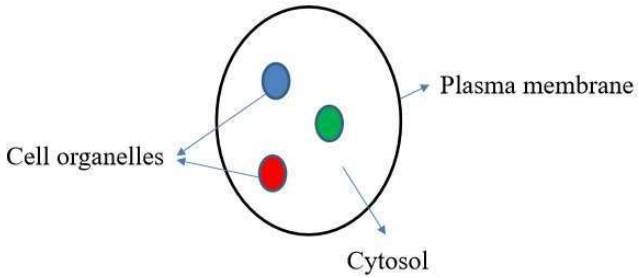
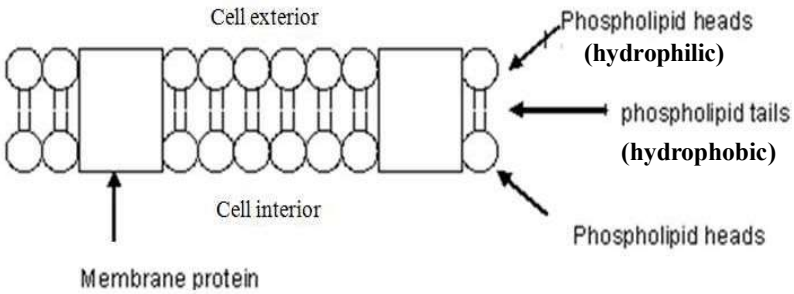
Basic structure of cell membrane

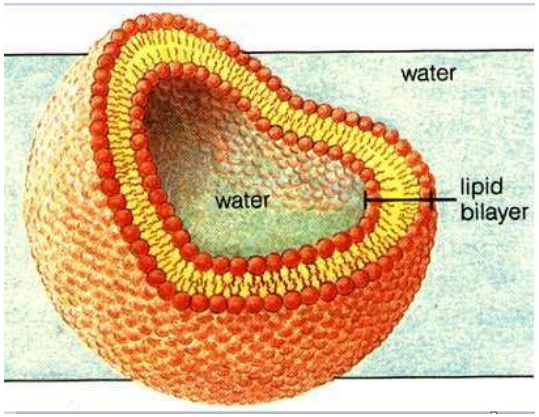


The cell membrane (or plasma membrane) surrounds the cytoplasm of living cells, physically separating the cells from the extracellular environment. It consists of the phospholipid bilayer with embedded proteins.

