

Lab 4 : Molecule Movement & Cells

- Passive Transport
- Active Transport
- Endocytosis (phagocytosis & pinocytosis)
- Exocytosis

Passive Transport

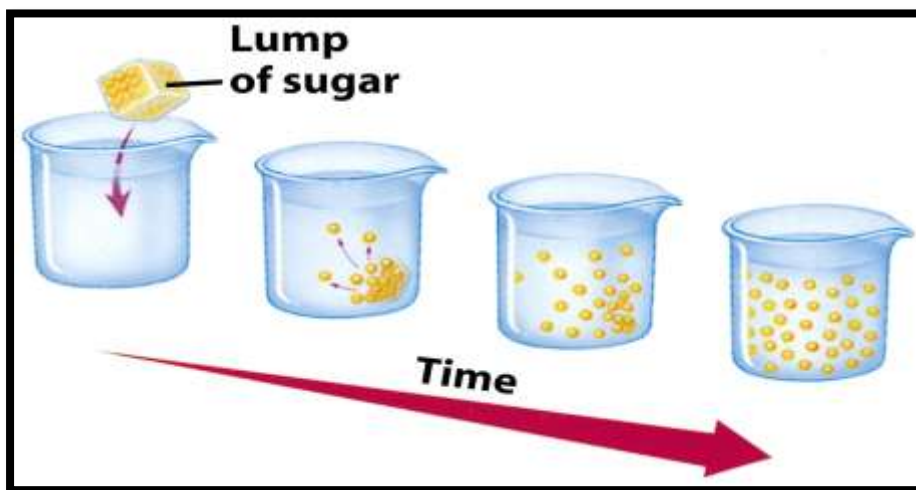
- No energy required
- Move due to gradient
 - differences in concentration, pressure, charge
- Move to equalize gradient
 - High moves toward low

Types of Passive Transport

1. Diffusion
2. Osmosis
3. Facilitated diffusion

Diffusion

- Molecules move to equalize concentration

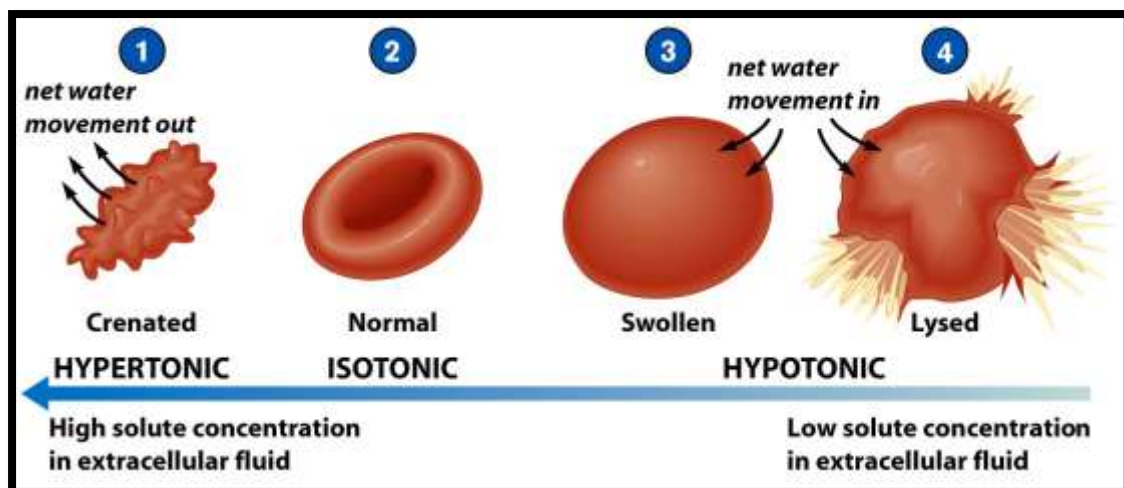


Osmosis

- Special form of diffusion
- Fluid flows from lower solute concentration
- Often involves movement of water
 - Into cell
 - Out of cell

