

CELL THE UNIT OF LIFE



For Quick Revision and Smart Practice

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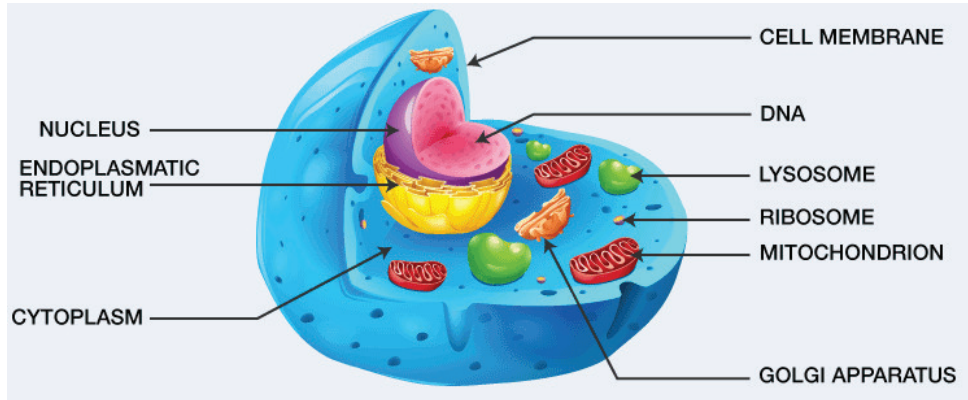


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CELL THE UNIT OF LIFE

Cell

A cell is defined as the most basic, structural and functional unit of all living organisms. Essentially, a cell is a structure that contains organelles which provide necessary functions to sustain itself. However, not all cells are the same.

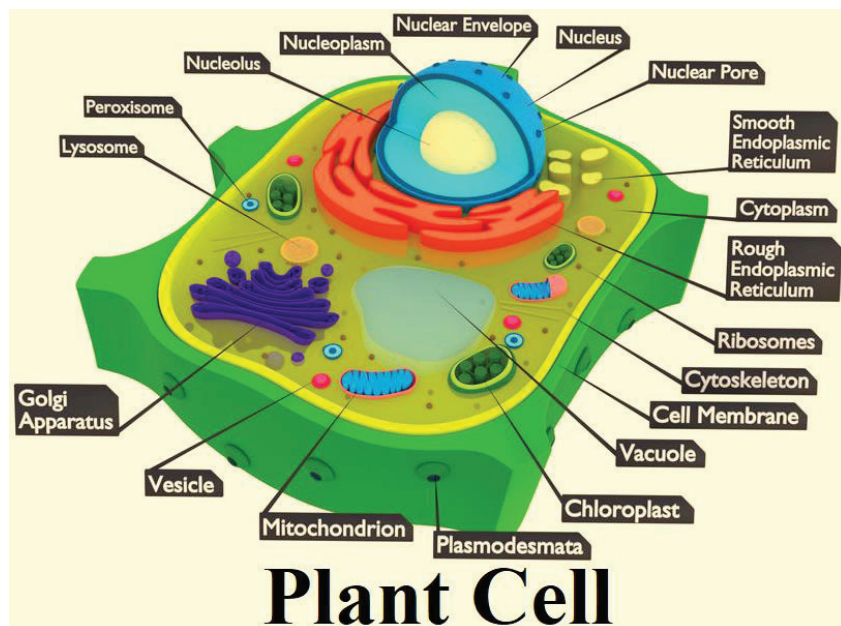


Prokaryotic cells For Quick Revision and Smart Practice

- Membrane-bound nucleus is absent.
- Cells are smaller in size.
- Single chromosome is present.
- Membrane-bound organelles are absent.

