Golgi complex:

The delivery system of the cell at various locations within the cytoplasm, flattened sacks of membranes called Golgi bodies occur (Fig. 3). These organelles are especially abundant in glandular cells,

Which manufacture and secrete substances. The Golgi complex functions in collection packaging, and distribution of molecules synthesized in cell. The proteins and lipids manufactured on the rough and smooth ER membranes are transported through the cannels of the ER, or vesicles budded off from it, into the Golgi complex.

Lysosomes:

Producers of digestive enzymes for the cell, lysosomes, an other class of membrane-bounded organelles, provide an example of metabolic compartmentalization achieved by activity of the Golgi complex. The contain in a concentrated mix the digestive enzymes of the

Cell, which catalyze the rapid breakdown of proteins, nucleic acids, lipids and carbohydrates. Throughout the live, lysosomal enzymes break down old organelles, recycling their components molecules and making room for newly formed organelles.

Mitochondria:

The cell's chemical furnaces mitochondria are typically tubular or sausage shaped organelles 1-3micrometer long. mitochondria bounded by two membranes. The outer membrane is smooth, while the inner one is folded into numerous contiguous layers called **cristae.** The cristae partition the mitochondrion into two

compartments: a matrix lying inside the inner membranes and an outer compartment, lying between the two mitochondrial membranes, On the surface of the inner membrane. and also submerged within it, are proteins that carry out oxidative metabolism, the oxygen-requiring is stored in ATP. Mitochondria contain their produce some of the protein essential for the role of mitochondria in oxidative metabolism. All these genes are copied into RNA within the mitochondria and used there to make protein.

Flagella and Cilia:

Motility for the cell animal, cell has a flagella consisting of a circle of nine microtubule pairs surrounding two central pairs; this arrangement is referred to as the 9 of 2 structures. The microtubules of the flagella are derived from a basal body situated just below the point at which the flagellum protrudes from the surface of the cell. Cilia are more numerous on the cell surface than flagella, but they have the same internal structure.

Centrioles:

Are barrel-shaped organelles found in the cells of animals. They occur in pairs, usually located at right angles to each other near the nuclear membrane (Fig.5). At least some centrioles contain DNA, which apparently is involved in the production of their structural protein. Centrioles are associated with the assembly and organization of microtubules of which are long, hollow cylinders composed of the protein tubulin. Microtubules influence cell shape move the chromosomes in cell division, and provide the function structure of flagella and cilia. Singer and Nicolson (1972)introduced the fluid-mosaic model of membrane structure, which proposes in part that the membrane is a fluid phospholipid bilayer in which protein molecules are either partially or wholly embedded. The proteins are scattered

throughout the membrane in an irregular pattern that can vary from membrane to membrane.

The fluid-mosaic of membrane structure Is widely accepted at this time. The fluid mosaic model of membrane structure has two components, lipids and proteins. Most of the lipids in the plasma membrane are phospholipids which are known to arrange themselves spontaneously into a bilayer. In a membrane, the hydrophilic(polar)heads of the phospholipids molecules face the internal and extracellular fluids. The hydrophobic (nonpolar)tails face each other in the membrane interior (Fig.6).

In addition to phospholipids, there are two other types of lipids in the plasma membrane. Glycolipids have a structure similar to phospholipids. Cholesterol is a lipid that is found in animal plasma membranes.

Cholesterol reduces the permeability of the membrane to most biological molecules. The membrane is fluid. At body temperature the phospholipid bilayer of plasma membrane has the consistency of olive oil. The greater the concentration of unsaturated fatty acids residues the more fluid the bilayer.

