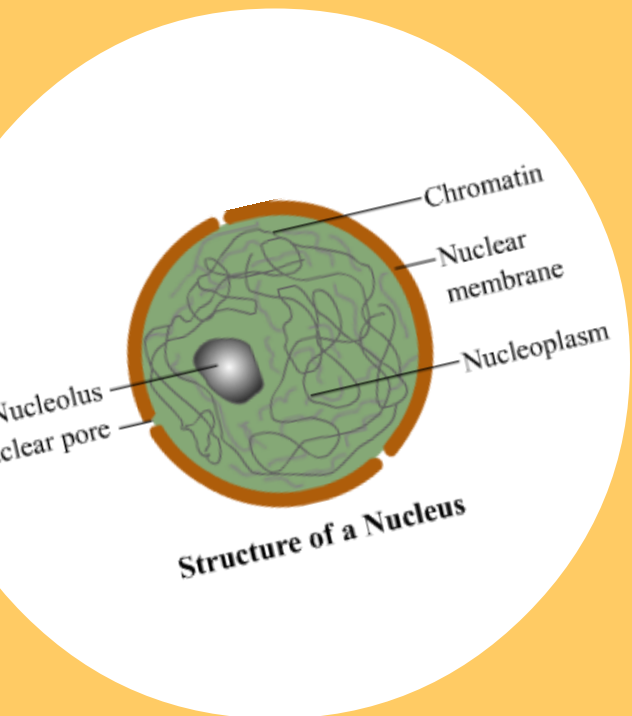


# 1.6 CELL STRUCTURE

## Nucleus, Chloroplast, and Mitochondria

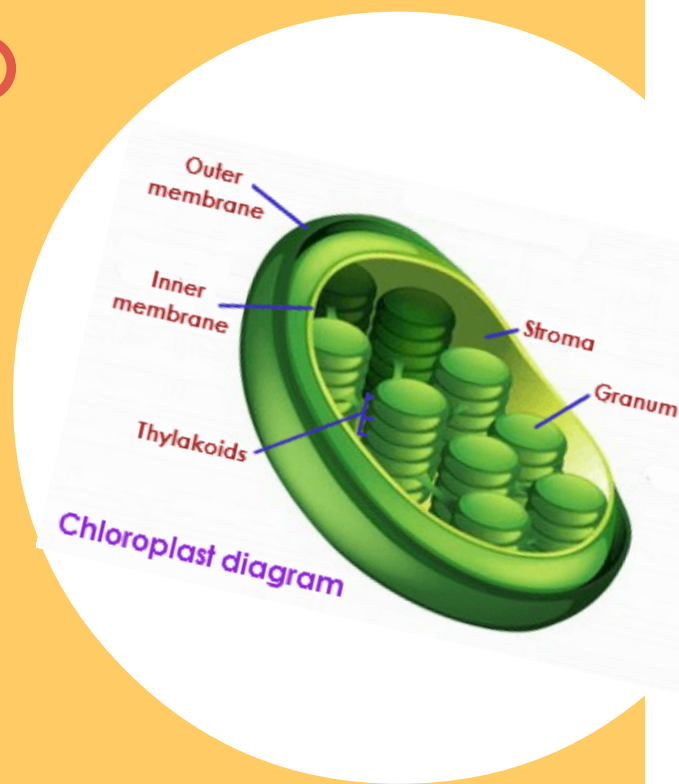
### NULCEUS



The nucleus is usually spherical and is between 10 and 20  $\mu\text{m}$  in diameter. It controls the cells activities through the production of mRNA and tRNA and protein synthesis. It also protects the DNA from the rest of the cell and manufactures DNA and ribosomes. They are present in both plant and animal cells.

### CHLOROPLAST

They are flat disks, usually 3 to 10  $\mu\text{m}$  in diameter and 1  $\mu\text{m}$  thick. The chloroplast's main function is to preform photosynthesis, which is the conversion of light,  $\text{CO}_2$  and water into glucose and oxygen. They are only present in plant cells..



### MITOCHONDRIA



The mitochondria is present in all but a few eukaryotic cells. They are rod shaped and are 1-7  $\mu\text{m}$  in length and 0.5-1  $\mu\text{m}$  in diameter.

