Cells and Their Environment Chapter 8

Cell Membrane

Section 1

Homeostasis

Key Idea: One way that a cell maintains homeostasis is by controlling the movement of substances across the cell membrane.

Homeostasis

- The maintenance of stable internal conditions in a changing environment
- Ex) sweat when we are hot and shiver when we are cold.

Lipid Bilayer

Key Idea: The phospholipids form a barrier through which only small, nonpolar substances can pass.

- A phospholipid is a specialized lipid made of a phosphate "head" and two fatty acid "tails".

- The lipid bilayer is the basic structure of a biological membrane, composed of two layers of phospholipids.

Structure

- The nonpolar tails, repelled by water, make up the interior of the lipid bilayer.
- The polar heads are attracted to the water, so they point toward the surfaces of the lipid bilayer.

Barrier

- Only certain substances can pass through the lipid bilayer.
- Ions and most polar molecules are repelled by the nonpolar interior of the lipid bilayer.

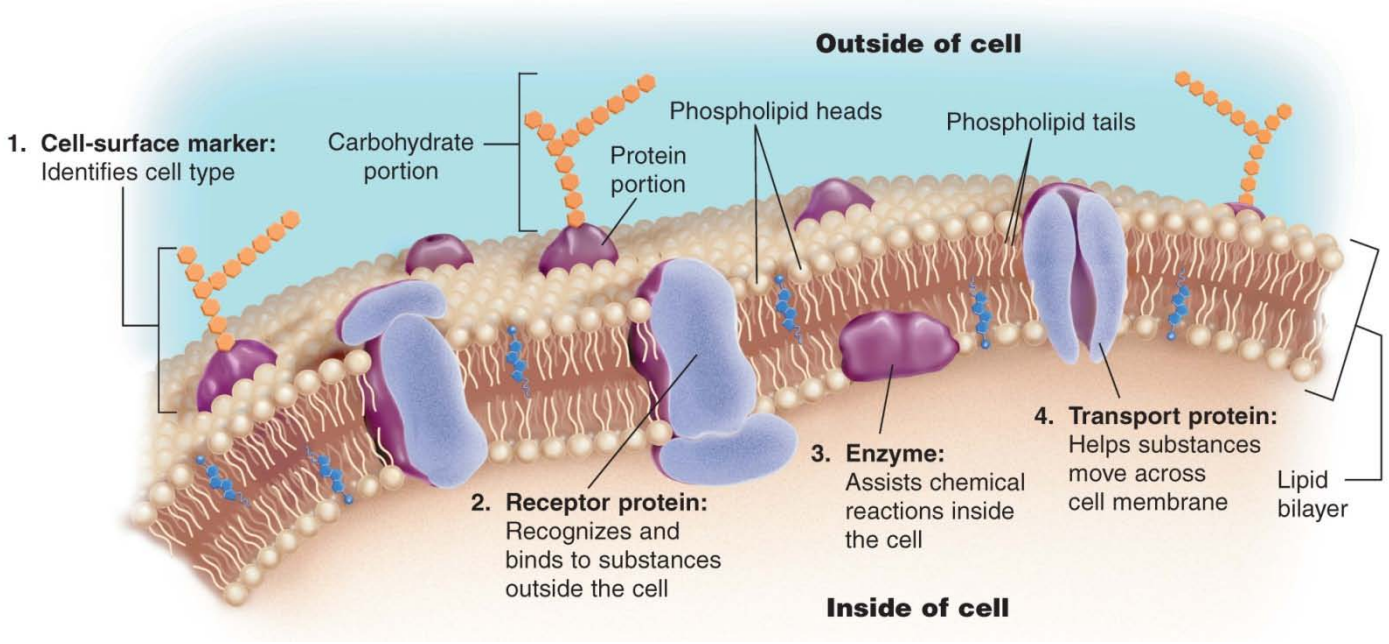
Membrane Proteins

Key Idea: Proteins in the cell membrane include cell-surface marker, receptor proteins, enzymes, and transport proteins.

Cell Surface Markers are a unique chain of sugars which act as marker to identify each type of cell. These sugars (carbohydrates) are attached to the cell surface by proteins called glycoproteins.

Receptor Proteins

The cell membrane contains various proteins with specialized functions.



Receptor Proteins enable a cell to sense its surroundings by binding to certain substances outside the cell.

Enzymes help with important biochemical reactions inside the cell.

Transport Proteins aid the movement of these substances into and out of the cell.

Proteins in Lipids

- Proteins are made of amino acids. Some amino acids are polar, and others are nonpolar.
- The attraction and repulsion of polar and nonpolar parts helps hold the protein in the membrane.

Types of Proteins

No Other Notes For This Section!!