

Name _____ Period _____

Chapter 7: Membrane Structure and Function

Concept 7.1 Cellular membranes are fluid mosaics of lipids and proteins

1. The large molecules of all living things fall into just four main classes. Name them.
**Lipids Carbohydrates
Proteins Nucleic Acids**
2. Explain what is meant when we say a molecule is amphipathic.
It has a hydrophobic and hydrophilic region
3. In the 1960s, the *Davson-Danielli model* of membrane structure was widely accepted. Describe this model and then cite two lines of evidence that were inconsistent with it. **Phospholipid bilayer was sandwiched between two layers of hydrophilic proteins. Different membranes with differing functions don't have the same structure and composition and membrane proteins aren't soluble in water as they are amphipathic.**
4. Who proposed the *fluid mosaic model* of membrane structure? When? Describe this model. **S. J. Singer & G. Nicolson proposed the fluid mosaic model in 1972. They said membrane proteins were dotted in a mosaic-like pattern throughout the membrane with their hydrophobic regions inside the layer and their hydrophilic regions protruding.**
5. What is meant by membrane fluidity? Describe the movements seen in the fluid membrane. The viscosity of the lipid bilayer of a cell membrane or a synthetic lipid membrane. Phospholipids can move laterally within the phospholipid bilayer and may even flip with the opposing phospholipid at times. Some membrane proteins drift, also contributing to fluidity of membrane.
6. Describe how each of the following can affect membrane fluidity:
 - a. decreasing temperature **cause membrane to become more solid**
 - b. phospholipids with unsaturated hydrocarbon chains **make membrane more fluid at lower temp due to kinks in tails which don't allow for close packing**
 - c. cholesterol **kinks close packing of phospholipids at low temperature, however, also hinders excessive phospholipid movement at higher temperatures**

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F Rizvi

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