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Medical laboratory science

BCH 202

1. Is vitamin c a coenzyme? Justify your answer.
2. Describe the chemistry of phospholipids
3. Differentiate between glycolipids and phospholipids.

Answers.

1. Vitamin c is a coenzyme. All of the water-soluble vitamins and two of the fat-soluble vitamins, A and K, function as cofactors or coenzymes.
2. Phospholipids are major components of plasma membranes, the outermost layer of animal cells. Like fats, they are composed of fattyacid chains attached to a glycerol backbone. Unlike triglycerides, which have 3 fatty acids, phospholipids have two fatty acids which help form a diacylglycerol.

Phospholipids can be subdivided into 4 main categories;

1. Isolethicin and inositol phosphatide
2. Sphinogomyelin
3. Phosphatidylserine and phosphatidyletanolamine
4. Lecithin.

**Structure of a Phospholipid Molecule**

A phospholipid is an amphipathic molecule which means it has both a hydrophobic and a hydrophilic component. A single phospholipid molecule has a phosphate group on one end, called the “head,” and two side-by-side chains of fatty acids that make up the lipid “tails. ” The phosphate group is negatively charged, making the head polar and hydrophilic, or “water loving.” The phosphate heads are thus attracted to the water molecules in their environment.

The lipid tails, on the other hand, are uncharged, nonpolar, and hydrophobic, or “water fearing.” A hydrophobic molecule repels and is repelled by water. Some lipid tails consist of saturated fatty acids and some contain unsaturated fatty acids. This combination adds to the fluidity of the tails that are constantly in motion.

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3. The Phospholipids provides the basic structure of cell membrane, whereas glycolipids act as cell-cell recognition and receptor sites for chemical signals.

(ii). Phospholipids make up membranes. Glycolipids are normally found on the outer surface of the cell membrane.

(iii). Glycolipids differ from phospholipids because it contains no phosphate group.

(iv).