



PRACTICAL HISTOLOGY 1 - FIRST COURSE

LAB -4- : EPITHELIAL TISSUE

Sawa University

جامعة ساوة الاهلية

College of health and medical techniques

كلية التقنيات الصحية والطبية

Department of Medical Laboratories

قسم تقنيات المختبرات الطبية

First stage

المرحلة الاولى

محاضرة رقم 4

الجانب العملي

Lecture No. 1

Practical

تدريسي المادة : م.م هبه صاحب صادق

OUTLINES

- 
- 1.WHAT IS EPITHELIAL TISSUE
 - 2.SHAPE OF SURFACE CELL & NUMBER OF LAYERS
 - 3.CLASSIFICATION OF EPITHELIAL TISSUE AND LOCATION

Aims of lecture :-

- **DEFINE EPITHELIAL TISSUE:** UNDERSTAND ITS COMPOSITION, PROPERTIES, AND WHERE IT IS FOUND.
- **DESCRIBE GENERAL FUNCTIONS:**
 - Protection: Acting as a barrier against physical, chemical, and biological damage.
- **EXPLAIN STRUCTURAL ORGANIZATION: DESCRIBE THE ARRANGEMENT OF CELLS AND THE ROLE OF POLARITY (APICAL, LATERAL, AND BASAL SURFACES).**

Epithelial Tissue

Membranous epithelium covers and lines the external surface of our body as well as lining all internal cavities, organs, tubes and passageways. Glandular epithelium, however, is specialized epithelial tissue that produces and secretes substances such as sweat, stomach acid, mucus and Hormones .

Epithelia are classified by the shape of the surface cells and whether it has single or multiple layers of cells

Shape of surface cells

- **Squamous:**

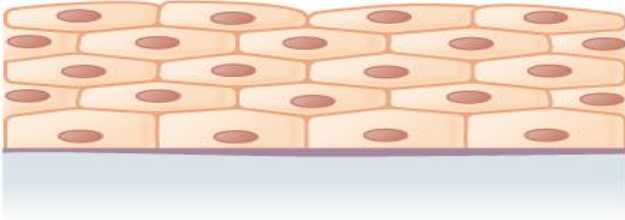
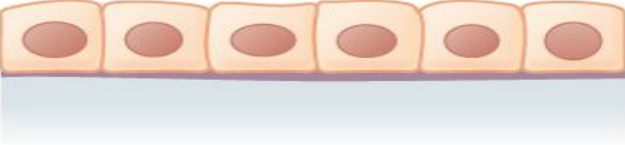
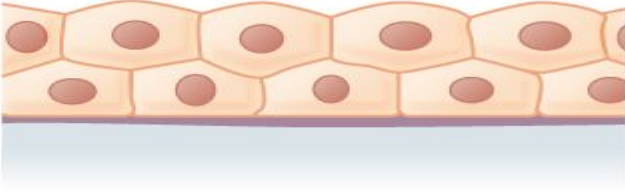
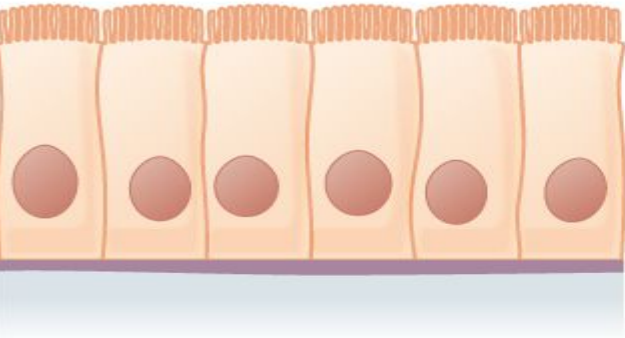
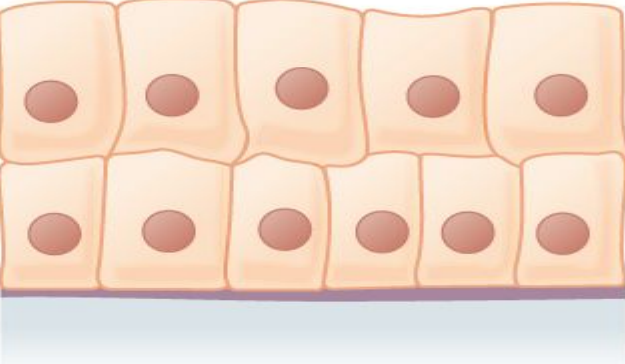
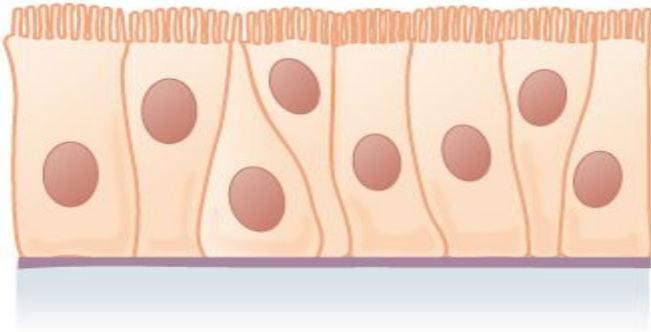
- flattened cells whose width is greater than their height Nuclei are often taller than the flattened cells and bulge into the lumen Difficult to see their thin cytoplasm

- **Cuboidal:**

cells appear as high as they are wide, Spherical nuclei are centrally positioned

- **Columnar:**

cells are taller than they are wide Oval nuclei located near the base of the cells

	Simple	Stratified	
Squamous	 Simple squamous epithelium	 Stratified squamous epithelium	
Cuboidal	 Simple cuboidal epithelium	 Stratified cuboidal epithelium	
Columnar	 Simple columnar epithelium	 Stratified columnar epithelium	 Pseudostratified columnar epithelium

Number of layers

- **Simple**

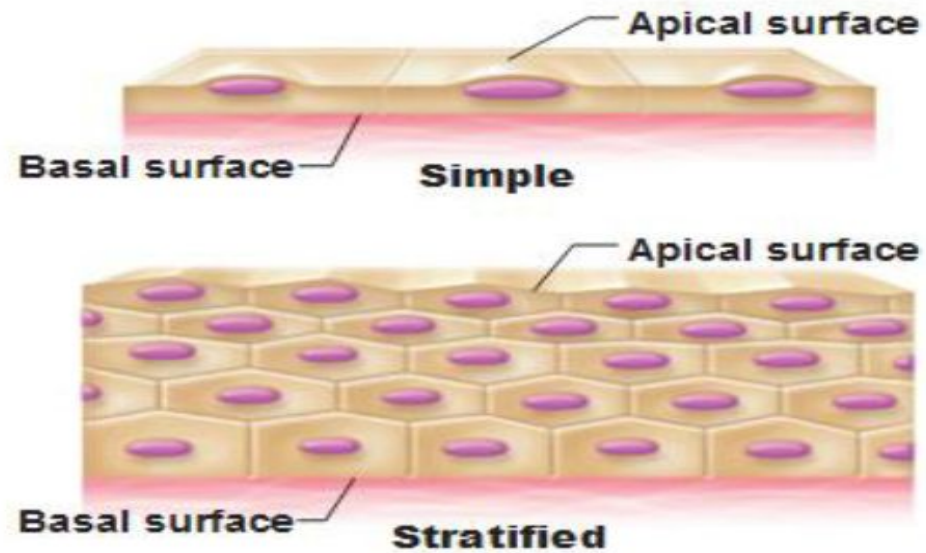
— a single layer of cells ,all cells contact the basement membrane

