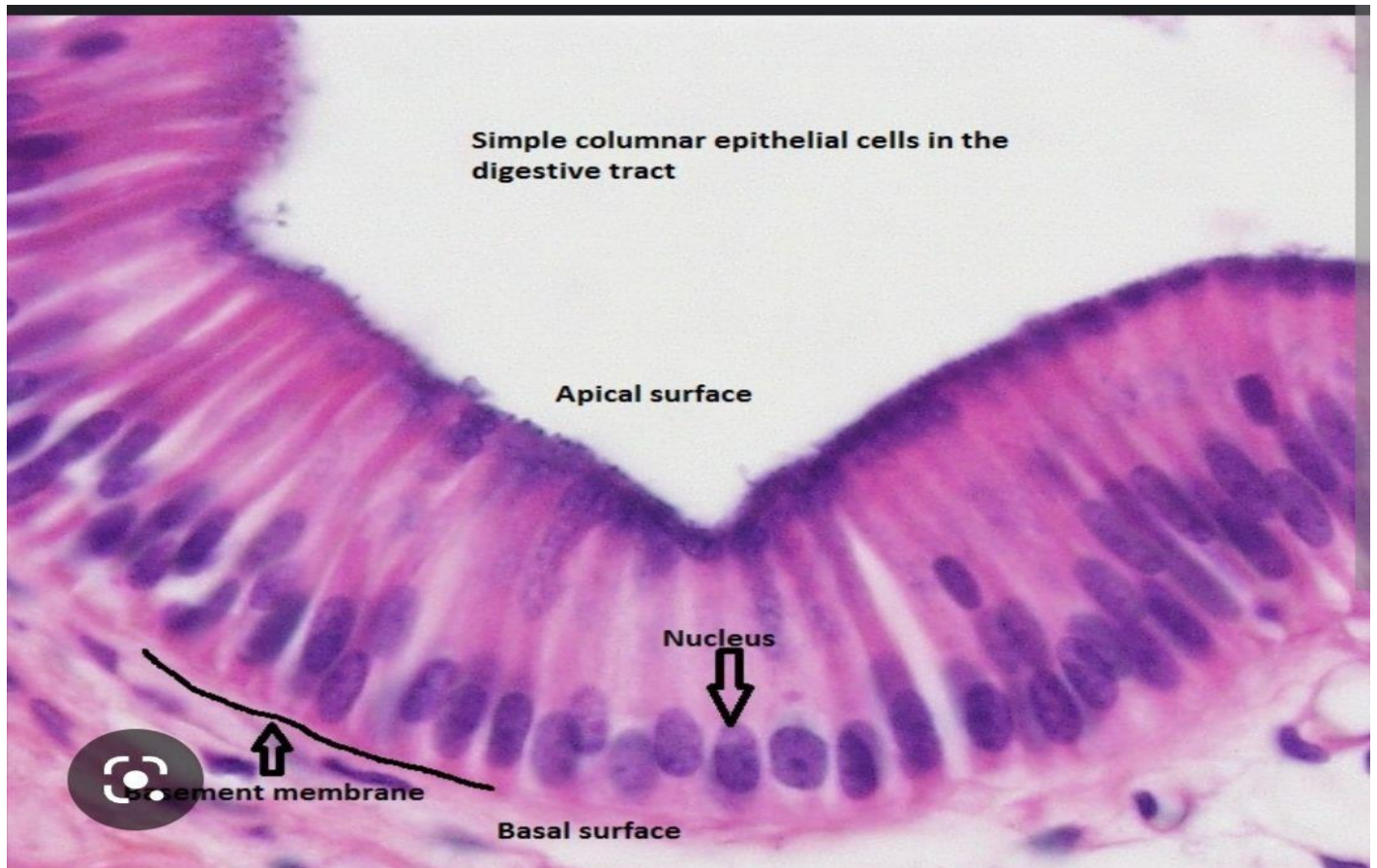
3-Simple Columnar Epithelium

- *Cells having more height than width
- *Nuclei are elongated, located in the lower half of cells
- *Cells may show some surface modifications

•Examples:

