

EPITHELIAL TISSUE

Q. What do you mean by epithelium tissue?

This is a tissue composed of closely aggregated cells that are in apposition over a large part of their surface and which have very little intercellular substance. In its simplest form, epithelium consists of a single continuous layer of cells of the same type covering an internal or external surface and some area modified into glands.

Q. State general characteristics of epithelial tissues.

(a) Cell cell arrangement: relatively regular in shape and closely packed in continuous sheets, with little or no extra cellular substances (Matrix).

(b) Junctions: Tight- fitting epithelial cells are held in place by cell-cell junctional complexes of plasmamembrane (Tight junction, spot desposome, gap junction).

Junctional complexes of plasmamembrane	Features
Tight junction	The site of close connection between 2 plasmamembranes, with little or no epithelial tissues of urinary bladder.
Spot desmosome	A junction with no direct contact between adjacent plasmamembrane but by a crisscrossed network of intercellular filaments.
Gap junction	Formed from several links of channel protein connecting two plasmamembrane.

(c) Basement membrane: Most epithelial cells are anchored to the underlying connective tissue by a basement membrane, composed of—

i) Basal lamina- a homogeneous layer of peptides and glycoproteins, lacking fibers.

ii) Reticular lamina- a deeper layer of glycoproteins containing reticular and collagenous fibers.

(d) Lamina propia: The supporting loose vascular connective tissue, upon which the epithelial membrane rests.

(e) Lack of blood vessels.

(f) Surface specialization (Taking microvilli/ brush-border as example) Due to folding of plasmamembrane in the free end of epithelial cells involved with absorption, cilia in those of respiratory system.

Q. What are the major functions of epithelial tissue?

Major Functions	Example
Absorption	Lining of small intestine
Protection	Skin epithelium
Secretion	Mucous glands
Transport	Kidney tubules
Excretion	Sweat glands
Selective diffusion	Taste buds
Impermeability	Epithelial tissue holds urine within the bladder but lining epithelium of bladder are impermeable to urine by their non-licky cell cell junction
Lubrication	Secretory mucous

Q. What are the major types of epithelial cells? Mention the basis of classification for epithelial cells.

(a) Basis of classification: arrangement and shape of cells and the number of cell layers.

Epithelium	
Simple	Striated
Squamous	Squamous
Cuboidal	Cuboidal
Columnar	Columnar
Ciliated (columnar and cubical)	Transitional