Histology

Modified n. 7

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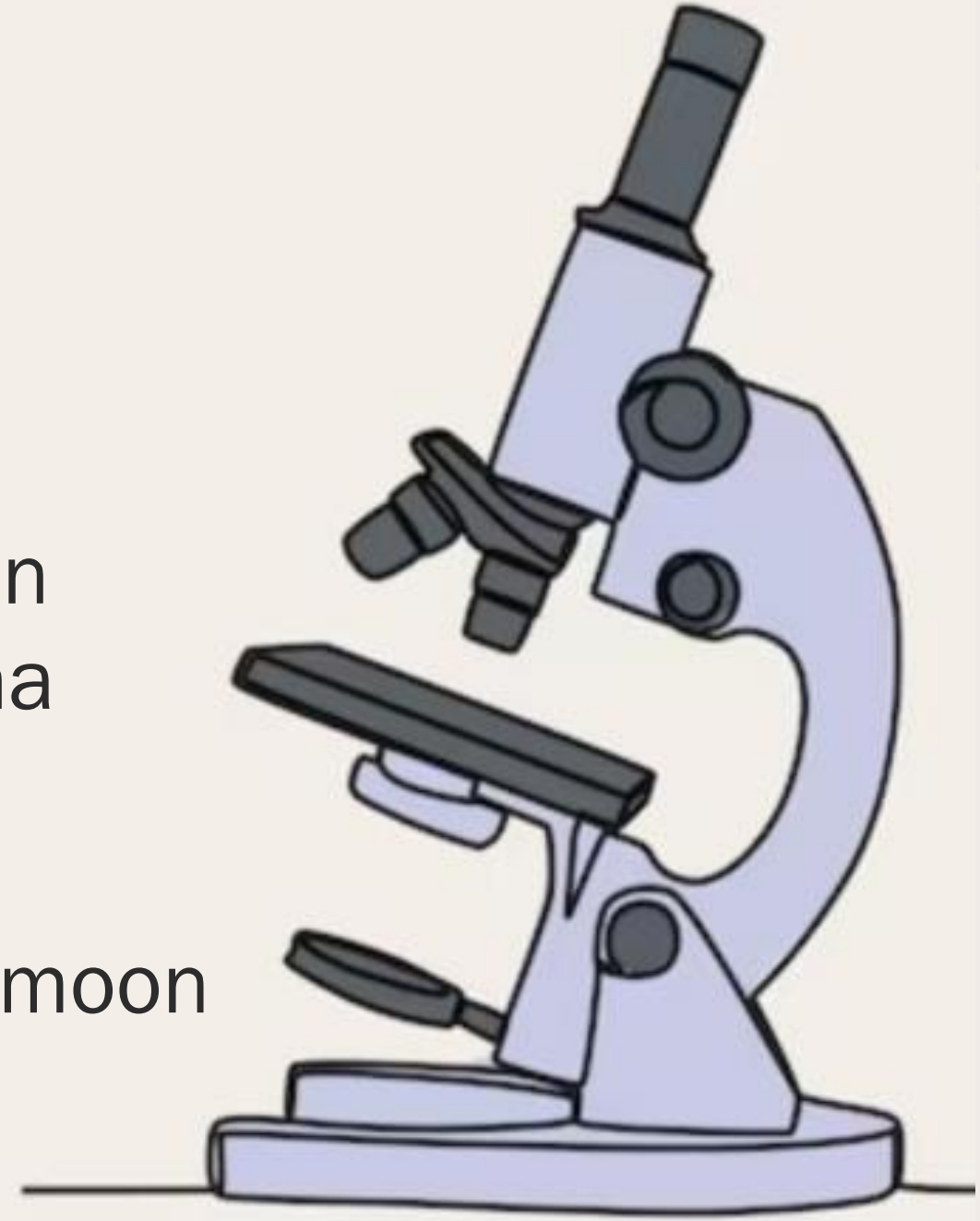
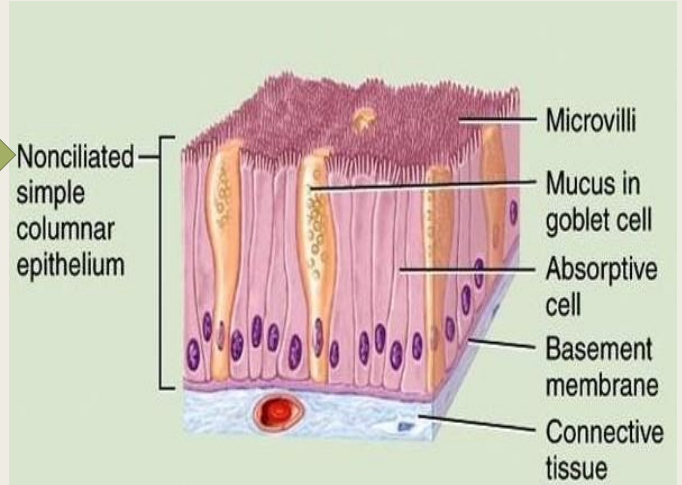