- Gastrointestinal tract

Function: Secretion and absorption; Ciliary action



Stratified epithelium

1. Stratified Squamous Epithelium

- Multi layered squamous cells

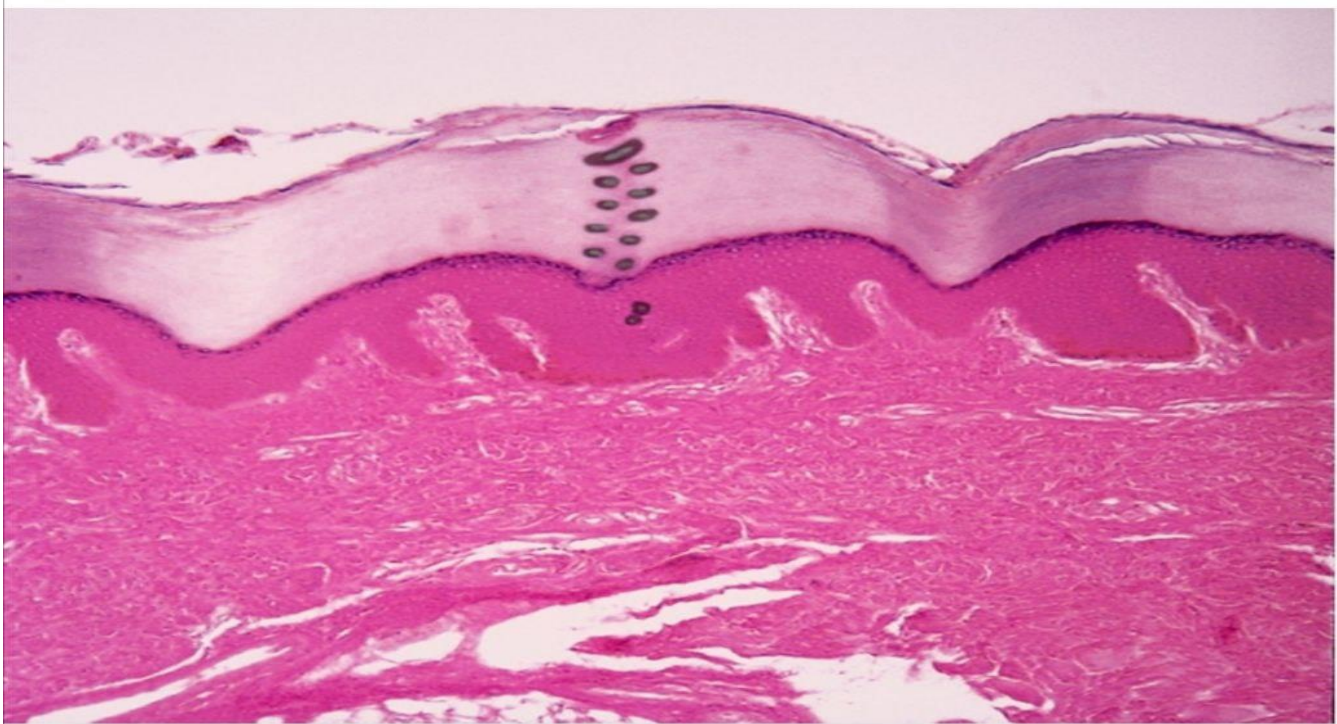
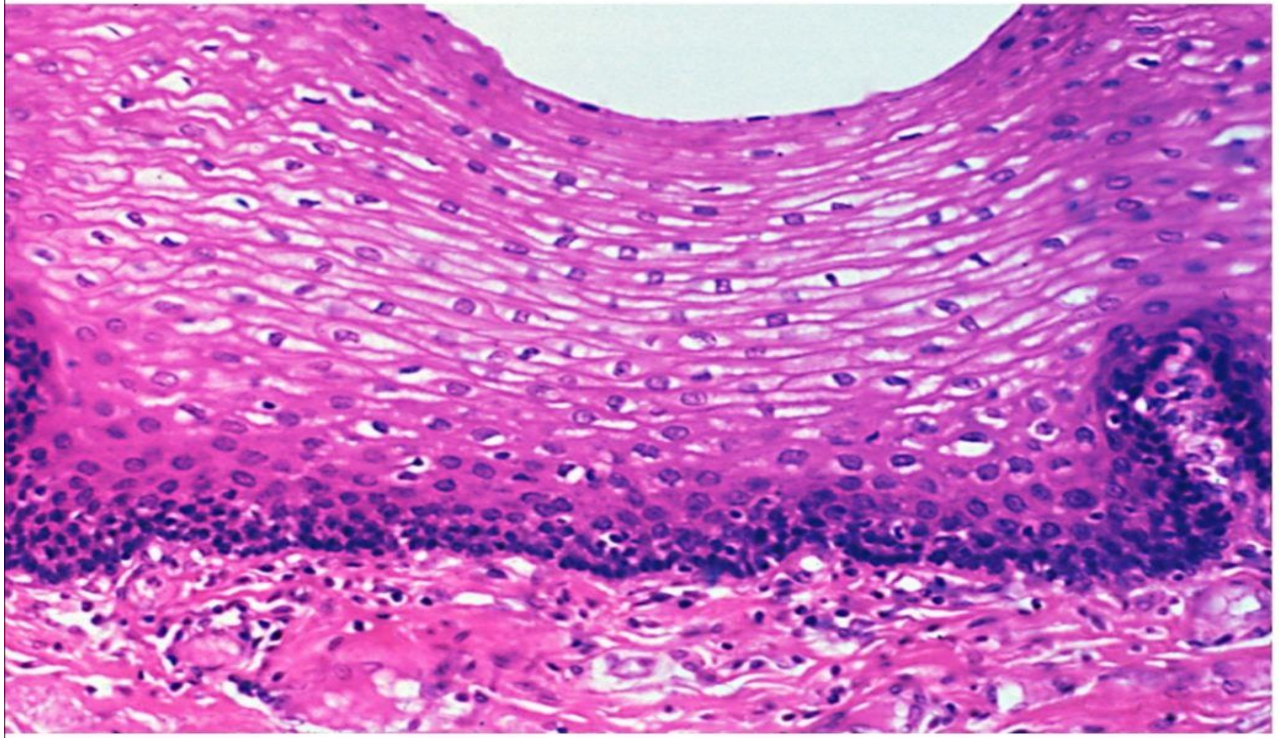
1-Keratinized:

- Skin
- Tongue

2-Non keratinized:

- oral cavity
- esophagus

Nonkeratinized stratified squamous epithelium in the esophageal mucosa



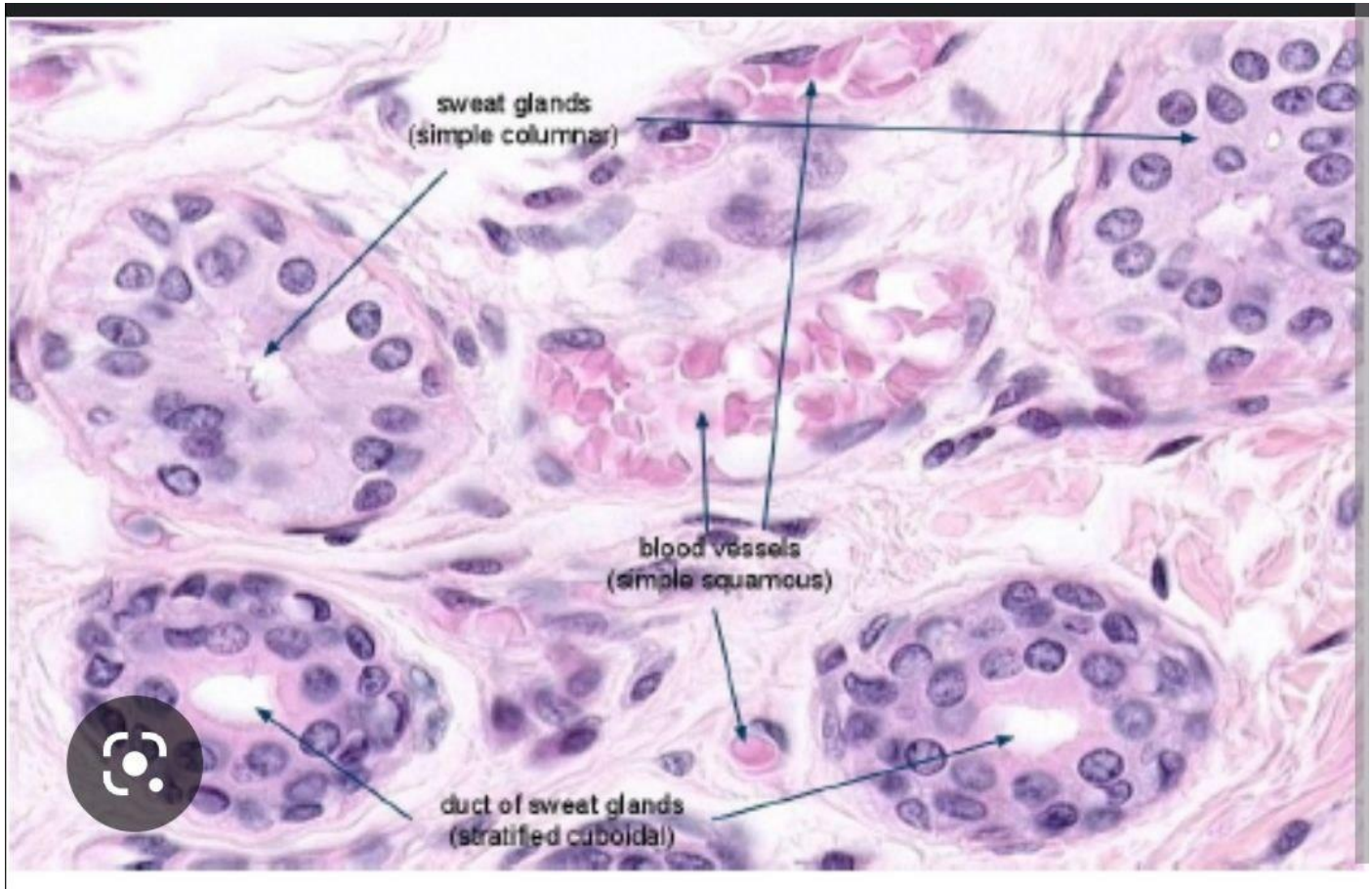
Keratinized stratified squamous epithelium

