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ANSWERS

D(Membrane structure)

1. Fatty acids are aliphatic mono carboxylic acid.

2. The sterol nucleus of steroids contain a cyclopentanoperhydrophenanthrene ring

3. Chylomicrons transport triglycerides and cholesterols from the intestinal mucosal cells to cardiac and adipose tissues respectively

4. Functional Characteristics of the following

NUCLEUS

The nucleus is the largest cellular organelle, surrounded by a double membrane nuclear envelope. Nucleus contains DNA, the repository of genetic information. The nucleus is comprised of;

Nuclear pores: these pores permit the free passage of products synthesized in the nucleus into the surrounding cytoplasm

Nucleolus: it is a dense body contained the nucleus of eukaryotic cell, rich in RNA and these RNA enters the cytosol through nuclear pores.

Nucleoplasm: it is rich in enzymes such as DNA polymerases and RNA polymerase

Mitochondria

The mitochondria are the centres for the cellular respiration and energy metabolism. The mitochondria are composed of a double membrane.

The outer membrane is smooth and completely envelops the organelle

The internal chamber of mitochondria is referred to as matrix or mitosol. The matrix contains several enzymes concerned with energy metabolism of carbohydrates,

lipids and amino acids. The matrix enzymes further participate in synthesis of heme and urea.

Endoplasmic Reticulum

Rough endoplasmic reticulum: this is a large portion of endoplasmic reticulum surrounded with ribosomes. Ribosomes are involved in protein biosynthesis

Smooth endoplasmic reticulum: unlike the rough endoplasmic reticulum, the smooth endoplasmic reticulum has no ribosomes wrapped around it. They are involved in the synthesis of lipids, and metabolism of drugs

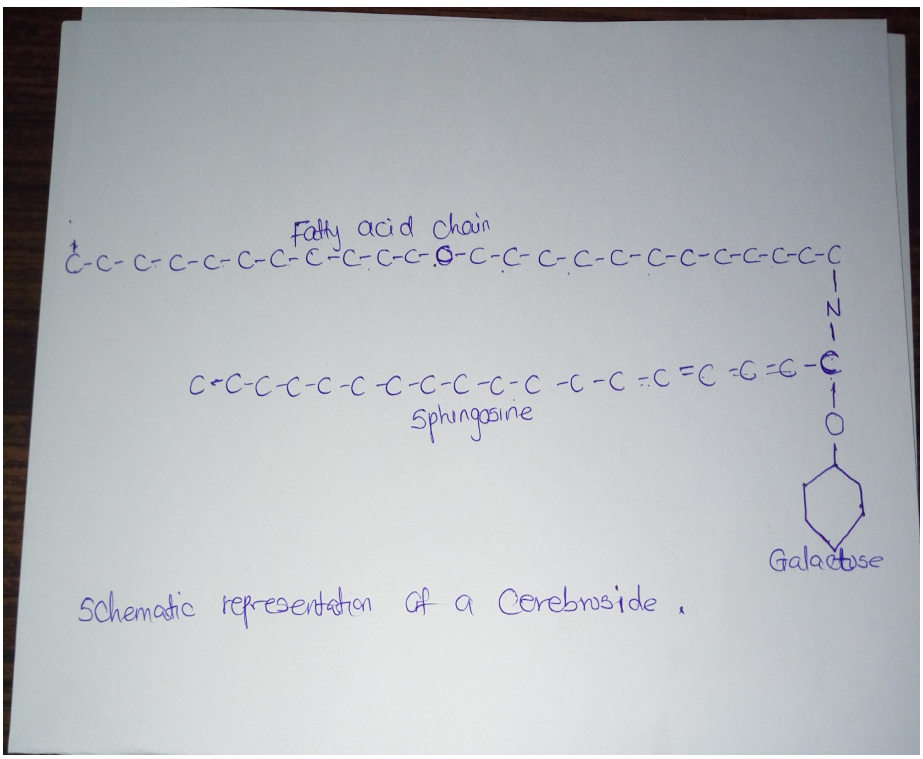
5. Classes of Glycolipids

According to the number and nature of the carbohydrate residues present in the glycolipids , the classes of glycolipids include

Cerebrosides: They have one galactose molecule (galactosides). Cerebrosides also called monoglycosylceramides, are found in the brain and peripheral nervous tissue. They function as a protective coating to each nerve acting as an insulator with high concentrations in the myelin sheath. They are neutral glycosphingolipids

Sulfatides: They are cerebrosides with sulphate on the sugar (sulphated cerebrosides). They are acidic glycosphingolipids and negatively charged. They are found in the brain and kidneys. They are primarily linked to immune responses to nervous system signal.

Gangliosides: They have several sugar and sugaramine residues. They contain a sialic acid, N- acetylneuramic acid(NANA). They are found in the ganglion cells of the central nervous system



Schematic representation of a Cerebroside.