5.1.1

Fluid Mosaic Model of the Membrane

The plasma membrane is more than just a sack to hold the contents of the cell. It plays an important role in cellular function and the maintenance of homeostasis. One obvious function is to regulate what enters and leaves the cell. This process is highly coordinated and very specific. In addition, the cell membrane responds to countless chemical messengers in ways that alter the activity of the cell. As we discuss the structure of the plasma membrane, keep in mind that this description also applies to other membranes that are components of intracellular organelles.

Our modern model of the cell membrane is called the **Fluid Mosaic Model** *of the Cell Membrane*. The word *fluid* implies that the membrane is constantly changing and moving. Indeed, it is not a static structure but one that changes depending on cellular need and environment. A good example of this fluidity can be seen with the uptake of glucose into muscle cells. The plasma membrane of muscle cells is normally impermeable to glucose, preventing it from entering the cell. Only when a signal molecule (insulin) is present can glucose enter. The presence of this signal results in the insertion of special glucose transporters into the membrane, allowing glucose to enter the cell. When insulin is no longer there, the carriers are removed, demonstrating the ability of the membrane to change depending on stimulus of the cell. Additionally, components of the membrane are not rigidly fixed in one area but often have the freedom to move laterally within the membrane.

The term *mosaic* conjures up an image of numerous small and different pieces. Indeed, the membrane contains many different components including lipids, proteins, and carbohyrdrates. The following link shows the structure and function of the membrane:

https://books.byui.edu/-tRDY (Transcription Available).