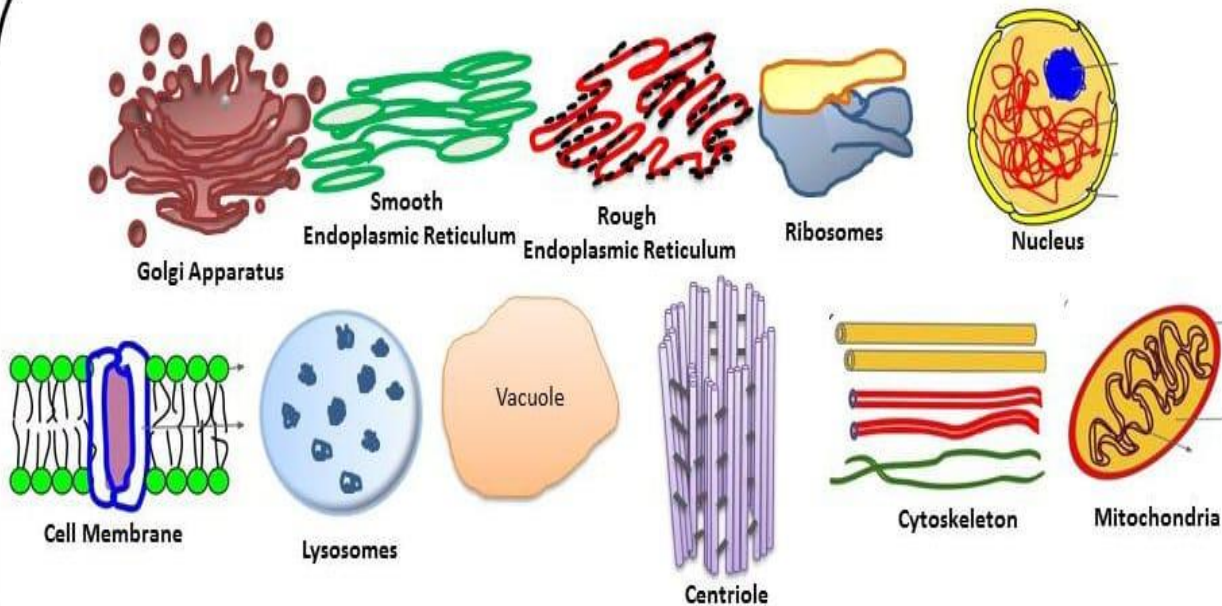




POWER POINT PRESENTSTION

CELL ORGANELLES



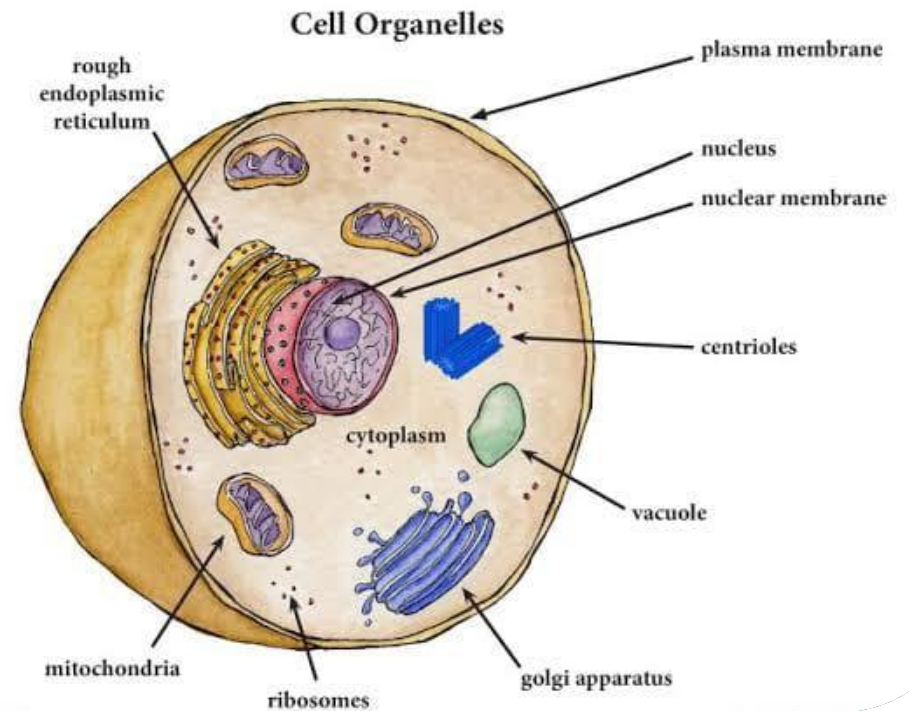
Organelles of the Cell

PRESENTED BY

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INTRODUCTION

- A cell is the basic structural and functional unit of living organism.
- Cell organelles are specialized structures found within eukaryotic and prokaryotic cells that perform specific functions necessary for the survival and proper functioning of the cell.
- Each cell organelle is unique in structure, function, and composition.



There are various organelles present within the cell and are classified into three categories based on the presence or absence of membrane.

Organelles without membrane

Cell wall, Ribosomes, and Cytoskeleton are non-membrane-bound cell organelles. They are present both in the prokaryotic cell and the eukaryotic cell.

Single membrane-bound organelles

Vacuole, Lysosome, Golgi Apparatus, Endoplasmic Reticulum are single membrane-bound organelles present only in a eukaryotic cell.

Double membrane-bound organelles

Nucleus, mitochondria and chloroplast are double membrane-bound organelles present only in a eukaryotic cell.

CELL MEMBRANE

- Present both in plant and animal cells.
- Functions as the selectively permeable membrane.
- Boundary of the cell.
- Made of a phospholipid bilayer.

