

## • sphingomyelin

\*\*\* Most **membrane** phospholipids contain glycerol (lecithin, phosphatidylcholine, phosphatidylserine and cardiolipin). Sphingomyelin contains a sphingosine backbone instead of glycerol.

Phospholipids are lipids. Each molecule is made up of one glycerol molecule attached to two fatty acids and a phosphate group. Structurally, phospholipids are similar to triglycerides **except** that a phosphate group replaces one of the fatty acids. Phospholipid molecules have one end that is attracted to water while the other is repelled by it. This property is important in plasma membranes. The fatty acid end that is not attracted to water is said to be **hydrophobic**. At the other end of the molecule, the phosphate group that is attracted to water is said to be **hydrophilic**.

Three **major types** of body phospholipids:

1. The **lecithins**: are a group of phospholipids that upon hydrolysis **yield** two fatty acid molecules and a molecule each of glycerol, phosphoric acid and choline. They are **water soluble emulsifiers** and **membrane** constituents.
2. The **cephalins**: are a group of phospholipids having hemostatic properties and found especially in the nervous tissue of the brain and spinal cord. The cephalins resemble lecithin, **except** they contain either 2-ethanolamine or L-serine in the place of choline.
3. The **sphingomyelins**: are a group of phospholipids that are found especially in nerve tissue and **yield** sphingosine, choline, a fatty acid and phosphoric acid upon hydrolysis. They are **membrane** constituents. **Note**: The neurologic disturbances seen in Niemann-Pick disease are associated with the accumulation in CNS tissue of sphingomyelin.