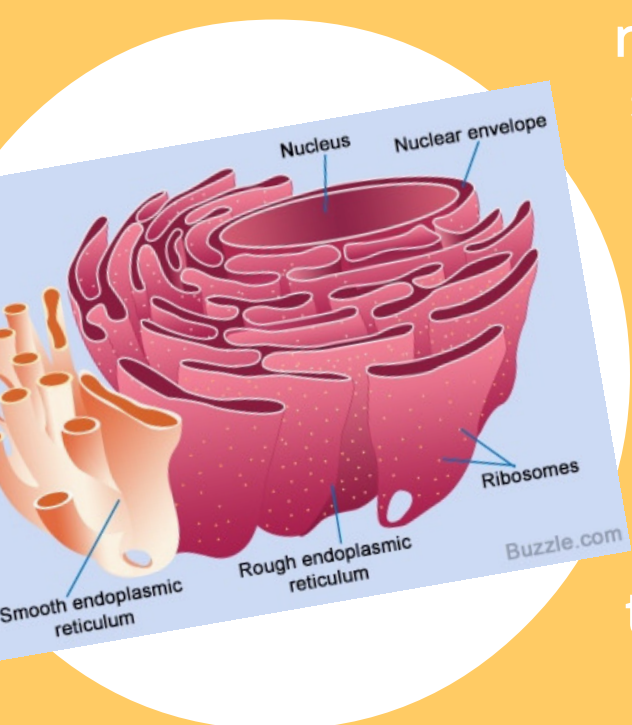
They carry out anaerobic respiration, synthesize lipids, and are responsible for the synthesis of ATP molecules. They are a good supply of ATP and are important in the krebs cycle.

# 1.7 CELL STRUCTURE:

## Endoplasmic Reticulum, Ribosomes, Golgi Body, and Lysosomes

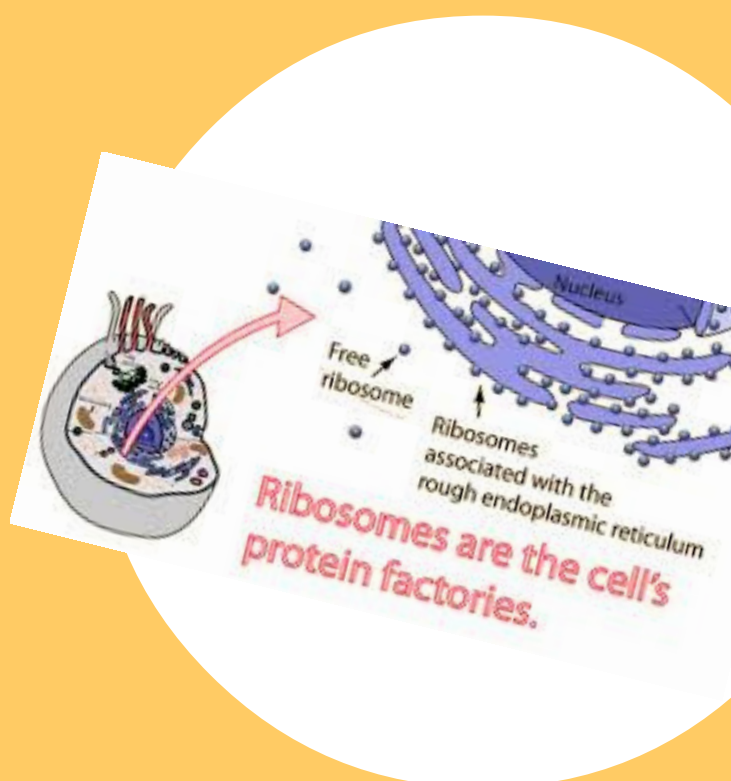
### ENDOPLASMIC RETICULUM

Found in both plants and animals cells, the endoplasmic reticulum is a thin, long structure located around the nucleus. It consists of either the rough endoplasmic reticulum, or the smooth endoplasmic reticulum. The RER provides a large surface area for the synthesis of proteins, and serves as a passageway for the transport of proteins throughout the cell. The SER synthesizes, stores, and transports lipids. Both form transport vesicles that transport materials around the cell.