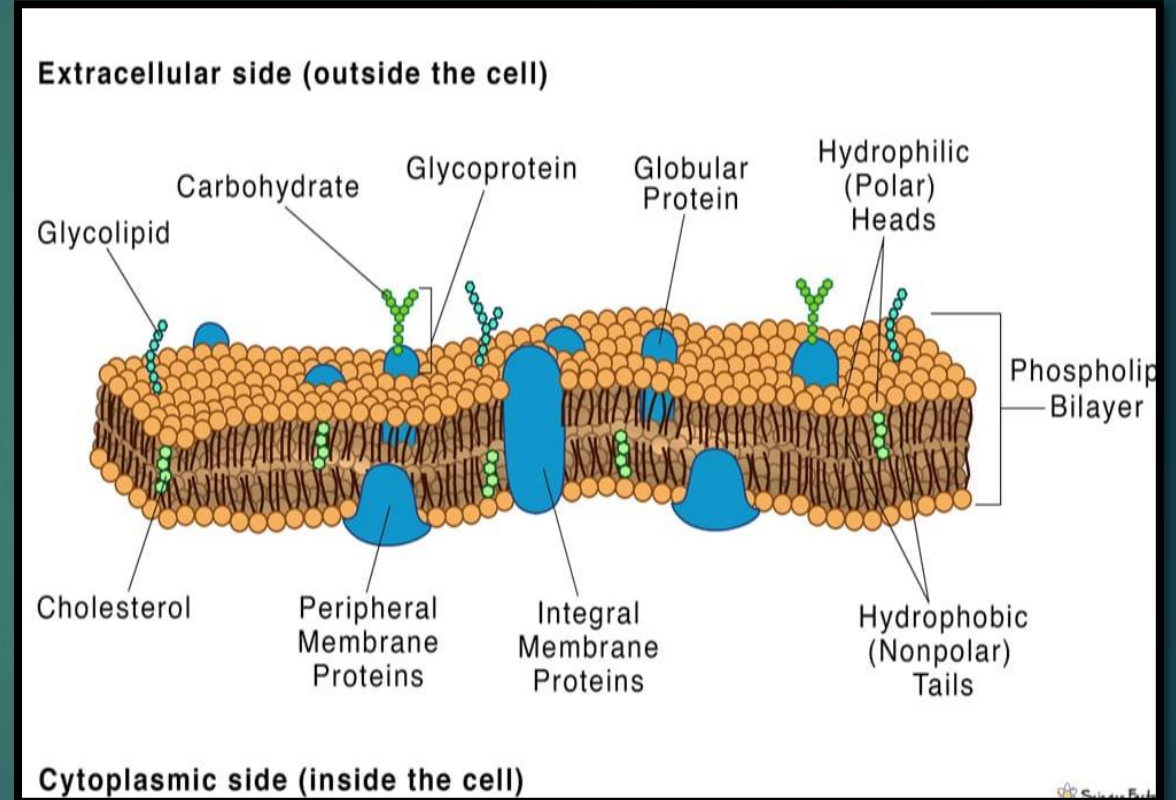


Fig: Cell Membrane

CYTOPLASM

- Present both in plant and animal cells.
- Cytoplasm is one of the essential components of the cell, where all the cell organelles are embedded.
- Jelly-like substances, found between the cell membrane and nucleus.