Simple columnar epithelium

The gall bladder concentrate the bile (produced by the liver). the gall bladder absorbs the fluids and some electrolytes from the bile to make it more concentrated .

- Cells are tall.
- Usually with microvilli or cilia.
- Engaged in the protection of wet surfaces, absorption (microvilli) and secretion.
- Forms major ducts of exocrine glands.
- When ciliated (**fallopian tube, uterus**), it helps in movement of fluid in the female genital tract.



Nonciliated simple columnar epithelium

*note: microvilli , increase the surface area ,so it helps in absorption

A: Lumen
B: Lamina Propria

Location

- Small intestine
- Stomach
- Gall bladder (a gland associated with GI tract, more precisely with the liver)
- Oviduct lining(cilia in the apical surface, helps the oval to move toward the uterus)
- Renal collecting ducts

in glands we have two types of cells 1-secretory (the ones that produce secretion) 2-ducted cells

Simple form of ducted cells is low cuboidal, the greater the duct becomes , the higher the epithelium
So they move from low cuboidal to medial cuboidal to high cuboidal to columnar to stratified
The higher the cells, the bigger the duct.

Their height is way bigger than their weight , they have lots of cytoplasm and this is correlated to the function they do (mainly absorption or secretion and this depends on where they're located) , the nuclei are elongated , usually associated to apical structures like cilia

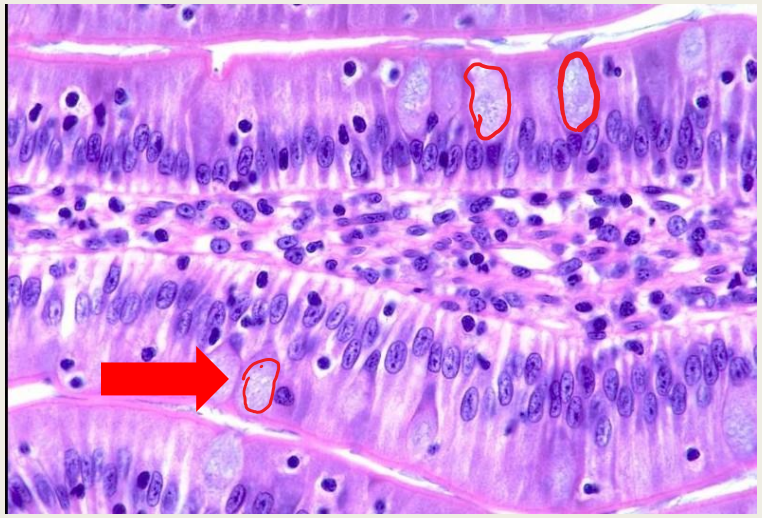
Goblet Cells

Gland with one cell,, (goblet) bcz their shape is like the goblet (=luxury way to say cup)