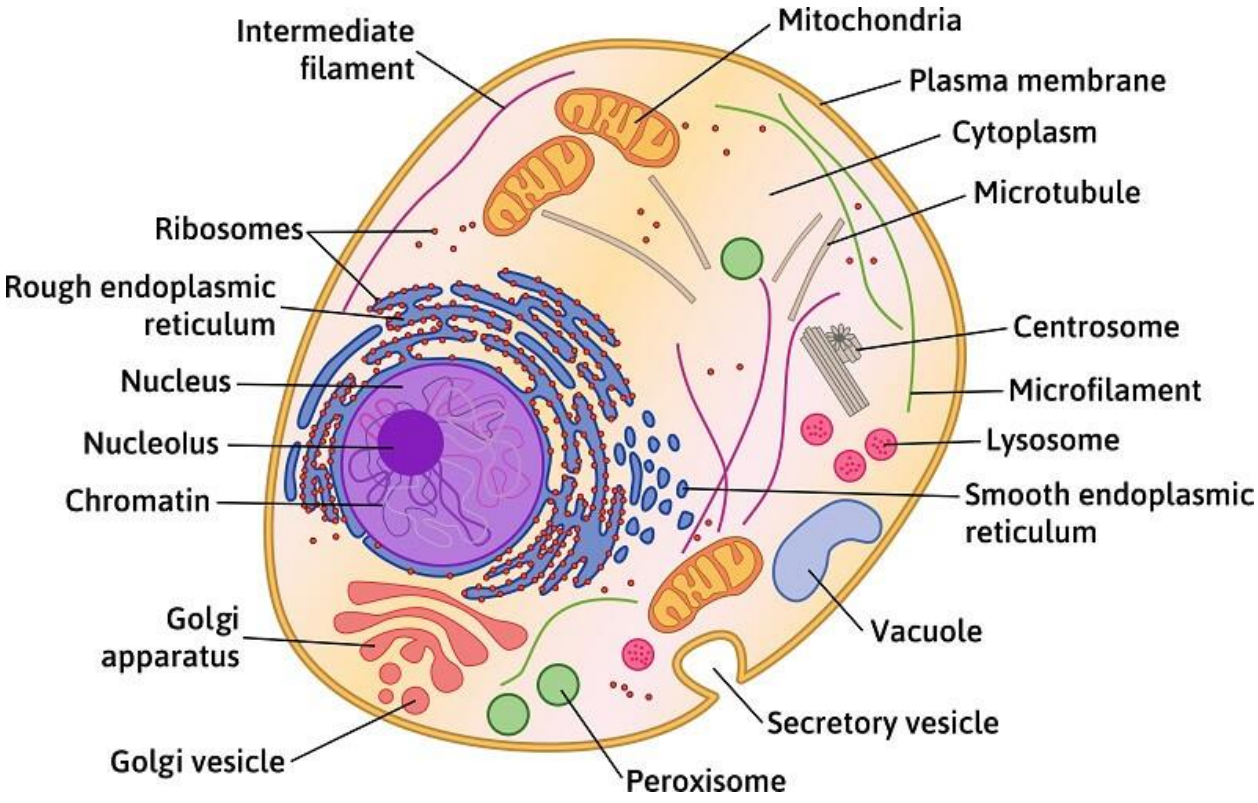
Intermediate filament
Mitochondria
Plasma membrane
Cytoplasm
Microtubule
Ribosomes
Rough endoplasmic reticulum
Centrosome
Nucleus
Microfilament
Nucleolus
Lysosome
Chromatin
Smooth endoplasmic reticulum
Golgi apparatus
Vacuole
Secretory vesicle
Golgi vesicle
Peroxisome

Fig.1

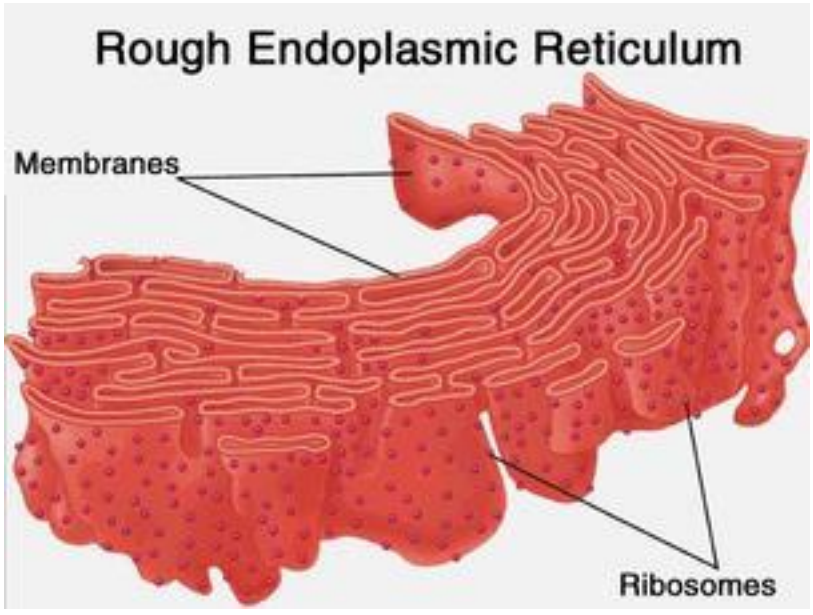
Rough Endoplasmic Reticulum
Membranes
Ribosomes

