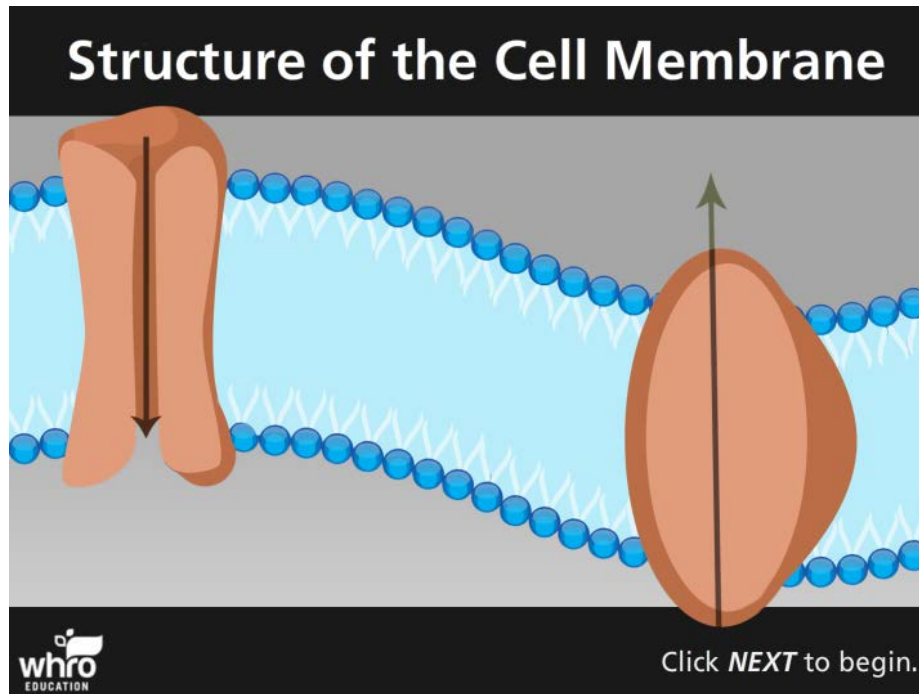


**Module 3: Cell Biology - Structure and Function**  
**Topic 4 Content: Structure of the Cell Membrane Notes**

**Introduction**

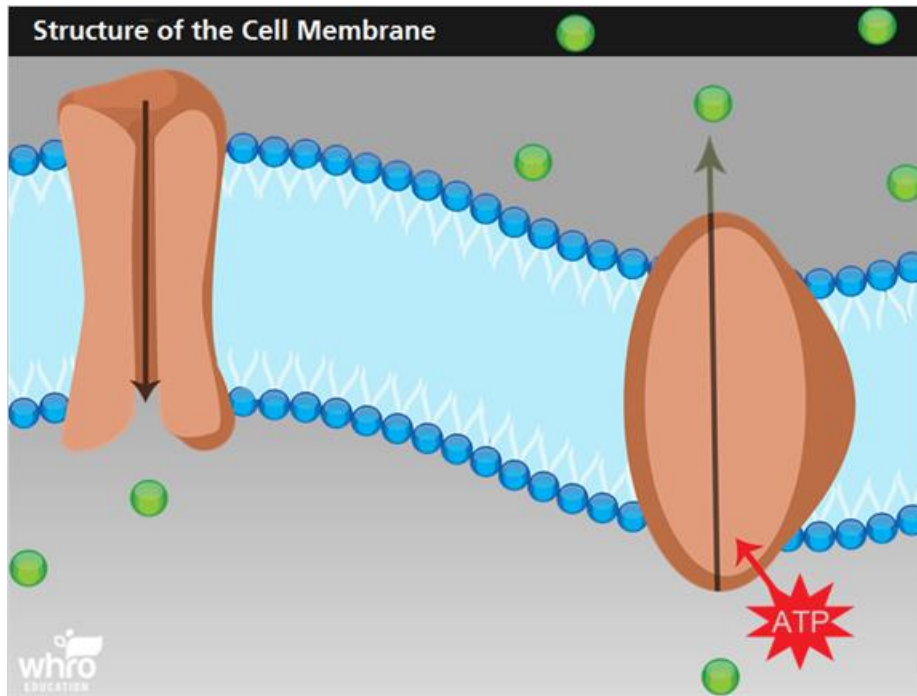


Structure of the Cell Membrane

## Module 3: Cell Biology - Structure and Function

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#### Cell Membrane

