

Compound Epithelium

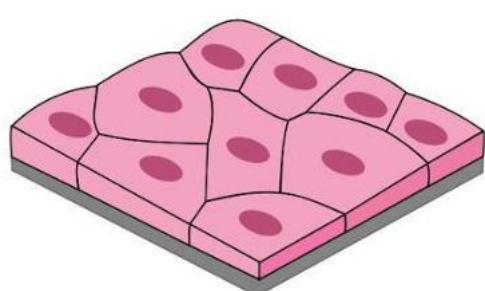
Learning objectives

- Definition
- Types
- Function
- Identification
- Surface modifications of epithelia

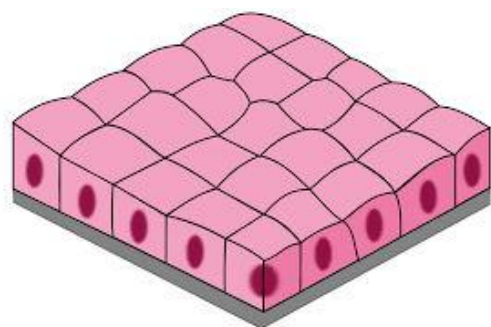
• SIMPLE

One cell layer thick

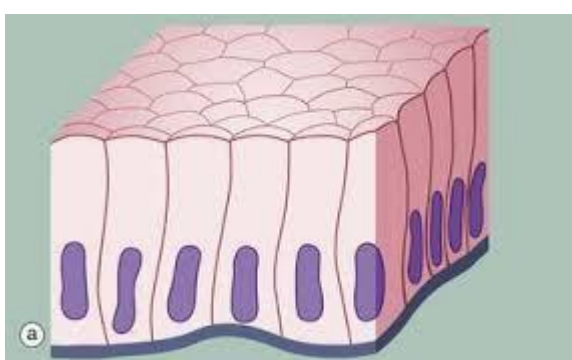
Squamous,



Cuboidal,



Columnar



• STRATIFIED