- **Stratified**

two or more layers of cell ,only the lowest layer of cells contact the basement membrane

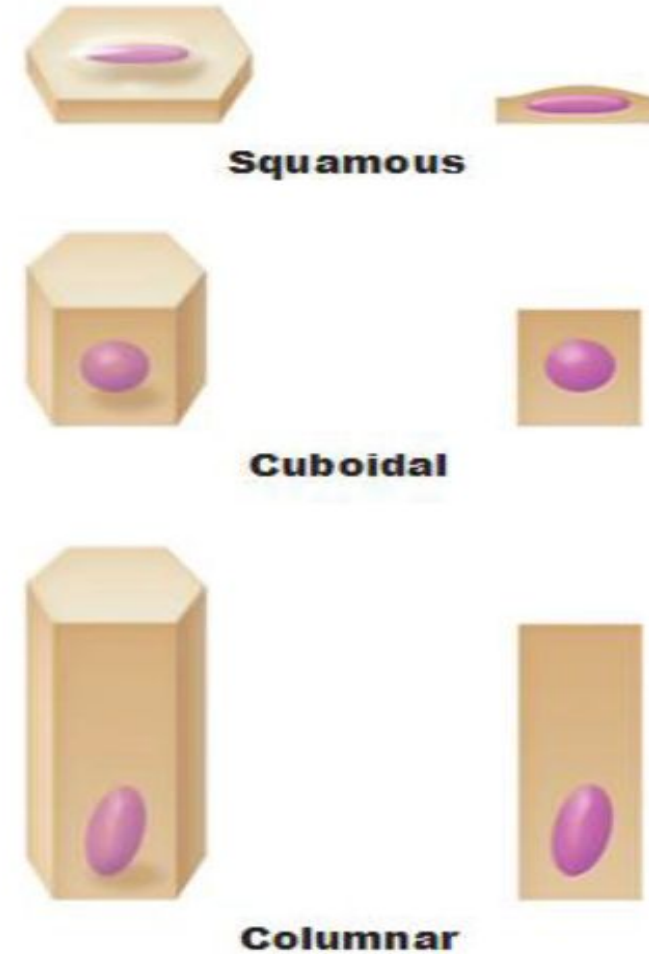
- **Pseudostratified-** a single layer of cells that appears to be multiple layers due to variance in height and location of the nuclei in the cells

Classifications of Epithelia



(a) Classification based on number of cell layers

Note that basal cells regenerate; as apical cells slough off, they are replaced by basal cells