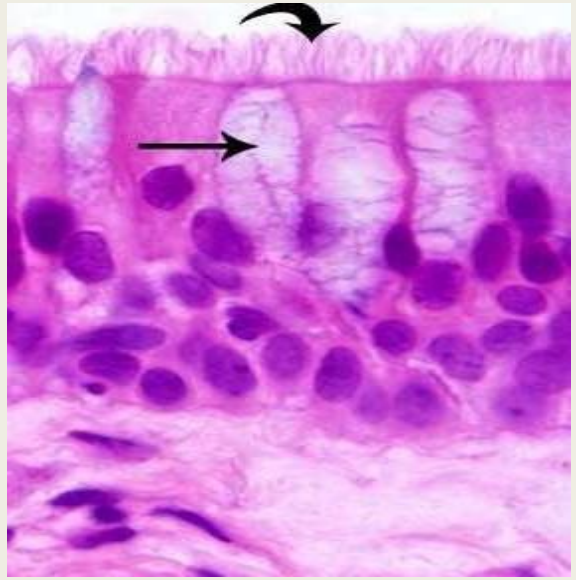
(unicellular glands)

- **Goblet cells:** produce mucus.
- **Cilia** (larger than microvilli): sweep mucus.
- Associated mainly with columnar, pseudostratified, and stratified columnar (conjunctiva) epithelia

Mucus (المخاط) is a structure that has a core proteins and is highly hydrated, that's explains its gell-like nature
These cells usually when they are stained with hematoxylin and Eosin they have a foamy apperence in images,bcz:
Mucus's majority is water so it will be washed away during preparation process



The goblet cell's nucleus is basely located with an amount of organelles inside the cells, they don't have cilia or microvilli on the surface



An example of goblet cells is respiratory tract

the mucus there

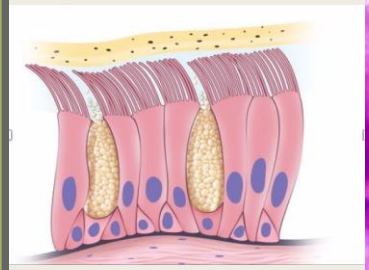
purify inhaled air, by entrapping the foreign particles in the air we inhale

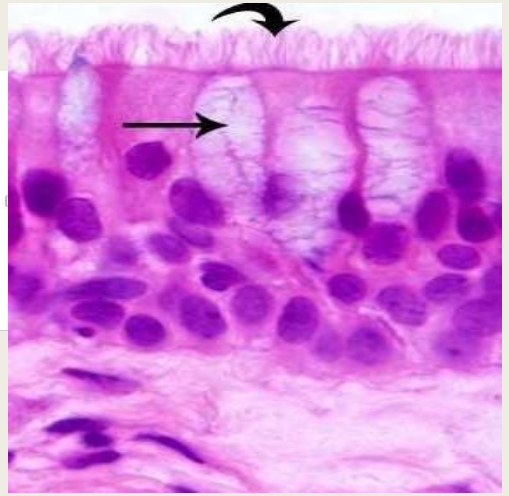
Pseudostratified columnar epithelium

- Small basal cells and taller apical ones; nuclei
- At different levels----false stratifications.
- All cells are attached to the basement membrane, this is how we know it's not stratified
- **Locations**:
- 1. Respiratory tract (trachea and bronchi; Ciliated with goblet cells) this is called respiratory epithelium
- 2. Male genital tract. it is not associated with cilia in the male genital tract

  Goblet cells: are usually seen in respiratory tract to produce mucus mucous: it entraps foreign particles in the respiratory tract

These 1- small basal cells & taller apical ones reach the surface & rest on the basement membrane,
2- different levels of these nuclei,
3- different amount of cytoplasm gives us this false feeling of stratification





Pseudostratified epithelium is present in the male genital tract (not associated with cilia) & in the respiratory tract which is usually associated with cilia & goblet cells. whenever you see goblet cells in the respiratory tarct you gonna always see cilia , because The presence of mucus requires cilia ,because these cells when they produce mucus to cover the apical surface of the epithelium, this cilia helps cleaning the mucus when it gets old and dirty, this action becomes more often and important function when we have cold or flue (where there will be an excess of mucus so if it we leave it, it will block the airways).
Movement of cilia in the respiratory tract is upward , meanwhile cilia in the male genital tract moves toward the midline