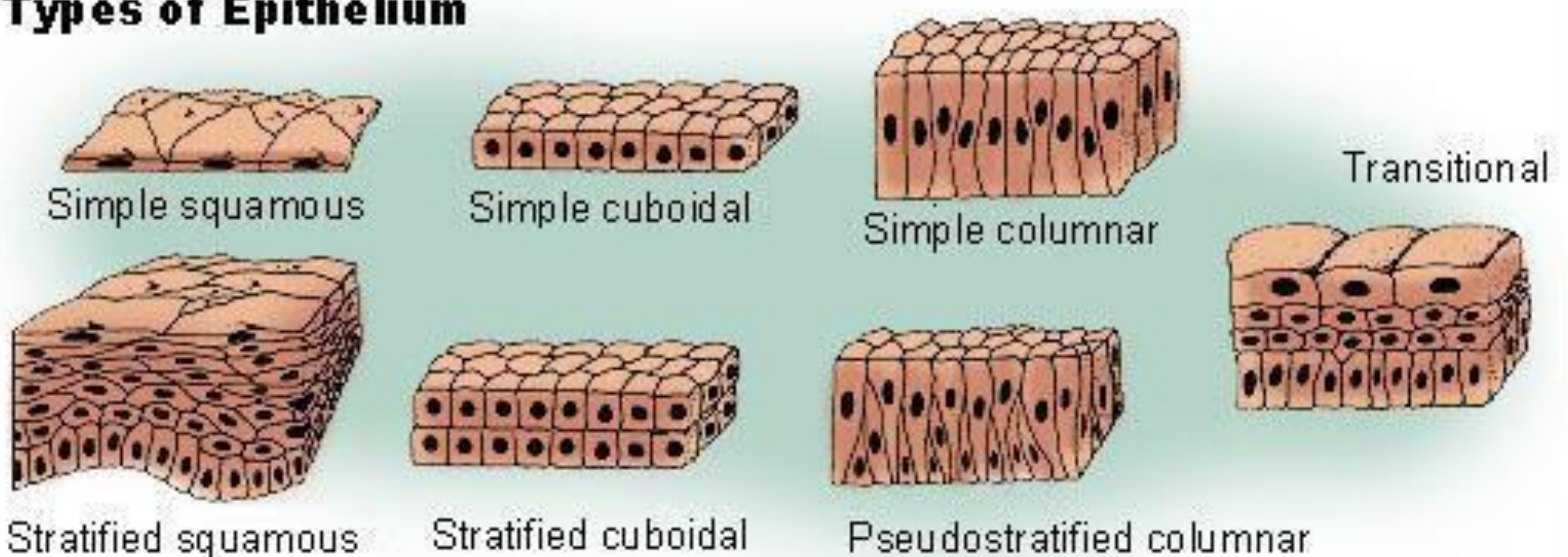
Two or more cell layer thick

Stratified Squamous,
Stratified Cuboidal,
Stratified Columnar

Pseudostratified

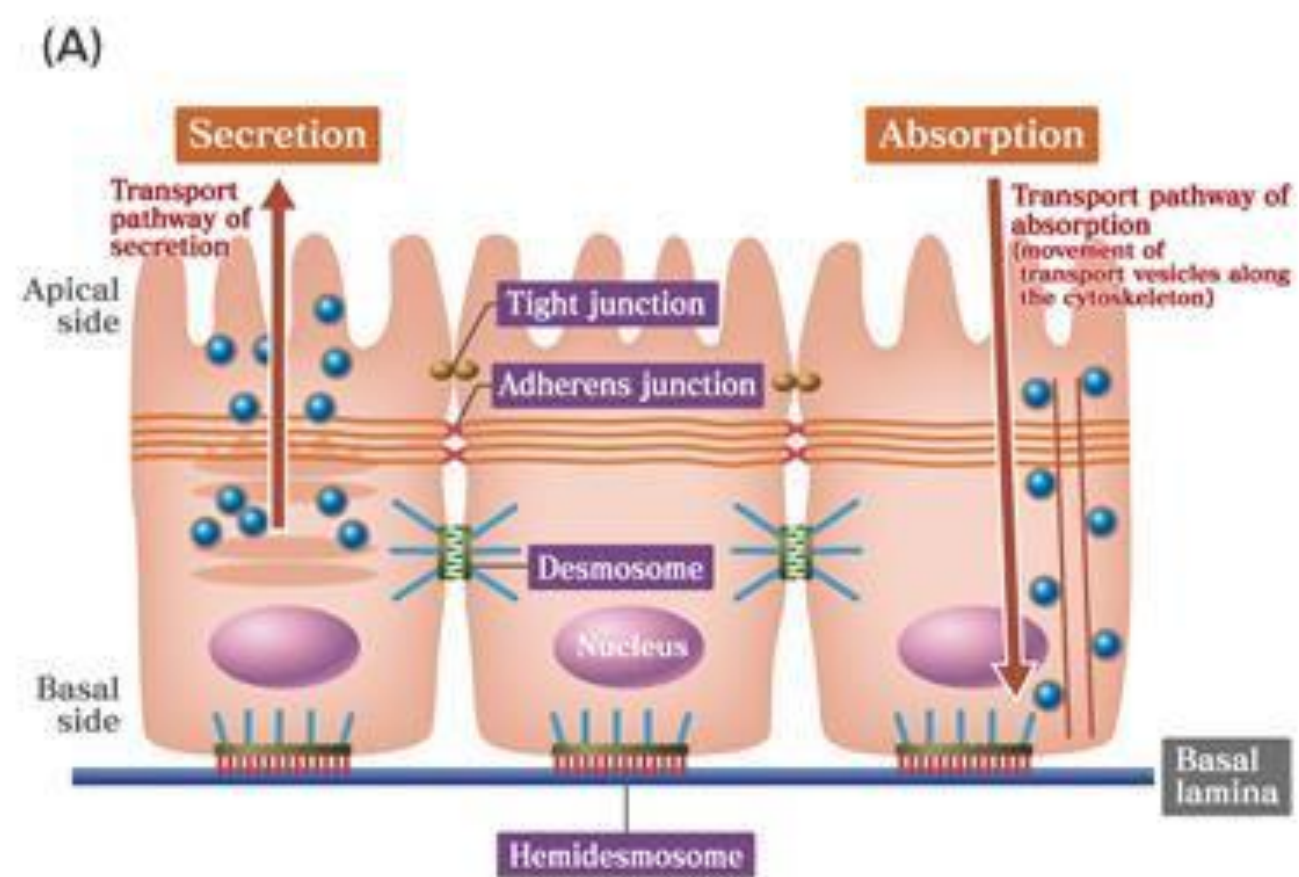
Transitional

Types of Epithelium



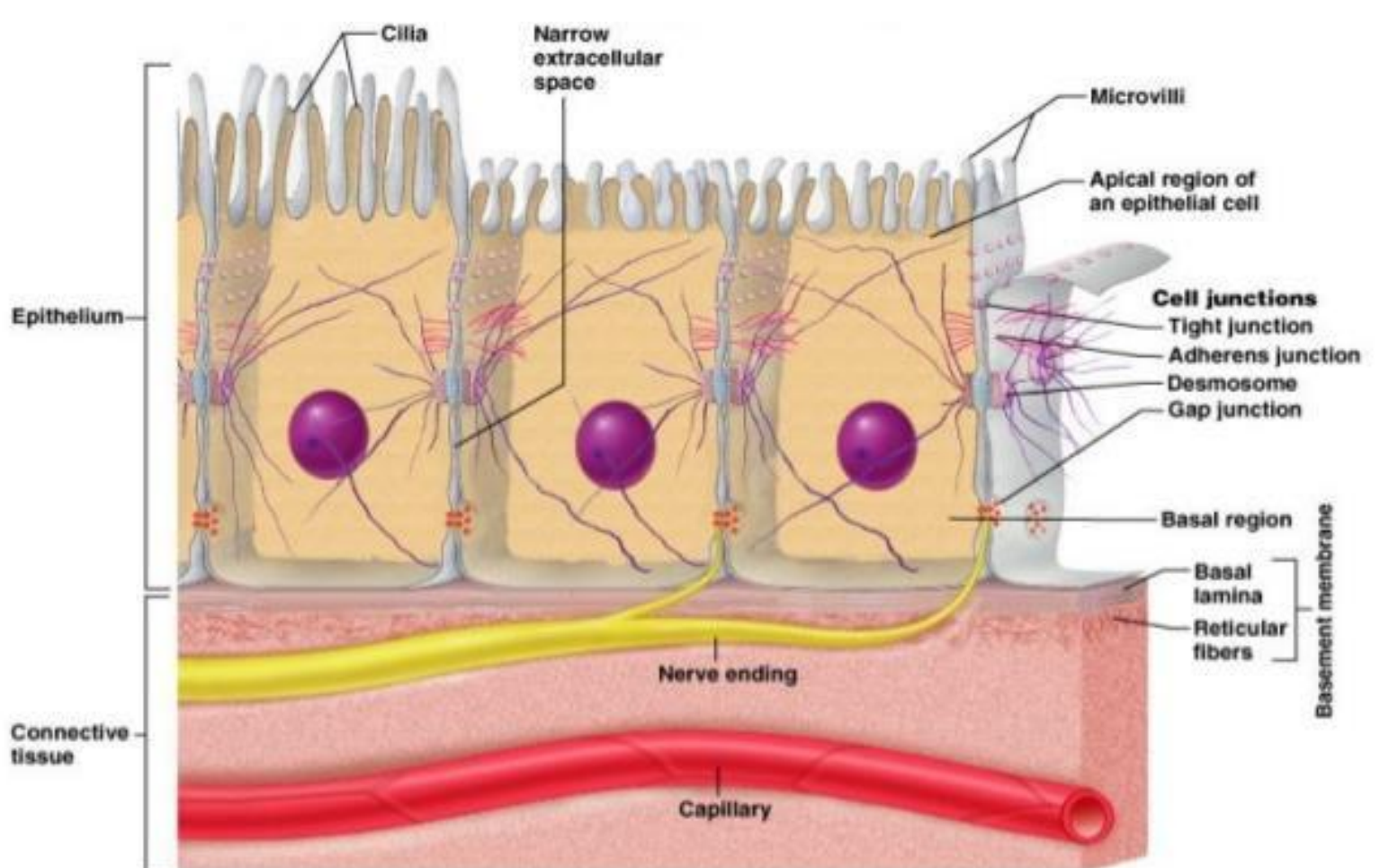
Cell polarity refers to spatial differences in shape, structure, and function within a cell.