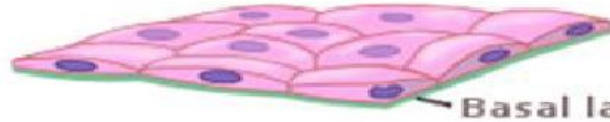


(b) Classification based on cell shape

Classification of epithelial tissue and location

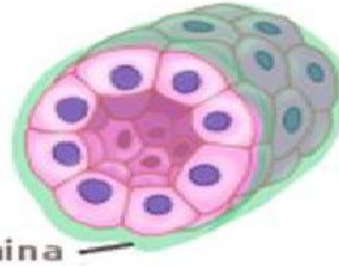
SIMPLE

Simple squamous

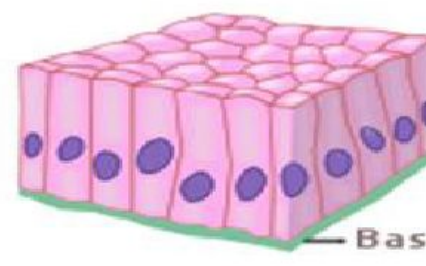


Basal lamina

Simple cuboidal

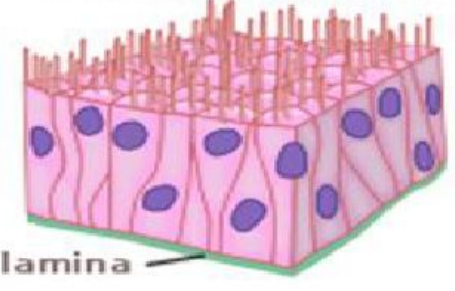


Simple columnar

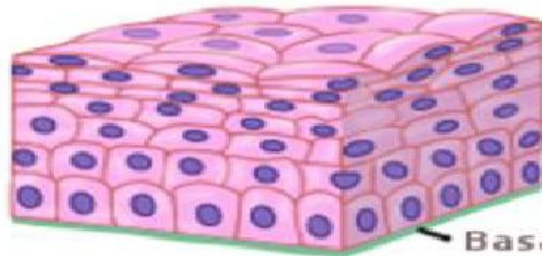


Basal lamina

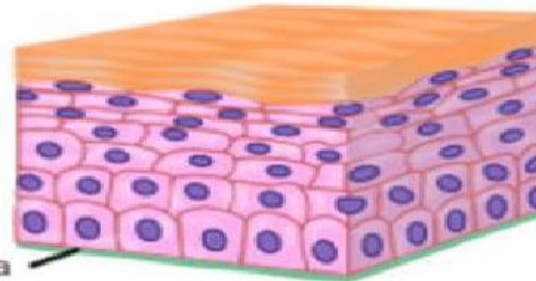
Pseudostratified



Stratified squamous

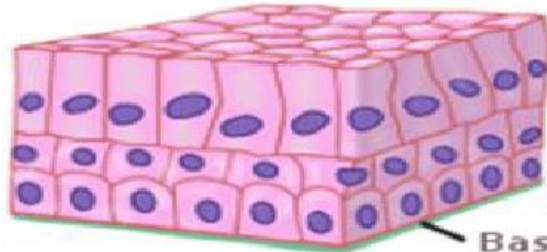


Basal lamina



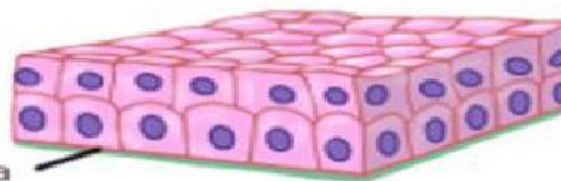
Keratinized stratified squamous

Stratified columnar



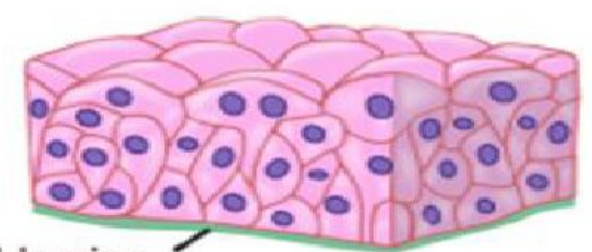
Basal lamina

Stratified cuboidal



STRATIFIED

Transitional

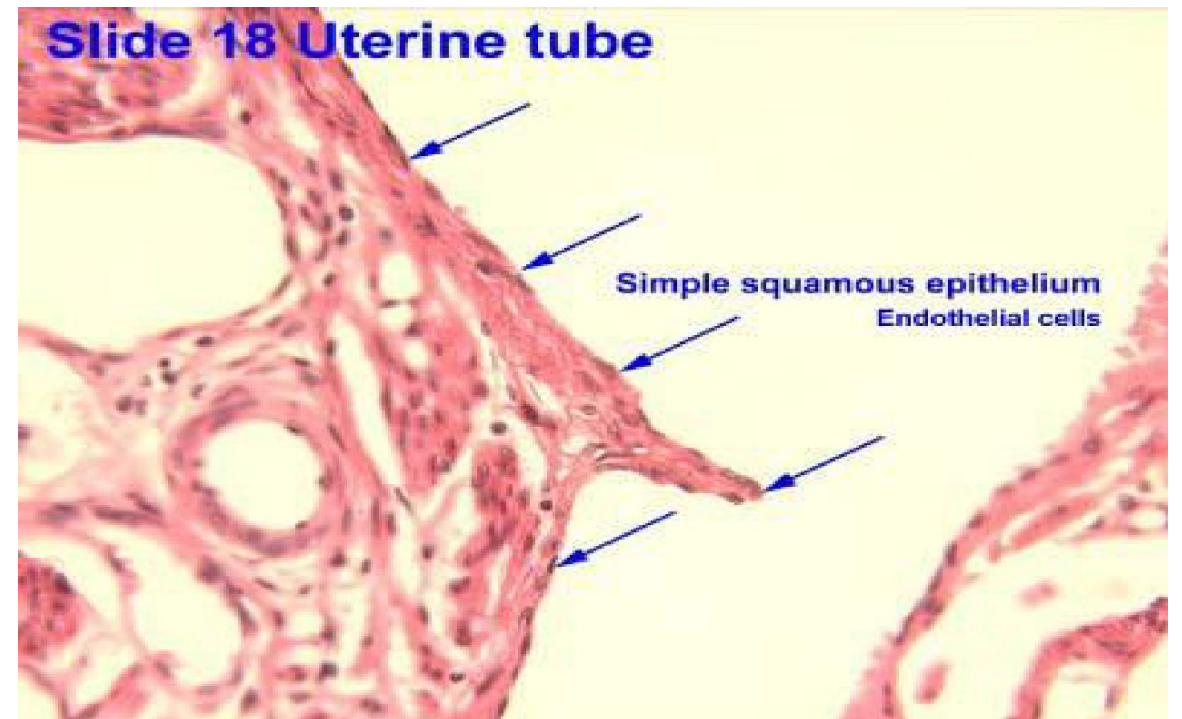
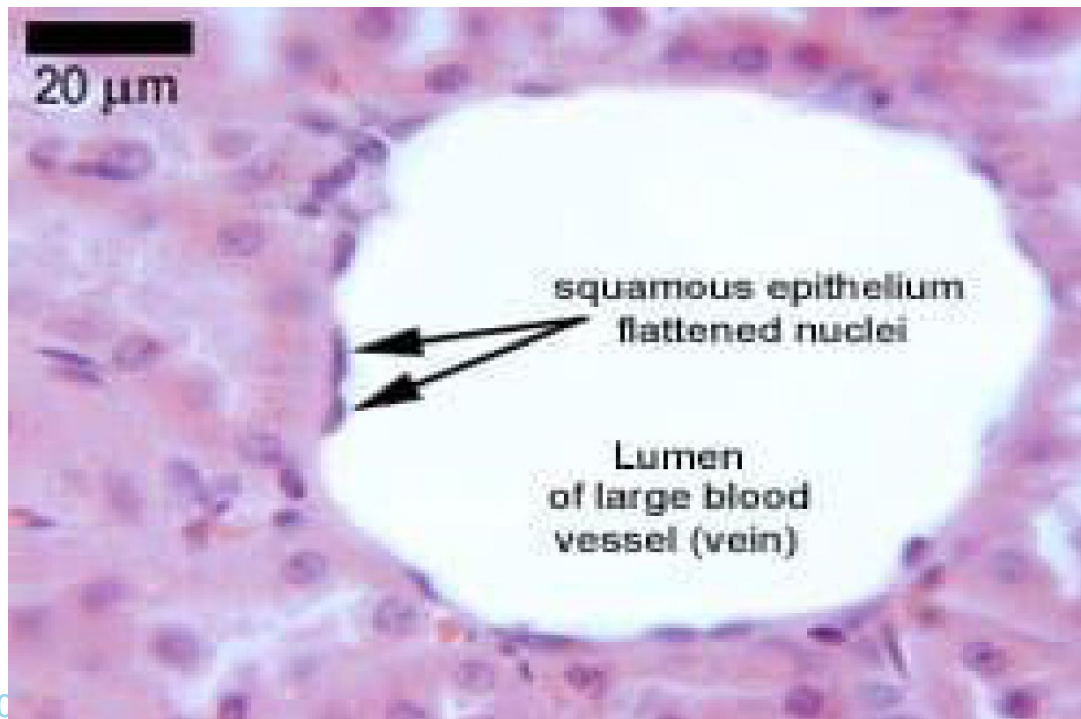