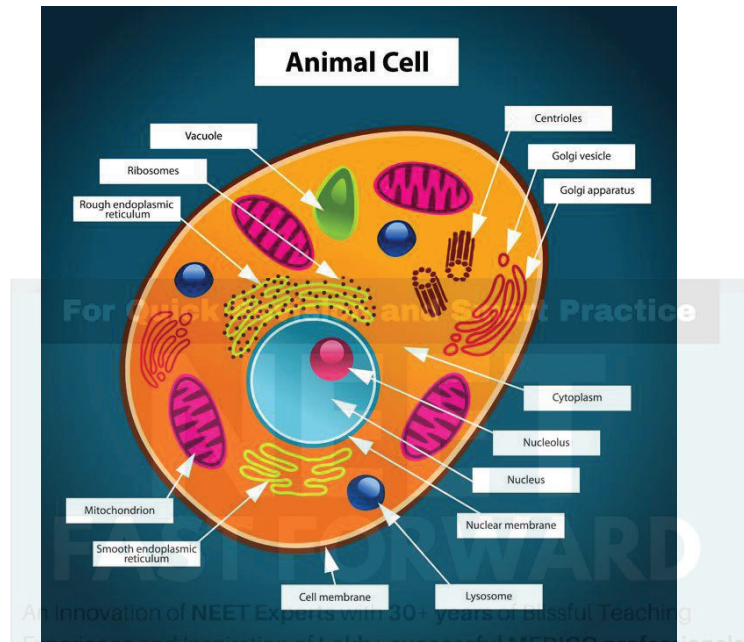
Eukaryotic cells

- Membrane-bound nucleus is present.
- Cells are larger in size.
- More than one chromosome is present.
- Membrane-bound organelles are present.



Animal cell

- Cell membrane is composed of lipids that are arranged in bilayer. The lipid component is mainly composed of phosphoglycerides. Later it was found that protein is also present in cell membrane. Ratio of protein and lipids varies in different cells.
- Membrane protein may be integral or peripheral. Integral protein remains buried in membrane but peripheral protein lies on the surface.
- Singer and Nicholson (1972) proposed fluid mosaic model. According to this model, the quasi-fluid nature of lipid enables lateral movement of protein within the bilayer of lipids.



Eukaryotic cells: Eukaryotic cells Possess an organized nucleus with nuclear envelope and have a variety of complex locomotory and cytoskeletal structures.

Active Transport

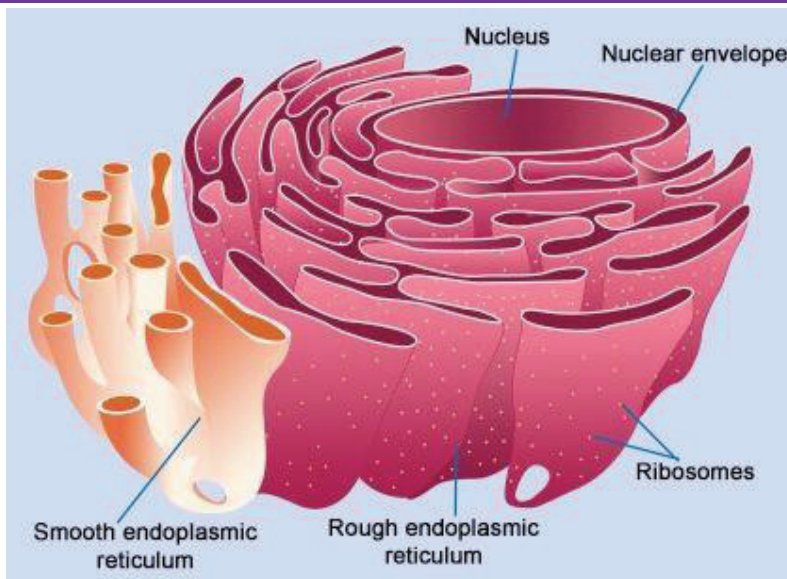
The transport involves an expenditure of energy by the cells, It occurs against the concentration gradient. It is a rapid process.

Passive Transport

The cells do not spend energy in passive transport, this transport is always along the concentration gradient. It is comparatively slow process.