- Apical domain
- Lateral domain
- Basal domain



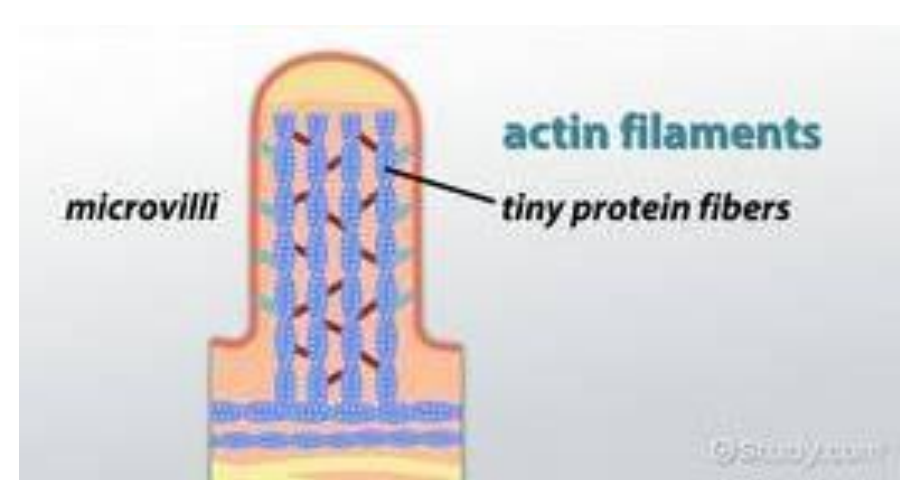
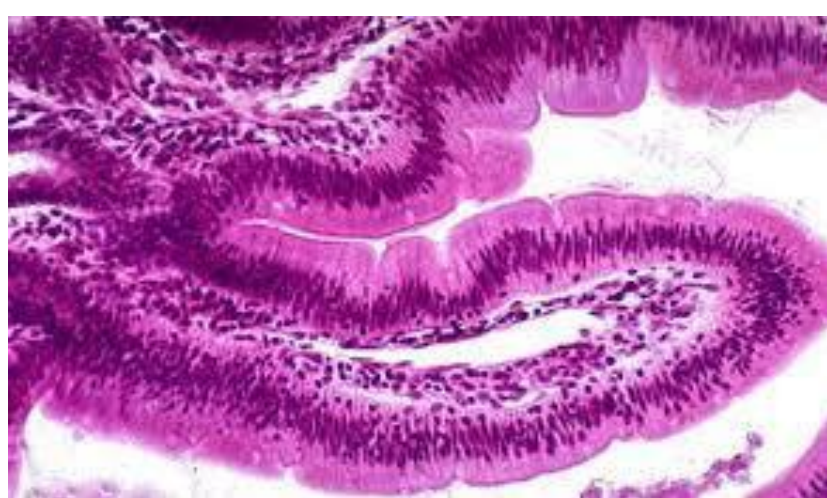
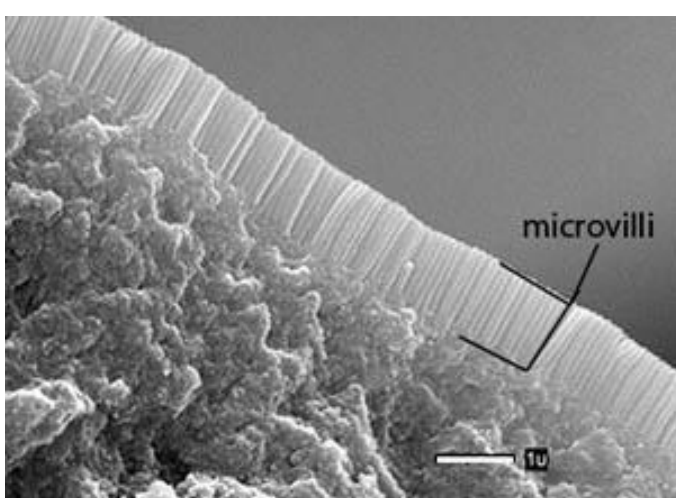
Apical domain modifications

- Microvilli
- Stereocilia/ Stereovilli
- Cilia



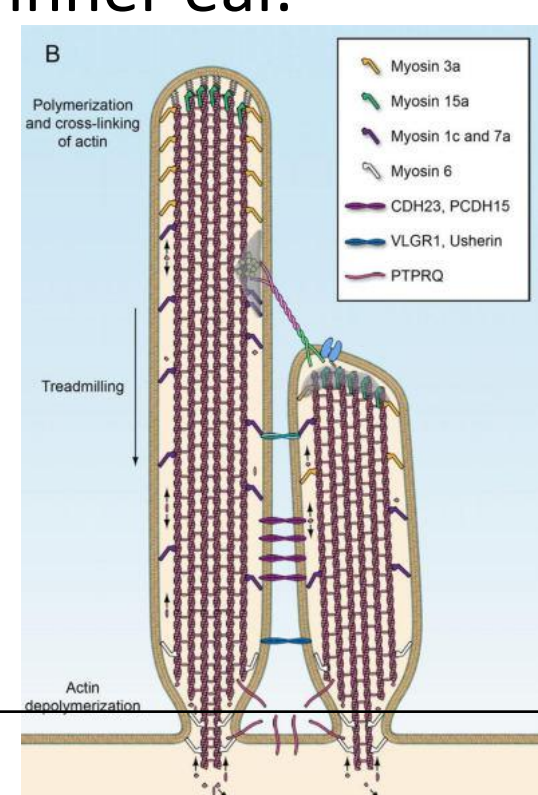
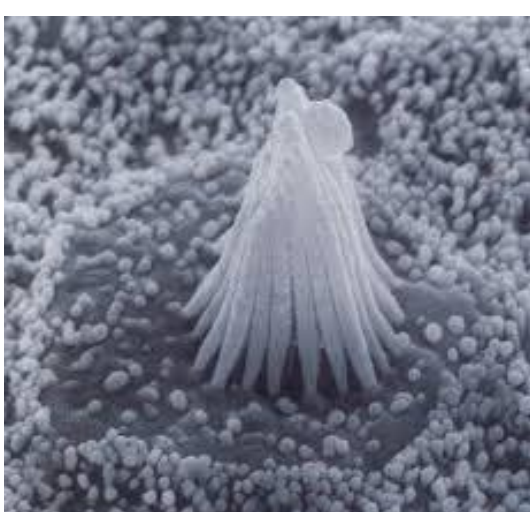
Microvilli

- Finger-like cytoplasmic projections on the apical surface (1-3 micron).
- Striated border- regular arrangement
- Brush border - irregular arrangement