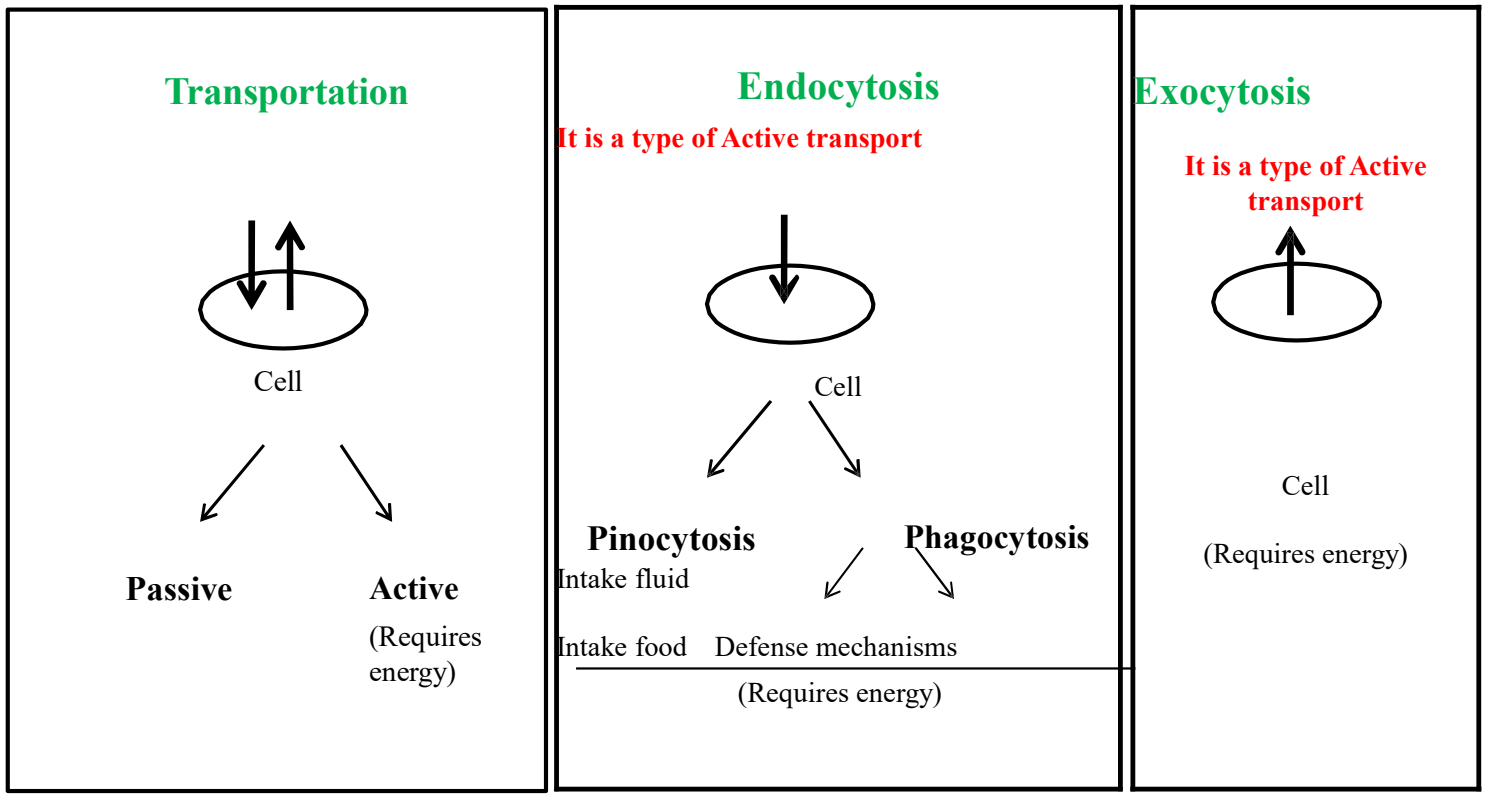
Phospholipid bilayer



Or
Membrane Channel



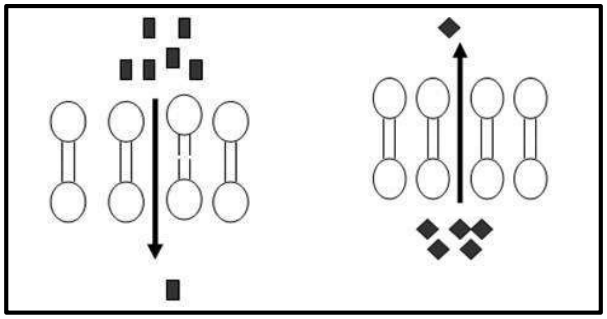
Functions of cell membrane



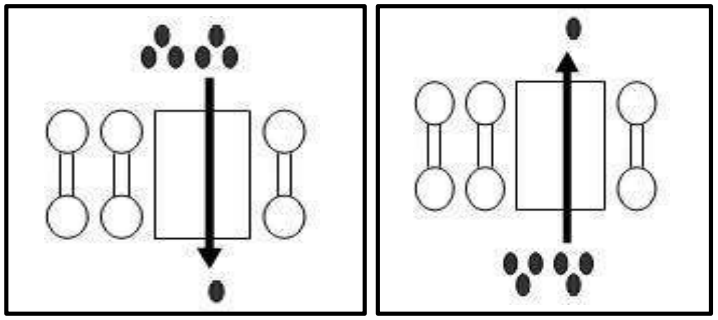
Transportation

Passive transport

Simple diffusion



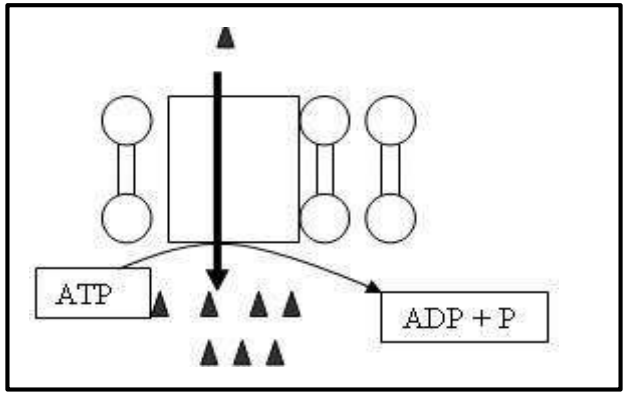
Facilitated diffusion



In **simple diffusion**, small uncharged molecules pass between the **phospholipids** to enter or leave the cell, moving from areas of high concentration to areas of low concentration (**down the concentration gradient**).