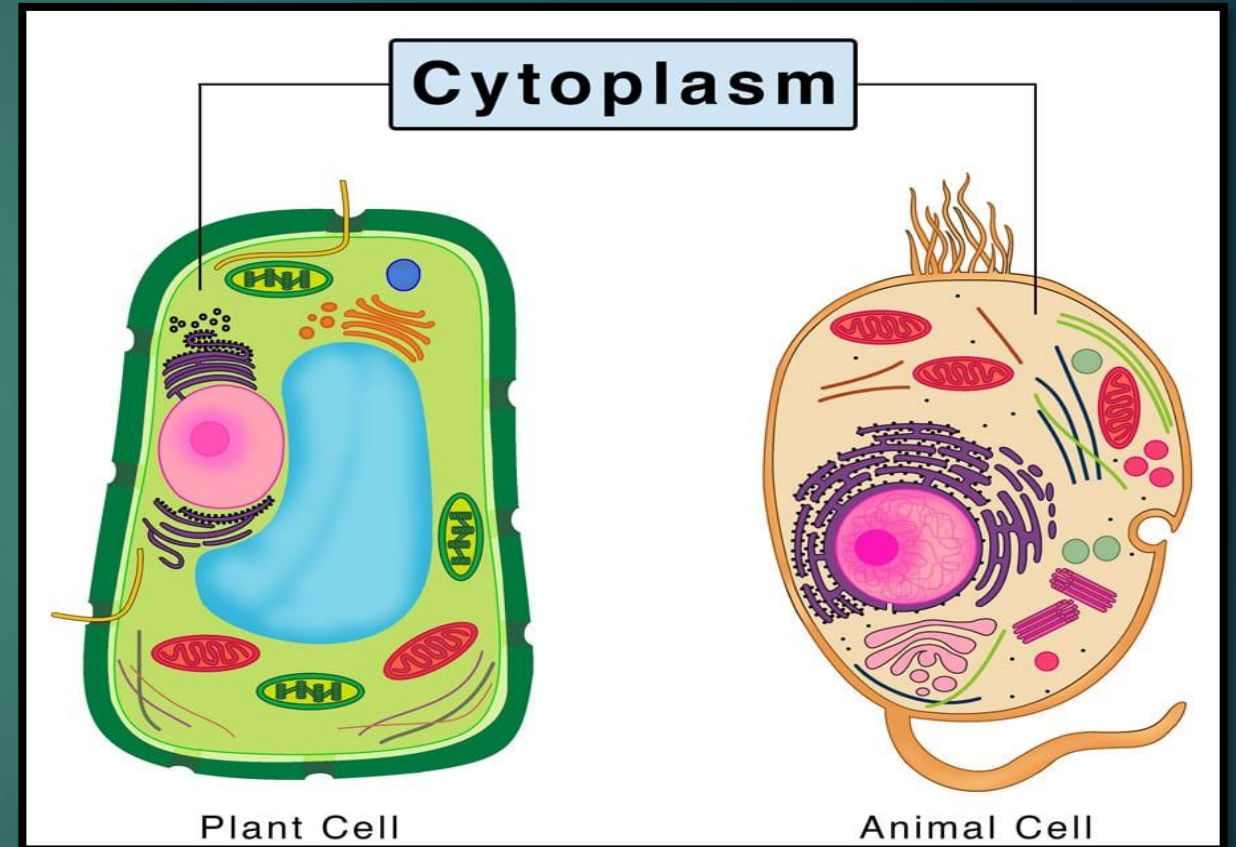


Fig: Cytoplasm

NUCLEUS

- **“Control center” of the cell.**
- **Double membrane structure present in all eukaryotic cells.**
- **Contains the genetic material (DNA).**
- **Separated from cytoplasm by nuclear membrane.**
- **The key function of the nucleus is to maintain the cell and its metabolic activities.**

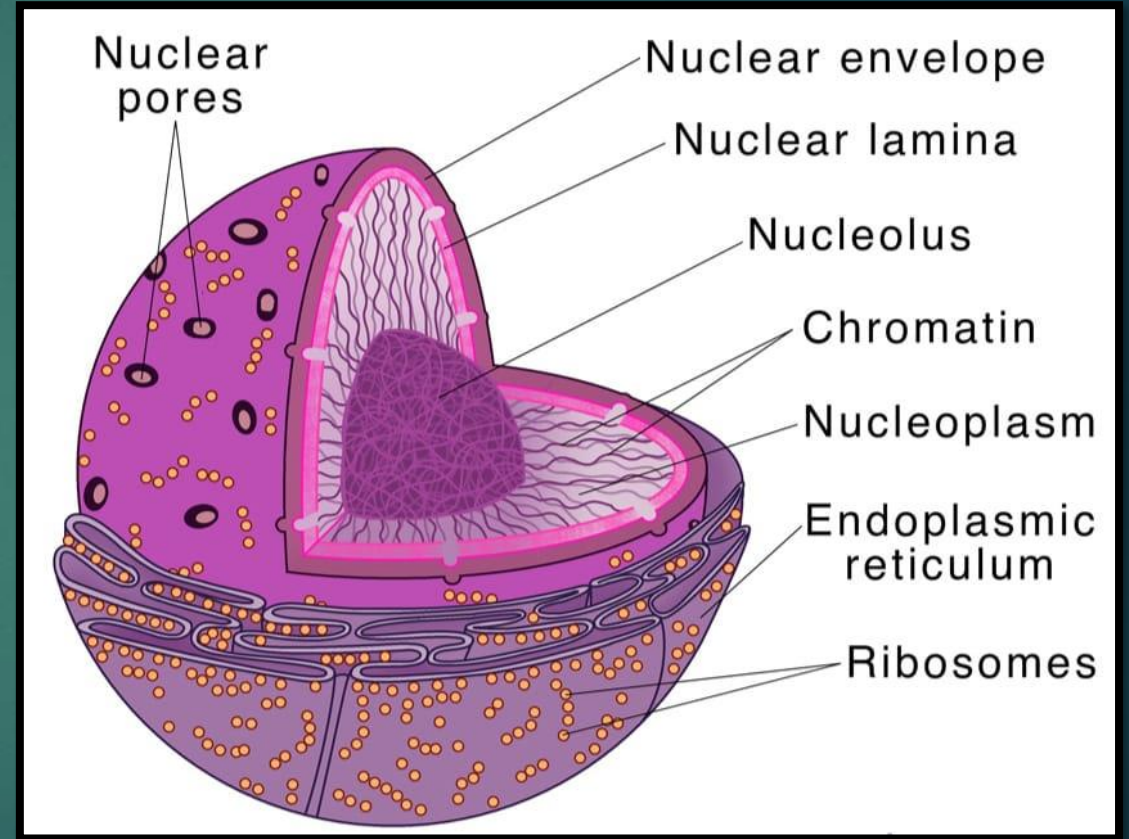


Fig: Nucleus

ENDOPLASMIC RETICULUM (ER)

- Double membrane bound interconnected network of flattened sacs or tubes. These tubes are known as cisternae.
- Connected to nuclear membrane.
- Two types-
 - **Rough ER:** studded with ribosomes; it makes proteins.
 - **Smooth ER:** no ribosomes; it makes lipids.
- They help to transport various proteins and enzymes in the cell or outside the cell.