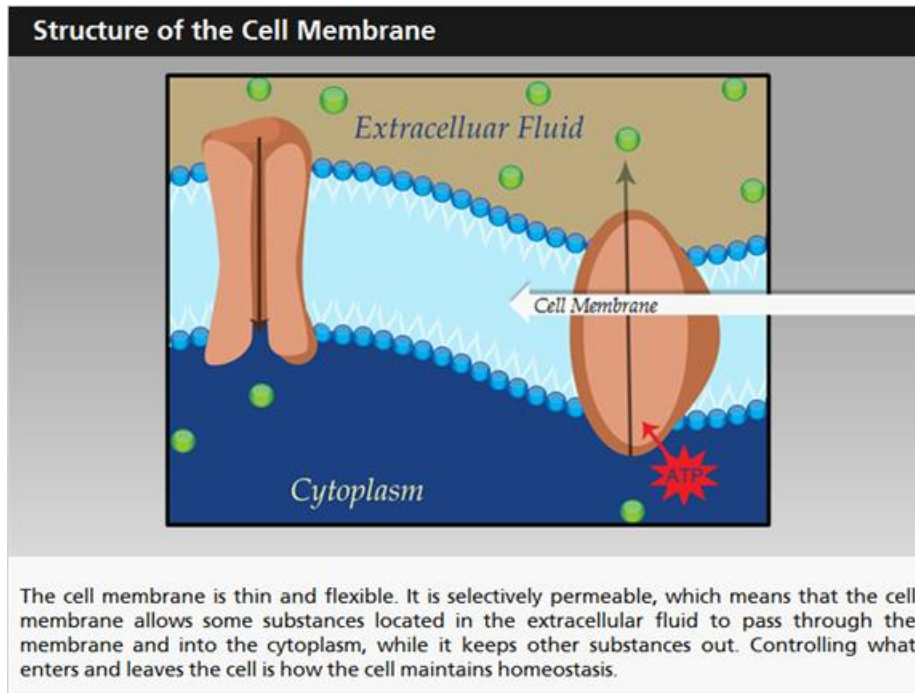


A cell's ability to transport materials in and out of the cell is a function of the cell membrane. The cell membrane is the protective membrane that surrounds all types of cells. It functions as a barrier between the internal and external environments of the cell. In this interactivity, explore the structure of the cell membrane.