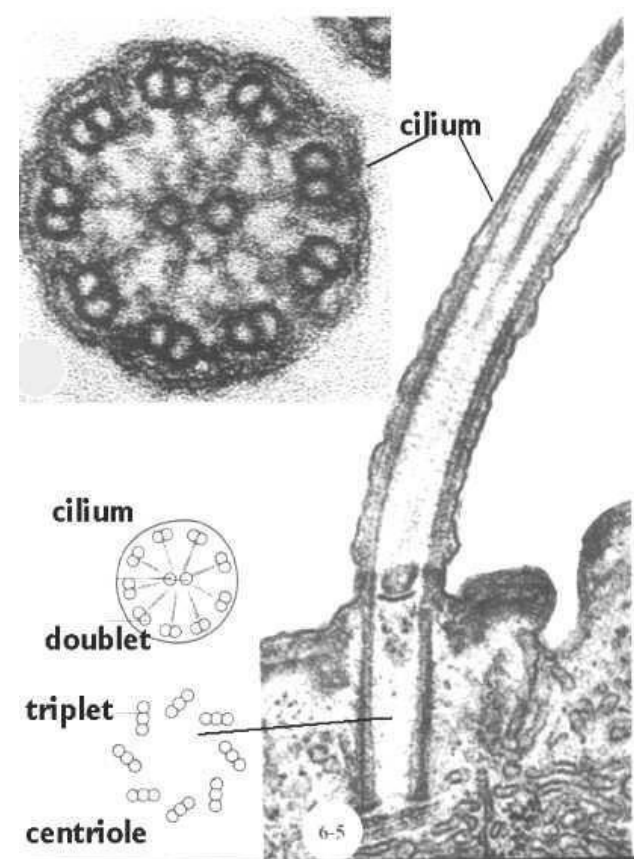
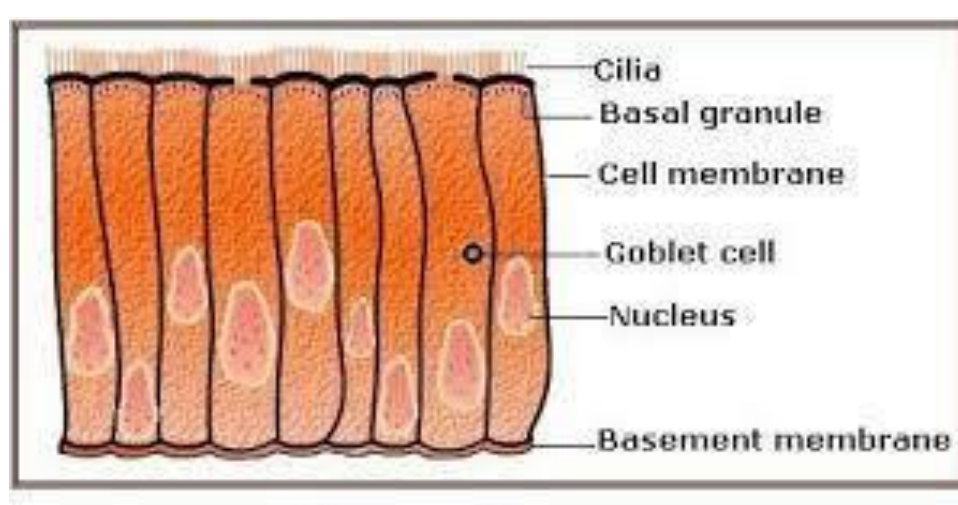
Stereocilia/ Stereovilli

- Unusually long, (120 micron)
- immotile microvilli.
- Epididymis, ductus deferens, Sensory hair cell of inner ear.



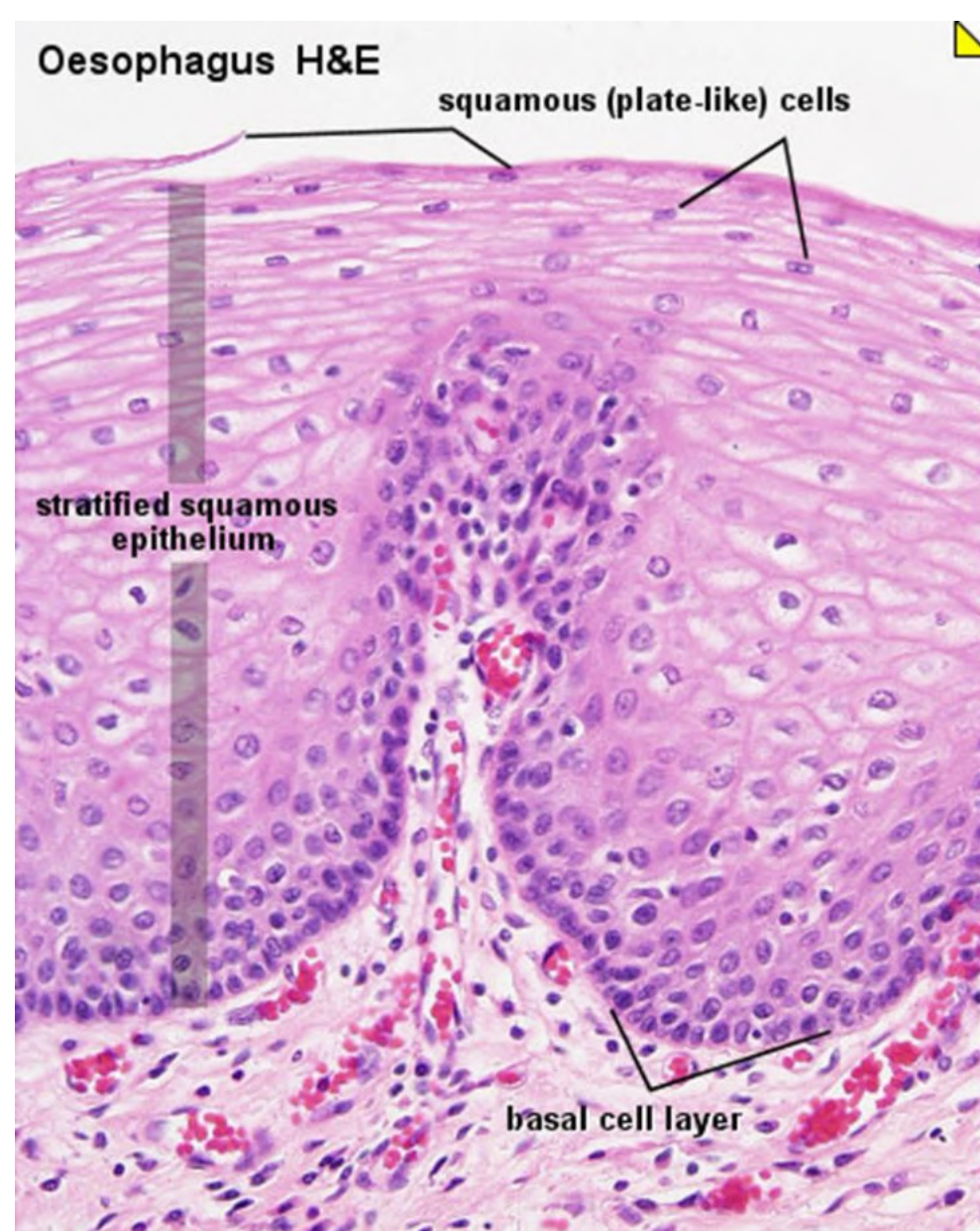
Cilia

- Hairlike extensions of apical plasma membrane
- Contain axoneme-microtubule based internal structure.
 1. Motile 9+2
 2. Primary 9+0
 3. Nodal : embryonic disc during gastrulation

