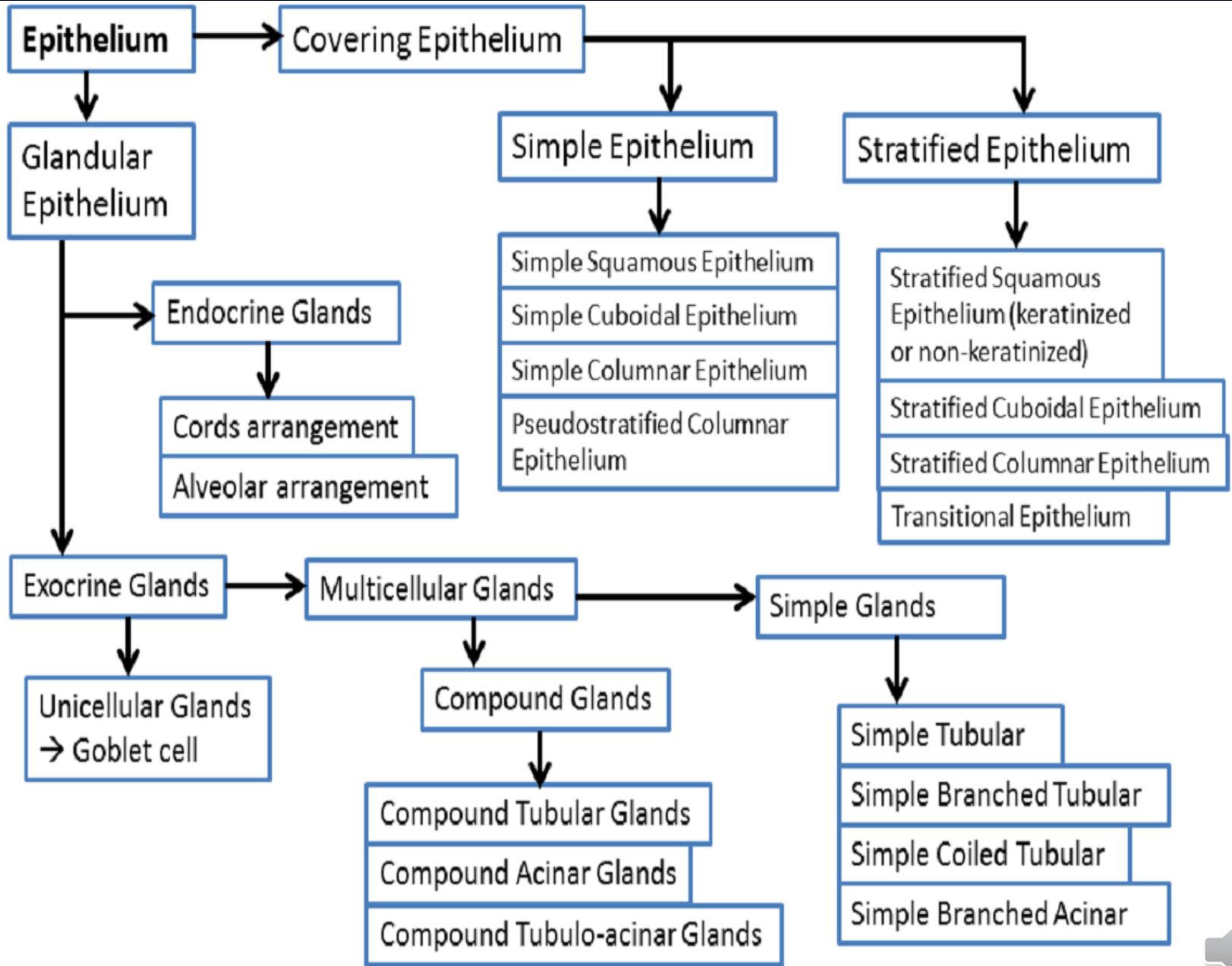


# Biology





# Glandular epithelium:

- Glands are classified into three major groups on the basis of the method of distribution of their secretory products:
  - exocrine glands
  - endocrine glands
  - mixed glands



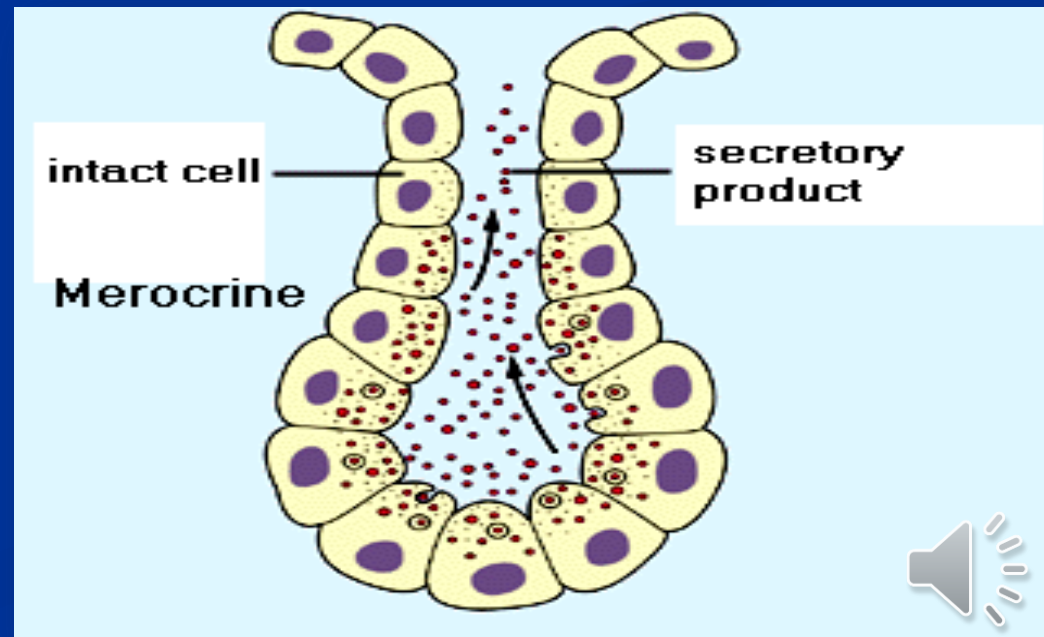
# Exocrine glands:

## Classification of exocrine glands:

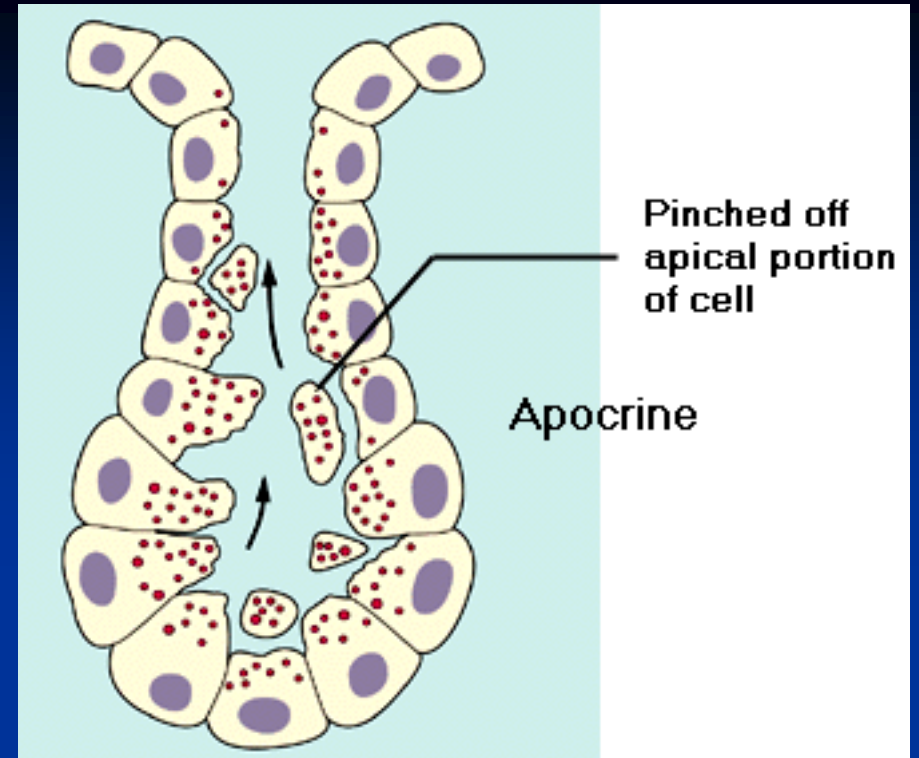
### 1. Exocrine Glands Classified by Mechanisms of Secretion:

- Exocrine glands classified according to the mode or way in which the secretory products leave the cell into:

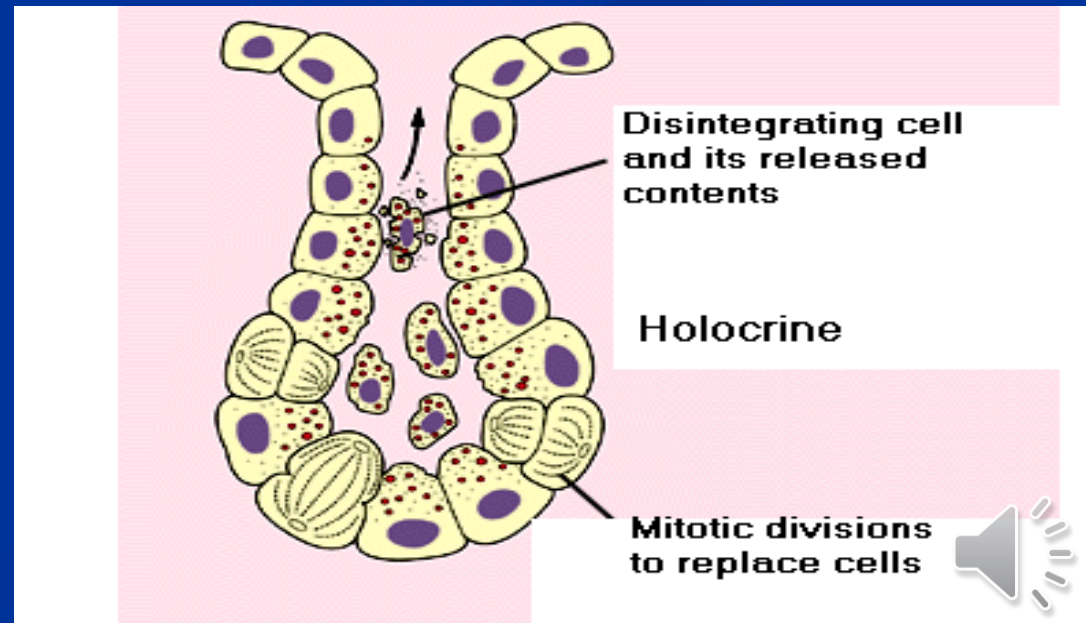
(a) Merocrine (or eccrine) secretion:



(b) Apocrine secretion:



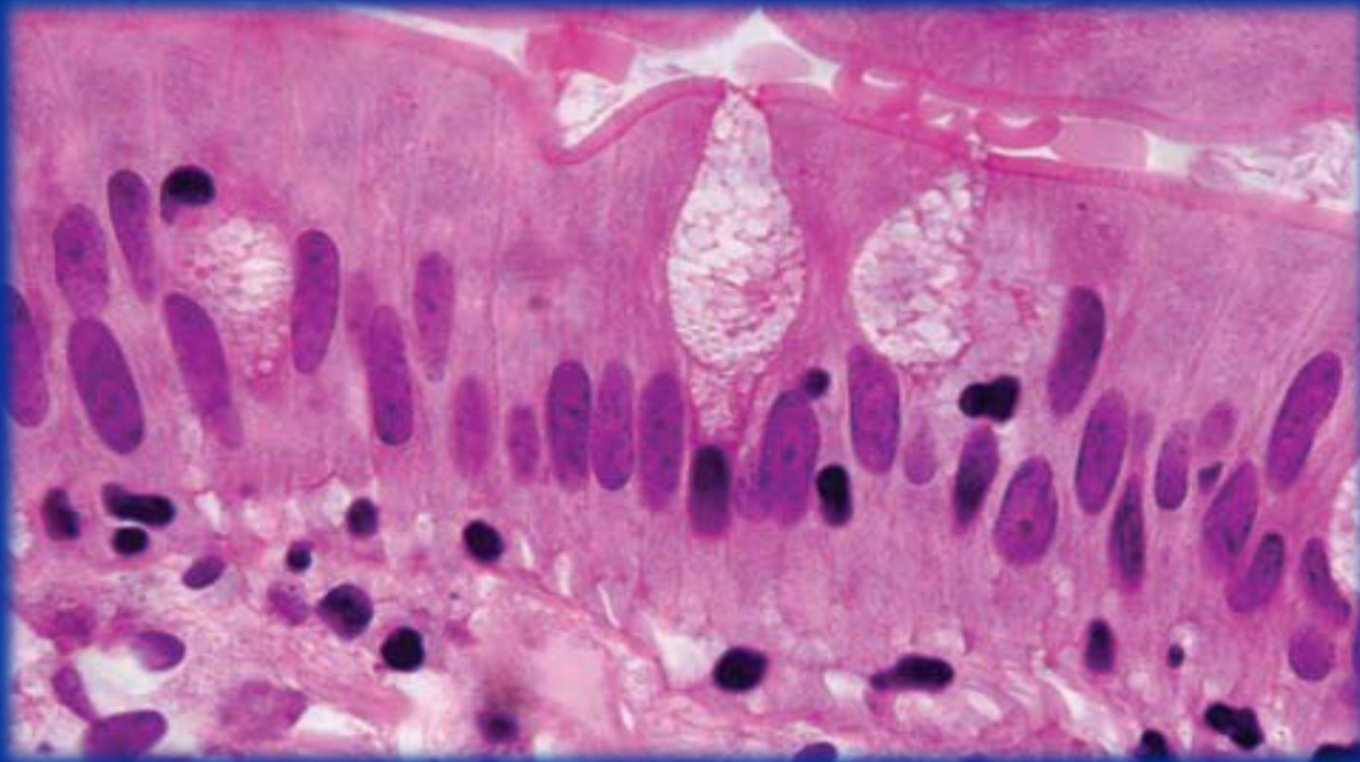
(c) Holocrine secretion:



## 2. Exocrine Glands Classified by Morphology:

Exocrine glands are classified according to the no. of cells into two groups:  
unicellular glands  
multicellular glands.

