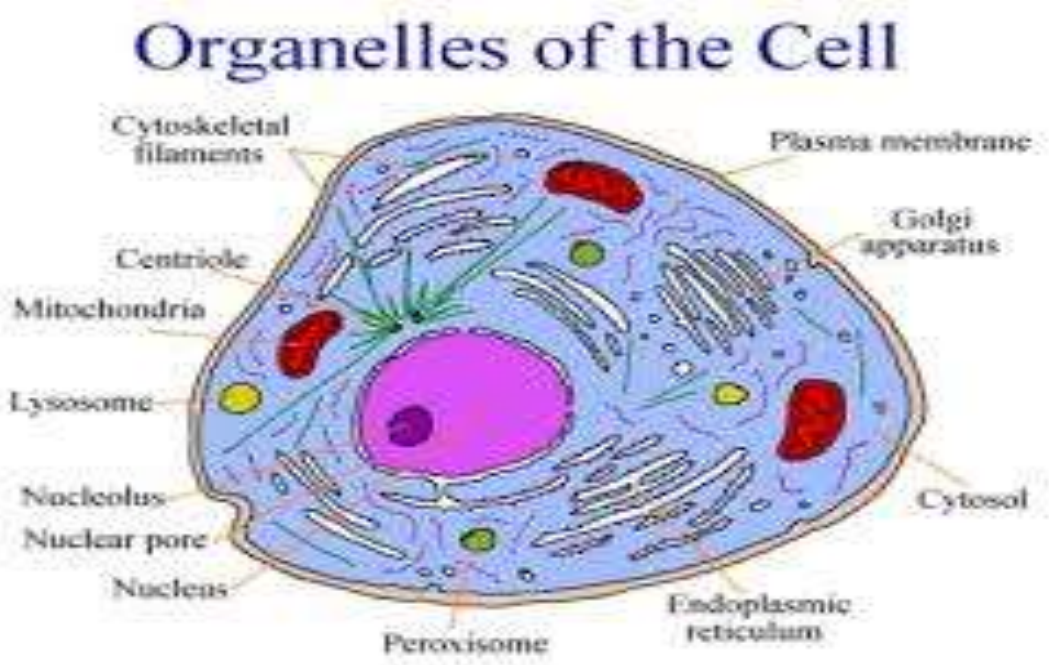
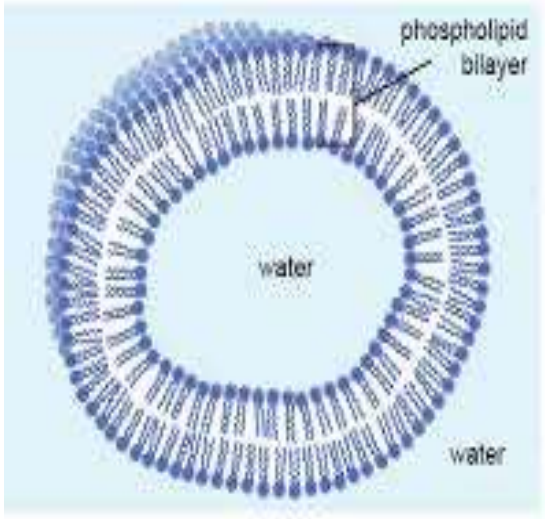
Cell and its organelles:

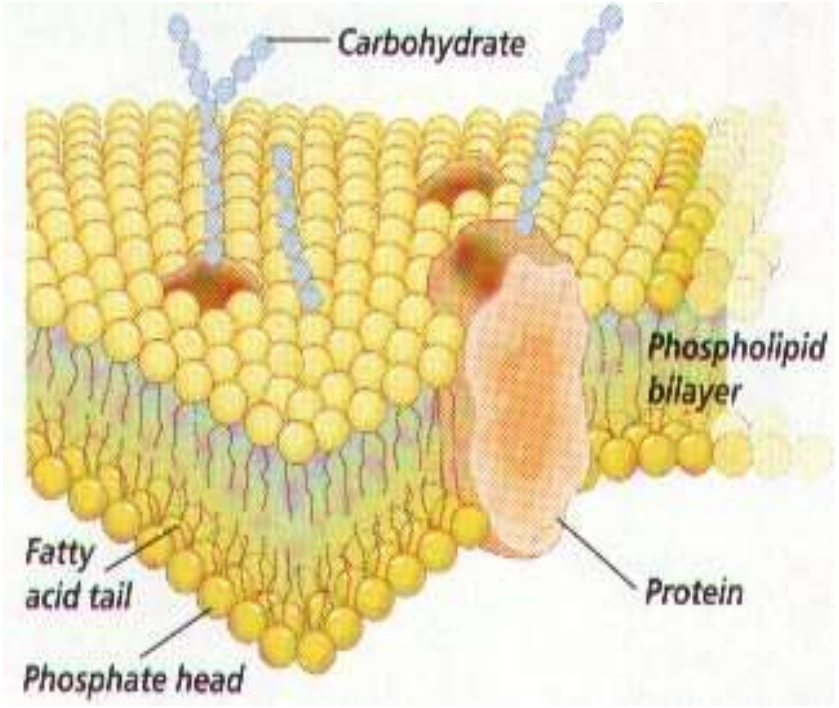
Cell is like a smaller chamber enclosed by plasma membrane, and it is the basic functional unit of living organism.



*the **plasma membrane** composed from lipids and proteins. The fluid mozic model mean: the plasma membrane composed from double layer of lipid and embedded protein.*



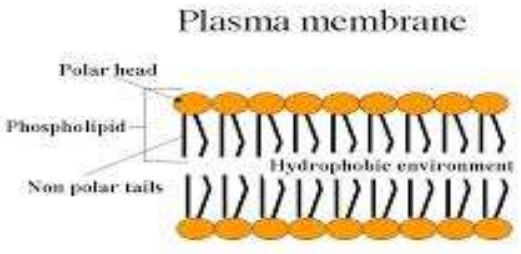
TEM image of a liposome at 60,000x magnification