In **facilitated diffusion**, substances move into or out of cells **down the concentration gradient** through **protein channels** in the cell membrane. Large and charged molecules that cannot fit between the phospholipids generally enter and leave cells through facilitated diffusion.

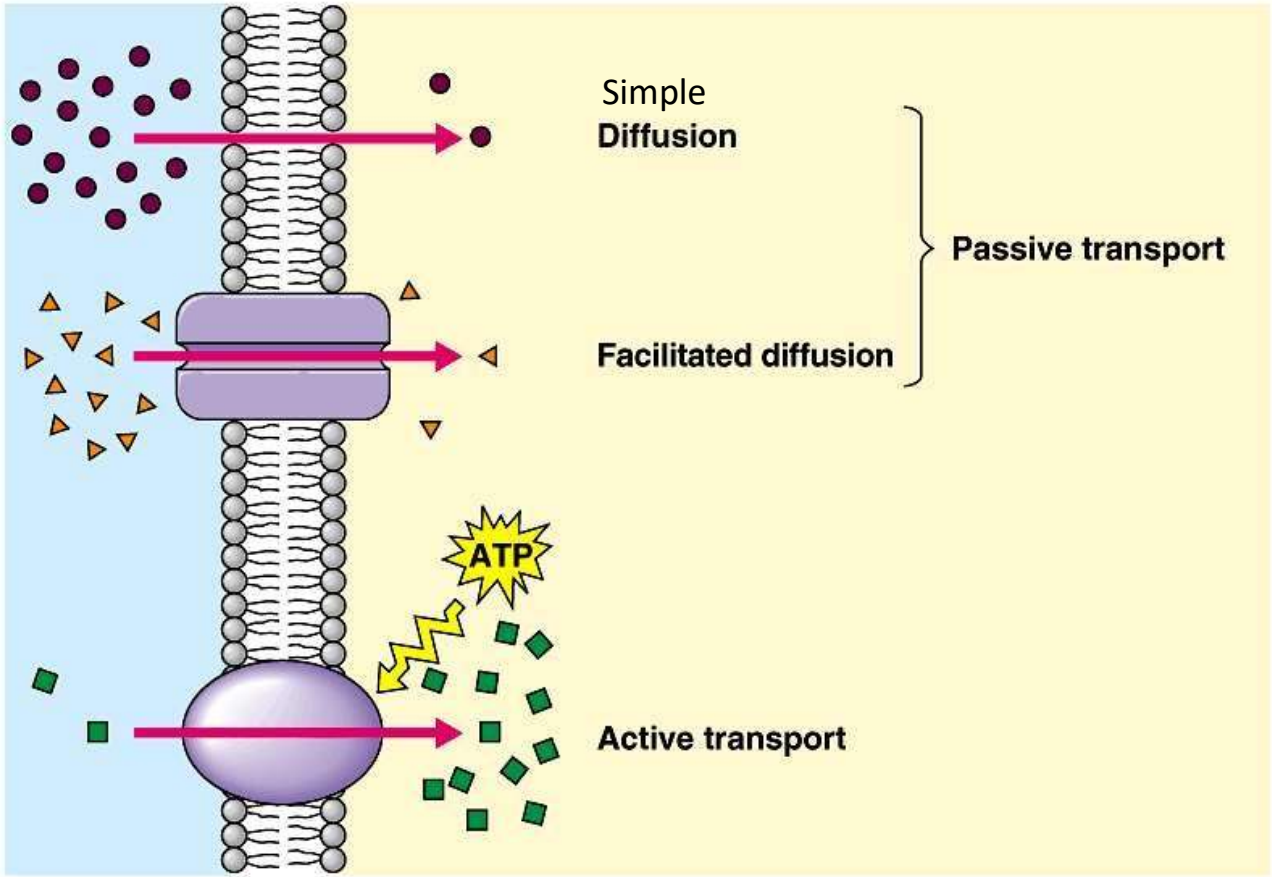
Active transport



In active transport, substances move across membranes from areas of low concentration to areas of high concentration (**against the concentration gradient**).