Basal lamina

Classification of epithelial tissue and location

◆ Simple Squamous Epithelium

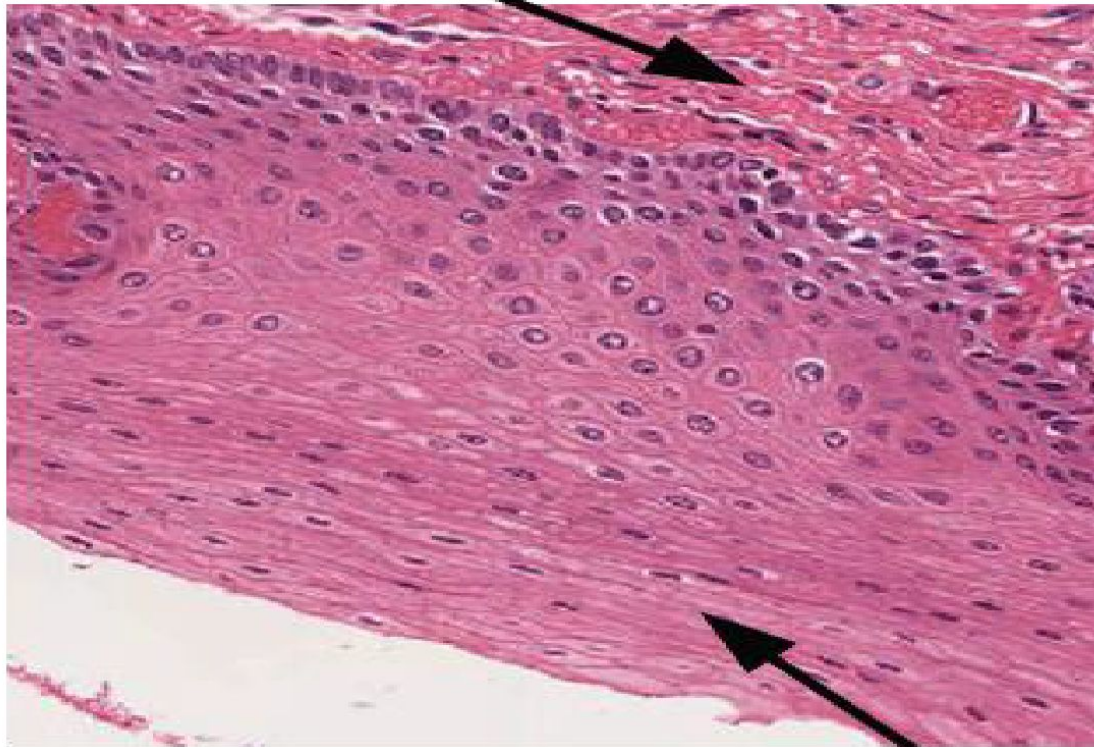
Location: Air sacs of **lungs** ; **lining of heart and blood vessels**.



