

# Notes

# **Animal Cell : Structure and function**

B.Sc. Nursing 1<sup>st</sup> semester

General Science- biology- (unit-3)







Figure: Plant Cell Structure, Image Copyright Sagar Aryal, www.microbenotes.com

## **Definition**:

A plant cell is the basic structural and functional unit of plants. It is eukaryotic, meaning it has a true nucleus and membrane-bound organelles. Plant cells are specially adapted to perform photosynthesis and support plant structure.



## **Structure of a Plant Cell:**

### Cell Wall

Structure: A rigid, outermost covering made of cellulose, a complex carbohydrate. **Function:** 

- Provides structural support and shape.
- Protects the cell from mechanical injury.
- Permits the passage of materials via plasmodesmata (tiny channels).

### Cell Membrane (Plasma Membrane)

Structure: Semi-permeable membrane made of phospholipids and proteins, located just beneath the cell wall. **Function:** 

- Regulates entry and exit of substances.
- Maintains internal environment.

### Cytoplasm

Structure: Jelly-like substance between the cell membrane and the nucleus. **Function:** 

- Holds organelles.
- Site for many metabolic activities.







### **Nucleus**

Structure: Oval or spherical organelle surrounded by a nuclear membrane. Contains nucleolus and chromatin. Function:

- Controls cellular activities.
- Stores genetic information (DNA).
- Site of RNA synthesis.

### Chloroplast

Structure: Green, oval-shaped organelles containing chlorophyll. **Function**:

- Site of photosynthesis.
- Converts sunlight into chemical energy (glucose).

### Vacuole

Structure: Large central sac filled with cell sap. Function:

- Stores water, nutrients, and waste.
- Maintains turgor pressure (helps cell remain rigid).

### **Mitochondria**

Structure: Double-membrane organelles with inner folds called cristae. Function:

- Site of cellular respiration.
- Produces energy (ATP).







Endoplasmic Reticulum (ER)

Rough ER: Has ribosomes on its surface.

Smooth ER: Lacks ribosomes.

Function:

- Rough ER: Protein synthesis.
- Smooth ER: Lipid synthesis and detoxification.

Golgi Apparatus (Golgi Body)

Structure: Stack of membrane-bound sacs. Function:

- Processes and packages proteins and lipids.
- Forms lysosomes.

### Ribosomes

Structure: Small spherical particles, either free or attached to ER. Function: Synthesize proteins.

Plasmodesmata

Structure: Microscopic channels in the cell wall.

Function: Facilitates transport and communication between plant cells.

### Peroxisomes

**Function:** 

- Break down fatty acids.
- Detoxify harmful substances.