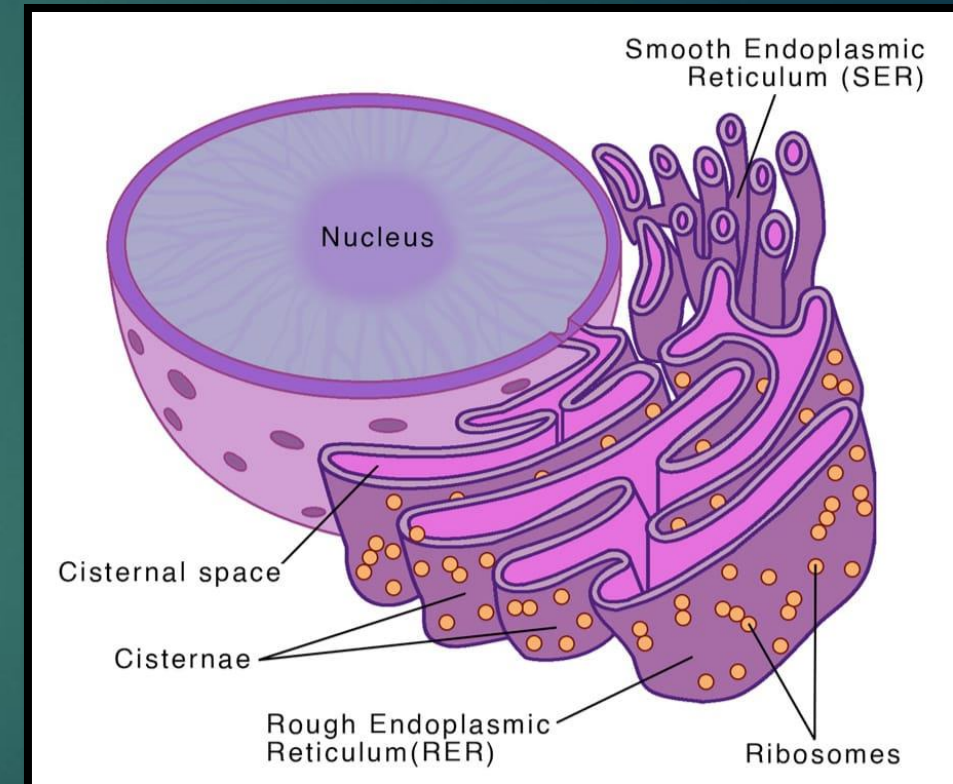


Fig: Endoplasmic Reticulum

RIBOSOMES

- Site of protein synthesis.
- Found attached to the rough ER or floating free in cytosol.
- Composed of RNA and ribosomal proteins.
- Ribosomes can be of 2 types i.e. 70s present in prokaryotic cells and 80s in a eukaryotic cell.
- Both ribosomes are composed of 2 subunits large and small subunit.

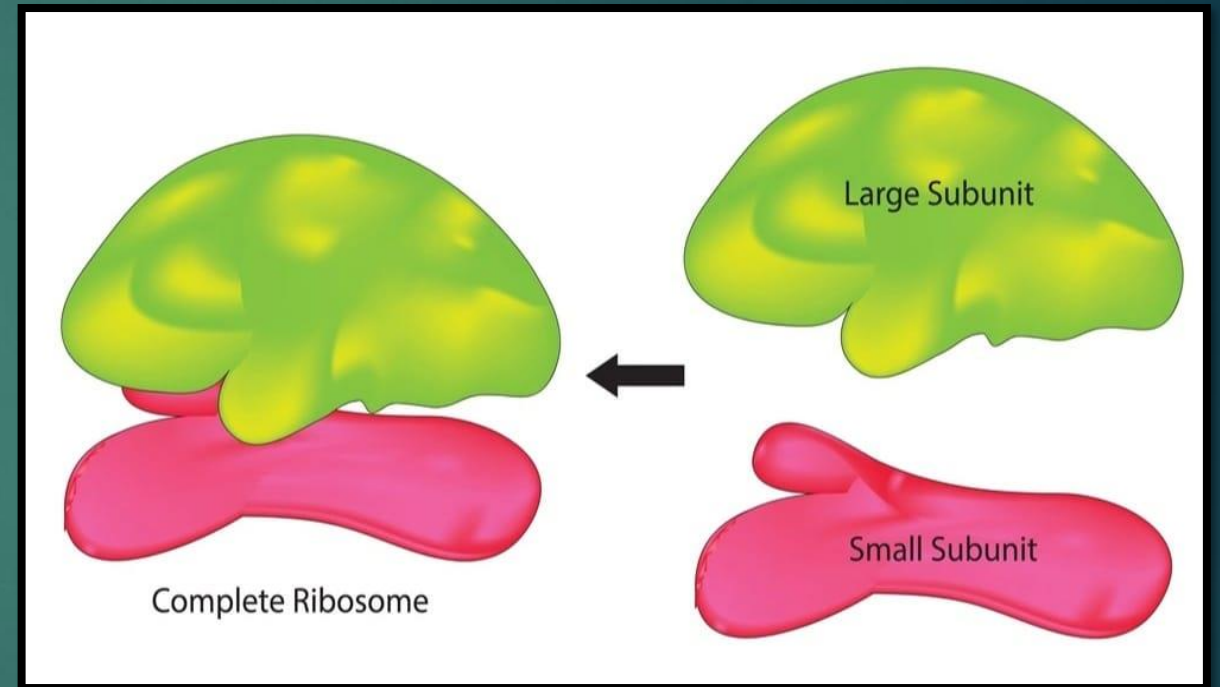


Fig: Ribosomes

MITOCHONDRIA

- 'powerhouse of the cell'.
- Cellular respiration occurs here to release energy(ATP) for the cell to use.
- Double membrane structure present in all eukaryotic cells.
- Has its own strand of DNA.