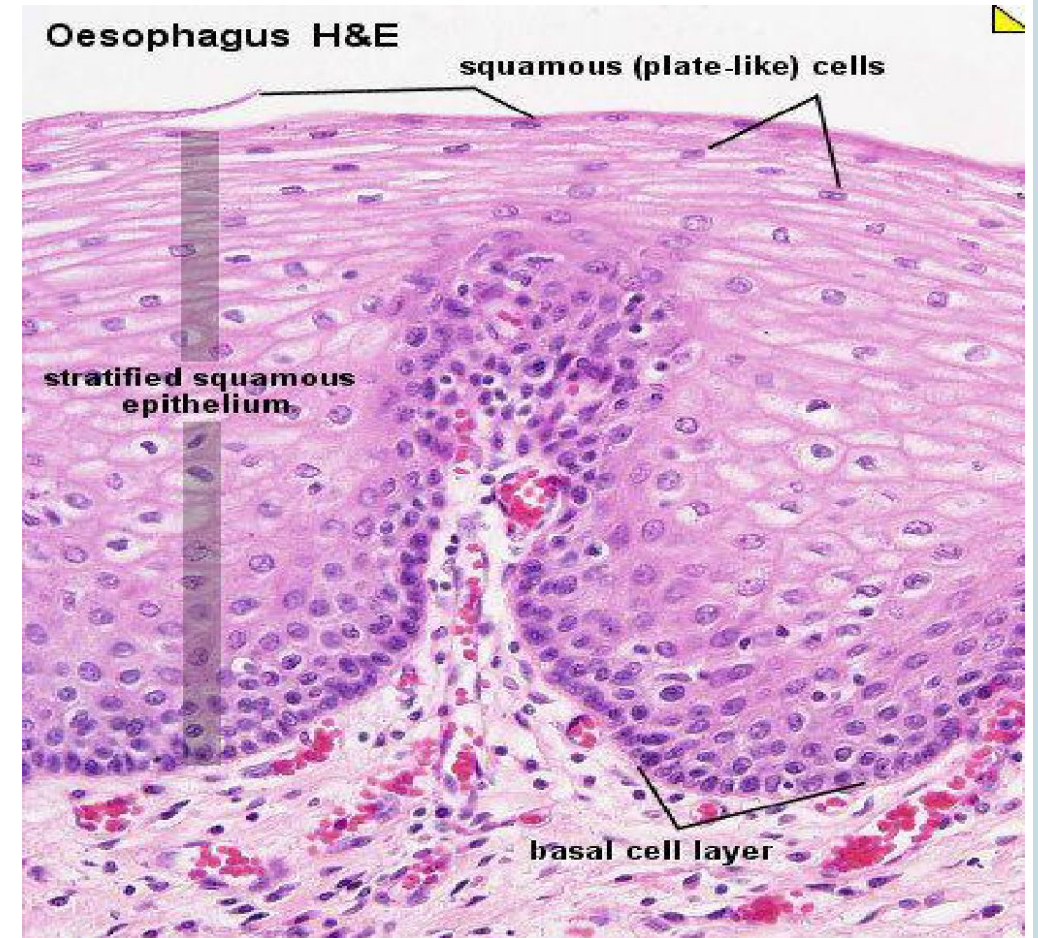
◆ Stratified Squamous Epithelium

Location: **lining the esophagus**

Connective tissue



Stratified squamous epithelial cells

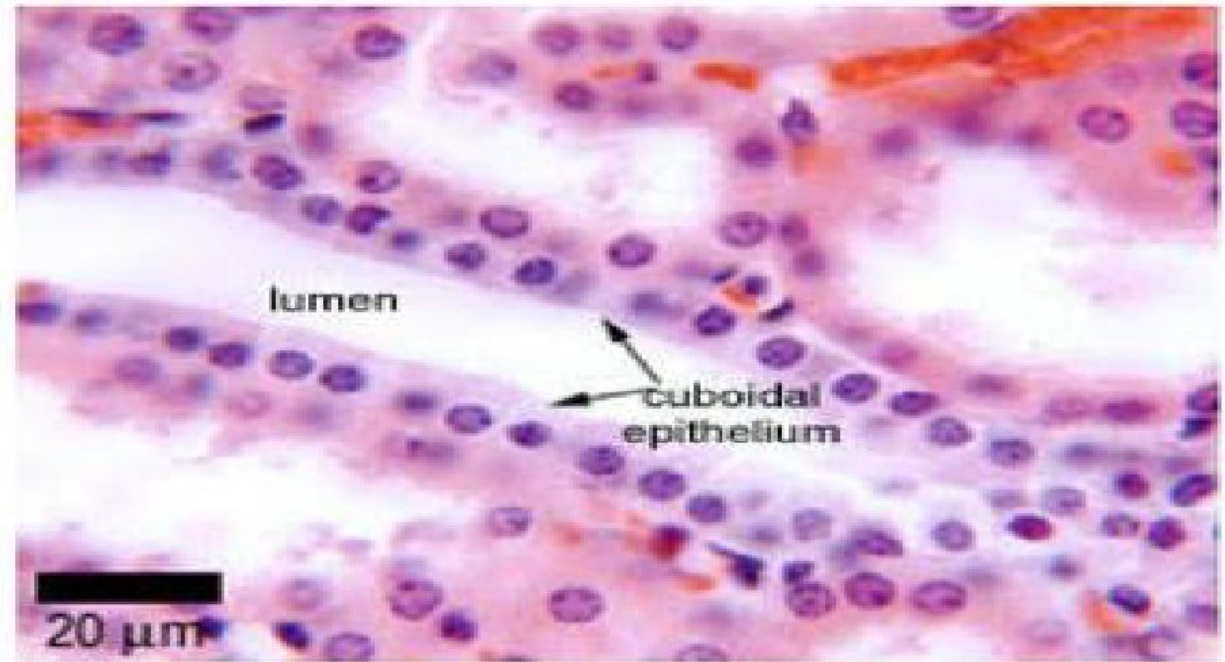


◆ Simple Cuboidal Epithelium

Location: **Kidney tubules**



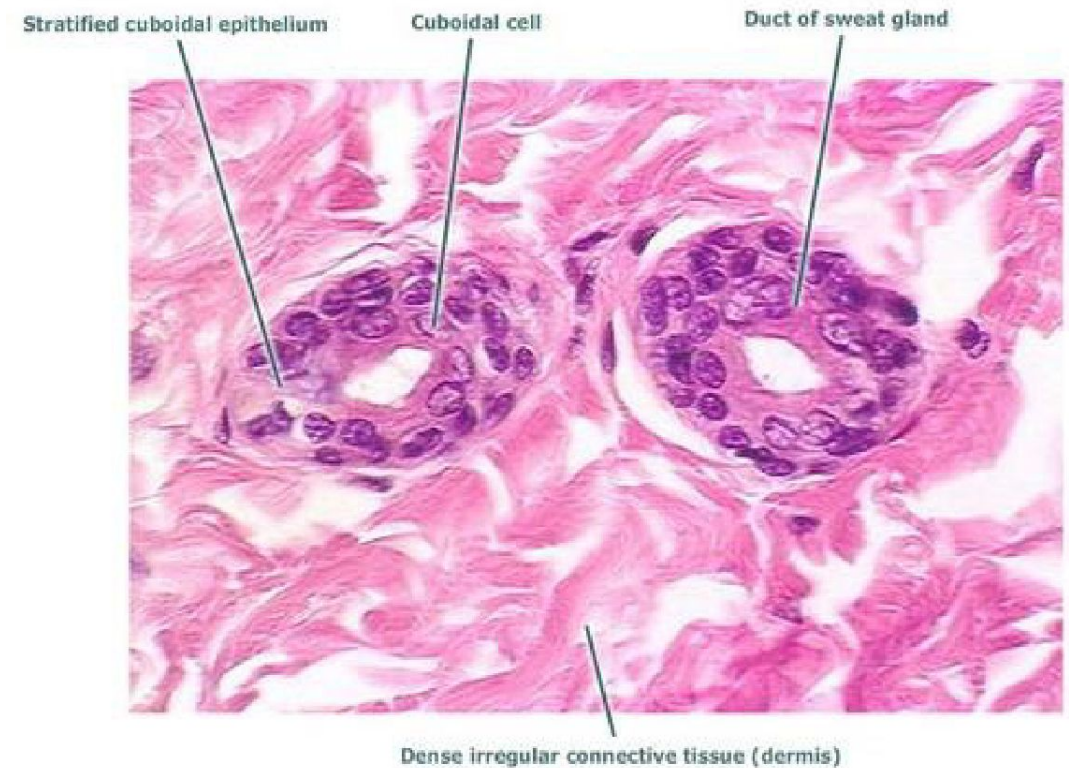
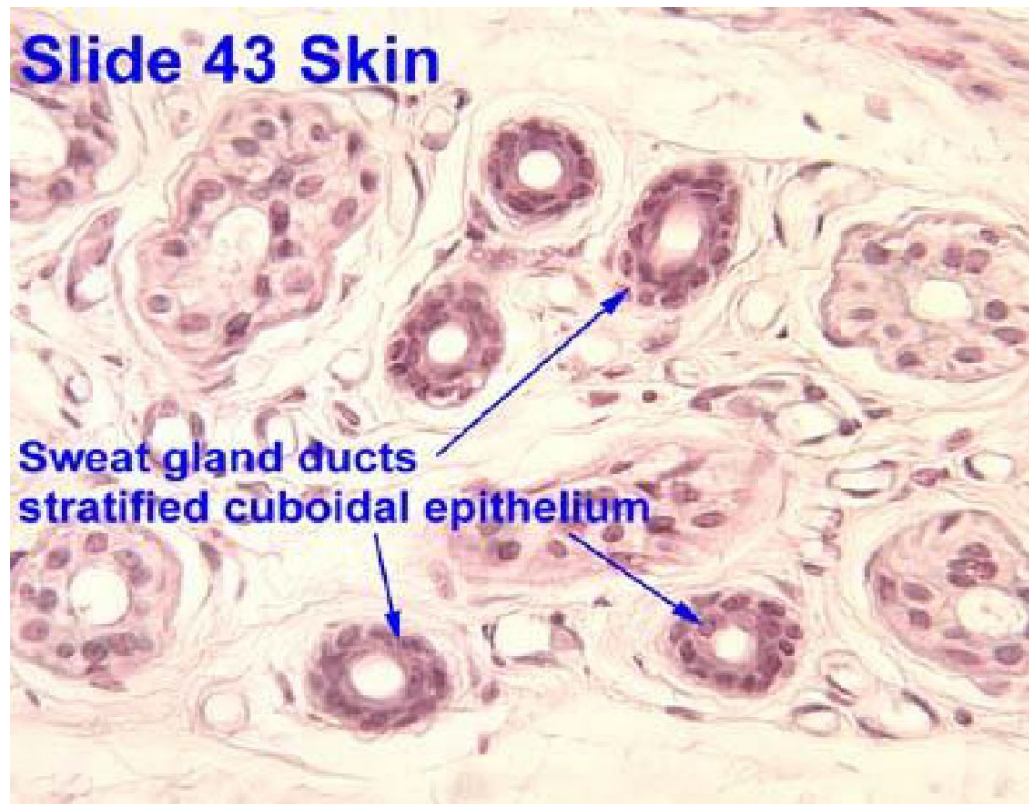
Four kidney tubules
in cross section



