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Bch 202 Assignment

1) Importance of cholesterol:

- Builds the structure of cell membranes.
- Makes hormones like oestrogen, testosterone and adrenal hormones.
- Help your metabolism work efficiently, for e.g. cholesterol is essential for your body to produce vitamin D.
- Produce bile acids, which help the body digest fat and absorb important nutrients.

2) Differences between globosides and gangliosides

Answer

- Gangliosides is a molecule composed of a glycosphingolipid (ceramide and oligosaccharide) with one or more sialic acids (e.g. -n-acetyl neuraminic acid, NANA) linked on the sugar chain.

  Globosides a type of glycosphingolipids with more than one sugar as the side chain (or R group) of ceramide. The sugars are usually a combination of N-acetylgalactosamine, D-glucose

or D-galactose.

- Gangliosides are present and concentrated on cell surfaces with two hydrocarbon chains of the ceramide moiety embedded in the plasma membrane and the oligosaccharides located on the extracellular surface, they are found predominantly in the nervous system where they constitute 6% of all phospholipids.

Globosides is the most abundant red cell membrane glycolipid and is present in the serum of all p+ individuals .

3) Methylated form of phosphatidylethanolamine is known as **An auxiliary pathway for phosphatidylcholine biosynthesis in liver.**
4) The ring of cholesterol molecule that contains a double bond is: cholesterol consists of a tetracyclic cyclopenta [a] phenanthrene structure with an iso-octyl side chain at carbon 17. The four rings (A,B,C,D) have trans ring junctions, and the side chain and two metal groups (C-18 and C-19) are at an angle to the rings above the plane with beta stereo-chemistry as for hydroxyl group on C-3 also there is a double bond between carbon 5 and 6 as well as 3 beta-hydroxy group.
5) <u>3 properties of phosphoglycerides</u>

They are defined by the presence of phosphate group substituting one of the three carbon of glycerol in the triglyceride structure. They are derivatives of phosphatidic Acid.

<u>Properties are:</u>

- Have hydrophobic and hydrophilic domains (polar “heads” and

non-polar “tails”).

- They are common constituents of cellular membranes.
- They have glycerol backbone.

Answer for number 6

Triacylglycerol	Phosphoglycerides
A lipid that is composed of a glycerol backbone	Composed of glycerol with phosphate and an amino acid.
Composed of 3 fatty acid	Composes of 2 fatty acid
They act as fat storage in our body	Main lipid component of cell membranes and are important in cell semi permeability
Has no phosphate group attached to the glycerol backbone	Composed of a phosphate group attached to the glycerol backbone