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18/mhs01/301
MEDICAL LABORATORY SCIENCE

ASSIGNMENT

1. Which of the following is not a function of triacylglycerol.

- Energy storage b. insulation c. shock absorption d. membrane structure

1. Fatty acids are _____ _____ acids.
2. The sterol nucleus of steroid is called a _____ _____ ring.
3. Chylomicrons transport _____ and _____ from the _____ to _____ and _____.

4. Write concisely on the functional characteristics of Nucleus, Mitochondria and Endoplasmic reticulum.
5. Explain the various classes of glycolipids and draw the structure of one.

ANSWER

1. Membrane structure
2. Fatty acids are catboxylic acid
3. Gonane
4. Chylomicrons transport medium chain fatty acid and long chain fatty acid from the intestine to adipose, cardiac and skeletal muscle and muscle tissue s.
5. (I)Nucleus is a membrane bound structure that controls the cell's growth and reproduction and protein synthesis

(II) Chromosomes consist of DNA, which contains

heredity information and instructions for cell growth, development, and reproduction.
(III) It main cellular metabolism through controlling synthesis of particular enzymes.
(Iv)Nucleolus produces ribosomes and are known as protein factories.

Mitochondria

The primary **function** of mitochondria is to generate large quantities of energy in the form of adenosine triphosphate (ATP).

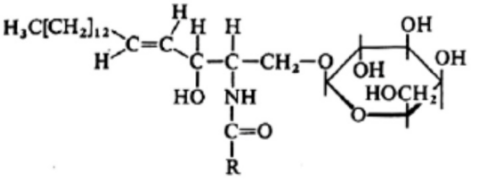
Endoplasmic reticulum

(I) It is mainly responsible for the transportation of proteins and other carbohydrates to another organelle, which includes lysosomes, Golgi apparatus, plasma membrane, etc.
(II) They help in the formation of nuclear membrane during cell division
(III) They play a vital role in

the synthesis of proteins, lipids, glycogen and other steroids like cholesterol, progesterone, testosterone, etc

6. A. Glyceroglycolipids: a sub-group of glycolipids characterized by an acetylated or non-acetylated glycerol with at least one fatty acid as the lipid complex. Glyceroglycolipids are often associated with photosynthesis membranes and their functions. The subcategories of glyceroglycolipids depend on the carbohydrate attached. (I) Galactolipid defined by a galactose sugar attached to a glycerol lipid molecule. They are found in chloroplast membranes and are associated with photosynthetic properties.

(II) Sulfolipids : have a sulfur-containing functional group in the sugar moiety attached to a lipid.



Neutral Glycosphingolipid

B. Glycosphingolipids : a sub-group of glycolipids based on Sphingolipids. Glycosphingolipids are mostly located in nervous tissues and are responsible for cell signaling. They are subdivided into

(I) cerebrosides: a group glycosphingolipids involved in nerve cell membranes

(II) Ganglosides: the most complex animal glycolipids. They contain negatively charged oligosacchrides with one or more sialic acids residues; more than 200 different gangliosides have been identified. They are

most abundant in nerve cells.
(III) Globosides: glycosphingolipids with more than one sugar as part of the carbohydrate complex.
(IV) Glycophosphosphingolipids: complex glycophospholipids from fungi, yeasts, and plants, where they were originally called "phytoglycolipids".
(V) Glycophosphatidylinositols: a sub-group by a phosphatidylinositol lipid moiety bound to a carbohydrate complex.