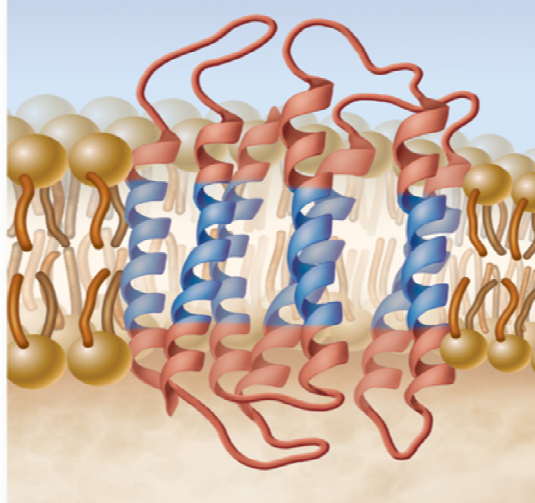


Chapter 5 – Membranes



1. Describe the structure of a **phospholipid** molecule. Be sure to describe its behavior in relationship to water.

2. What happens when a collection of phospholipids molecules are placed in water?

3. Explain the significance of this behavior in relationship to the evolution of life.

4. What is meant by the phrase “the plasma membrane is fluid”?

5. Explain the **fluid mosaic model**.

6. How is the fluidity of the cell membrane altered?

7. Discuss the structure/function of the following components of the cell membrane. Give an example of each.

a. **Phospholipid bilayer:** _____

b. **Transmembrane proteins:** _____

c. **Interior protein network:** _____

d. **Cell surface markers:** _____

8. Briefly describe the function of the different classes of membrane proteins.

a. **Transporters:** _____

b. **Enzymes:** _____

c. **Cell surface receptors:** _____

d. Cell surface identity markers: _____

e. Cell-to-cell adhesion proteins: _____

f. Attachments to the cytoskeleton: _____

9. Describe how the structure of membrane proteins allows some proteins to be permanently anchored within the cell membrane as a transmembrane protein whereas other proteins can move freely about the surface of the membrane.

10. The cell membrane is **selectively permeable**. Explain what that means. Which molecules easily cross the membrane? How are molecules transported that do not easily cross the membrane?

11. Define the following:
a. **Diffusion** _____

b. **Facilitated Diffusion** _____

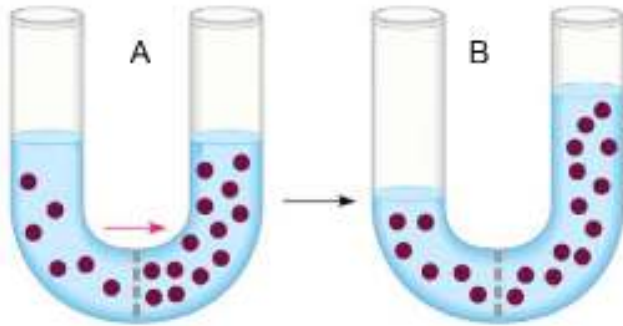
c. **Osmosis** _____

d. **Hypotonic** _____

e. **Hypertonic** _____

f. **Isotonic** _____

12. What is happening in the diagram below?



13. Explain how **facilitated diffusion** works and give an example.

14. What is the function of **aquaporins**? Why are they necessary?

15. What do animal & plant cells do when placed in solutions that are:

a. Hypotonic _____

b. Hypertonic _____

c. Isotonic _____

16. How does the *Paramecium* maintain osmoregulation?

17. What is the difference between **exocytosis** and **endocytosis**?

18. What is the difference between **pinocytosis** and **phagocytosis**?

19. Describe an example of **receptor-mediated endocytosis**.

20. How do **active** and **passive transport** differ?

21. The **sodium-potassium pump** uses _____ to pump _____ out of the cell and _____ into the cell.

22. Define **coupled transport** and give an example.

23. Define **counter transport** and give an example.
