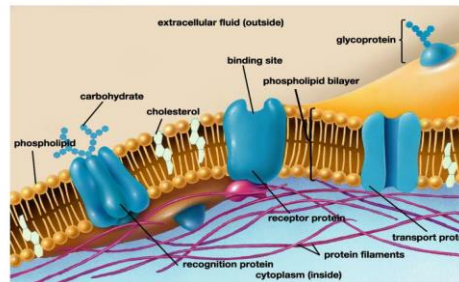
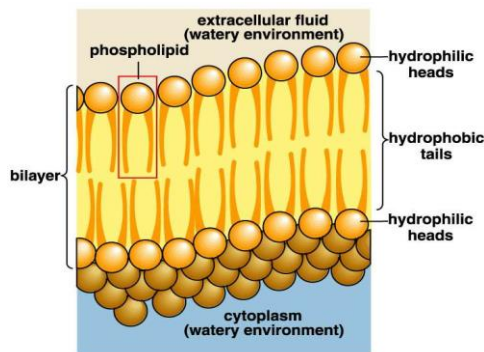


The Cell Membrane: Active and Passive Transport
Guided Notes

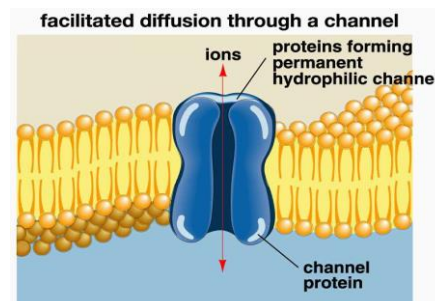
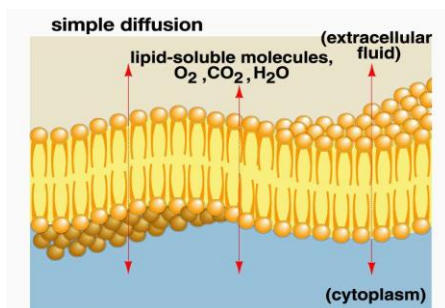
Cell Membrane

- ▶ Phospholipid bilayer: hydrophilic heads and hydrophobic tails
- ▶ _____
- ▶ Transport proteins (passive transport channels)
- ▶ Ion pumps (active transport pumps)
- ▶ Receptor _____ (neurons, hormones, immune system)
- ▶ _____ chains (identification cards)



Passive Transport

- ▶ Diffusion - process by which molecules tend to move from an area where they are _____ concentrated to an area where they are _____ concentrated
- ▶ In _____ Transport - Molecules move _____ the _____ gradient (no energy required)
- ▶ 1) _____ -molecules are small enough and soluble can pass directly through the lipid bilayer
- ▶ 2) _____ – need transport proteins (molecules are either too large or can't pass through the lipid bilayer themselves)
- ▶ 3) _____ – molecules can't pass through lipid bilayer at all, but water can (movement of _____)
- ▶ Depends on molecule _____, lipid solubility, and _____



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Solutions

- ▶ A _____ of solid particles (_____) and liquid (_____)
- ▶ Most common solvent is _____
- ▶ Cells are _____ by solutions
- ▶ Three types: _____, _____, and _____ solutions

Isotonic Solutions

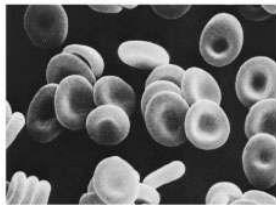
- ▶ Particles are _____ inside and outside of the cell
- ▶ Water molecules are equal inside and outside of the cell

Hypotonic Solutions

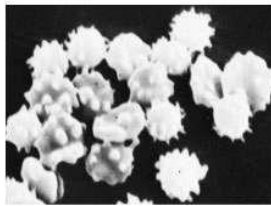
- ▶ There are _____ particles inside than outside
- ▶ There is more water outside the cell
- ▶ Water will move _____ the cell

Hypertonic Solutions

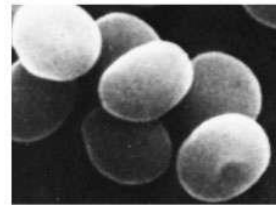
- ▶ There are _____ particles outside
- ▶ There is more water inside
- ▶ Water will move _____ the cell



(a) isotonic solution

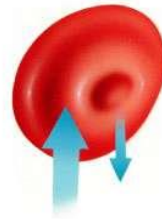
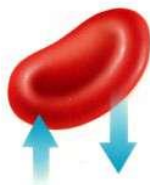


(b) hypertonic solution



10 micrometers

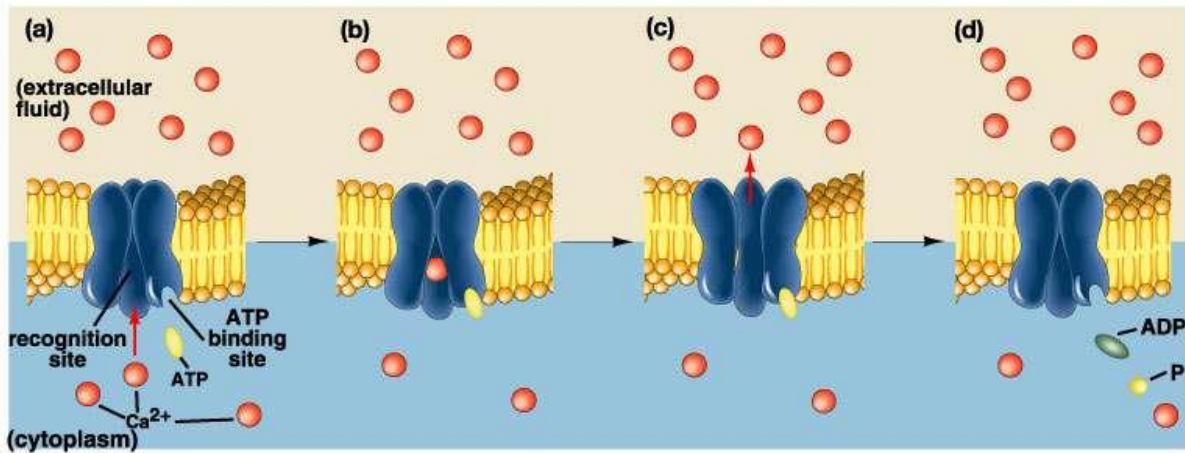
(c) hypotonic solution



The Cell Membrane: Active and Passive Transport
 Guided Notes

Active Transport

- ▶ Molecules move _____ the concentration gradient (FROM HIGH TO LOW CONCENTRATION!!!!)
- ▶ Requires _____
- ▶ _____ IS THE ENERGY USED FOR ACTIVE TRANSPORT!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
- ▶ 1. _____ (Na⁺-K⁺-ATPase pump)
- ▶ 2. _____



Transport Across The Membrane

- ▶ _____ (pinocytosis, phagocytosis): phagocytes (macrophages)- molecules are coming into cells
- ▶ _____: release of proteins, hormones, neurotransmitters- release of proteins, hormones, neurotransmitters