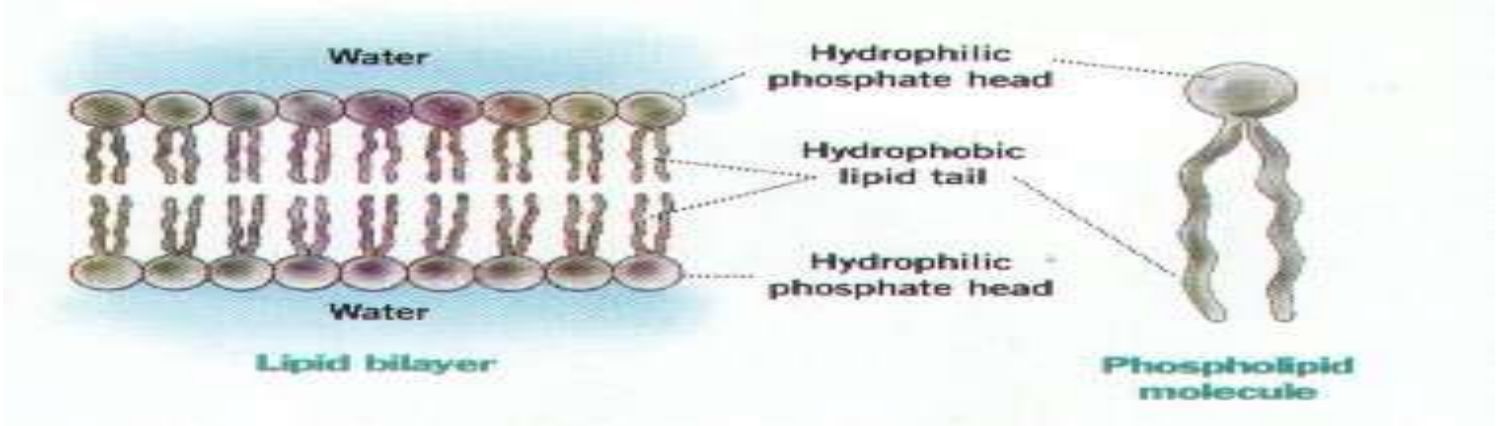


*Types and properties of **Lipids** in plasma membrane:*

1. Phospholipids :phosphotidyle choline and phosphosphotidyle ethanolomine

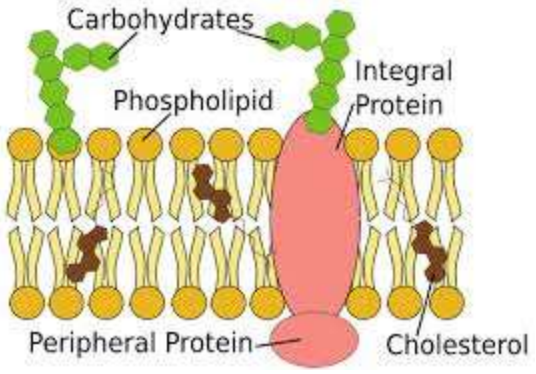
2.Cholesterol : for membrane fluidity.





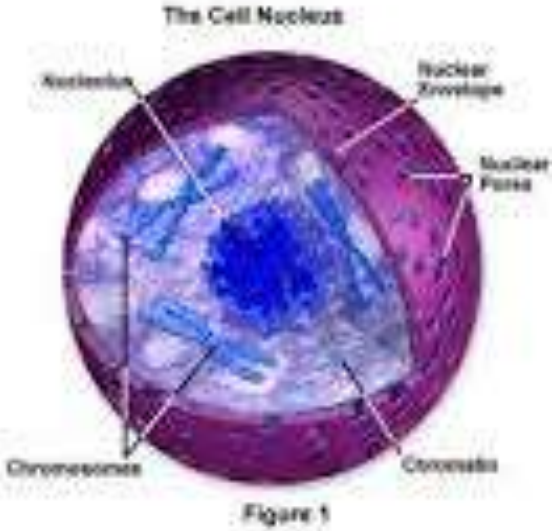
*types and properties of **proteins** in plasma membrane:1.intergral protein act as channel for passages of ions and molecules.*

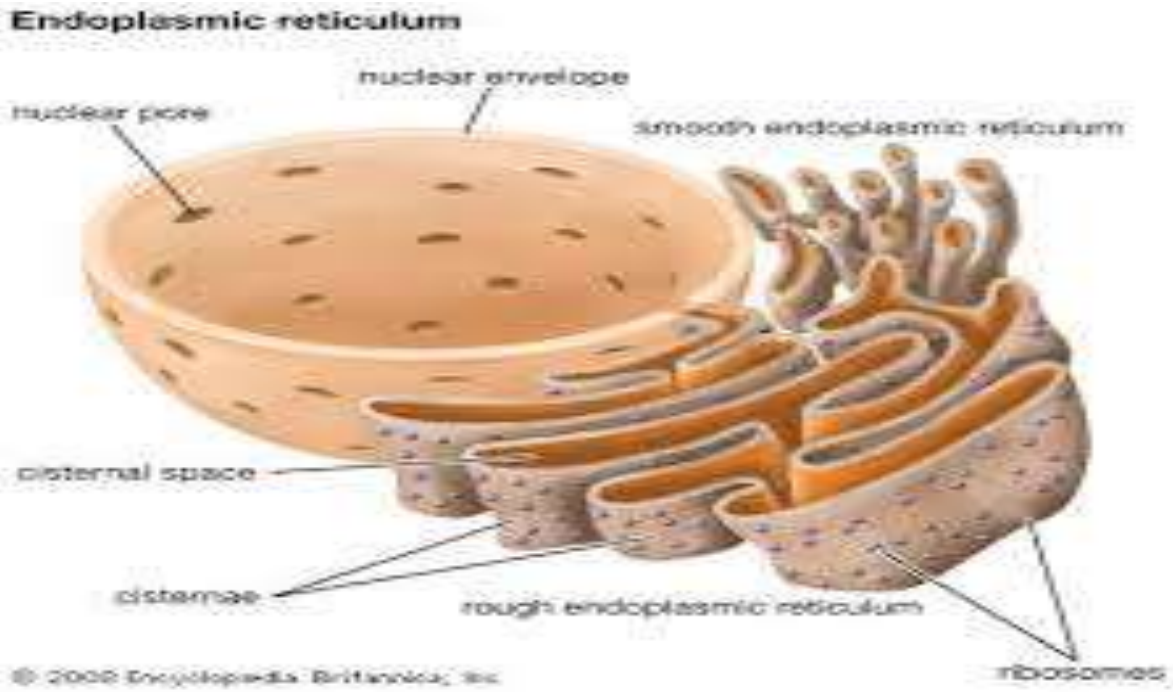
2.peripherial protein act as cytoskeleton and receptors.