Thick skin specimen

Lack of nuclei in the outer most layers are characteristic of keratinized stratified squamous epithelia

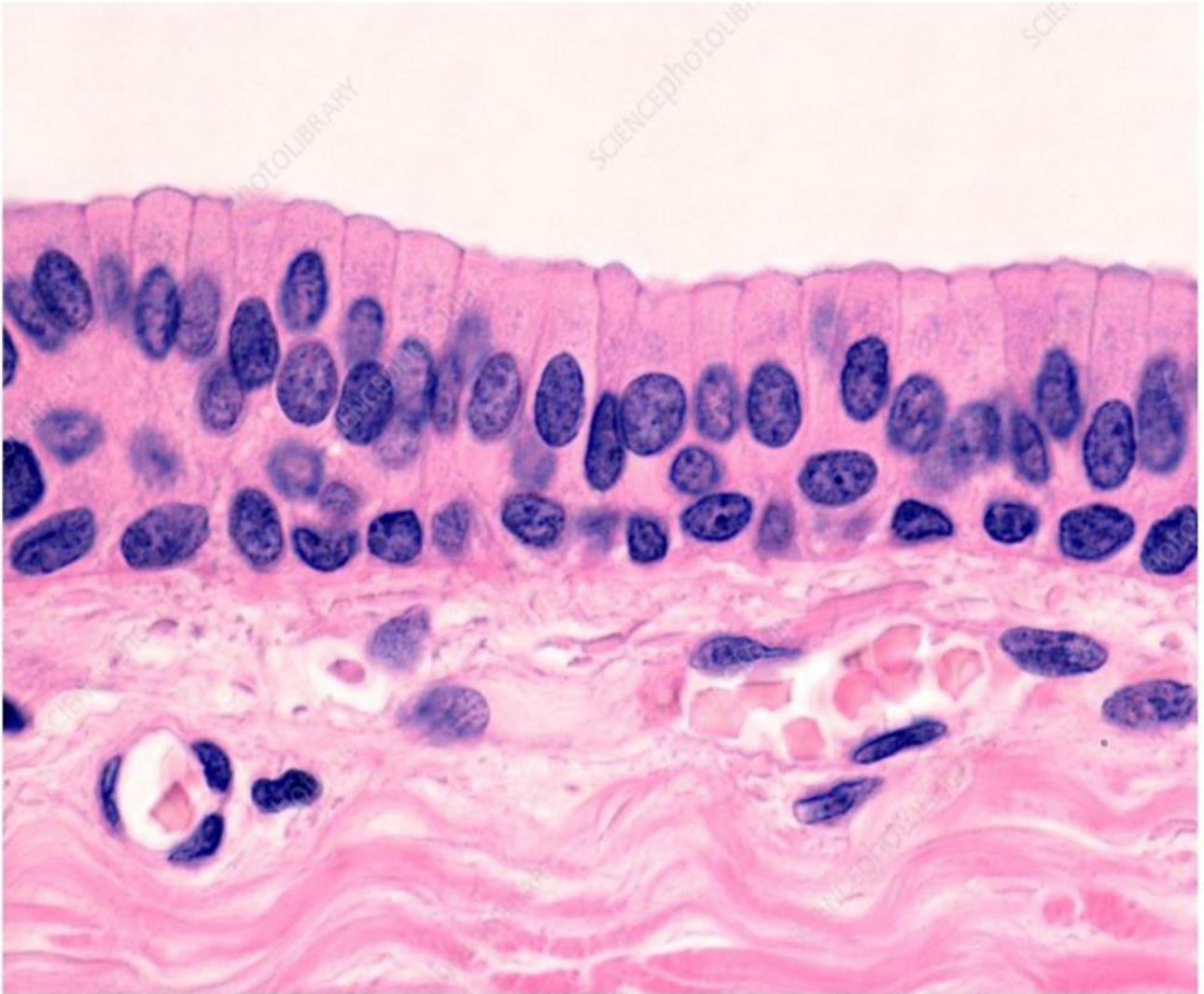
Stratified Cuboidal Epithelium

- example Ducts of sweat glands
- Two layers of cuboidal cells
- Function secretion



Stratified columnar

- Two or more layer of cells
- Superficial cells are columnar
- Examples – reproductive and urinary tract
- Functions: protection and mucus secretion