### ■ Unicellular exocrine glands:



# Classification of glandular ep. :-

① according to morphology :-

① unicellular

② multicellular :- classified according to the following

① organization of the duct system

① simple

② compound

② organization of the secretory portion

① straight

② branched

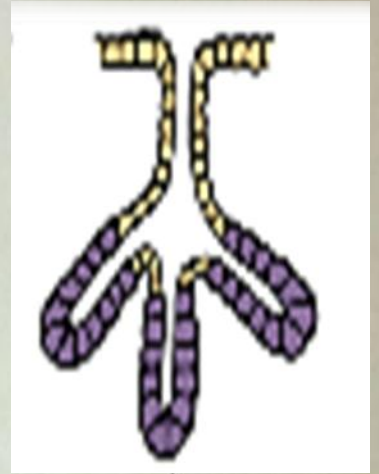
③ coiled

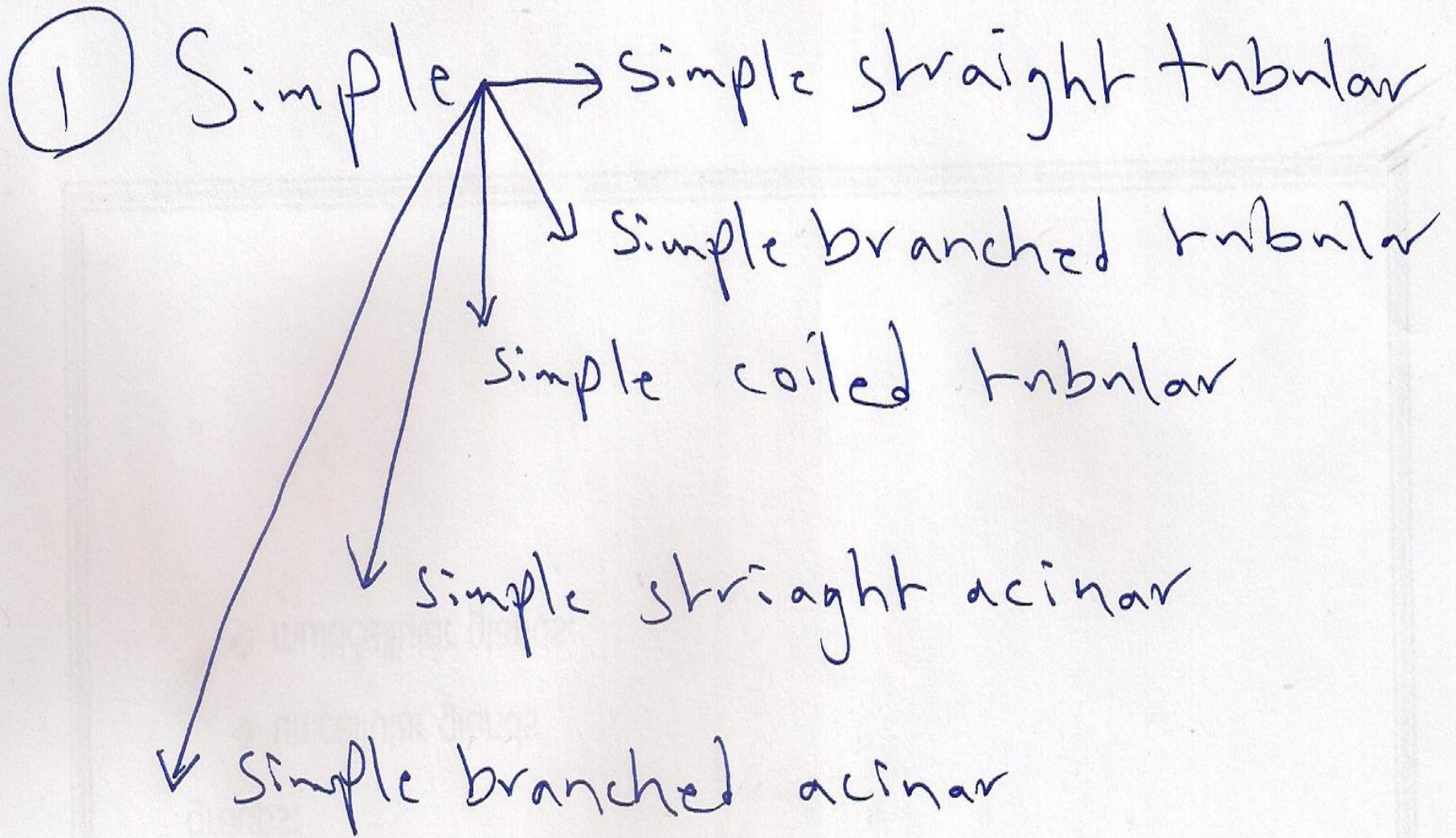
③ shape of the secretory portion

① tubular

② acinar

③ tubulo-acinar







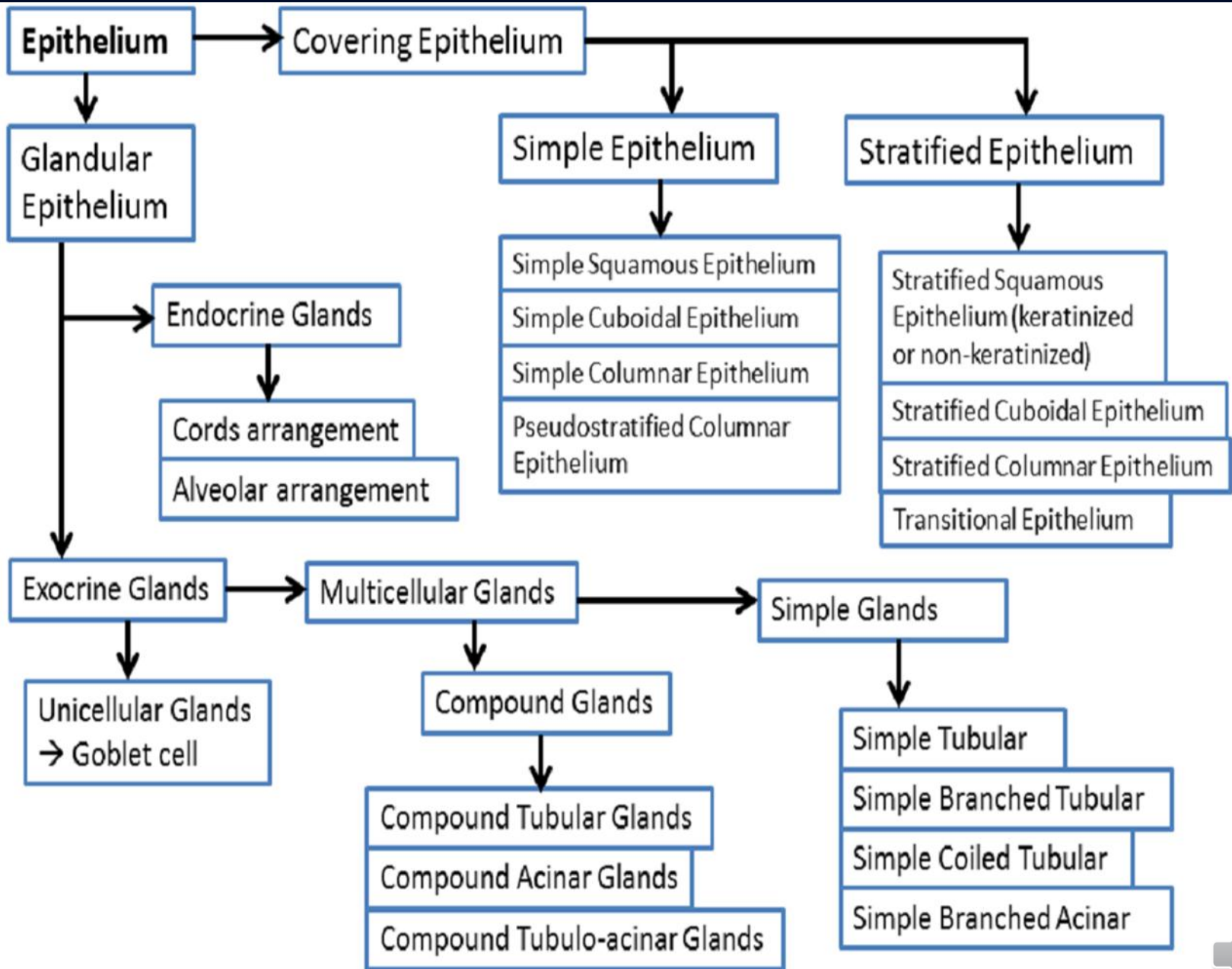
② Compound (only classified according to the shape of secretory part)

Compound tubular

Compound acinar (alveolar)

Compound tubulo alveolar  
or  
(tubulo-acinar)





## ■ Multicellular exocrine glands:

- Multicellular exocrine glands are classified according to the organization of their duct components into simple or compound glands.



- Multicellular exocrine glands are classified according to the organization of their secretory components into straight and branched and coiled:
- Multicellular exocrine glands are classified according to the shape of secretory units in both simple and compound glands into:
  - tubular
  - alveolar (acinar)
  - tubulo-acinar (alveolar)