Nucleus

- Control center of the cell
- Contains DNA
- Surrounded by a double membrane
- Usually the easiest organelle to see under a microscope
- Usually one per cell




Endoplasmic reticulum
nuclear envelope
nuclear pore
smooth endoplasmic reticulum
cisternal space
cisternae
rough endoplasmic reticulum
ribosomes
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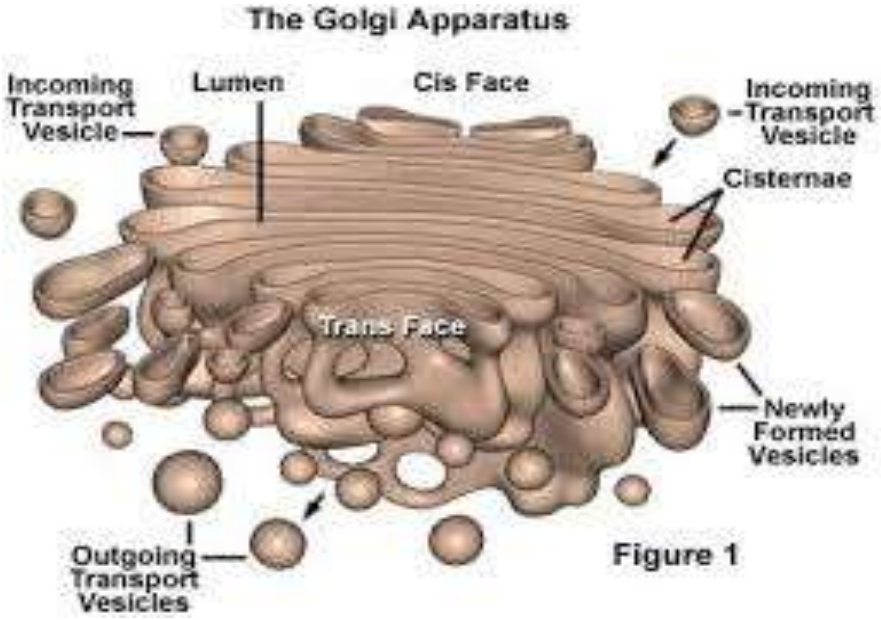
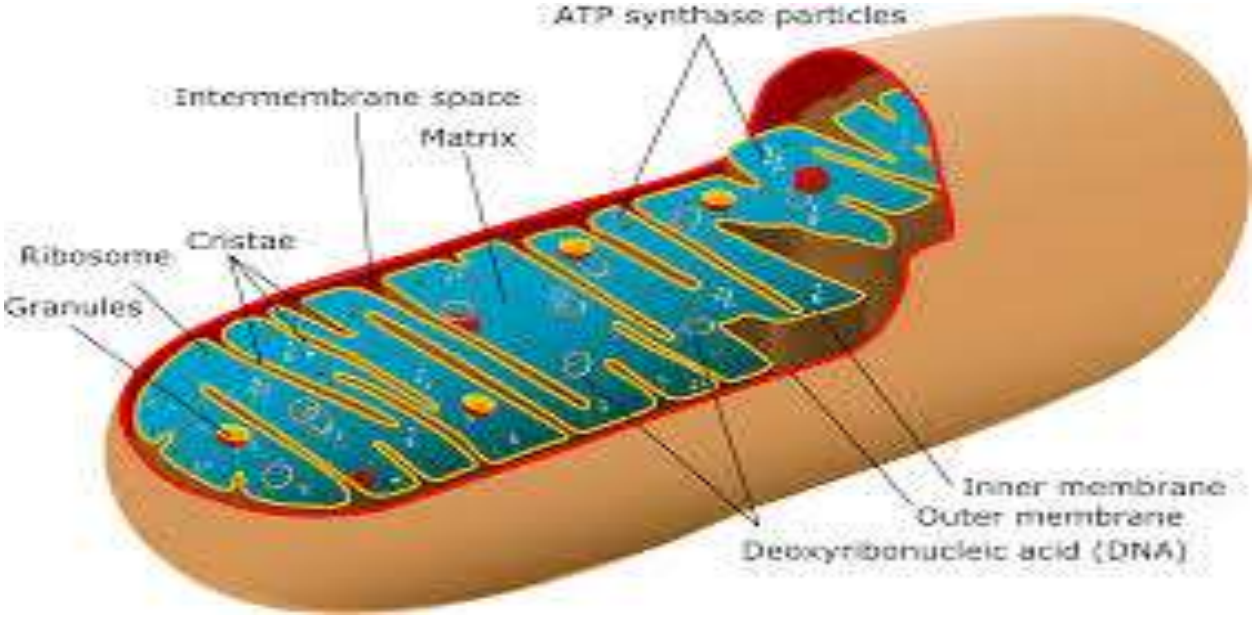
Ribosomes: are protein factories.