Solution Differences & Cells

- solvent + solute = solution
- Hypotonic
 - Solute in cell more than outside
 - Outside solvent will flow into cell
- Isotonic
 - Solute equal inside & out of cell
- Hypertonic
 - Solute greater outside cell
 - Fluid will flow out of cell



Facilitated Diffusion

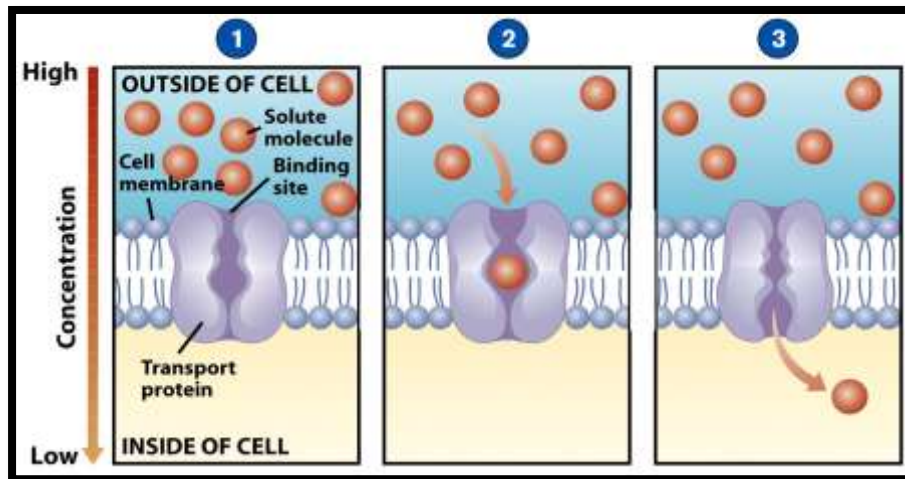
- Differentially permeable membrane
- Channels (are specific) help molecule or ions enter or leave the cell
- Channels usually are transport proteins

(aquaporins facilitate the movement of water)

- No energy is used

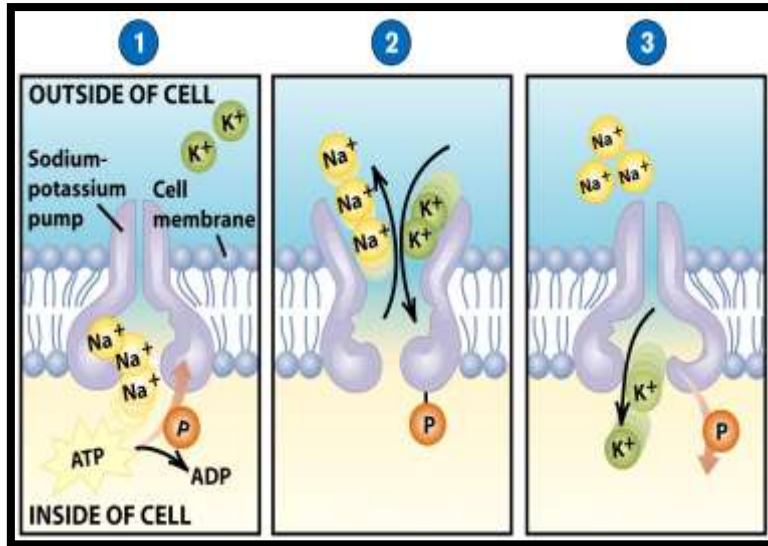
Process of Facilitated Transport

- Protein binds with molecule
- Shape of protein changes
- Molecule moves across membrane



Active Transport

- Molecular movement
- Requires energy (against gradient)
- Example is sodium-potassium pump