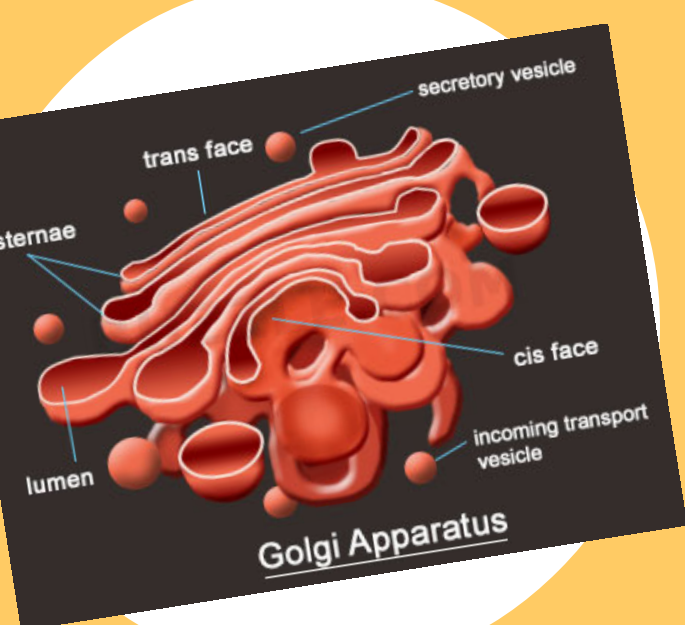
### RIBOSOMES

Found in all cells, with a size of 25nm in diameter in eukaryotic cells and 20nm in diameter in prokaryotic cells. Ribosomes simply are the sites of protein synthesis.



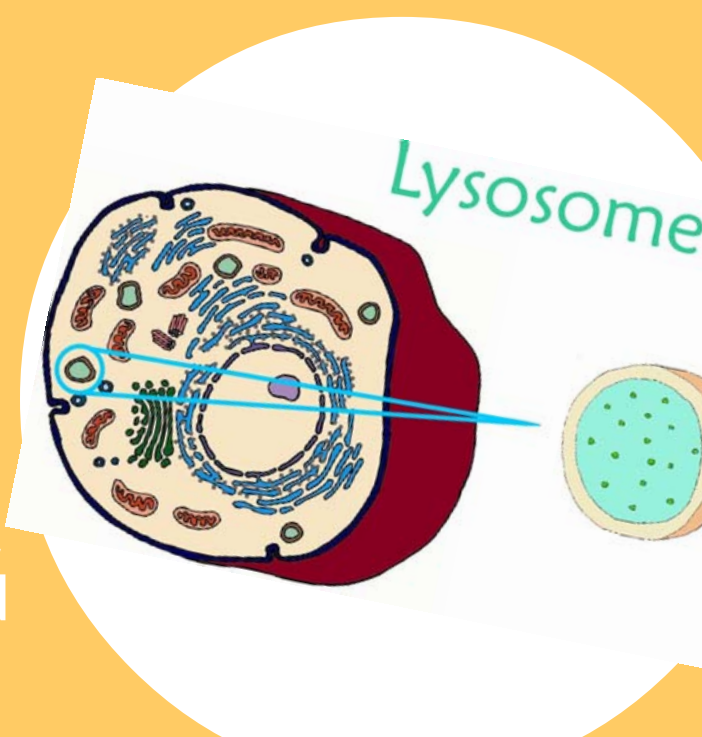
### GOLGI BODY

Present in both plant and animal cells, the short, thin, curved structure of the Golgi body acts as a cell's post office. It receives, sorts, processes, and delivers proteins and lipids. The Golgi apparatus also produces enzymes, and emits carbohydrates used in making cell walls.