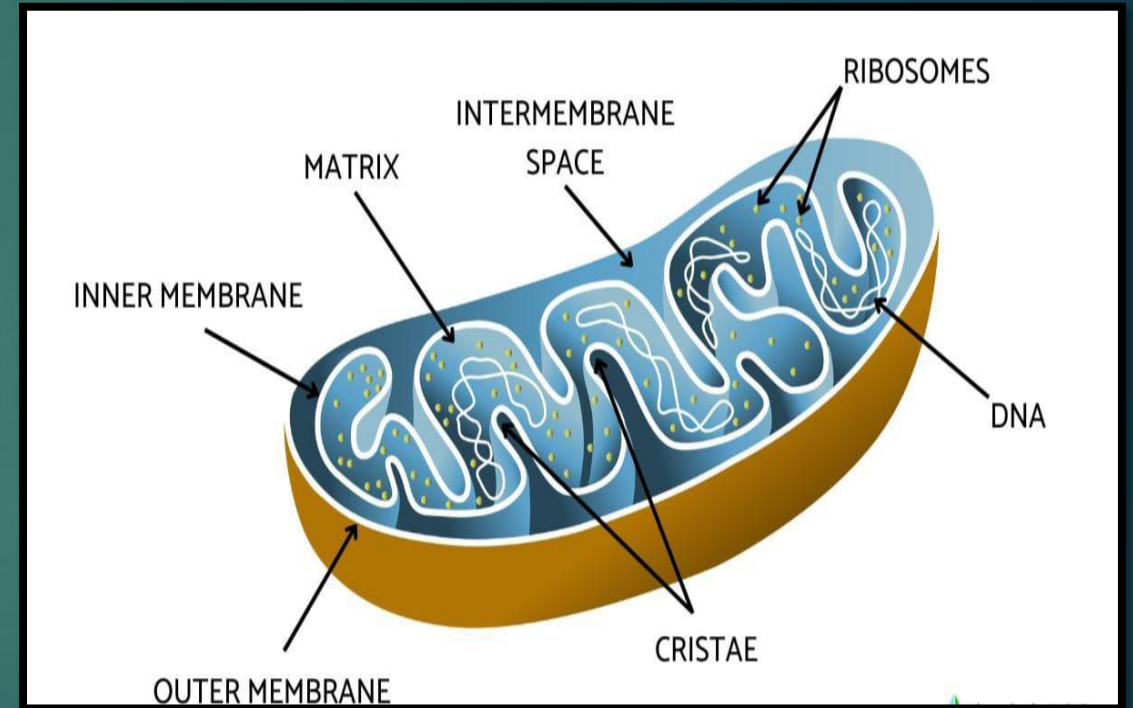


Fig: Mitochondria

GOLGI APPARATUS

- Protein packaging and transport center of cell.
- Membrane-bound organelle form of flattened stacked pouches known as cisternae.
- Present in both plant and animal cells.
- Helps in transporting the cargo, modifications, targeting, and packaging of proteins and lipids to the target site.

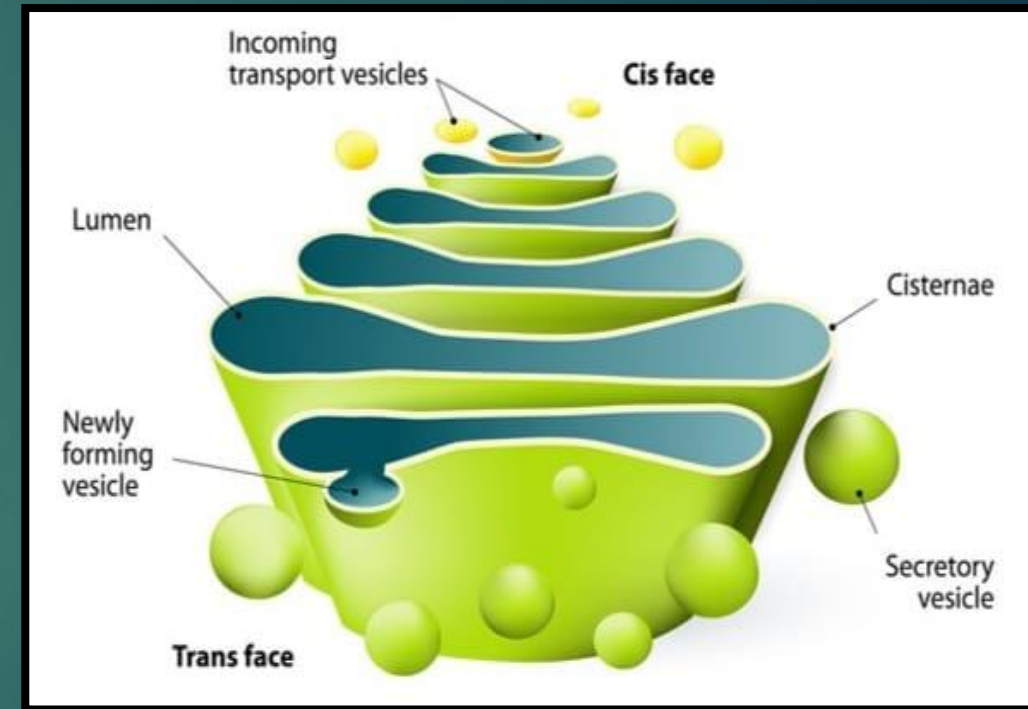


Fig: Golgi Apparatus

LYSOSOMES

- Also known as ‘suicidal bag’.
- Small, spherical, oval bodies surround single layer.
- Garbage disposal of the cell.
- Contains digestive and hydrolytic enzymes that break down wastes.