Stratified columnar epithelium in the urinary tract

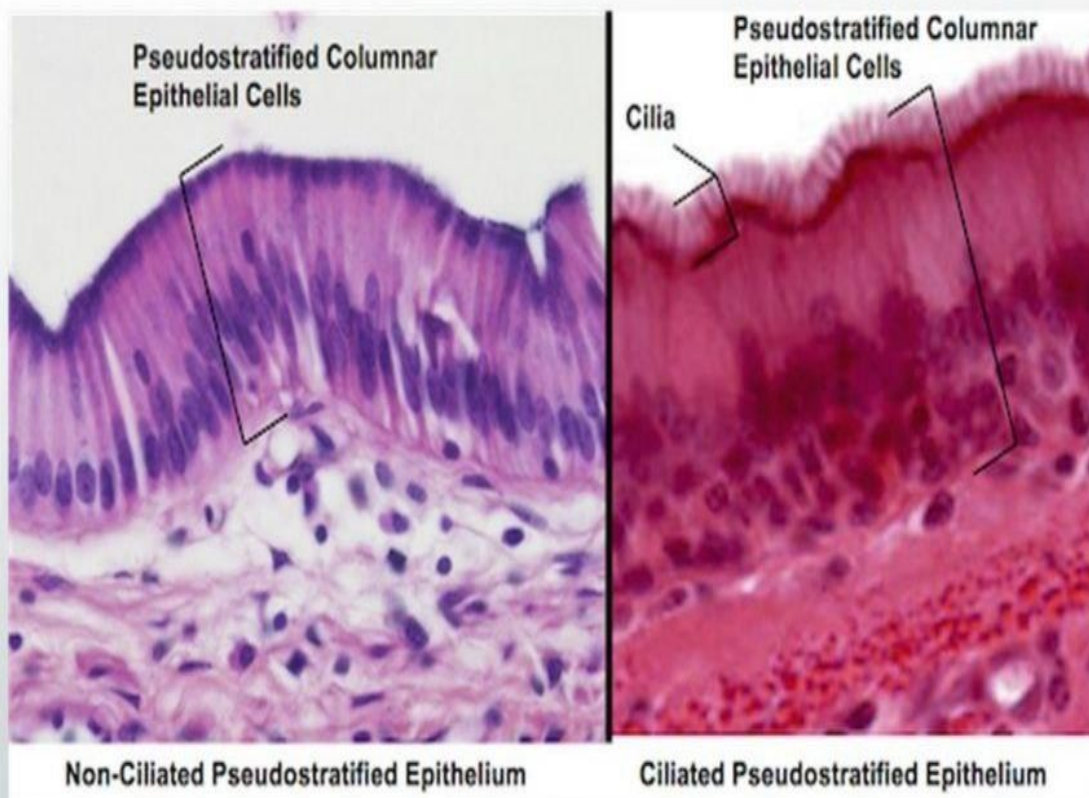
Pseudostratified Columnar epithelium

- Cell of unequal heights resting on same basement membrane.
- Ciliated/non-ciliated
- May contain goblet cells
- Examples-Trachea

:Functions

Protection, ciliary movements remove mucus, goblet cells secrete mucus

CILIATED VERSUS NON-CILIATED



Study.com

Transitional epithelium

•Example; urinary bladder

Functions: Protection, distention