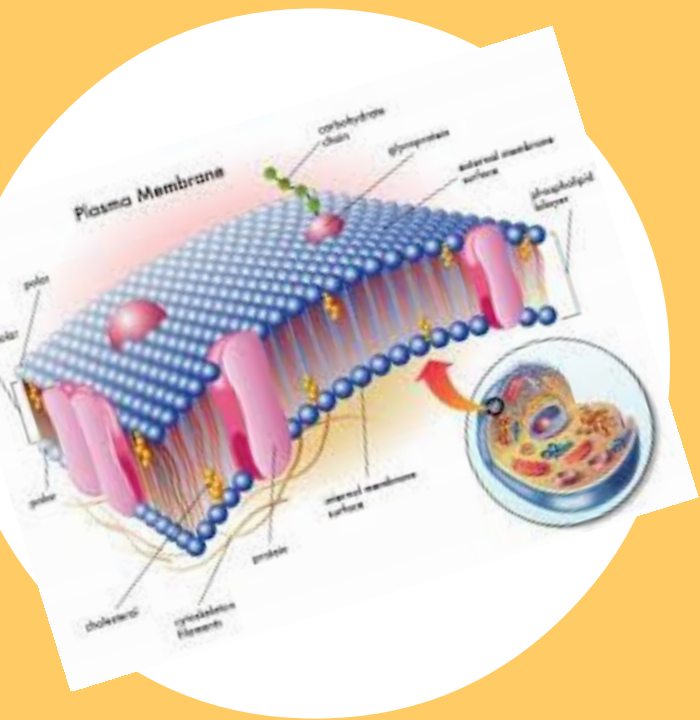
### LYSOSOMES

Present in all eukaryotic cells, a lysosomes size can range from 0.1  $\mu\text{m}$  - 1.0  $\mu\text{m}$  in diameter. A lysosomes main function is to destroy foreign material both inside and outside of a cell. It breaks down materials ingested, digests worn out organelles, and breaks down cells after they die.



# 1.8 CELL STRUCTURE

## Cell Membrane, Cell Wall, Vacuoles, and Centrioles and Microtubules

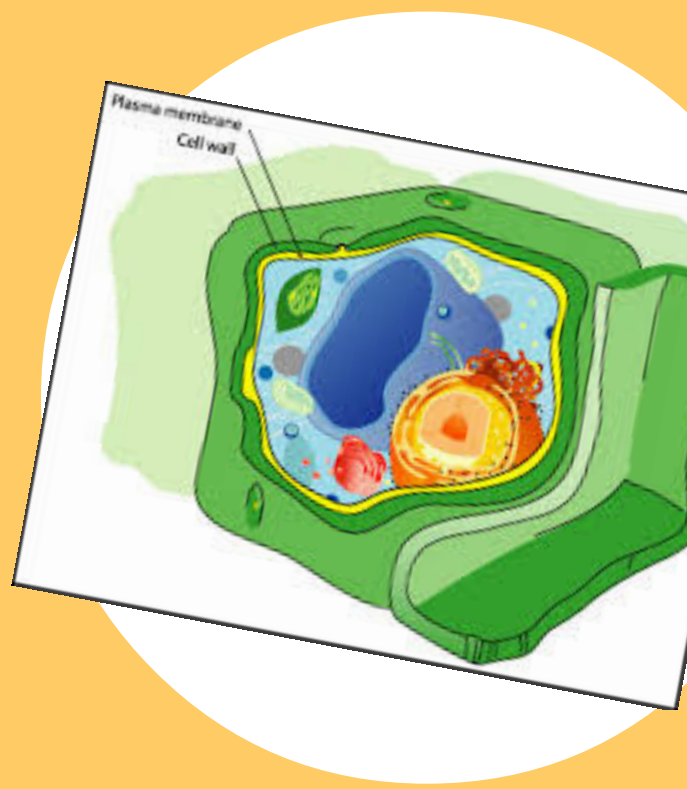


### CELL MEMBRANE

It controls the movement of substances into and out of the cell; allowing or preventing certain substances from entering the cell. Found in animal cells. It is 7.5 to 10 nm long

### CELL WALL

It provides mechanical strength to prevent the cell from bursting and it contributes to water movement in plants. It is found in plant cells. It is usually 20nm in size.



### VACUOLE

They store water, ions, sugar, and pigments. It pushes the chloroplast to the edge of the cell and it also supports the cell. It is found in plant and animal cells. It is 80% of plant cells and around 10% in animal cells.

### CENTRIOLES & MICROTUBULES

Centrioles organize microtubules and they are the internal skeleton of the cell. They are found in all animal cells and only in fungi and algae of plants. It is .5  $\mu\text{m}$  in length and .2  $\mu\text{m}$  in diameter. There are 2 centrioles in each cell.