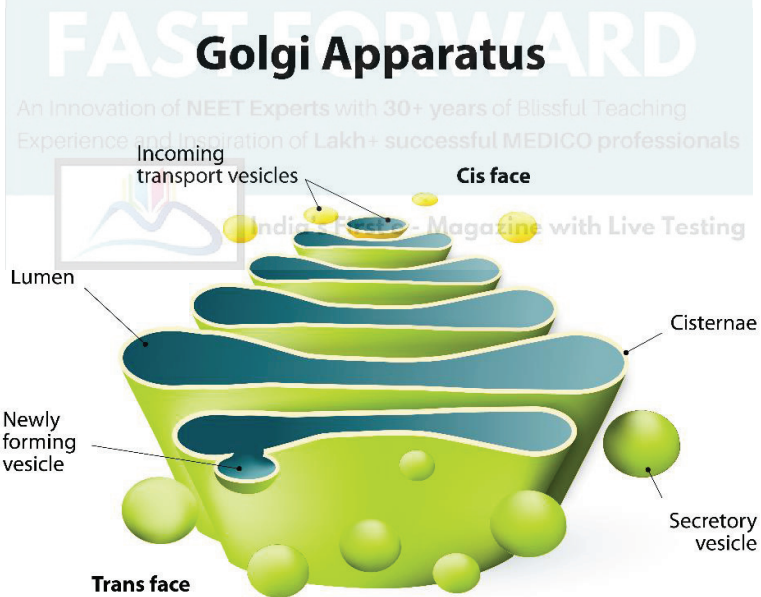
Endoplasmic Reticulum

Endoplasmic Reticulum are the tubular structure scattered in the cytoplasm. Rough endoplasmic reticulum bears ribosomes on its surface. RER is involved in protein synthesis and secretion. Smooth endoplasmic reticulum does not bear ribosomes on its surface. SER is involved in lipid synthesis and steroidal hormones.



Golgi apparatus

Golgi apparatus was first observed by Camillo Golgi in 1898 near nucleus. They consist of many flat, disc-shaped sacs or cisternae stacked parallel to each other. Golgi apparatus performs the function of packaging of materials and its transportation. A number of protein synthesized by ribosomes are modified in cisternae of Golgi apparatus. Golgi apparatus is the site for synthesis of Glycoproteins and glycolipids.

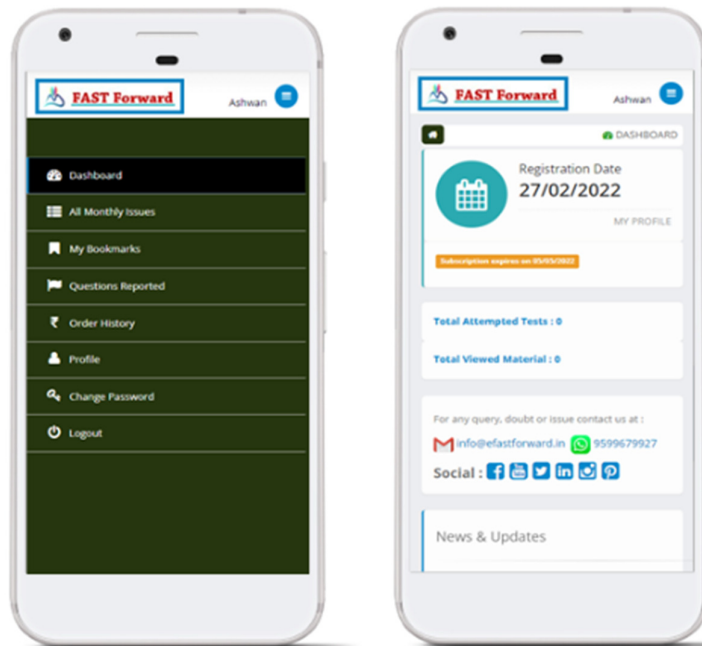


Lysosomes

Lysosomes are membrane-bound vesicular structures formed by the process of packaging in the Golgi apparatus. They are rich in hydrolytic enzymes- lipase, protease, carbohydrates active at acidic PH. These enzymes are capable of digesting carbohydrates, proteins, lipids, and nucleic acids.



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