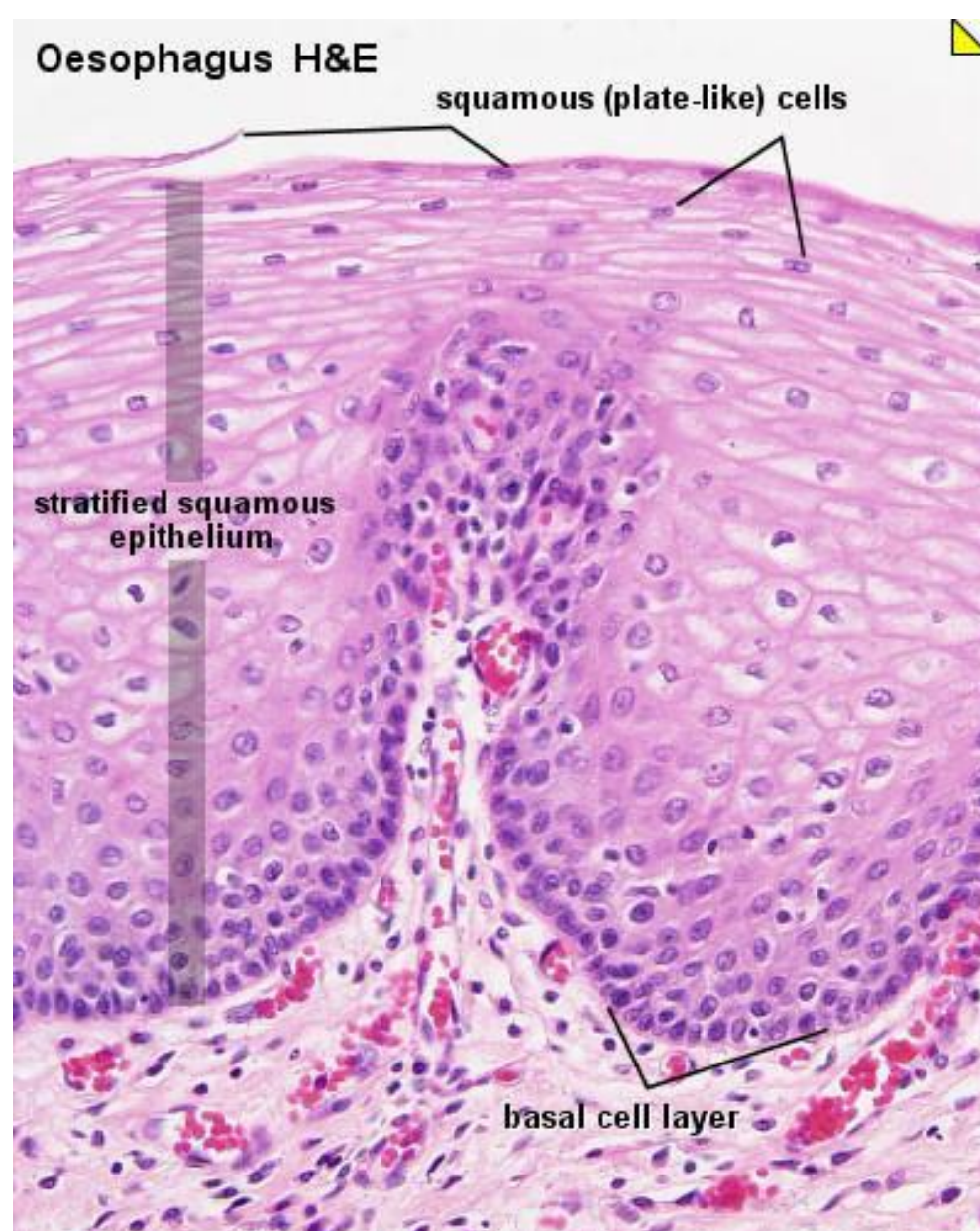
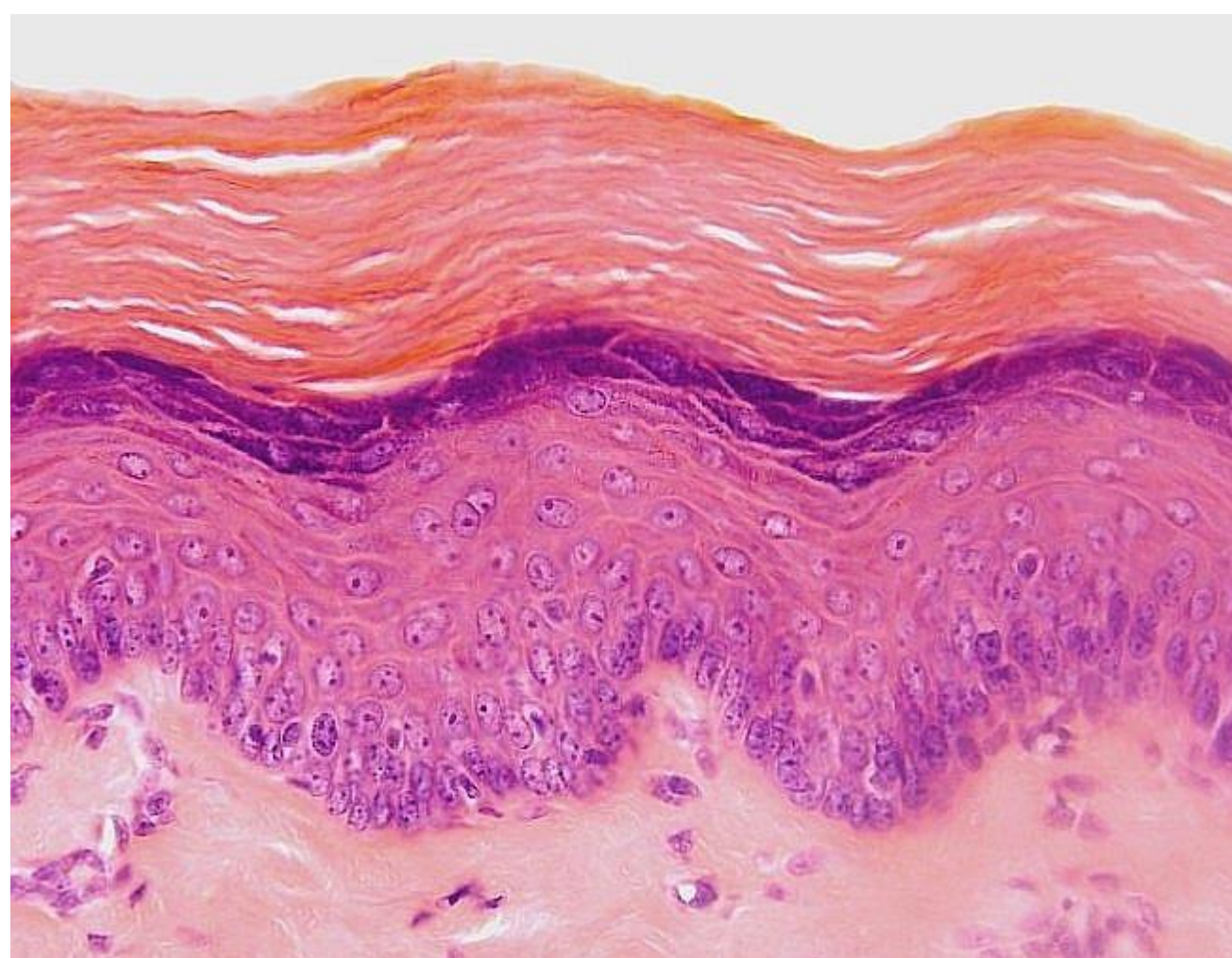