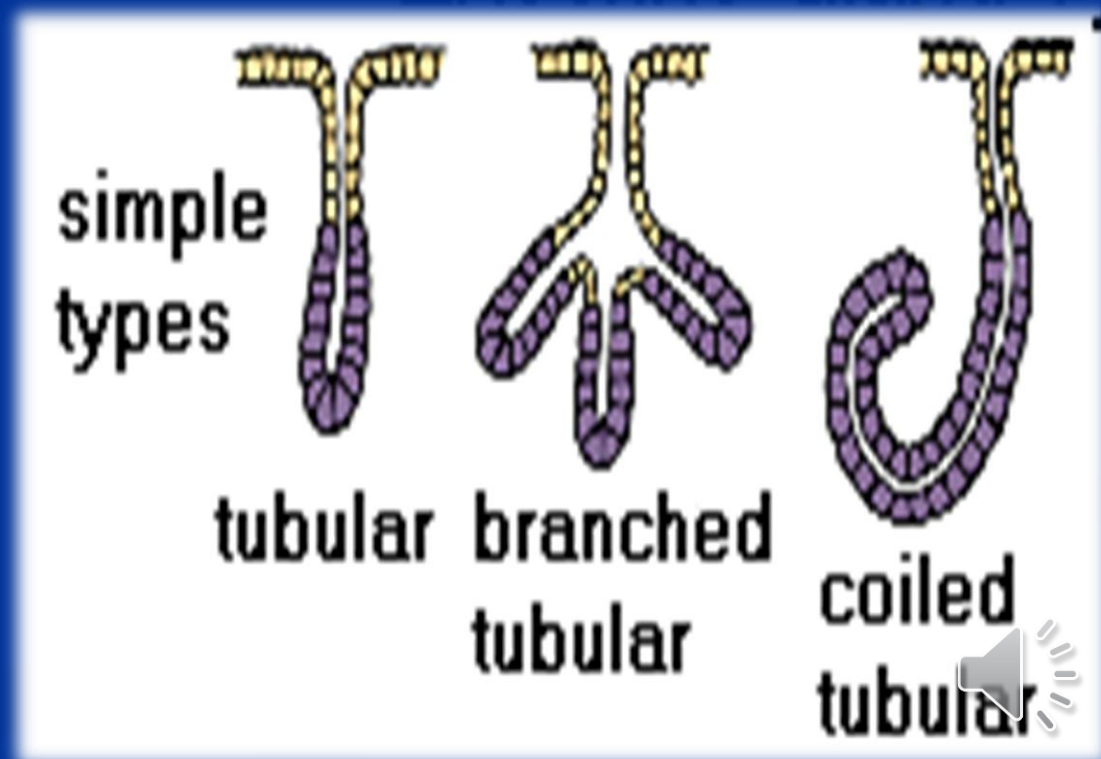


# 1. simple tubular glands:

a. simple straight tubular glands:

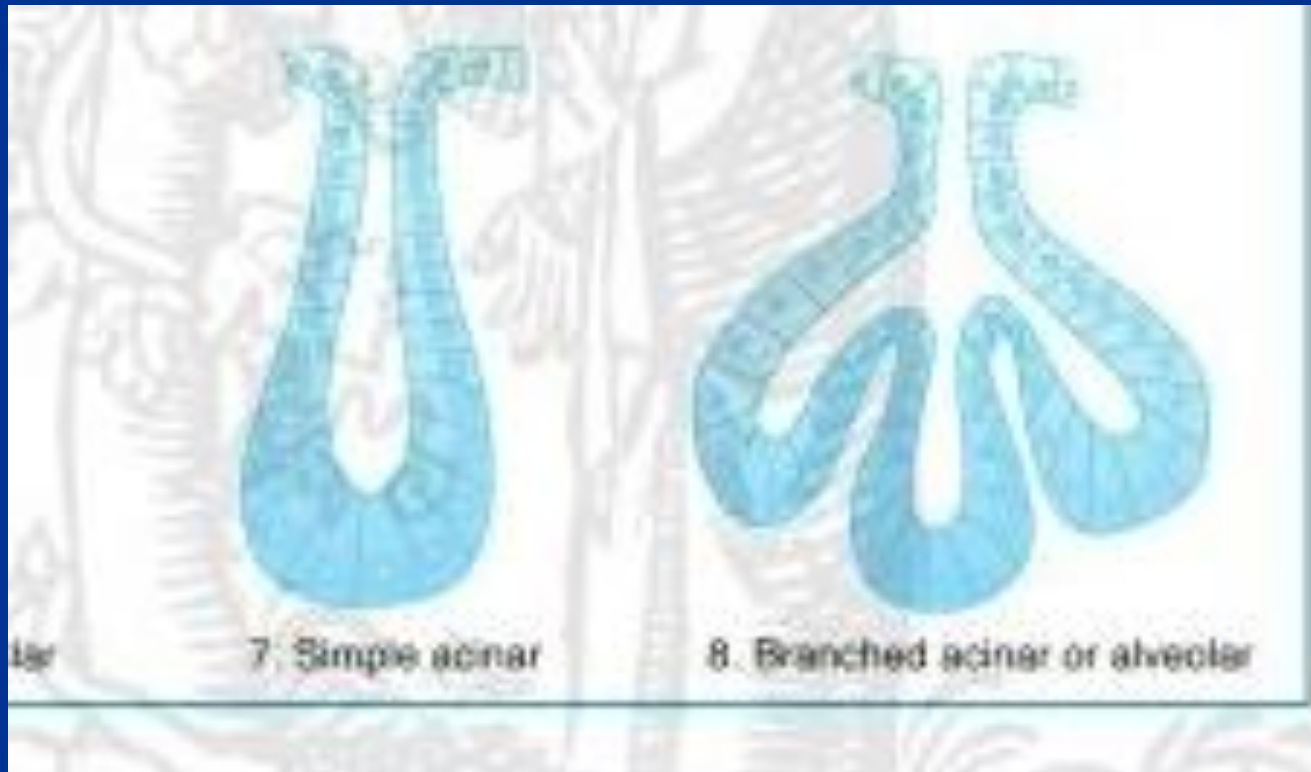
b. simple branched tubular glands:

c. simple coiled tubular glands:



## 2. simple acinar glands (simple alveolar)

- a. simple straight acinar glands:
- b. simple branched acinar glands:

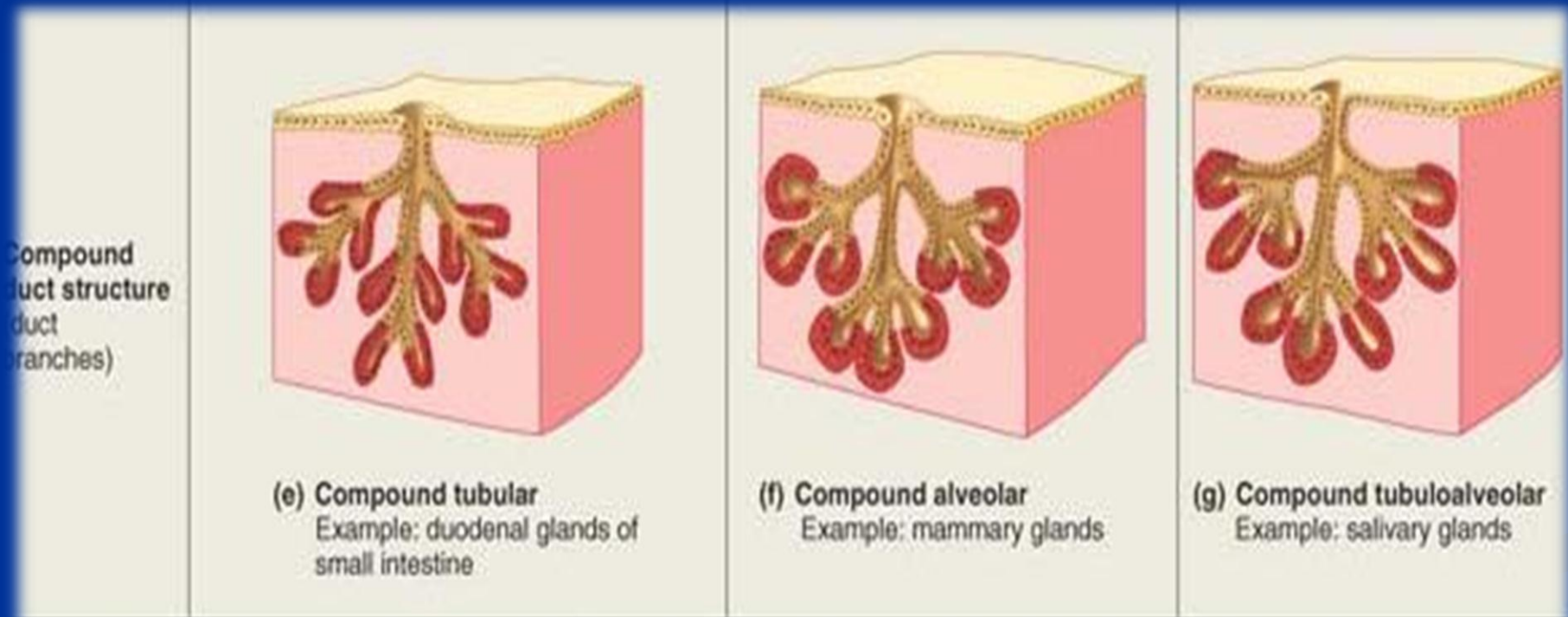


## 2. compound multicellular exocrine glands:

a. compound tubular glands:

b. compound acinar or alveolar glands:

c. compound tubuloacinar (tubuloalveolar):

