

Epithelial Tissues

Simple Epithelium



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Introduction



Epithelial tissue is composed of one or more layer of cells laid together in sheets with the cells tightly connected to one another

Epithelial layers are avascular but innervated

Position :

Epithelial tissue occurs on external and internal exposed surfaces of the body where they form protective covering

Structure :

Epithelial cells consist of variously shaped cells closely arranged in one or more layers. There is little intracellular space between the cells. The cells are held together by intracellular junctions. The epithelial tissues rest on a thin non cellular basement membrane. Usually blood vessels are absent. Nutrients enter epithelial tissues from the underlying connective tissue by diffusion through the basement membrane.

Types of Epithelial Tissues



Depending upon the no. of layer of cells Epithelial cells are of two types

1. Simple Epithelium
2. Compound Epithelium

Simple Epithelium



Simple Epithelium consists of single layer of cells. These cover the secretory and absorptive surfaces .

It is of the following types

- Simple Squamous Epithelium
- Simple Cuboidal Epithelium
- Simple Columnar Epithelium
- Simple Psuedo stratified Epithelium

These are explained in the subsequent slides

Simple Squamous Epithelium



Structure :

It is composed of large flat cells . Its edges fit closely together like the tiles in a floor . Hence it is also called pavement epithelium. Nuclei of the cells are flattened and present in the middle thicker part of the cell.

Location :

It is found in the lung alveoli, wall of the bowman's capsule and descending limbs of loops of Henle of the nephrons of the Kidneys , blood vessels, lymph vessels , heart , coelomic cavities etc.

Function:

Protection, excretion , gas exchange and secretion of coelomic fluid

Simple Columnar Epithelium



Structure :

Columnar epithelium is composed of single layer of tall and slender cells. The nuclei are elongated and lie near the bases of the cells.

Location :

It lines the stomach, intestine, gall bladder and bile duct . In the intestinal mucosa it has a large no. of micro villi, to increase the absorptive surface area .

Function:

Protection, secretion and absorption

Simple Cuboidal Epithelium



Structure :

Cells are cuboidal or squarish in shape. Nuclei are rounded and lie in the center of cell.

Location :

The cuboidal epithelium is present in parts of salivary and pancreatic ducts , thyroid glands and covering of ovaries , seminiferous tubules of testes , choroid and iris of eyes and sweat glands of mammalian skin etc.

Function:

Its main function are secretion, absorption and excretion .

Simple pseudostratified Epithelium



Structure :

The Cells are columnar but unequal in size. The long cells extend up to the free surface and the short cells do not reach the outer free surface . Long cells have oval nuclei , and short cells have rounded nuclei.

Although cells are arranged in a single layer but appear as multilayered due to different positions of their nuclei and two types of cells , tall and short cells.

The long cells have cilia at their free surface and short cells are without cilia.

Location :

It is found in the trachea and the long bronchi.

Function:

Its main functions are protection, secretion, movement of secretions from gland and mucous loaded with dust particles and bacteria from the trachea towards the larynx

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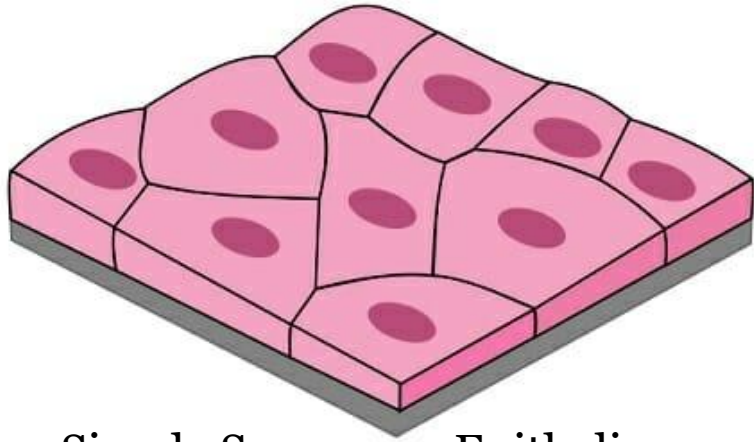
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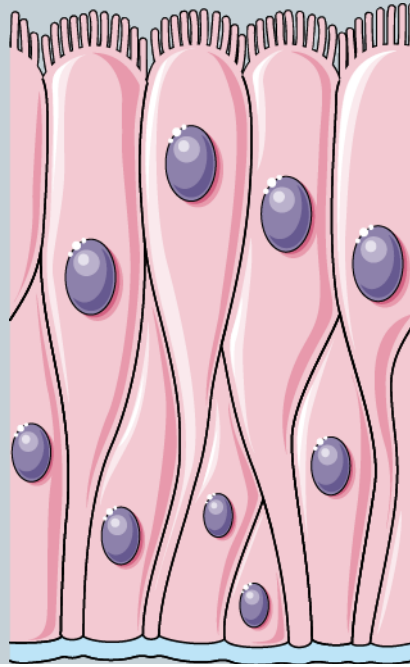
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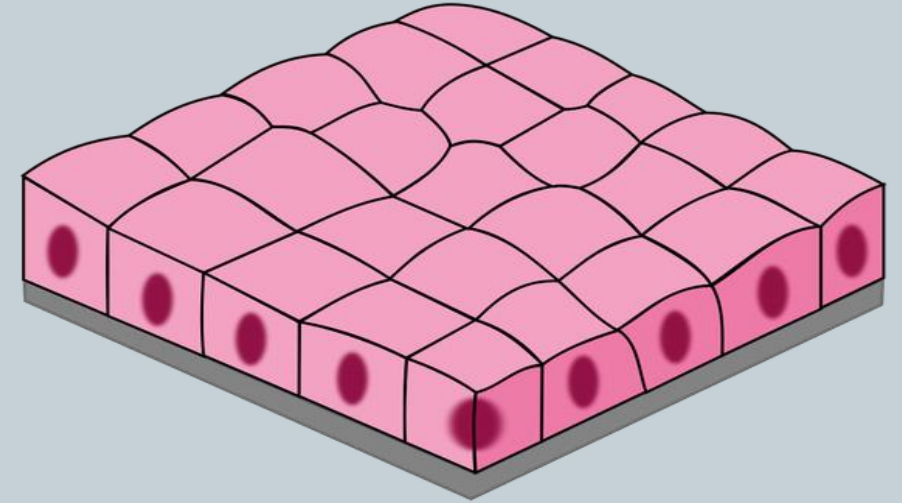
Diagrams of Simple Epithelium



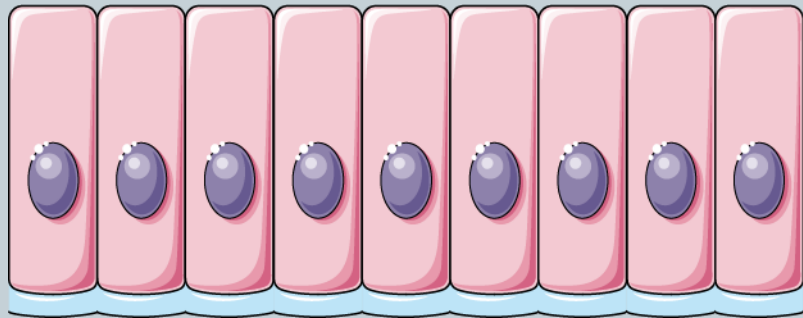
Simple Squamous Epithelium



Simple Pseudostratified Epithelium



Simple Cuboidal Epithelium



Simple Columnar Epithelium

Thank You