Stratified squamous epithelium (Non-keratinised)

- Variable cell layers-thickness
- The deepest cells - *basal cell layer* are cuboidal or columnar in shape.
- mitotically active and replace the cells of the epithelium
- layers of cells with polyhedral outlines.
- Flattened surface cells.

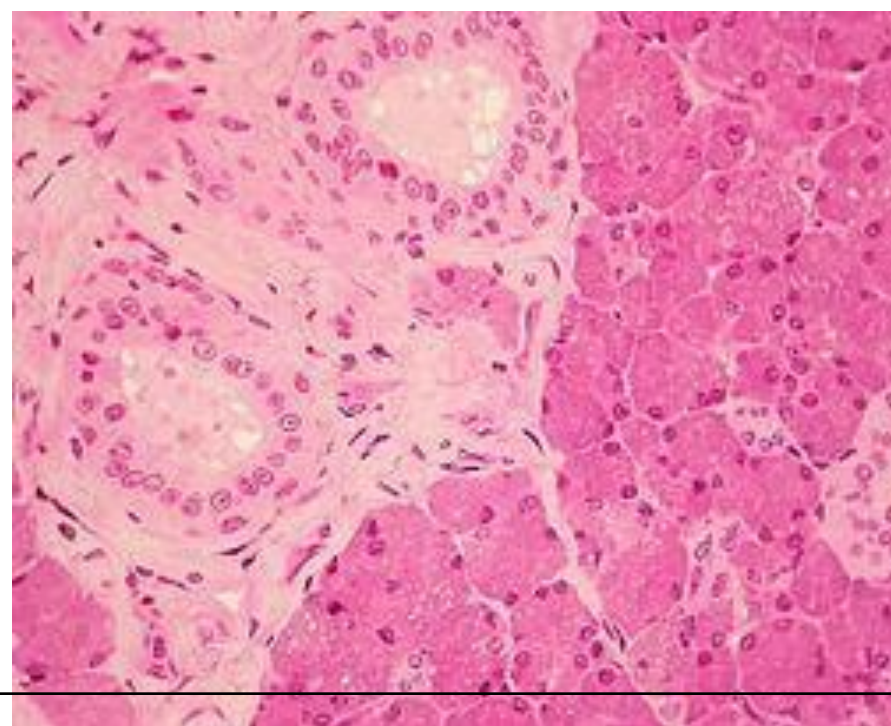


Stratified squamous epithelium (Keratinised)



