



Department of biology

(General Zoology)

Lab 5

Stage -1-

Animal Tissues

By

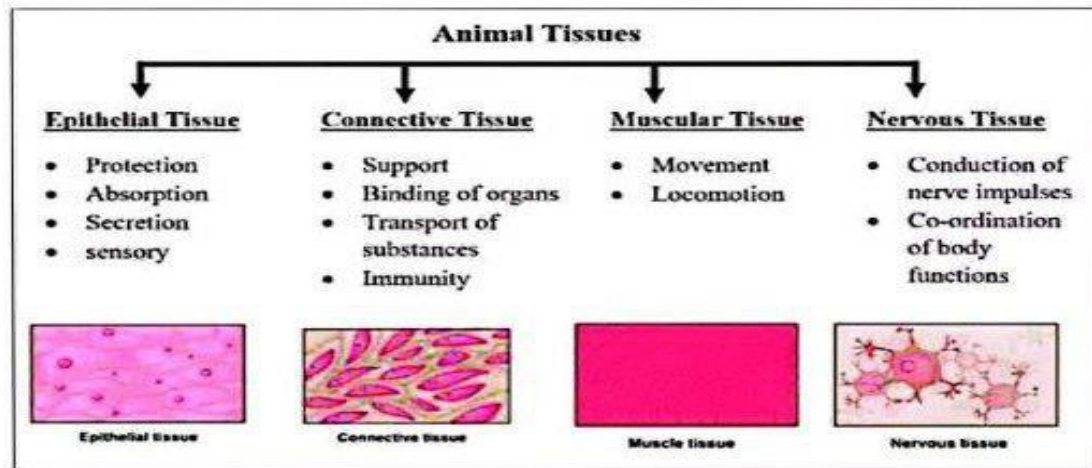
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Animal Tissues

Types of animal tissues:

The animal cells are grouped together to form animal tissues. These tissues vary in their structure, function, and origin, these tissues are formed by cells and extracellular matrix (ECM). The animal tissues are divided into four basic tissue types:

1. Epithelial Tissue
2. Connective Tissue
3. Muscle Tissue
4. Nervous Tissue



1. Epithelial tissue:

Epithelium is derived from ectoderm in embryo. It composed of closely aggregated cells adhering strongly to one another, and to a thin layer of extracellular matrix- the basement membrane- forming cellular sheets that line the cavities of organs and cover the body surfaces.

-Characteristics of Epithelial Tissues:

Following are the important characteristics of epithelial tissues:

- These can be single-layered or multi-layered.
- The tissues have the power to regenerate.
- These are held together by gap junctions, tight junctions, zonula adherens, desmosomes, or interdigitating.
- The plasma membrane of these cells is specialized into flagella, cilia, and microvilli.

-The main functions of epithelial tissues are:

- Covering, lining, and protecting surfaces (e.g., skin) zonula adherens
- Absorbing (e.g., the intestines)
- Secreting (e.g., the epithelial glands)
- Contractility (e.g., myoepithelial glands)

-The epithelial tissue Classified in to:

A. **Simple tissue**: composed of one layer of cells, all cells based on basement membrane. Simple epithelial tissue also classified according to cell shape to:

- squamous
- cuboidal
- columnar
- pseudostratified

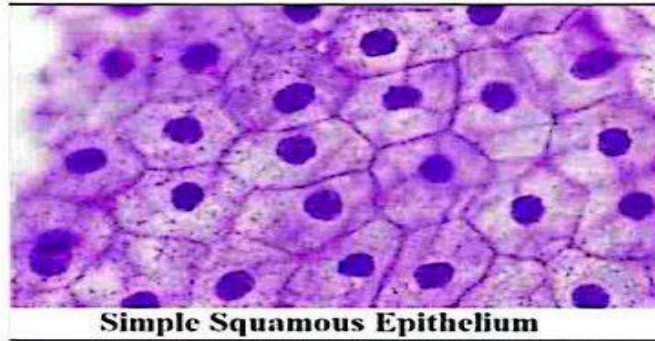
B. **Stratified tissue**: composed of multi-layer, not all cells based on basement membrane.

C. **Glandular**: Glandular epithelia are formed by cells specialized to produce secretion, that are classified as endocrine and exocrine

We will take just two examples of epithelial tissues, which are:

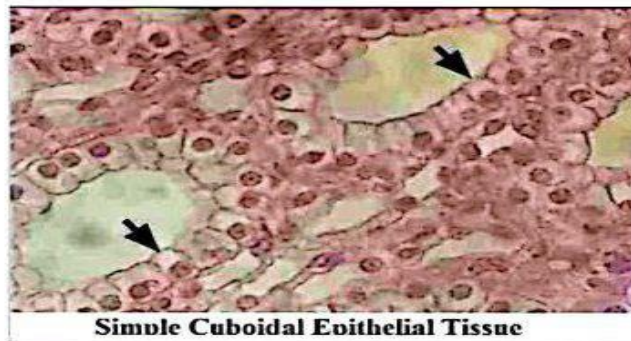
1) Simple Squamous Epithelium:

- The cells are flat in shape (look like scales) and arranged in a single layer.
- Each cell is irregular in shape, and has a disk shaped flattened nucleus. Ex: Endothelium, and Mesothelium



2) Simple Cuboidal Epithelial Tissue:

- It is a single layer of cells that are as tall as they are wide (appear to be square-shaped in cross section).
- Each cell has a large, rounded, centrally located nucleus.
- The important functions of this epithelium are covering and secretion.
- It's found in kidney tubules and in ducts of many glands, and secretory portion of salivary glands.





Thank you

The image features the words "Thank you" written in a dark brown, cursive-style font on a textured, light brown background. The text is surrounded by several hand-drawn botanical illustrations in the same dark brown ink. These include: a sprig with three small flowers and leaves at the top left; a branch with several pointed leaves at the top center; a single flower on a stem with two leaves at the top right; a cluster of five small buds at the top right; a single leaf at the top right; a sprig with three small flowers and leaves at the bottom left; a branch with several pointed leaves at the bottom center; a cluster of five small buds at the bottom center; and a sprig with three small flowers and leaves at the bottom right.