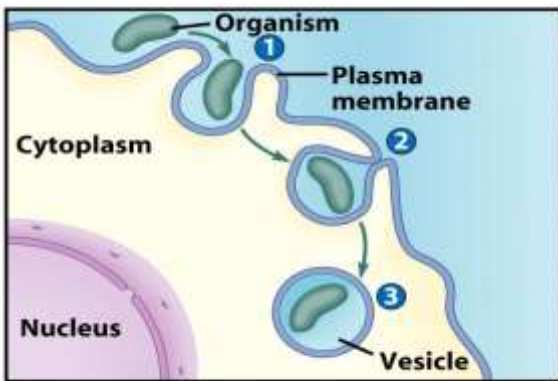


Endocytosis

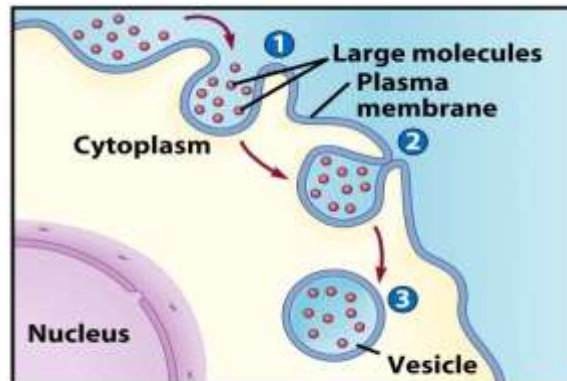
- Movement of large material
 - Particles
 - Organisms
 - Large molecules
- Movement is into cells
- Types of endocytosis
 - bulk-phase (nonspecific)
 - receptor-mediated (specific)

Process of Endocytosis

- Plasma membrane surrounds material
- Edges of membrane meet
- Membranes fuse to form vesicle



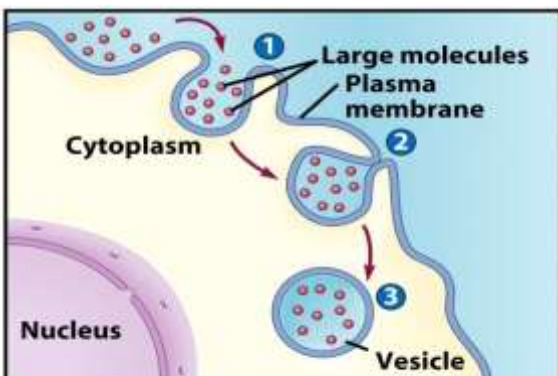
PHAGOCYTOSIS



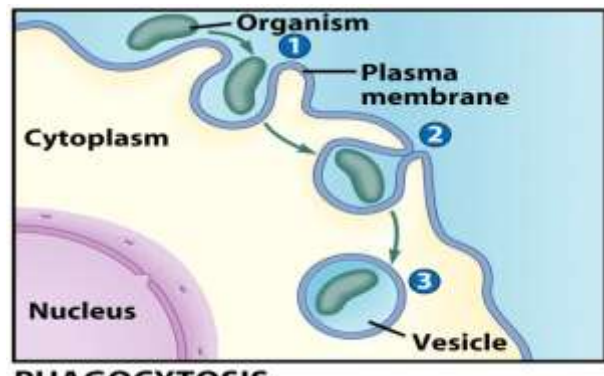
PINOCYTOSIS

Forms of Endocytosis

- Phagocytosis – cell eating
- Pinocytosis – cell drinking



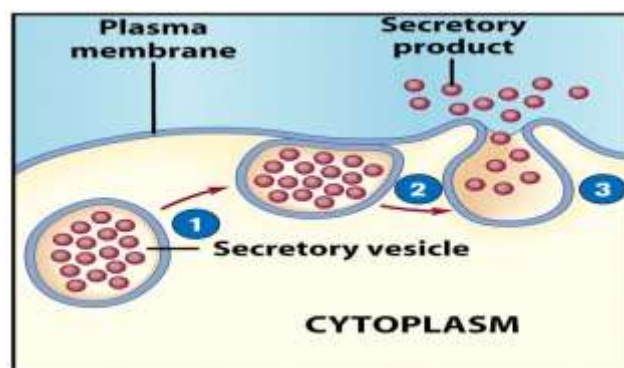
PINOCYTOSIS



PHAGOCYTOSIS

Exocytosis

- Reverse of endocytosis
- Cell discharges material



Exocytosis

- Vesicle moves to cell surface
- Membrane of vesicle fuses
- Materials expelled

