

Epithelial Tissues

Compound Epithelium



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Introduction



Compound Epithelium is made up of more than one layer of cells
Only lower most layer rests on basement membrane

Compound Epithelium is of two types

1. Transitional Epithelium
2. Stratified Epithelium

Transitional Epithelium



Structure

The Transitional Epithelium consists of 4 to 6 layers of cells . The cells of basal layer are columnar or cuboidal. The cells of middle layer are polyhedral . The cells of the surface layer are large and globular. Transitional epithelium is stretchable.

Location

This epithelium is found in uterus, urinary bladder, renal pelvis and part of urethra

Function

It permits distension during the functioning of various organs where it is present.

Stratified Epithelium



The Stratified Epithelium is formed of many layers of cells (5 to 8) . The nature of cells of different layer is different. The deepest layer is made up of columnar or cuboidal cells. Cells of intermediate layers are mostly polyhedral.

According to the nature of cells of the outermost layer stratified epithelium is of three types.

1. Stratified Squamous Epithelium
2. Stratified cuboidal epithelium
3. Stratified Columnar epithelium.

Stratified Squamous Epithelium



The top layer of cells are flattened and squamous. It is of two types

1. Keratinized squamous epithelium :

- The outermost layer becomes horny and scale like remains of dead cells due to deposition of Keratins
- It is impermeable to water and is also resistant to mechanical abrasion.
- The horny layer is shed at intervals due to friction. e.g. – Epidermis of the skin of land vertebrates

2. Non keratinized squamous epithelium :

- It does not have keratins.
- It provides only moderate protection against abrasion
- This epithelium occurs in the buccal cavity, esophagus, lower parts of urethra , vocal chords, vagina, cervix, conjunctiva, inner surface of eye lids and cornea of eyes

Stratified Cuboidal Epithelium



- The outermost layers are cuboidal.
- It is found in mammary glands, ducts of sweat glands and larger salivary and pancreatic ducts.

Stratified Columnar Epithelium



- Cells of the top layer are columnar
- It covers the epiglottis and lines mammary gland ducts and parts of urethra
- In the lining of the larynx, the outermost epithelium is ciliated.

Stratified Columnar Epithelium



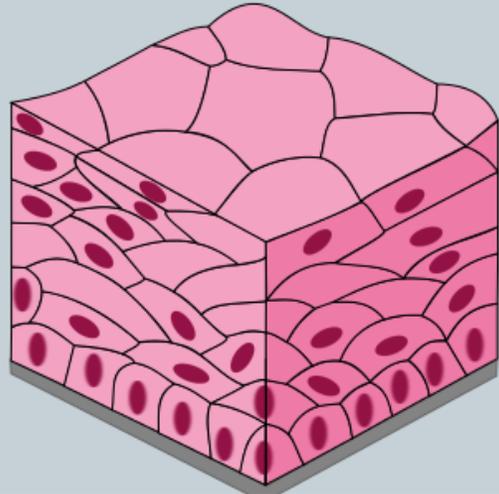
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Functions of Epithelial tissues



1. **Protection** : They protect the underlying tissues from mechanical injury, infections , harmful chemicals and drying up.
2. **Absorption**: Epithelium of intestine and uriniferous tubules are absorptive in function
3. **Conduction**: Ciliated epithelium found in many ducts help in transporting material, e.g. respiratory duct and genital passage
4. **Sensory** : Sensory epithelia of sense organs help to receive stimuli. e.g. retina of eye and olfactory epithelium etc.
5. **Secretion**: Glandular epithelial cells secretes various substances like mucus , gastric juice and intestinal juice etc.
6. **Excretion** : The epithelium of uriniferous tubules is specialized for urine formation for excretion
7. **Regeneration** : Epithelia are highly regenerative. When epithelia is injured, it regenerates more rapidly than other tissues and thus help in rapid healing of wounds

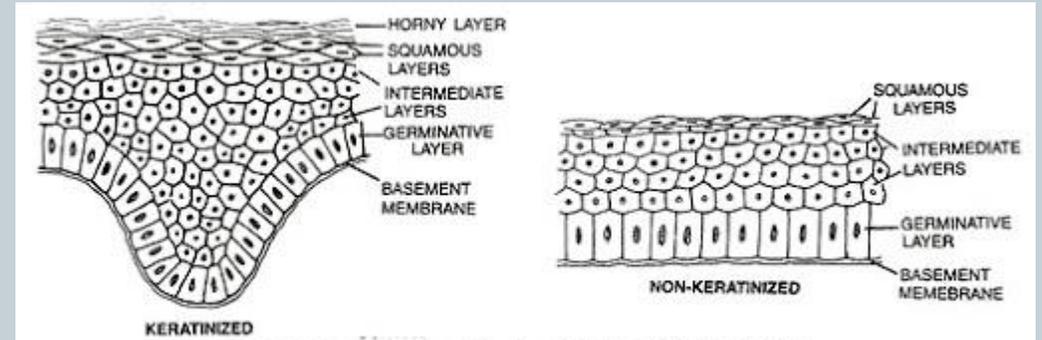
Diagrams of Compound Epithelium



Transitional epithelium

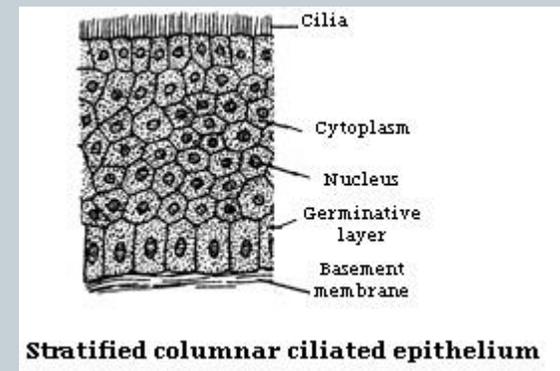


Stratified Cuboidal Epithelium



Stratified squamous epithelium (Keratinized)

Stratified squamous epithelium (non Keratinized)



Stratified columnar ciliated epithelium

Thank You