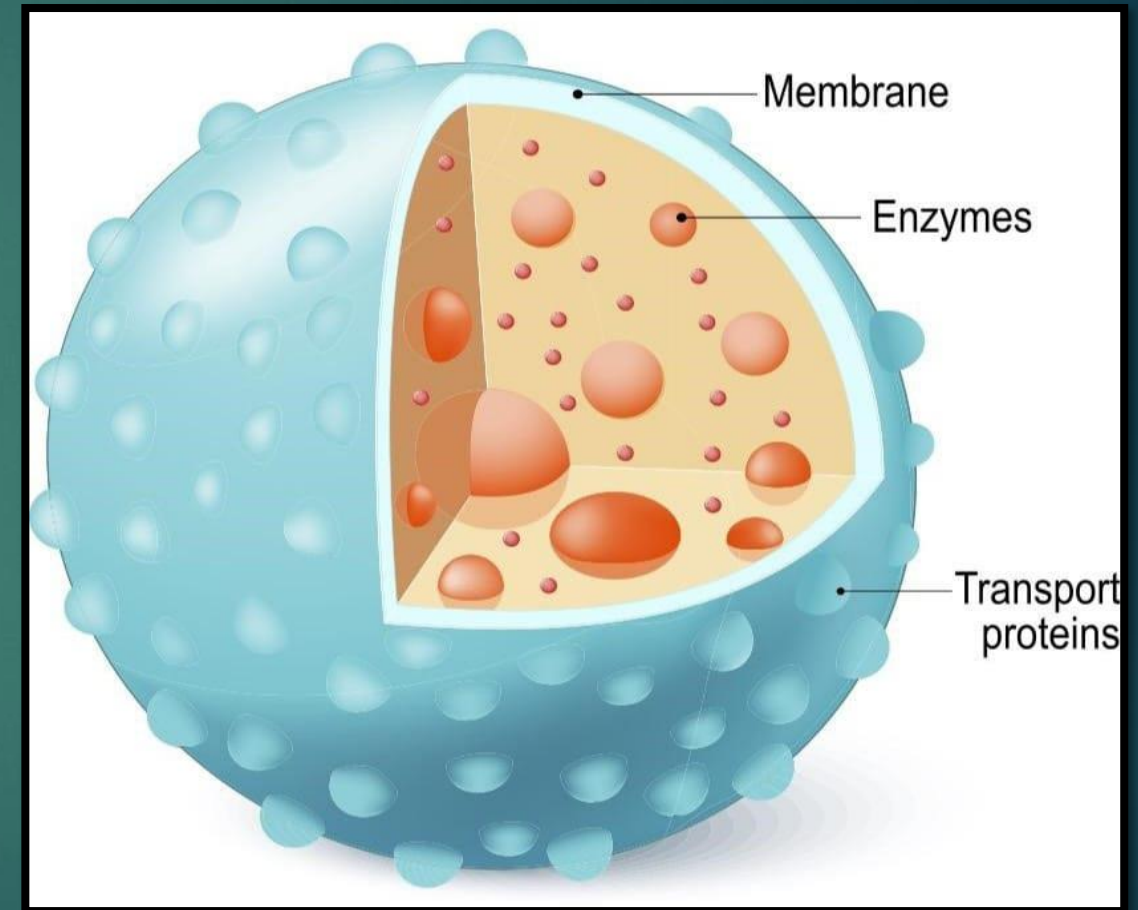


Fig: Lysosomes

VACUOLE

- Membrane bound sacs.
- Usually much larger in plant cells.
- Many smaller vacuoles in animal cells.
- Used to store water, food or waste. In plant cells, they help keep the plant from wilting.

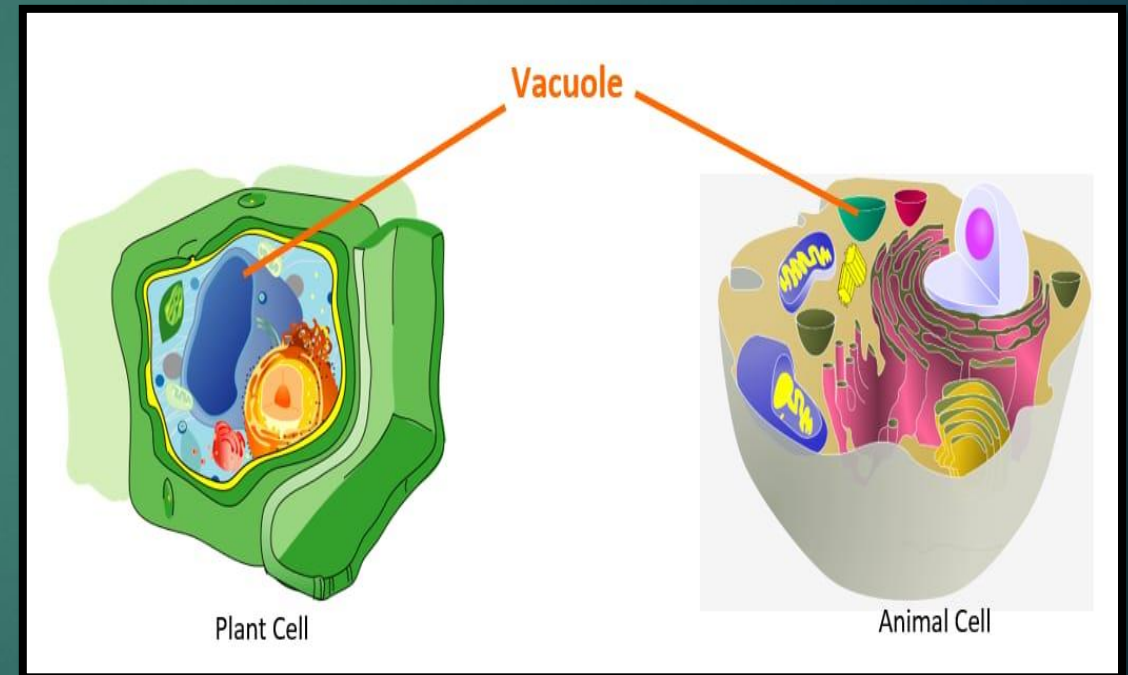


Fig: Vacuole

CHLOROPLAST

- Usually found in plant cells.
- Contains green pigment chlorophyll.
- Where photosynthesis takes place.
- Produces plant food (sugars) and oxygen gas.

