

AP Biology Study Guide

Cell Membranes and Transport

Key Terms

plasma (cell) membrane
fluid-mosaic model
phospholipid
integral (imbedded) protein
peripheral protein
membrane channel
transport protein
diffusion
passive transport
osmosis
selectively permeable
osmotic concentration
osmotic pressure (potential)
hypertonic
hypotonic

isotonic
crenation
plasmolysis
lysis
facilitated diffusion
gated channel
membrane pump
active transport
sodium-potassium pump
endocytosis
phagocytosis
pinocytosis
pseudopodia
exocytosis

Questions

1. Describe the processes of diffusion
2. How does the random movement of molecules bring about an even distribution of molecules throughout the system?
3. Describe the processes of osmosis.
4. Using a diagram describe the fluid-mosaic model of the cell membrane. Indicate the following; phospholipid molecules, hydrophobic and hydrophilic ends, types of membrane proteins and glycoproteins. List substances to which the membrane is relatively permeable and those substances to which it is relatively impermeable.
5. Why is the term mosaic used to describe the fluid-mosaic model of the cell membrane?
6. Define the terms hypotonic, hypertonic and isotonic and explain what would happen to a cell if it were placed in each of these solutions.
7. Describe the role of membrane proteins in movement of materials through membranes. Discuss integral proteins, and membrane pumps.
8. Distinguish between simple diffusion, facilitated diffusion, and active transport and indicate the significance of these processes to the life of the cell.

9. Describe and diagram the sodium/potassium pump of the cell membrane.
10. Describe the processes of phagocytosis, pinocytosis, and exocytosis.
11. Describe how cells recognize each other, include a description of the role of oligosaccharides, glycoproteins and glycolipids.
12. Differentiate between hypotonic, hypertonic and isotonic. Use the example of red blood cells in pure water, in blood and in 5% salt water.
13. Why is it incorrect to say that a 1% salt solution is isotonic?
14. Justify the conclusion that differences in ion concentration between cells and their surroundings indicates that cells regulate the passage of materials across membranes.
15. In addition to the cell membrane, what membranous structures are included in the endomembrane system?
16. In simple terms using simple English describe turgidity.