Golgi apparatus ;package up molecule and addition of glycosides to molecules.

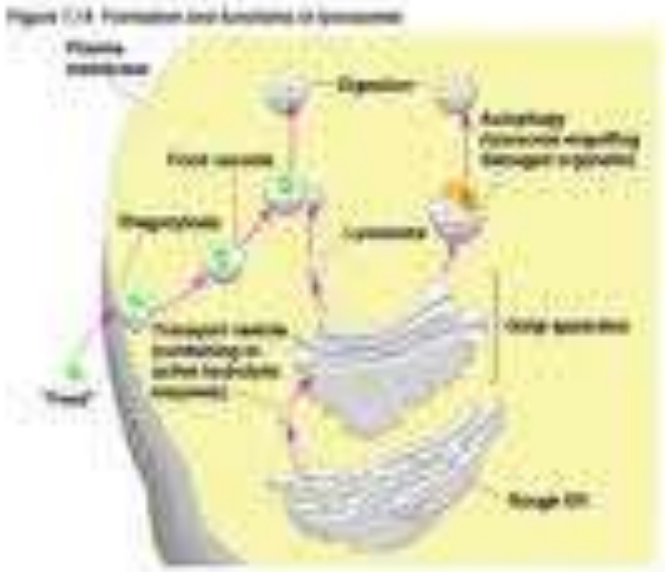


Mitochondria : power house produce ATP by oxidation of molecules.(called internal respiration)

