

## Histology lab:2

### Epithelial tissue

There are four main types of tissue in the human body

1-epithelial tissue

2-connective tissue

3-nervous tissue

4-muscular tissue

All these tissue composed from cells and extracellular matrix .epithelial tissue are composed of cells and very little extracellular matrix . these cells have strong adhesion and form cellular sheets that covered the surface of the body and line its cavities .cells of epithelial tissue supported by basement membrane of variable thickness . Basement membrane separate epithelia from underlying supporting tissue and never penetrated by blood vessels . thus epithelia depending on the diffusion of oxygen and metabolisms from adjacent supporting tissue .

The function of Epithelial tissue :

- Absorption ...e.g. intestine
- Protection ...e.g. skin
- Covering and lining ....e.g. skin
- Secretion ....e.g.

#### Classification of epithelial tissue :

According to the number of cells :

- **Simple epithelium** : composed of single layer . and it defined as surface epithelia consisting from one layer of cell . and it range in shape from extremely flattened to tall columnar depending on its function and it is composed from
  - 1- Simple squamous is flattened irregularly shaped cells forming continues surface that referred to as pavement membrane .this cells supporting by underlying layer basement membrane .simple squamous found lining surface such as in pleural ,pericardial ,peritoneal.
  - 2- Simple Cuboidal epi. It is intermediate form between simple squamous and simple columnar the nucleus round and located in the center of cell .this type usually lines small ducts and tubules which have excretory , secretory or absorption function .e.g. small ducts of the kidney ,salivary gland and pancreas .

3- Simple columnar epi.: is similar to cuboidal except that cells are taller and appear columnar in section . the height of cells may vary from tall to low depending on site and degree of functional activity . the nuclei are elongated and may be located towards the base . simple columnar found on highly absorption surface e.g. small intestine although secretory surface such as stomach . in this type may cell have cilia on the majority of the cells . among this ciliated cells are scattered non ciliated cells which have secretory function .simple columnar ciliated cell is not common in human except in the female reproductive tract. E.g. fallopian tube

4- Pseudostratified columnar ciliated epi .:in this type the cell rest on basement membrane and the nuclei of these cells are disposed at different levels thus creating the illusion pf cellular stratification this type found in larger airways of respiratory system e.g. bronchus.

▪ **Stratified epithelium** : composed more than layer of cells this type have protective function and the degree and nature of the stratification are related to the kind of physical stress to which the surface is exposed . the classification of stratified epi . is based on the shape and structure of the surface cells since cells of the basal layer are usually cuboidal in shape .

1- Stratified squamous epithelium: consist on variable number of cells layers which exhibit transition from a cuboidal cell in basal to a flattened surface cells . the cells in the basal are divided continuously to replace the damage cells .this type found in oral cavity . esophagus ,uterine ,cervix and vagina .

2- Stratified squamous keratinizing epithelium: specialised form found in the epidermis in the surface of the skin .it is tough –non living surface layer consisting of protein keratin

3- Stratified cuboidal epithelium: is a thin stratified epithelium which usually consist of only two or three layers of cuboidal or low columnar cells . this type of epi. Is usually confined to the the lining of the larger excretory ducts of exocrine glands such as salivary glands .

4- transitional epithelium: is a form of stratified epi . almost exclusively in the urinary tract. it is named because it has some features which intermediate (transitional ) between stratified cuboidal and stratified squamous . in the relaxed (contacted ) state transitional epi . appears to be about 4to 5 cells layer thick . the basal cells are roughly cuboidal , the intermediate cells are polygonal and the surface cells are large and

rounded and may contain two nuclei . in the stretched state transitional epi. Appears only two or three cells thick . and the intermediate and surface layers are flattened.