Fig.2

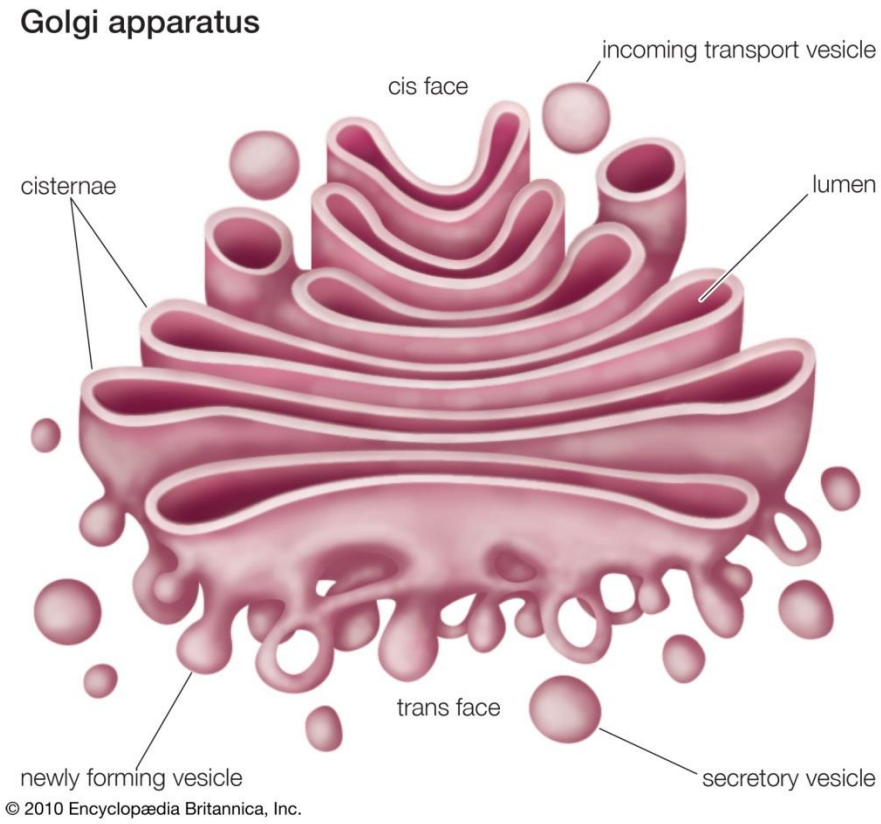
Golgi apparatus
incoming transport vesicle
cis face
cisternae
lumen
trans face
newly forming vesicle
secretory vesicle
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Fig.3

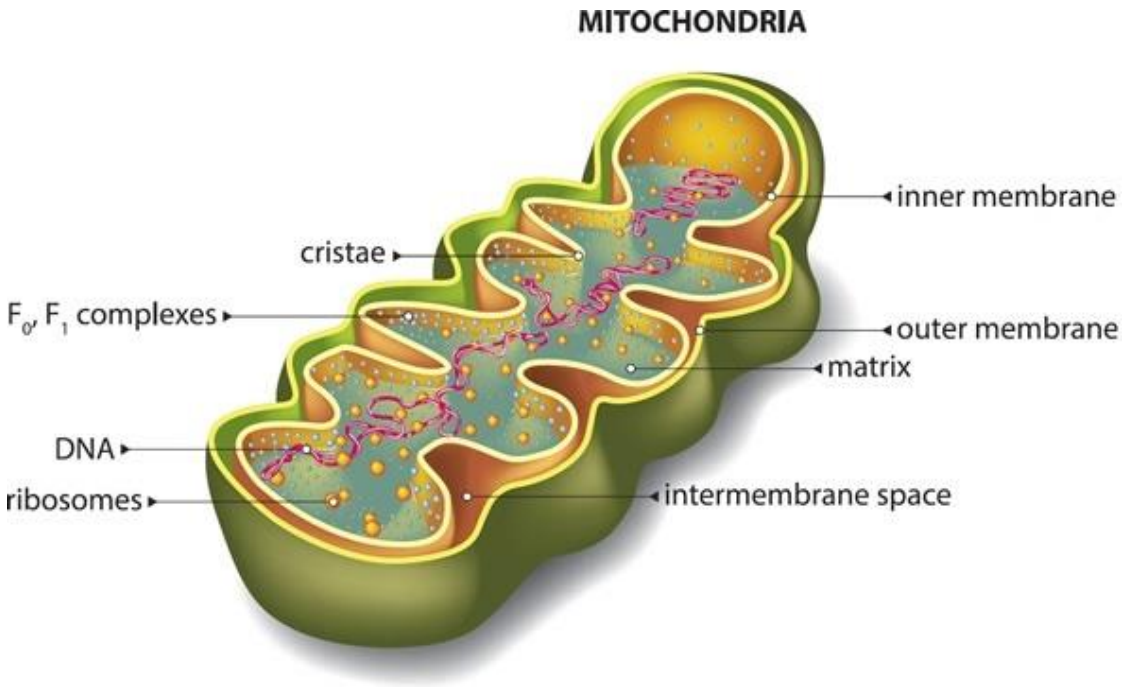
MITOCHONDRIA
inner membrane
cristae
F_0, F_1 complexes
outer membrane
matrix
DNA
ribosomes
intermembrane space