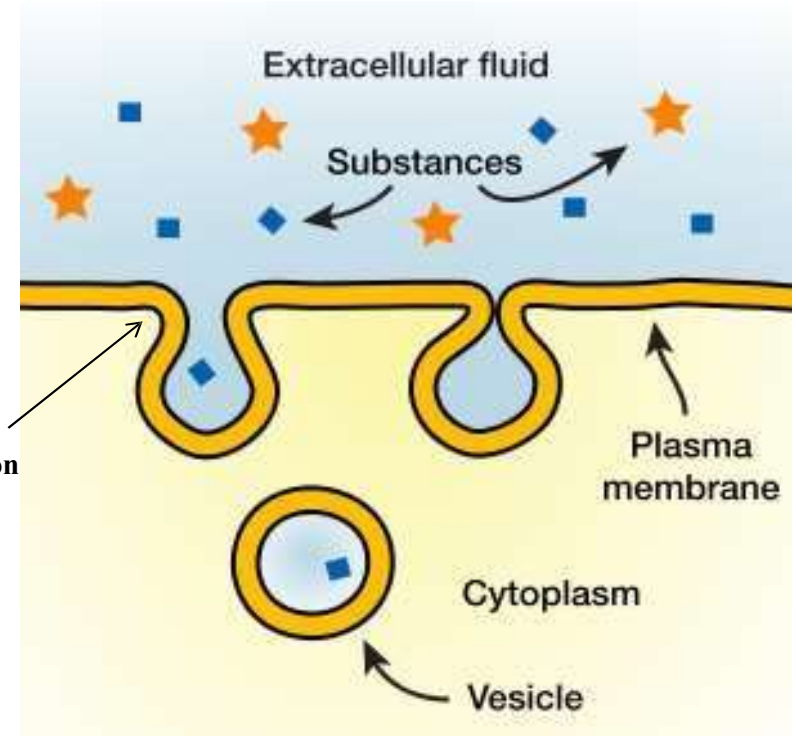
Since this is an energetically unfavorable reaction, energy is needed for this movement. **The source of energy is the breakdown of ATP.**

Transportation



Endocytosis

Pinocytosis



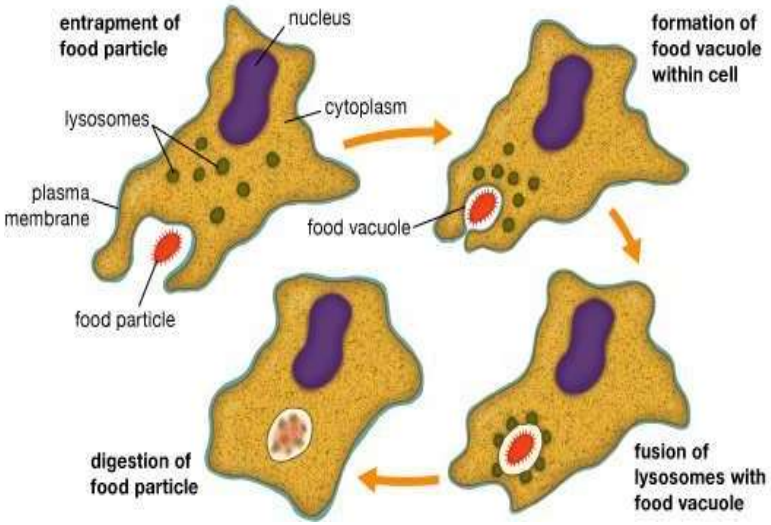
All types of cells

Processed foods

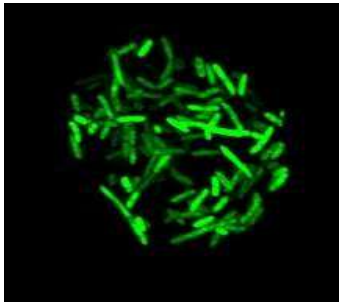
Phagocytosis

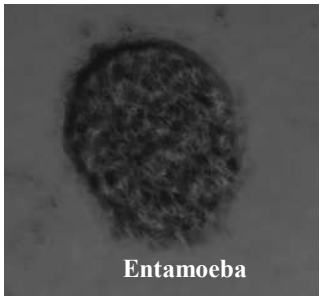
1. Intake of solid food particles

Protists (Amoeba)



