

Topic: Cell Organelles

B.Sc. Botany Hons. III

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Cell Organelles

Cell organelle is a specialized entity present inside a particular type of cell that performs a specific function.

There are various cell organelles, out of which, some are common in most types of cells like cell membranes, nucleus, and cytoplasm. However, some organelles are specific to one particular type of cell-like plastids and cell walls in plant cells.

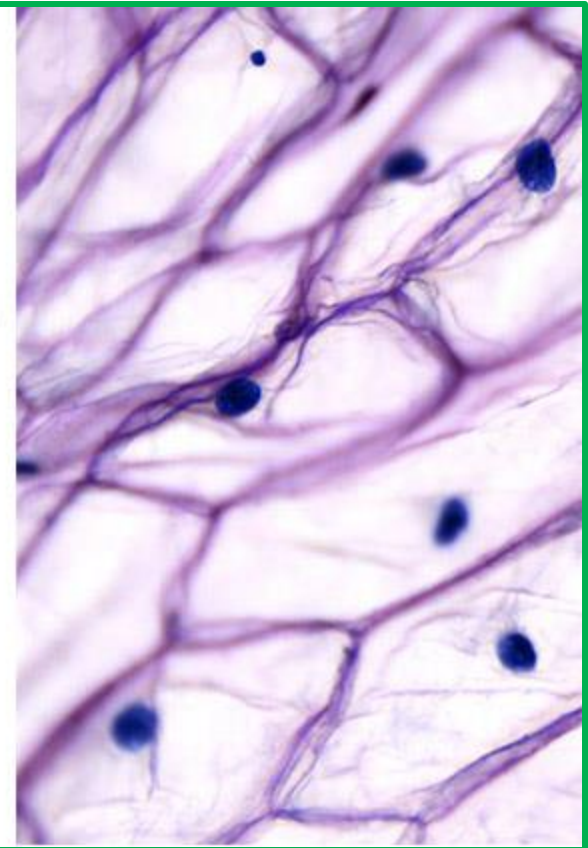
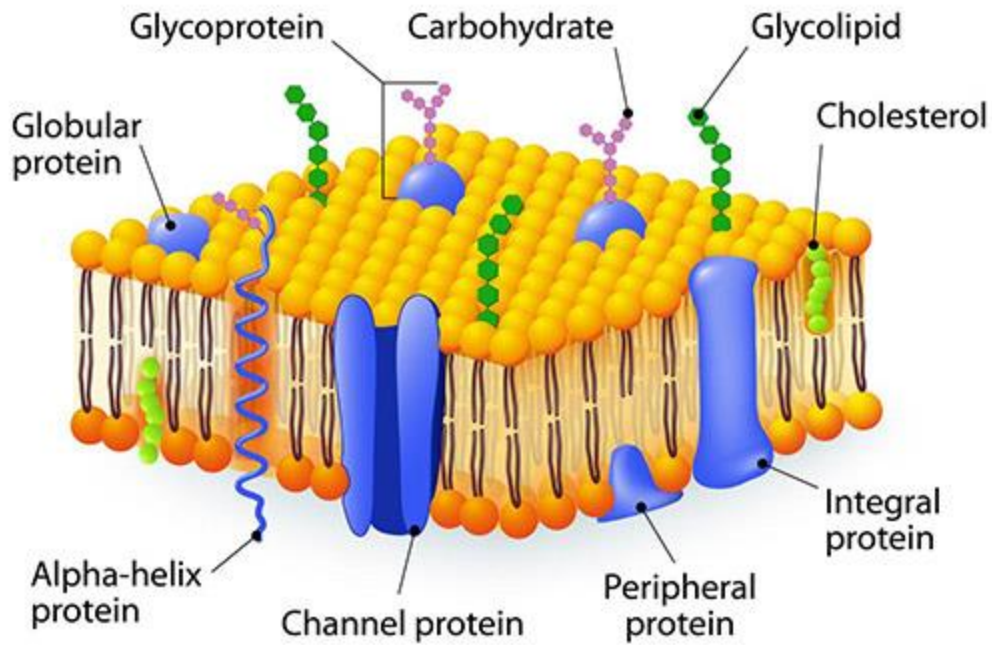
Cell membrane (Plasma membrane/Plasmalemma)

A plasma membrane is composed of lipids and proteins where the composition might fluctuate based on fluidity, external environment, and the different stages of development of the cell.

Structure

- Structurally, it consists of a phospholipid bilayer along with two types of proteins viz. embedded proteins and peripheral proteins that function in providing shape and allowing the movement of particles in and out of the cell.
- The most abundant lipid which is present in the cell membrane is a phospholipid which contains a polar head group attached to two hydrophobic fatty acid tails.
- The embedded proteins act as channels for the transfer of particles across the cell with some proteins acting as receptors for the binding of various components.
- The peripheral proteins function as to provide fluidity as well as mechanical support to the structure of the cell.

CELL MEMBRANE



Functions

- The cell membrane provides mechanical support that facilitates the shape of the cell while enclosing the cell and its components from the external environment.
- It regulates what can be allowed to enter and exit the cell through channels, acting as a semi-permeable membrane, which facilitates the exchange of essential compounds required for the survival of the cell.
- It generates and distributes signals in and outside of the cell for the proper functioning of the cell and all the organelles.
- It allows the interaction between cells required during tissue formation and cell fusion.