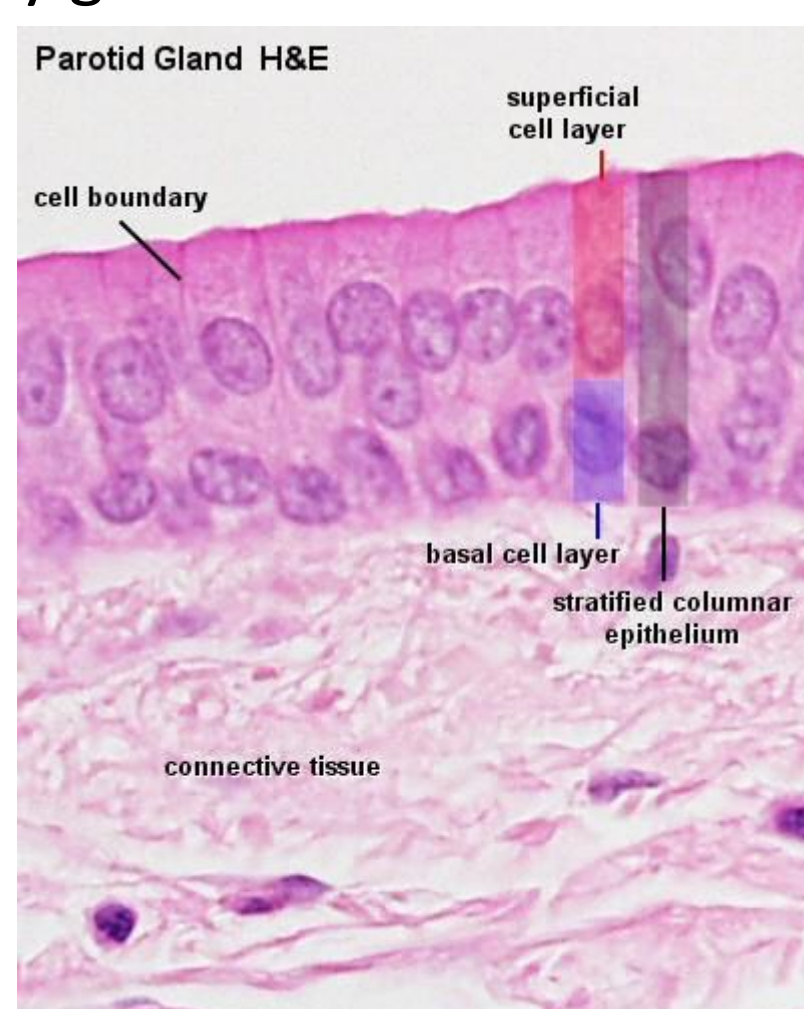
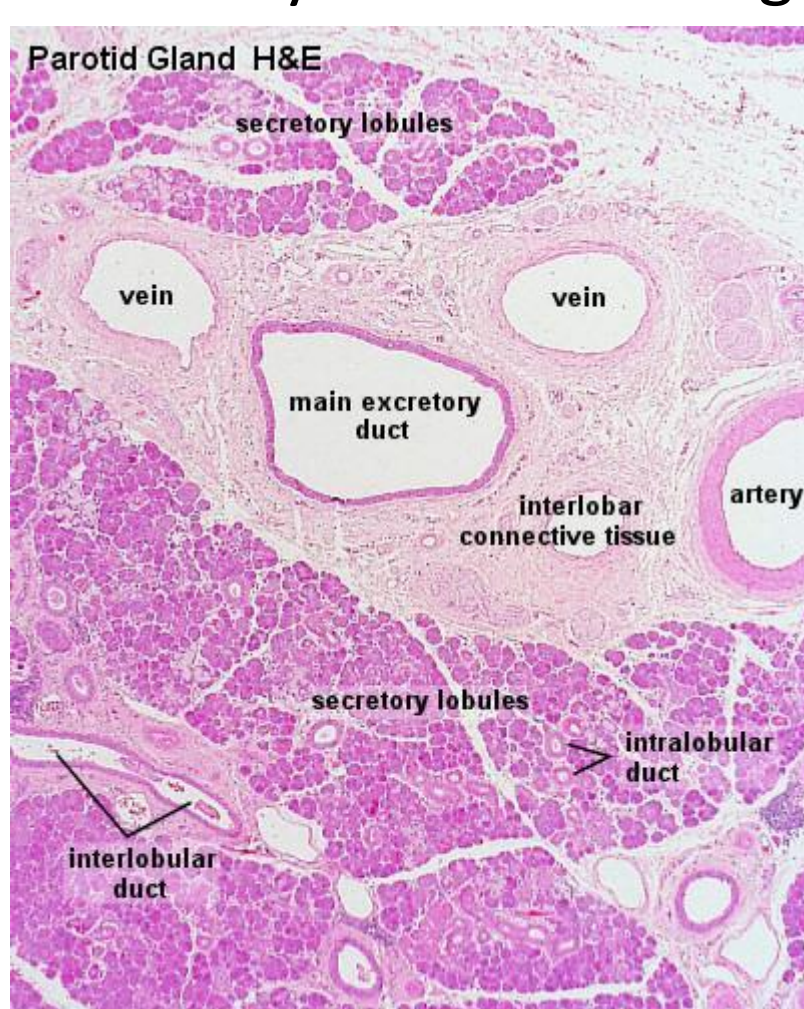
Stratified cuboidal epithelium

- A two-or more layered cuboidal epithelium
- seen in the ducts of the sweat glands, pancreas, salivary glands.



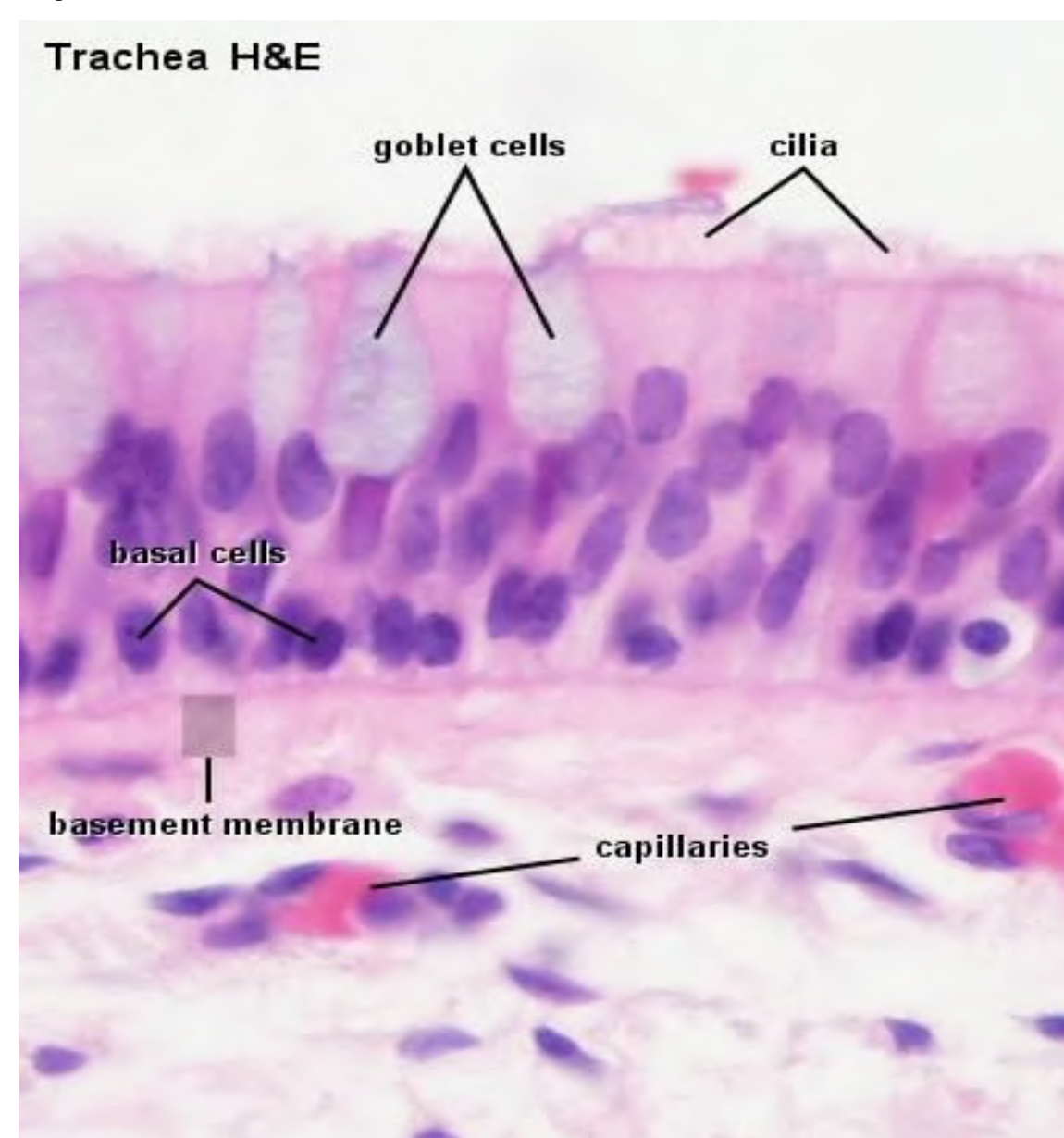
Stratified columnar epithelium

- excretory ducts of the mammary gland
- main excretory duct of the large salivary glands.



