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## **Eukaryotic Cell:**

### **Definition:**

**“Eukaryotic cells are the cells that contain a membrane bound nucleus and organelles.”**

Eukaryotic cells have a nucleus enclosed within the nuclear membrane and form large and complex organisms. Protozoa, fungi, plants, and animals all have eukaryotic cells. They are classified under the kingdom Eukaryota.

They can maintain different environments in a single cell that allows them to carry out various metabolic reactions. This helps them grow many times larger than the prokaryotic cells.

### **Characteristics of Eukaryotic Cells:**

The features of eukaryotic cells are as follows:

1. Eukaryotic cells have the nucleus enclosed within the nuclear membrane.
2. The cell has mitochondria.
3. Flagella and cilia are the locomotory organs in a eukaryotic cell.
4. A cell wall is the outermost layer of the eukaryotic cells.
5. The cells divide by a process called mitosis.

6. The eukaryotic cells contain a cytoskeletal structure.
7. The nucleus contains a single, linear DNA, which carries all the genetic information.

## **Structure of Eukaryotic Cell**

The eukaryotic cell structure comprises the following:

### **Plasma Membrane**

- The plasma membrane separates the cell from the outside environment.
- It comprises specific embedded proteins, which help in the exchange of substances in and out of the cell.

### **Cell Wall**

- A cell wall is a rigid structure present outside the plant cell. It is, however, absent in animal cells.
- It provides shape to the cell and helps in cell-to-cell interaction.
- It is a protective layer that protects the cell from any injury or pathogen attacks.
- It is composed of cellulose, hemicellulose, pectins, proteins, etc.

### **Cytoskeleton**

The cytoskeleton is present inside the cytoplasm, which consists of microfilaments, microtubules, and fibres to provide perfect shape to the cell, anchor the organelles, and stimulate the cell movement.