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#### Selective Permeability

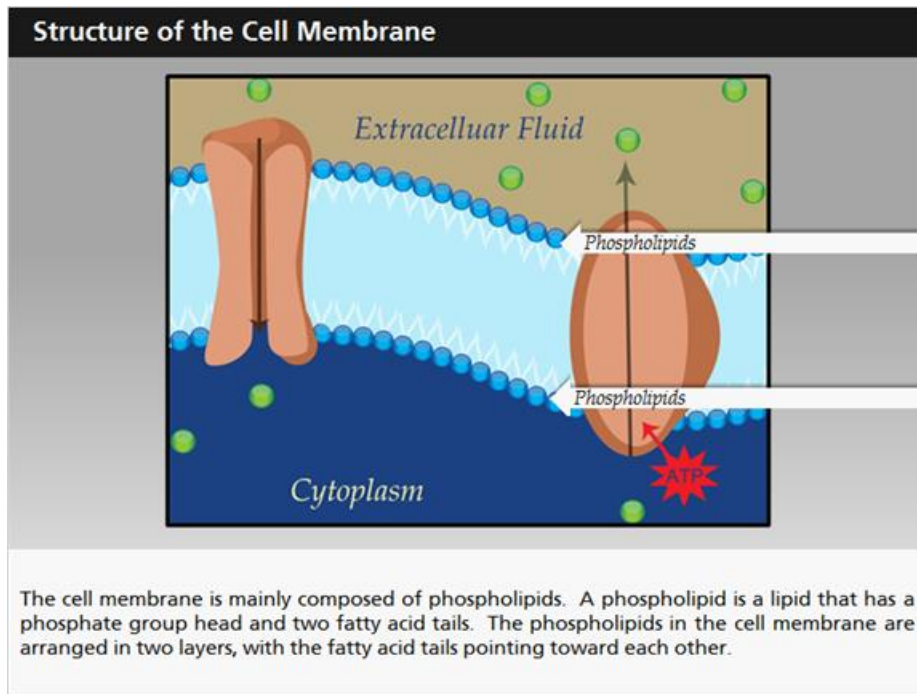


The cell membrane is thin and flexible. It is selectively permeable, which means that the cell membrane allows some substances located in the extracellular fluid to pass through the membrane and into the cytoplasm, while it keeps other substances out. Controlling what enters and leaves the cell is how the cell maintains homeostasis.

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#### Phospholipids

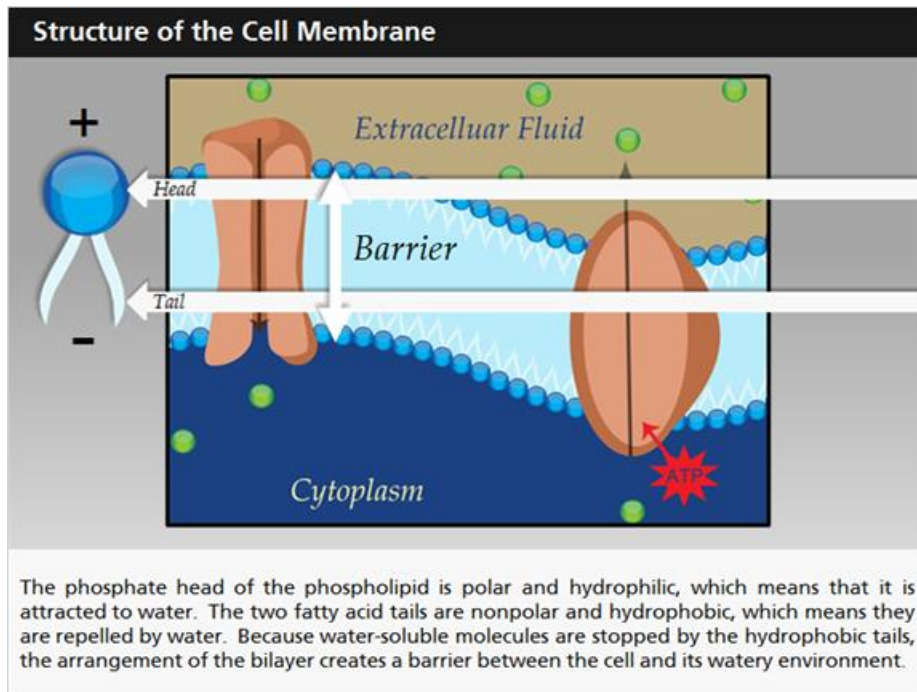


The cell membrane is mainly composed of phospholipids. A phospholipid is a lipid that has a phosphate group head and two fatty acid tails. The phospholipids in the cell membrane are arranged in two layers, with the fatty acid tails pointing toward each other.

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#### Phosphate Head and Tail

