

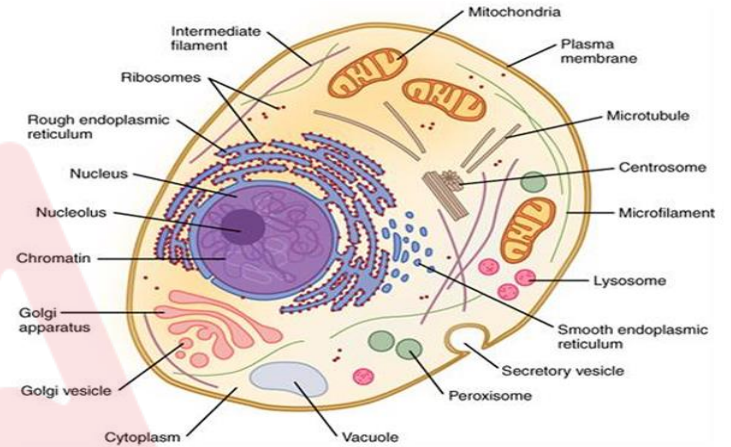
One-Liner Shots: (Basic Unit of Life: Cell)

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One liner shots
BASIC UNIT OF LIFE
CELL

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What is a 'Cell'?

A cell is characterized as the most fundamental, structural, and operational unit of all kinds of living organisms. Practically, a cell is a system that holds organelles that supply the vital functions to sustain itself.

The Discovery of Cell

- A cell is the fundamental unit of life.
- **Robert Hooke** first discovered cells in 1665 with the help of a simple microscope.
- **Leeuwenhoek**, with the help of a developed microscope, discovered the free-living cells in 1674.
- In 1831, **Robert Brown** discovered the cell nucleus.
- Purkinje used the term 'protoplasm' for the fluid substance found in the cell in 1839.
- **Schleiden (1838) and Schwann (1839)** proposed the famous 'Cell Theory'.

Unicellular & Multicellular Organisms

- Single cellular organisms, like Amoeba, Paramecium, bacteria, and Chlamydomonas, are called unicellular organisms.
- Organisms that consist of many cells are known as multicellular organisms, such as human beings, animals, birds, etc.

The Cell Theory

- **Schleiden (1838) and Schwann (1839)** proposed the famous 'Cell Theory'.
- According to the cell theory, **all plants and animals are composed of cells, and the cell is the basic unit of life.**
- **Virchow**, in 1855, expanded the cell theory, suggesting that all cells arise from pre-existing cells.

The following are some of the facts made by the cell theory;

- Every organism has cells in its body as structural units
- New cells formed from the existing cells
- Cells carry out all types of biological functions
- Before the discovery of the cell, people were not aware that living organisms could be made up of building blocks like cells.

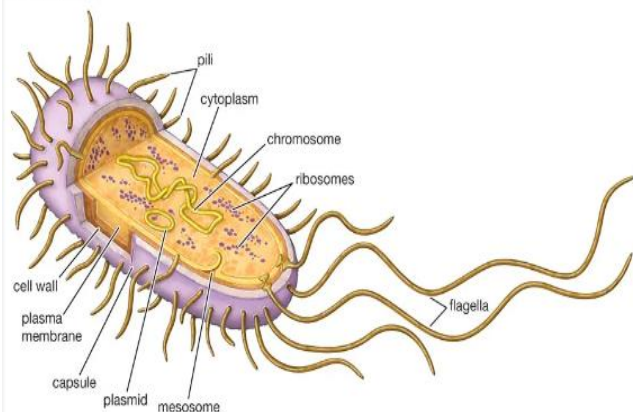
Types of Cell

- Cells are equivalent to factories with different departments that operate towards a common purpose.
- Different types of cells perform diverse functions.
- Based on cellular structure, there are mainly two types of cells. These are Prokaryotic and Eukaryotic cells.
- Other than this, cells can be categorized into plant and animal cells as well.

Prokaryotic Cell

- The prokaryotic cell wall is made of mucopolypeptide or peptidoglycan.
- Prokaryotic nucleons are naked.
- These naked nucleons are known as Nucleoids.
- Prokaryotic ribosome is the 70S (50S+30S).

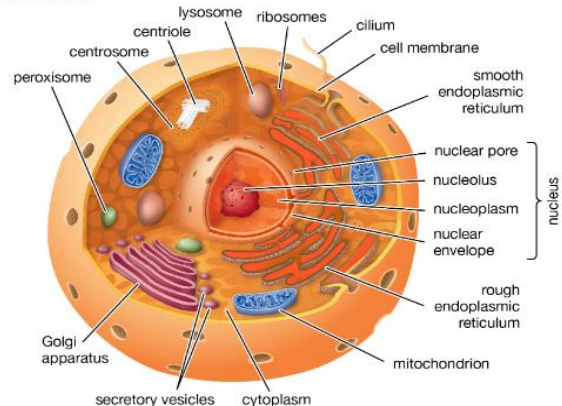
Bacterial cell



Eukaryotic Cell

- Plant cells have cell walls made of cellulose. Animal cells do not have cell walls.
- The nucleus is made up of the nuclear membrane, nuclear sap, and nuclear reticulum.
- The ribosome in eukaryotic cells is 80S (60S+40S)

Animal cell



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Plant cell	Animal Cell
<ul style="list-style-type: none"> → Both cell wall and cell membrane are present. → Plastids are present. → The centrosome is absent. → The large vacuole is present. It is called Tonoplast 	<ul style="list-style-type: none"> → Only the cell membrane is present. → Plastids are absent. → Centrosomes present. → Vacuoles are small in size.

Various Cell Organelles

The major cell organelles are as follows:

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. <i>Plasma Membrane</i> 2. <i>Cytoplasm</i> 3. <i>Nucleus</i> 4. <i>Endoplasmic Reticulum</i> 5. <i>Mitochondria</i> 6. <i>Plastids</i> 7. <i>Ribosomes</i> | <ol style="list-style-type: none"> 8. <i>Golgi Apparatus</i> 9. <i>Microbodies</i> 10. <i>Cytoskeleton</i> 11. <i>Cilia and Flagella</i> 12. <i>Centrosome and Centrioles</i> 13. <i>Vacuoles</i> |
|---|---|

Some Curious Facts

- ★ The Propounder of Biogenesis Theory: Luis Pasteur
- ★ The term Cytology is given by: Hertwig
- ★ The smallest cell in humans is the lymphocyte white blood cell
- ★ The largest animal cell is a neuron (length is 1 meter).
- ★ Protoplasm is the living substance of a cell.
- ★ Huxley mentioned the Protoplasm as the Physical basis of life.