Kidney tubule in longitudinal section

◆ Stratified Cuboidal Epithelium

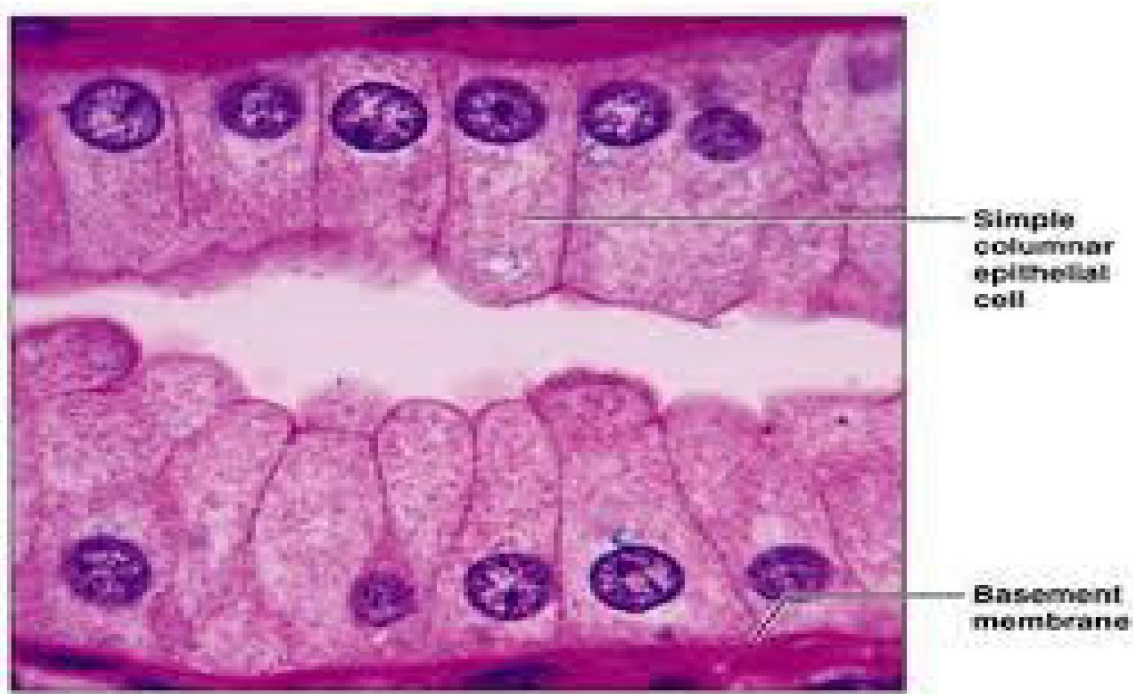
Location: Excretory ducts of **salivary and sweat glands**



◆ Simple Columnar Epithelium

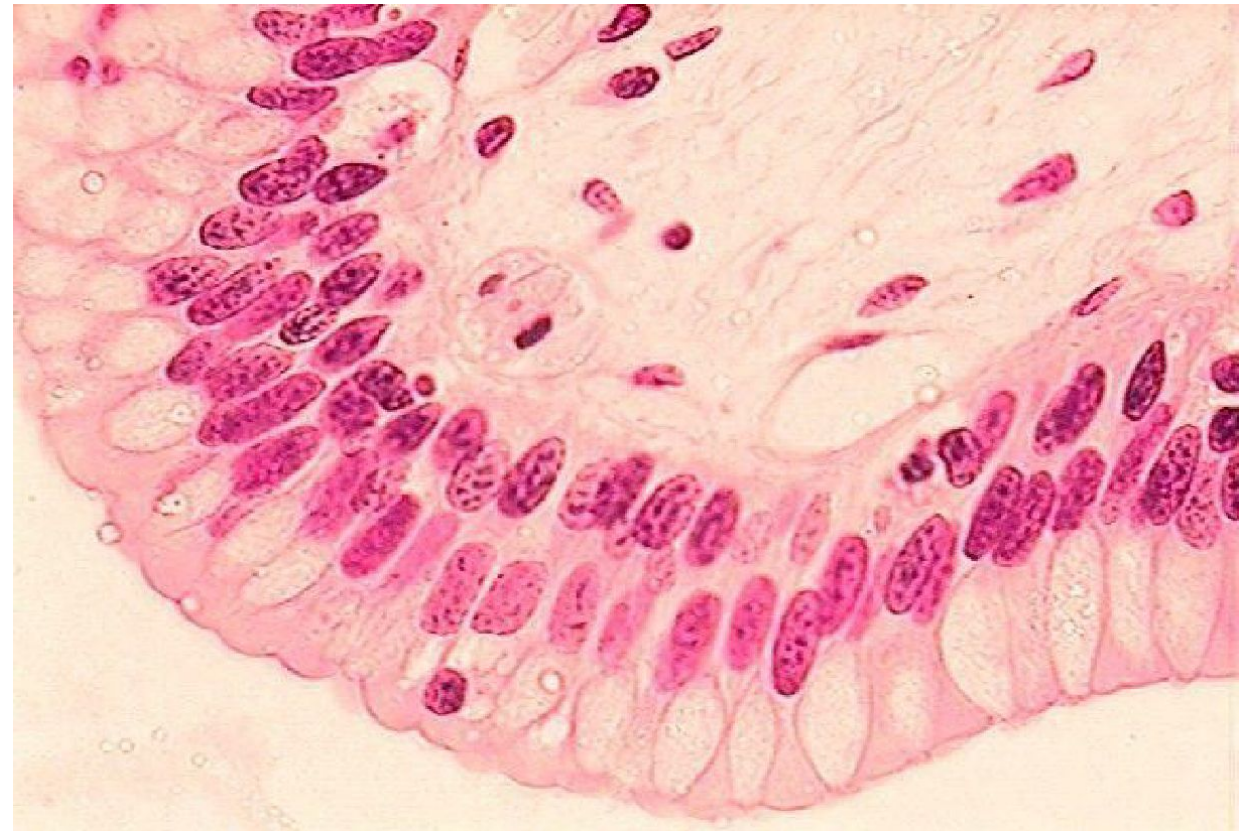
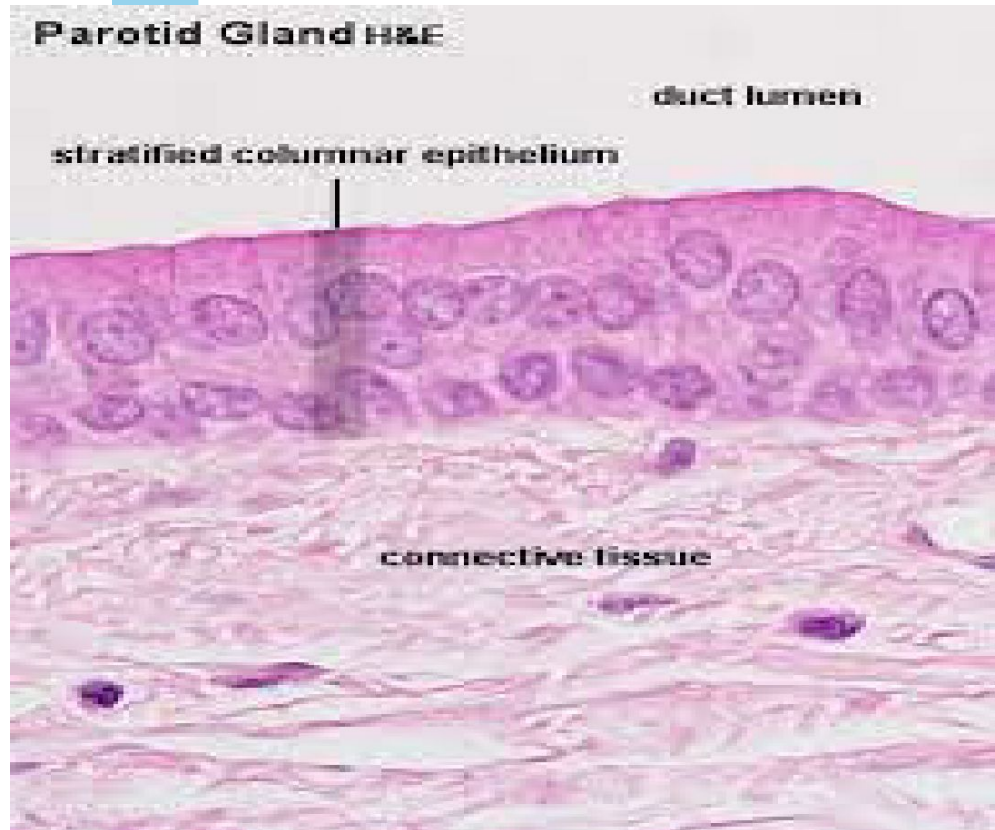
Location: Non ciliated type lines most **of the digestive tract** .