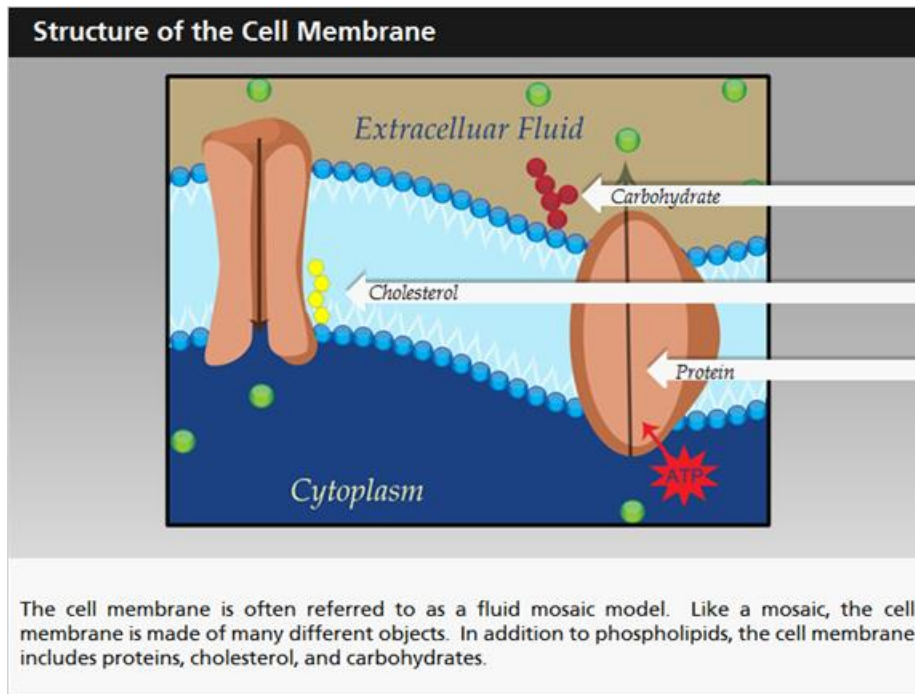


The phosphate head of the phospholipid is polar and hydrophilic, which means that it is attracted to water. The two fatty acid tails are nonpolar and hydrophobic, which means they are repelled by water. Because water-soluble molecules are stopped by the hydrophobic tails, the arrangement of the bilayer creates a barrier between the cell and its watery environment.

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#### Fluid Mosaic Model

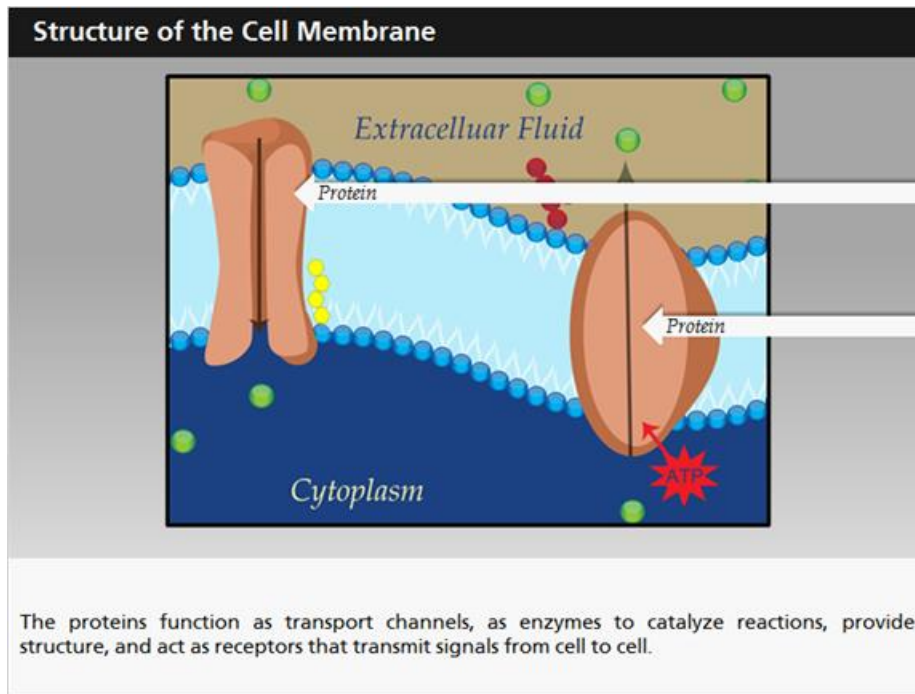


The cell membrane is often referred to as a fluid mosaic model. Like a mosaic, the cell membrane is made of many different objects. In addition to phospholipids, the cell membrane includes proteins, cholesterol, and carbohydrates.