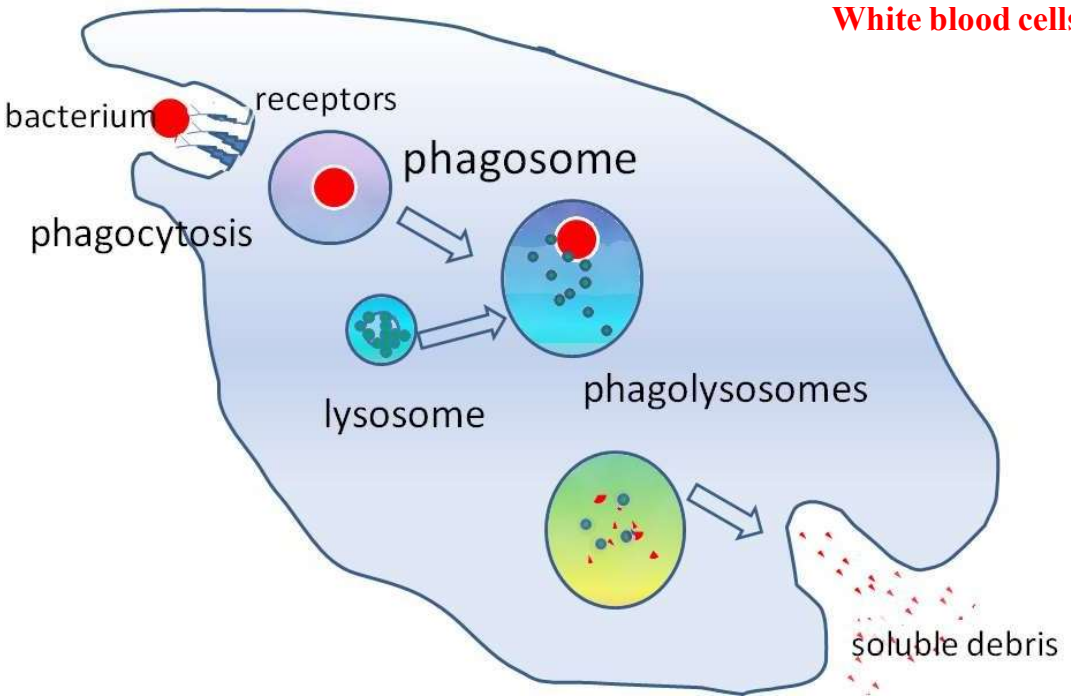
Intake of GFP bacteria by Entamoeba





2. To remove pathogens (Defense mechanisms)

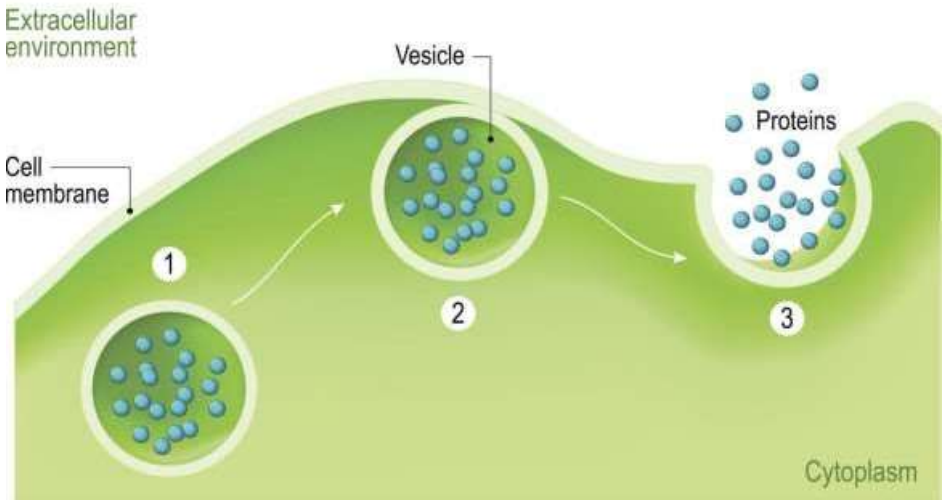
White blood cells (WBC)



Exocytosis

Exocytosis is the fusion of secretory vesicles with the plasma membrane and results in the discharge of vesicle content into the extracellular space

Type of active transport



Functions:

✓Removal of waste

✓Chemical messaging between cells

✓Rebuilding the cell membrane.