Fig.4

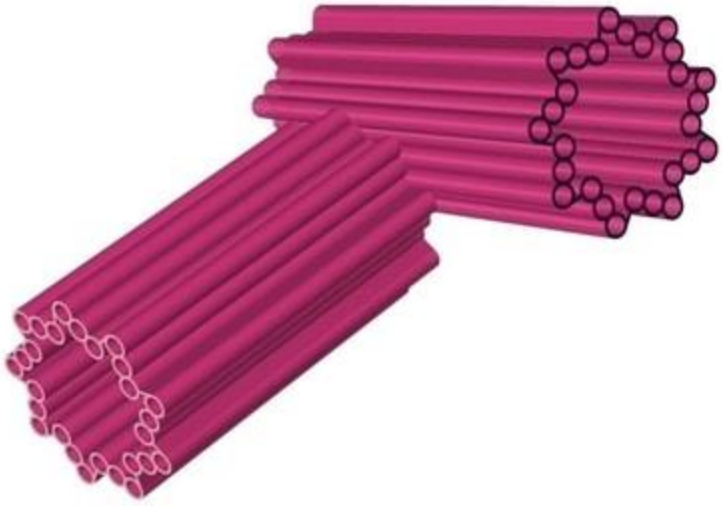

Fig.5:Centrioles

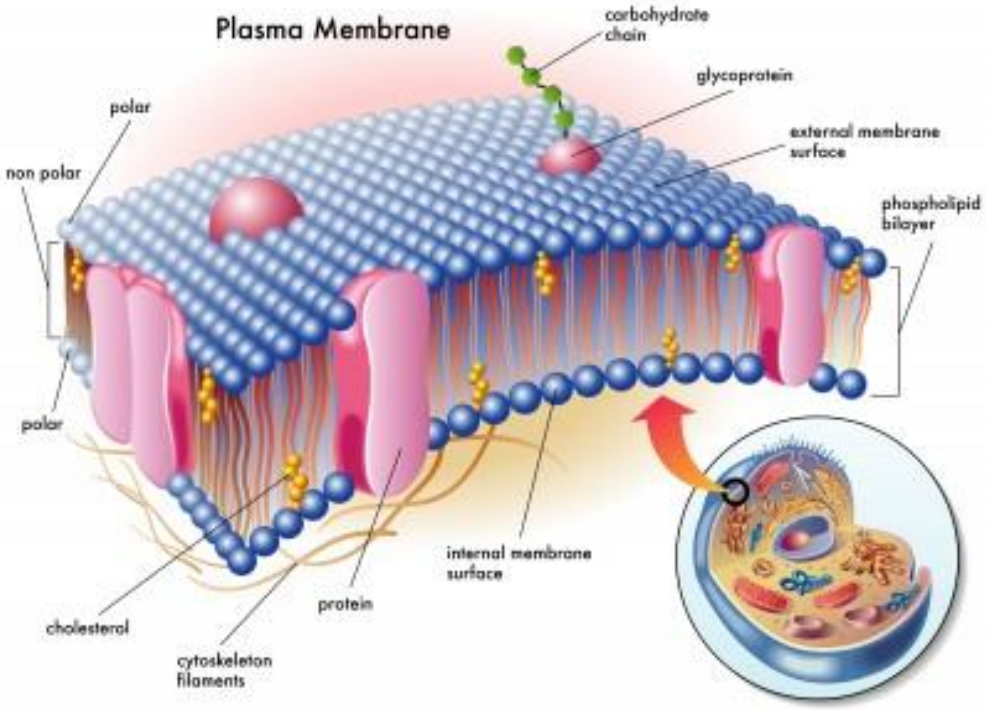

Fig.6:Cell membrane