— ciliated lines **small bronchi** and **uterine tubes**



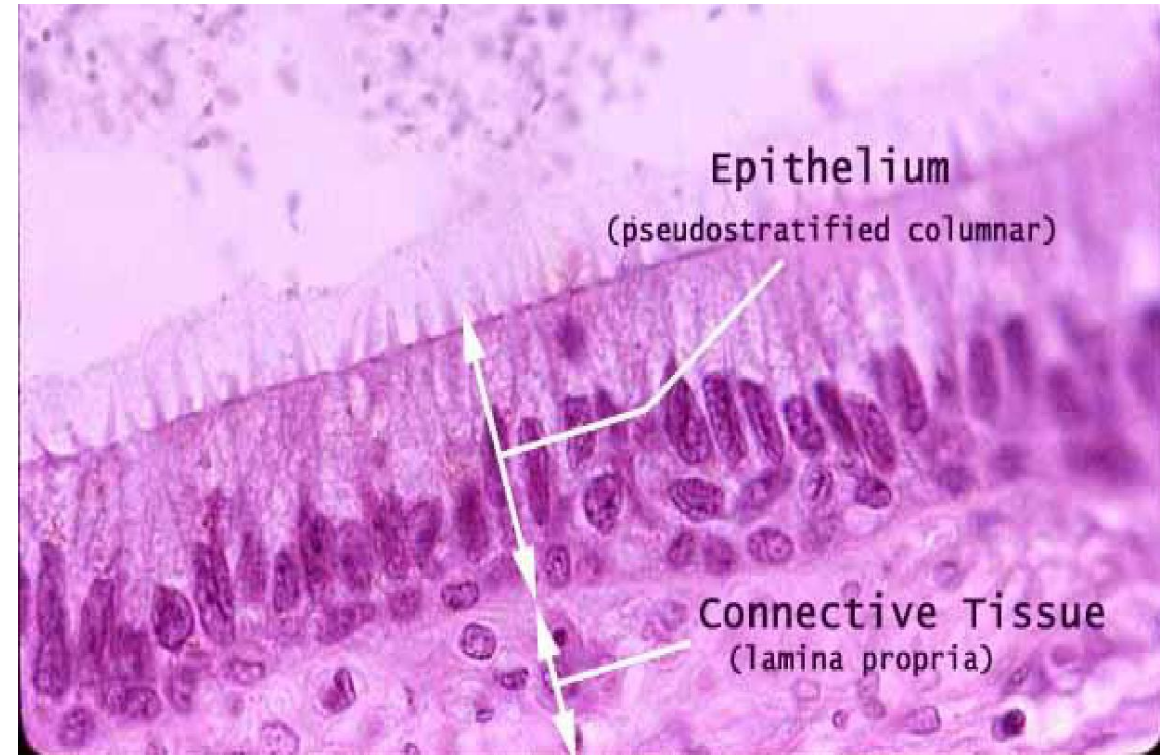
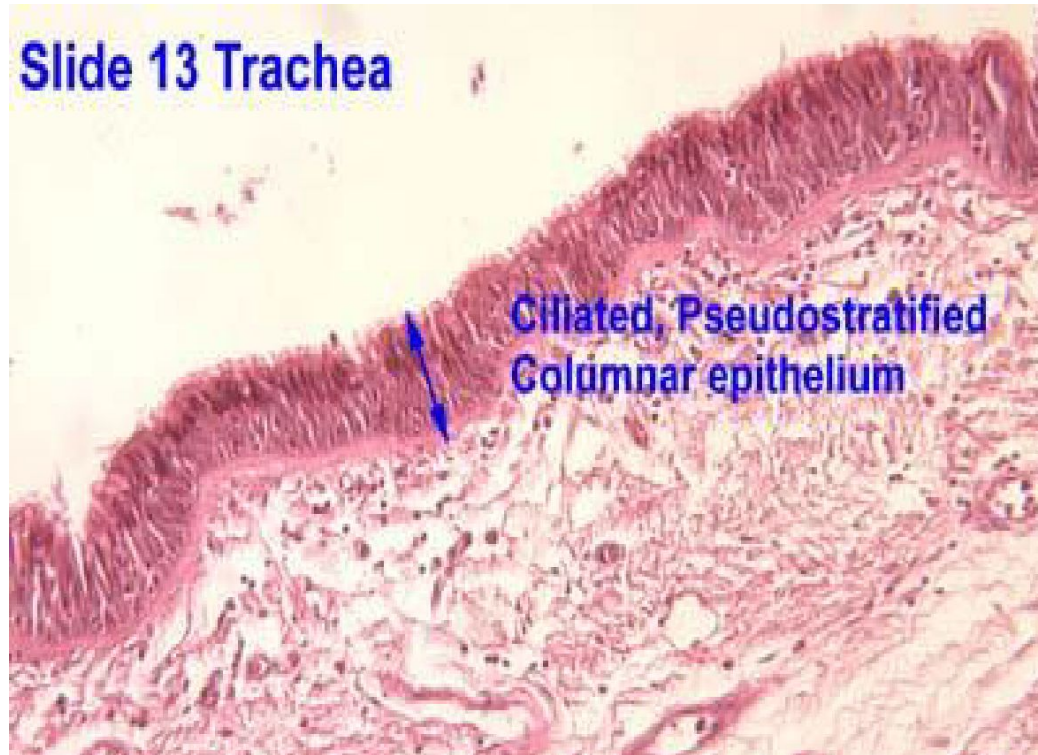
◆ Stratified Columnar Epithelium

