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1). Shock Absorption

-A fatty acid is a carboxylic acid with a long aliphatic chain, which is either saturated or unsaturated. Most naturally occurring fatty acids have an unbranched chain of an even number of carbon atoms, from 4 to 28.

2). Core Rings

3). Chylomicrons transport dietary fat and lipids from the intestine to Cardiac and Skeletal muscles.

4).

Characteristics of:

Nucleus:

The cell nucleus contains all of the cell's genome, except for a small fraction of mitochondrial DNA, organized as multiple long linear DNA molecules in a complex with a large variety of proteins, such as histones, to form chromosomes. The genes within these chromosomes are structured in such a way to promote cell function. The nucleus maintains the integrity of genes and controls the activities of the cell by regulating gene expression—the nucleus is, therefore, the control center of the cell. The main structures making up the nucleus are the nuclear envelope, a double membrane that encloses the entire organelle and isolates its contents from the cellular cytoplasm, and the nuclear matrix (which includes the nuclear lamina), a network within the nucleus that adds mechanical support, much like the cytoskeleton, which supports the cell as a whole.

Because the nuclear envelope is impermeable to large molecules, nuclear pores are required to regulate nuclear transport of molecules across the envelope. The pores cross both nuclear membranes, providing a channel through which larger molecules must be actively transported by carrier proteins while allowing free movement of small molecules and ions. Movement of large molecules such as proteins and RNA through the pores is required for both gene expression and the maintenance of chromosomes. Although the interior of the nucleus does not contain any membrane-bound subcompartments, its contents are not uniform, and a number of nuclear bodies exist, made up of unique proteins, RNA molecules, and particular parts of the chromosomes. The best-known of these is the nucleolus, which is mainly involved in the assembly of ribosomes. After being produced in the nucleolus, ribosomes are exported to the cytoplasm where they translate mRNA.

Mitochondria:

Each mitochondrion is a double membrane - bound structure with the outer membrane and the inner membrane dividing its lumen distinctly into two compartments, I.e., the outer compartment (perimitochindrial space) and the inner compartment matrix).

Two characteristics that make mitochondria different from other organelles are the Krebs cycle, which is hosted by the mitochondrial matrix, and the electron transport chain, which takes place on the inner mitochondrial membrane.

Mitochondria are football-shaped and rather look like bacteria themselves, which as you'll see is no accident. They are found in higher density in places where oxygen requirements are high, such in the leg muscles of endurance athletes like distance runners and cyclists. The whole reason they exist is the fact that eukaryotes have energy requirements far in excess of those of prokaryotes, and mitochondria are the machinery that allow them to meet those requirements.

Endoplasmic reticulum

== Endoplasmic reticulum is an organelle found in both eukaryotic animal and plant cells.

== It often appears as two interconnected sub-compartments, namely rough ER and smooth ER. Both types consist of membrane enclosed, interconnected flattened tubes.

==The rough ER, studded with millions of membrane bound ribosomes, is involved with the production, folding, quality control and despatch of some proteins.

==Smooth ER is largely associated with lipid (fat) manufacture and metabolism and steroid production hormone production. It also has a detoxification function.

It is an organelle that can be found in the eukaryotic cells.

These organelles form an interconnected network of flattened, sacs or tube like structures called as cisternae.

The endoplasmic reticulum helps to form a skeletal framework.

The endoplasmic reticulum is responsible for the synthesis of lipids, proteins, glycogen and steroids for example progesterone, cholesterol and testosterone.

It plays a major role in the production, processing, and transport of proteins and lipids. The ER produces transmembrane proteins and lipids for its membrane and for many other cell components including lysosomes, secretory vesicles, the Golgi appatatus, the cell membrane, and plant cell vacuoles.

The endoplasmic reticulum serves many general functions, including the folding of protein molecules in sacs called cisternae and the transport of synthesized proteins in vesicles to the Golgi apparatus.

5).

Glycolipids are lipids with a carbohydrate attached by a glycosidic (covalent) bond.[1] Their role is to maintain the stability of the cell membrane and to facilitate cellular recognition, which is crucial to the immune response and in the connections that allow cells to connect to one another to form tissues.[2] Glycolipids are found on the surface of all eukaryotic cell membranes, where they extend from the phospholipid bilayer into the extracellular environment.

The essential feature of a glycolipid is the presence of a monosaccharide or oligosaccharide bound to a lipid moiety. The most common lipids in cellular membranes are glycerolipids and sphingolipids, which have glycerol or a sphingosine backbones, respectively. Fatty acids are connected to this backbone, so that the lipid as a whole has a polar head and a non-polar tail. The lipid bilayer of the cell membrane consists of two layers of lipids, with the inner and outer surfaces of the membrane made up of the polar head groups, and the inner part of the membrane made up of the non-polar fatty acid tails.

The saccharides that are attached to the polar head groups on the outside of the cell are the ligand components of glycolipids, and are likewise polar, allowing them to be soluble in the aqueous environment surrounding the cell.[3] The lipid and the saccharide form a glycoconjugate through a glycosidic bond, which is a covalent bond. The anomeric carbon of the sugar binds to a free hydroxyl group on the lipid backbone. The structure of these saccharides varies depending on the structure of the molecules to which they bind.

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 photosynthetic membranes and their functions. The subcategories of glyceroglycolipids depend on the carbohydrate attached.[11]

Galactolipids: defined by a galactose sugar attached to a glycerol lipid molecule. They are found in chloroplast membranes and are associated with photosynthetic properties.[11]

Sulfolipids: have a sulfur-containing functional group in the sugar moiety attached to a lipid. An important group is the sulfoquinovosyl diacylglycerols which are associated with the sulfur cycle in plants.[12]

Glycosphingolipids: a sub-group of glycolipids based on sphingolipids. Glycosphingolipids are mostly located in nervous tissue and are responsible for cell signaling.[13]

Cerebrosides: a group glycosphingolipids involved in nerve cell membranes.[14]

Galactocerebrosides: a type of cerebroseide with galactose as the saccharide moiety

Glucocerebrosides: a type of cerebroside with glucose as the saccharide moiety; often found in non-neural tissue.

Sulfatides: a class of glycolipids containing a sulfate group in the carbohydrate with a ceramide lipid backbone. They are involved in numerous biological functions ranging from immune response to nervous system signaling.

Gangliosides: the most complex animal glycolipids. They contain negatively charged oligosacchrides with one or more sialic acid residues; more than 200[15] different gangliosides have been identified. They are most abundant in nerve cells.

Globosides: glycosphingolipids with more than one sugar as part of the carbohydrate complex. They have a variety of functions; failure to degrade these molecules leads to Fabry disease.

Glycophosphosphingolipids: complex glycophospholipids from fungi, yeasts, and plants, where they were originally called "phytoglycolipids". They may be as complicated a set of compounds as the negatively charged gangliosides in animals.

Glycophosphatidylinositols: a sub-group of glycolipids defined by a phosphatidylinositol lipid moiety bound to a carbohydrate complex. They can be bound to the C-terminus of a protein and have various functions associated with the different proteins they can be bound to.

