cannot easily cross the hydrophobic core of the membrane. (Water can in fact cross the plasma membrane, but not very rapidly.)

Thanks to their amphipathic nature, phospholipids aren't just well-suited to form a membrane bilayer. Instead, this is something they'll do spontaneously under the right conditions! In water or aqueous solution, phospholipids tend to arrange themselves with their hydrophobic tails facing each other and their hydrophilic heads facing out. If the phospholipids have small tails, they may form a **micelle** (a small, single-layered sphere), while if they have bulkier tails, they may form a **liposome** (a hollow droplet of bilayer membrane).

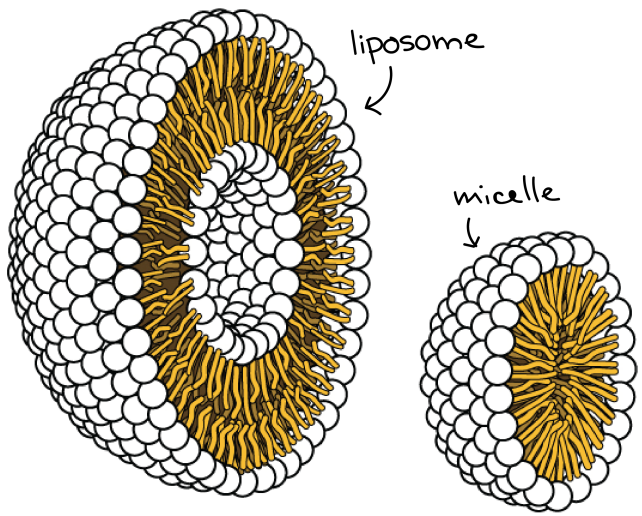

Image credit: modification of work by OpenStax Biology, originally by Mariana Ruiz Villareal.

Proteins

Proteins are the second major component of plasma membranes. There are two main categories of membrane proteins: integral and peripheral.

Integral membrane proteins are, as their name suggests, integrated into the membrane: they have at least one hydrophobic region that anchors them to the hydrophobic core of the phospholipid bilayer. Some span only part of the membrane, associating with a single layer, while others stretch from one side of the membrane to the other and are exposed on either side (**transmembrane** proteins).

The portions of an integral membrane protein found inside the membrane are hydrophobic, while those that are exposed to the cytoplasm or extracellular fluid tend to be hydrophilic. Transmembrane proteins may cross the membrane just once, or may have as many as twelve different membrane-spanning sections. A typical membrane-spanning segment consists of 20-25 hydrophobic amino acids arranged in an alpha helix, although not all transmembrane proteins fit this model.

Integral membrane proteins are diverse and play a number of important roles in the cell. Some act as ion channels or transporters, selectively allowing certain molecules to pass through the plasma