Location: **mucous membrane lining eyelids**



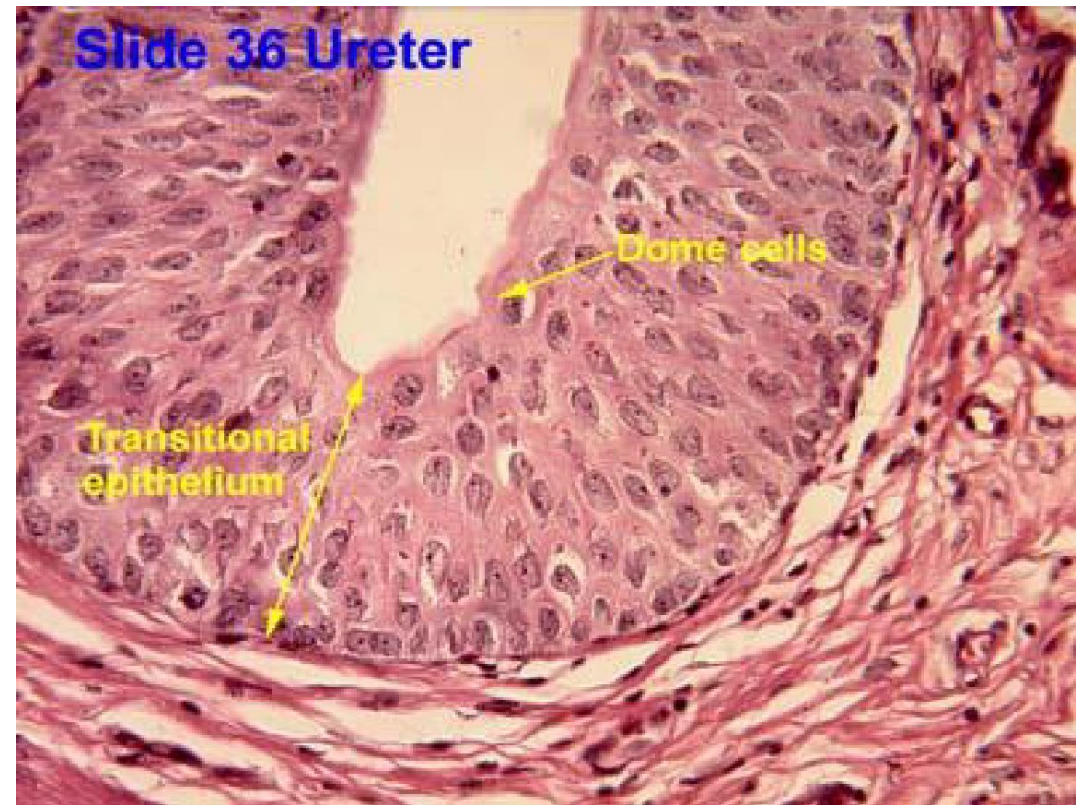
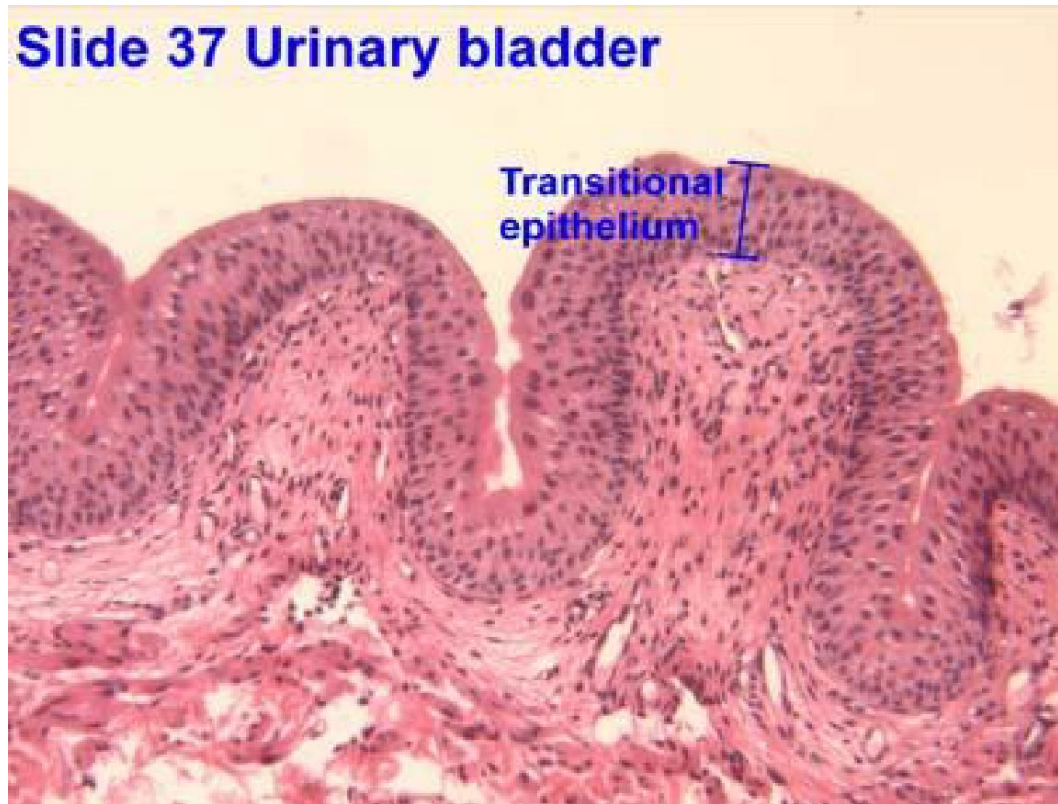
◆ Pseudostratified Columnar Epithelium

Location: **Trachea**



◆ Transitional Epithelium

Location: lines the **ureters** and **urinary bladder**



References

- Pathologic basis of diseases, A57 edition, 2012
- Junqueira's Basic Histology
- Biology LibreTexts

Questions

1-What is epithelium?

2-What are the functions of epithelial tissue?

3-What are the different types of epithelial tissue?

4-What is the difference between simple and stratified epithelium?

Any questions?

*Thank
You*