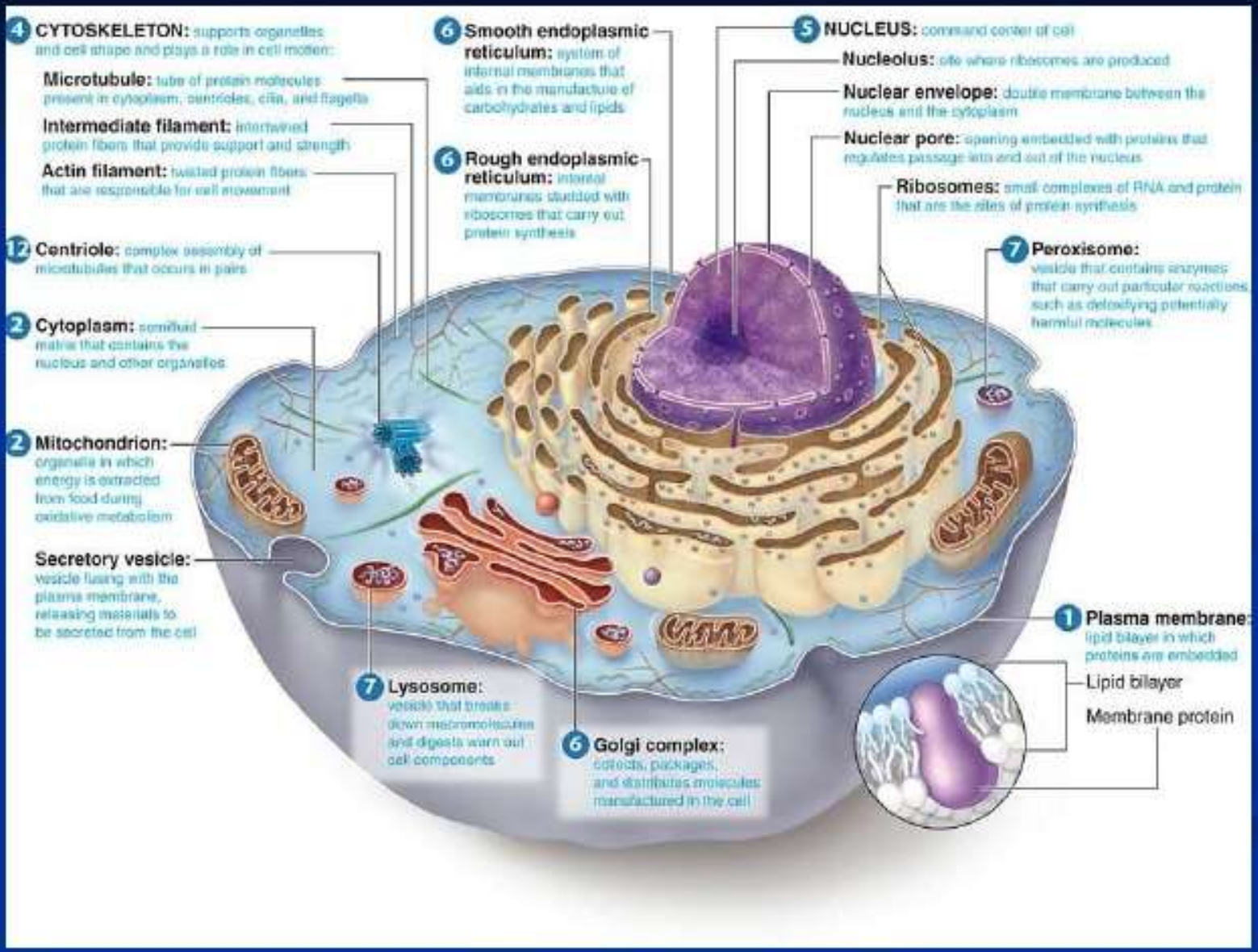


Lysosomes

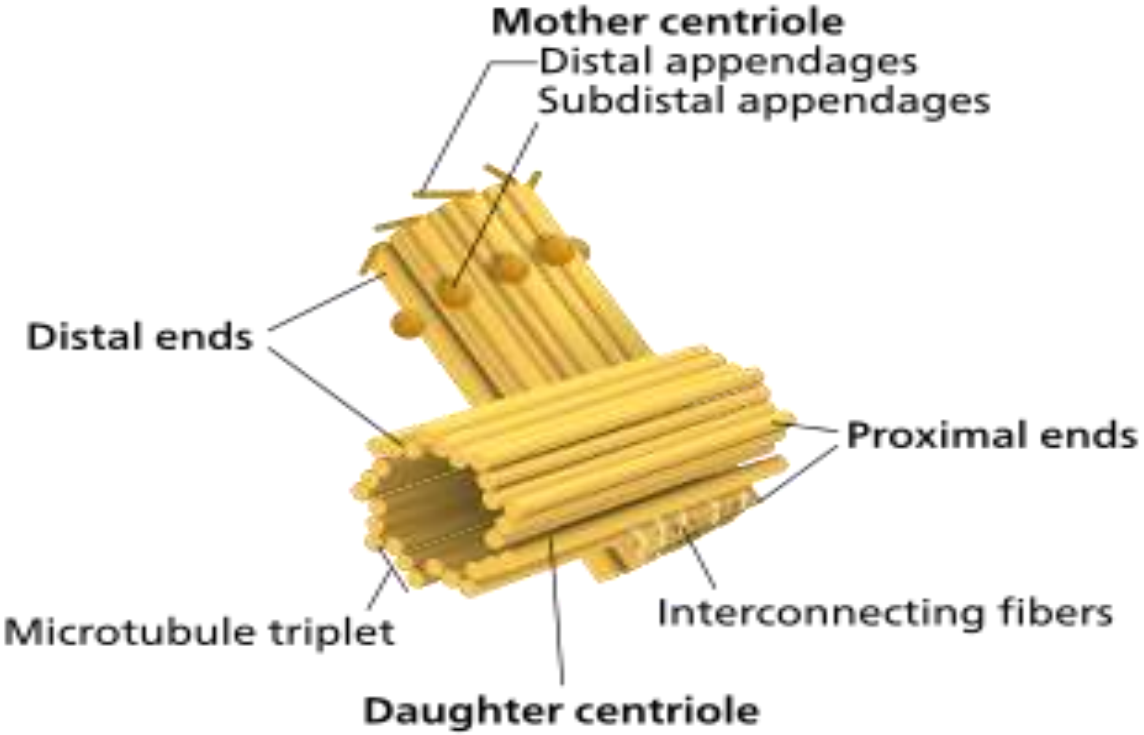
- Garbage disposal of the cell
- Contain digestive enzymes that break down wastes



Which organelles do lysosomes work with?


4 CYTOSKELETON: supports organelles and cell shape and plays a role in cell motion:
Microtubule: tube of protein molecules present in cytoplasm, centrioles, cilia, and flagella
Intermediate filament: intertwined protein fibers that provide support and strength
Actin filament: twisted protein fibers that are responsible for cell movement
12 Centriole: complex assembly of microtubules that occurs in pairs
2 Cytoplasm: semifluid matrix that contains the nucleus and other organelles
2 Mitochondrion: organelle in which energy is extracted from food during oxidative metabolism
Secretory vesicle: vesicle fusing with the plasma membrane, releasing materials to be secreted from the cell
6 Smooth endoplasmic reticulum: system of internal membranes that aids in the manufacture of carbohydrates and lipids
6 Rough endoplasmic reticulum: internal membranes studded with ribosomes that carry out protein synthesis
5 NUCLEUS: command center of cell
Nucleolus: site where ribosomes are produced
Nuclear envelope: double membrane between the nucleus and the cytoplasm
Nuclear pore: opening embedded with proteins that regulates passage into and out of the nucleus
Ribosomes: small complexes of RNA and protein that are the sites of protein synthesis
7 Peroxisome: vesicle that contains enzymes that carry out particular reactions such as detoxifying potentially harmful molecules
1 Plasma membrane: lipid bilayer in which proteins are embedded
Lipid bilayer
Membrane protein
7 Lysosome: vesicle that breaks down macromolecules and digests worn out cell components
6 Golgi complex: collects, packages, and distributes molecules manufactured in the cell

Centrioles :for cell division.



Peroxosome contribute to comsumed oxygen peroxideH202 and free radicals.

Peroxisomes

Peroxisomes are the only cellular organelles with significant peroxidase activity. Shown is an electron micrograph of a rat liver cell stained for peroxidase activity (diamino-benzidine and H_2O_2). The precipitate is exclusively associated with rounded bodies similar in size to lysosomes. MB= microbodies = peroxisomes.

Fahimi HD (1969) J. Cell Biol. 43:275-288