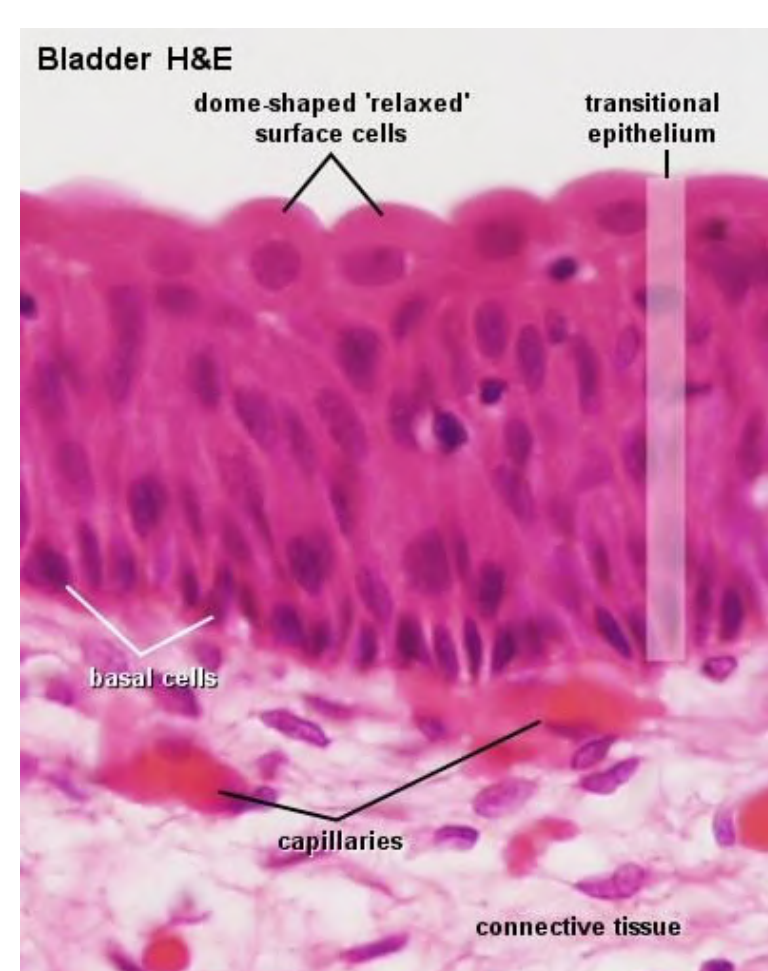
Pseudostratified columnar epithelium

- Non ciliated pseudostratified columnar epithelia – auditory tube, ductus deferens.
- Ciliated pseudostratified columnar epithelia –lungs , bronchi
- Pseudostratified columnar epithelia with stereocilia in epididymis.



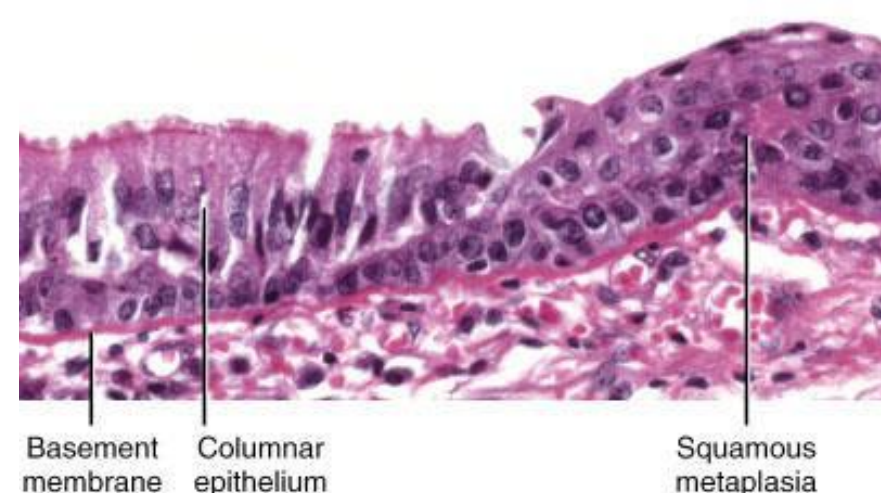
Transitional epithelium

- Found **exclusively** in the excretory urinary passages (the renal calyces and pelvis, the ureter, the urinary bladder, and part of the urethra).



Epithelial metaplasia

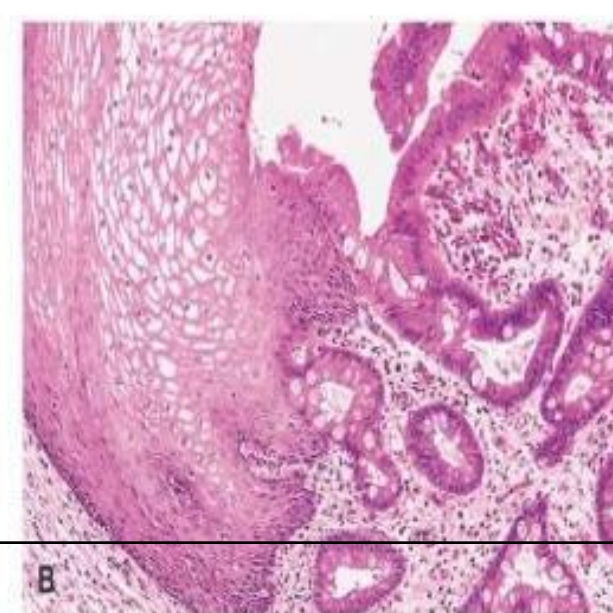
- Squamous metaplasia
Columnar to squamous in bronchus.



- Columnar metaplasia

Stratified squamous to columnar in oesophagus

- May progress to Carcinoma



Identify the epithelium.