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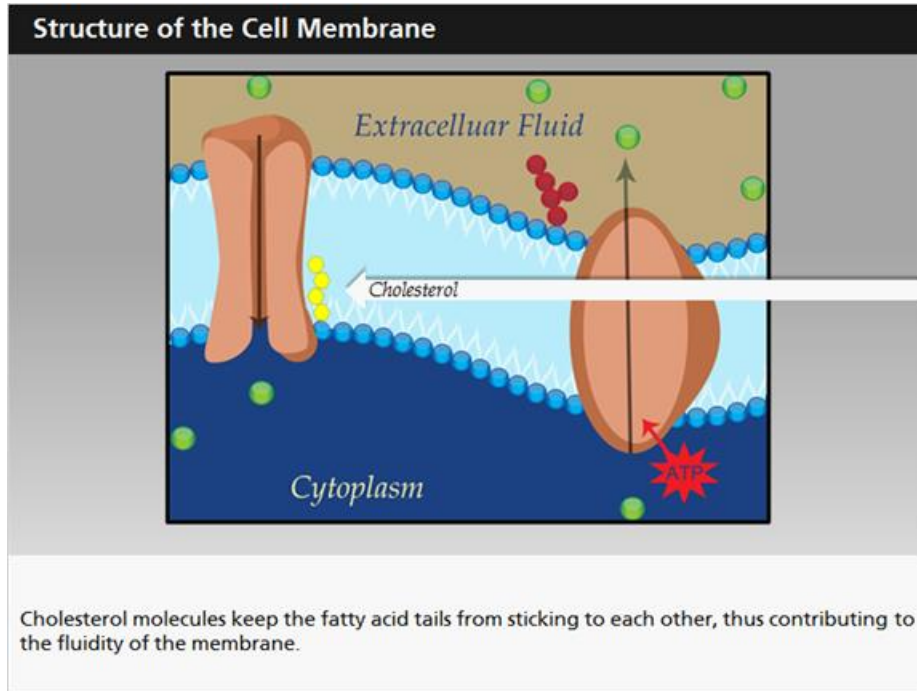
#### Proteins



The proteins function as transport channels, as enzymes to catalyze reactions, provide structure, and act as receptors that transmit signals from cell to cell.

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**Cholesterol**

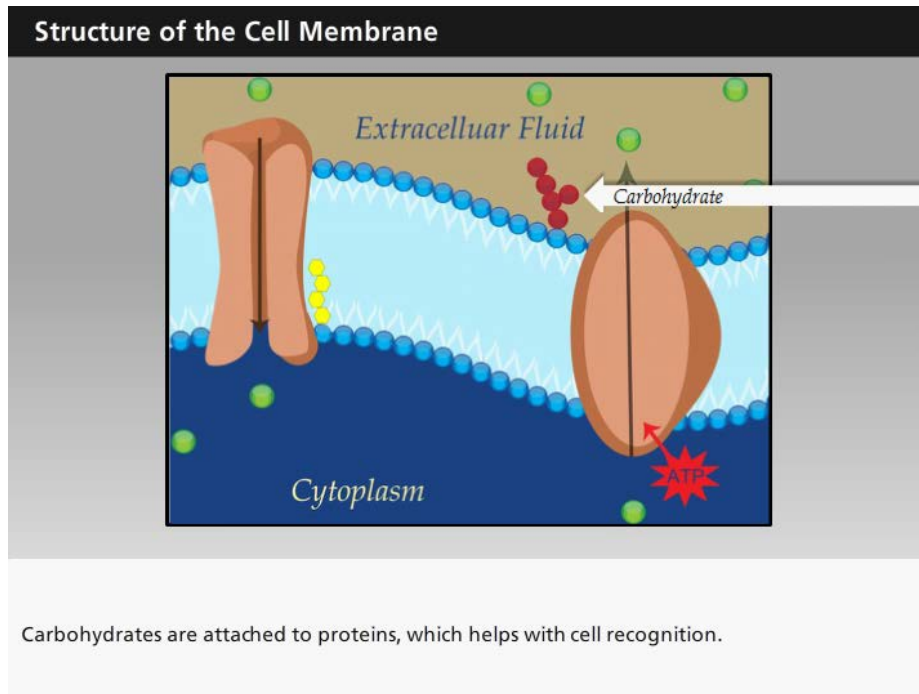


Cholesterol molecules keep the fatty acid tails from sticking to each other, thus contributing to the fluidity of the membrane.



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**Carbohydrates**



Carbohydrates are attached to proteins, which helps with cell recognition.