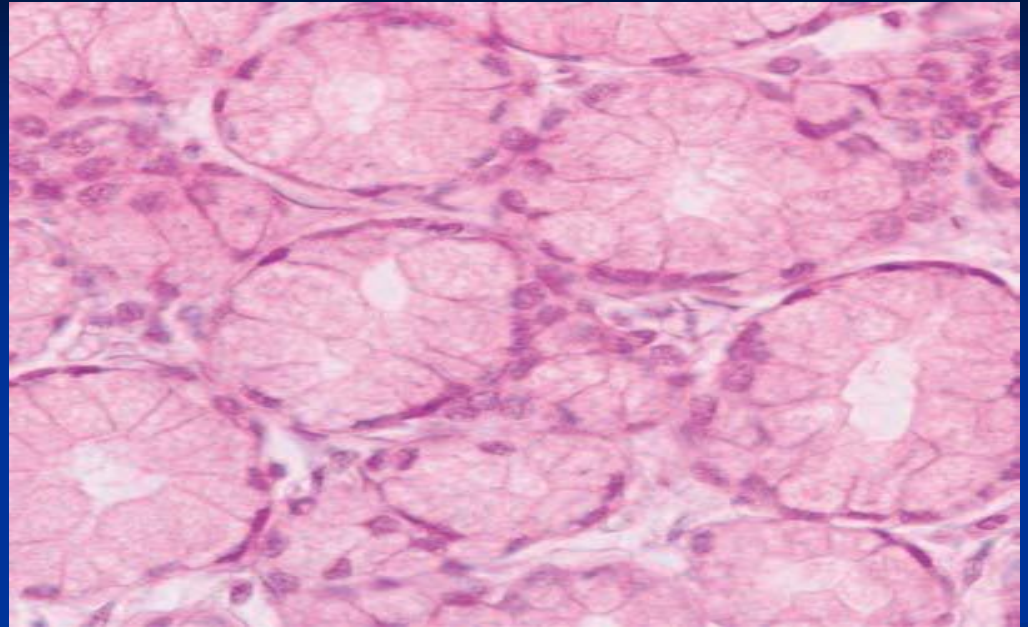


Legend:  
■ = Surface epithelium   ■ = Duct   ■ = Secretory epithelium

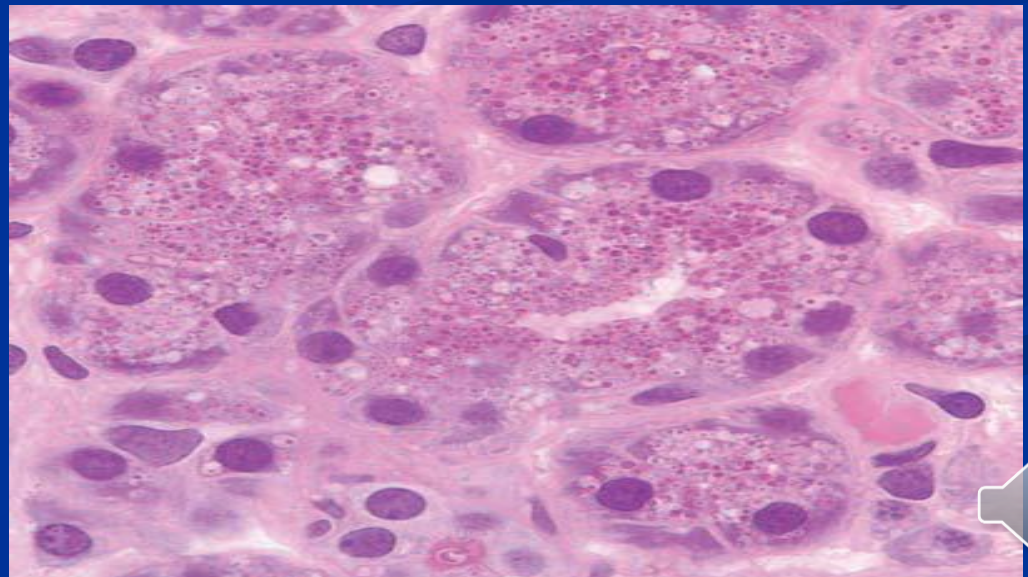


### 3. Exocrine Glands Classified by Product:

a. Mucous cells:

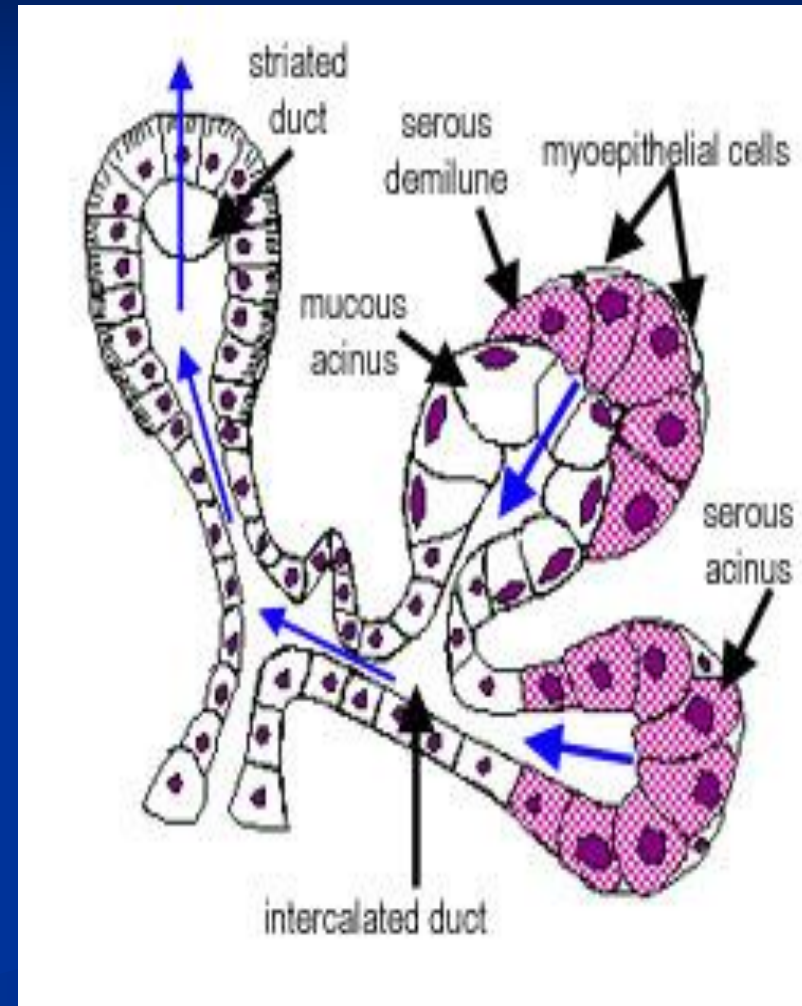


b. Serous cells:





- 3. Mixed: These glands have both serous and mucous cells.
- The mucous cells ends are capped by serous cells that secrete between the mucous cells' intercellular space. These serous caps on mucous cells are called serous demilunes.
- The mucous cells are surrounded by myoepithelial cells. These myoepithelial cells contract and push the mucous cells' contents into the duct.
- The serous cells are surrounded by myoepithelial cells. These myoepithelial cells contract and push the serous cells' contents into the duct.
- The serous cells are surrounded by myoepithelial cells. These myoepithelial cells contract and push the serous cells' contents into the duct.



## Endocrine glands:

- polypeptide (or protein)-secreting cells
- steroid-secreting cells.



**Epithelial cell renewal:  
continuously renewing  
cell populations.**

**stable cell populations**



**Most of the cancers of the body are the result of uncontrolled proliferation of epithelial cells.**



# Home Work

Q1: Give the type of the following glands:

1. Parotid gland
2. Sweat gland
3. Brunner gland

Q2: what's the type of epithelium in the blood vessels? Why?



THANK YOU