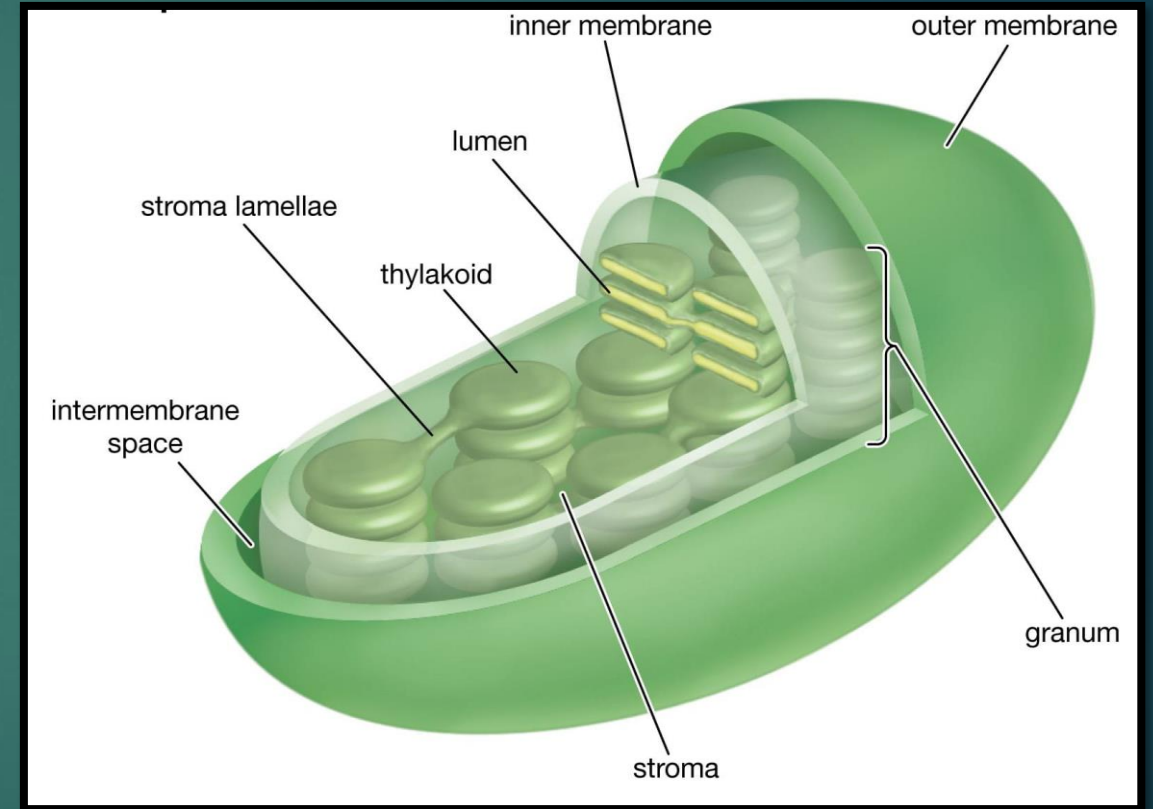


Fig: Chloroplast

CENTROSOME

- Consists of a pair of centriole that are arranged perpendicular to each other.
- Found only in animal cells.
- Self-replicating
- Made of bundles of microtubules.
- Help in organizing cell division.

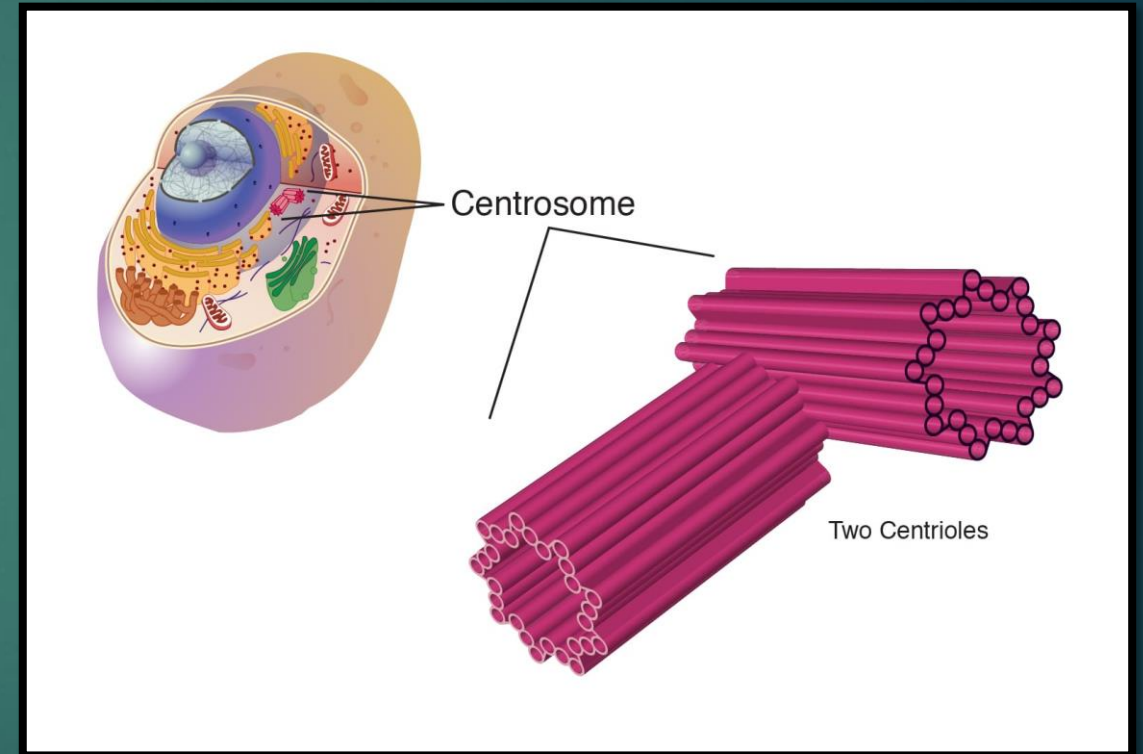


Fig: Centrosome & Centrioles

CILIA & FLAGELLA

- Cilia and flagella.
- External appendages from the cell membrane that aid in locomotion (movement) of the cell.
- Cilia also help to move substance past the membrane.

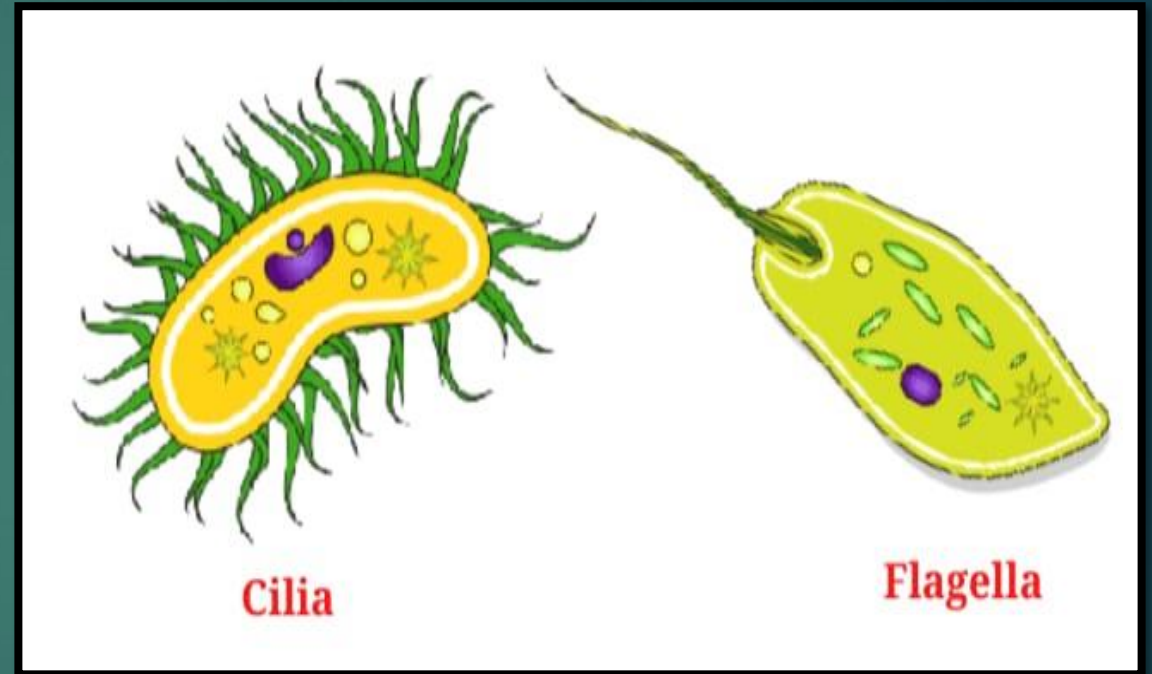


Fig: Cilia & Flagella

CYTOSKELETON

- The cell's skeleton.
- Proteinaceous structure that is present from the cell membrane to the nucleus.
- Acts as a skeleton and muscle.
- Made of microtubules and filaments.
- Give the cell shape, strength and ability to move.

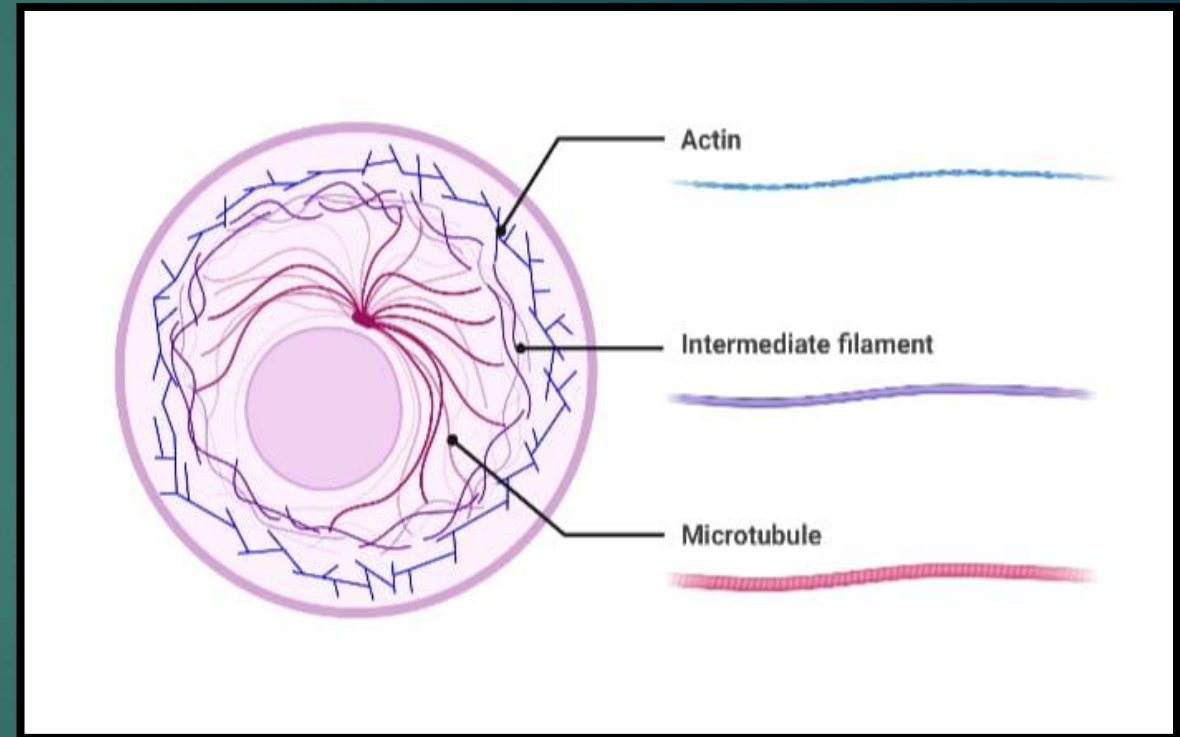


Fig: Cytoskeleton



From above discussion it can be strongly concluded that cell organelles are fundamental structures within cells, each designed to carry out specialized functions essential for the survival of the cell. There are various types of cell organelles in animal and plant cells. Cell organelles are membrane-bound structures that are responsible for carrying out various cellular processes such as energy production, protein synthesis, and waste disposal.

THANK YOU