SIBOL

Science–Infused Biology Online Learning

Let's Study!

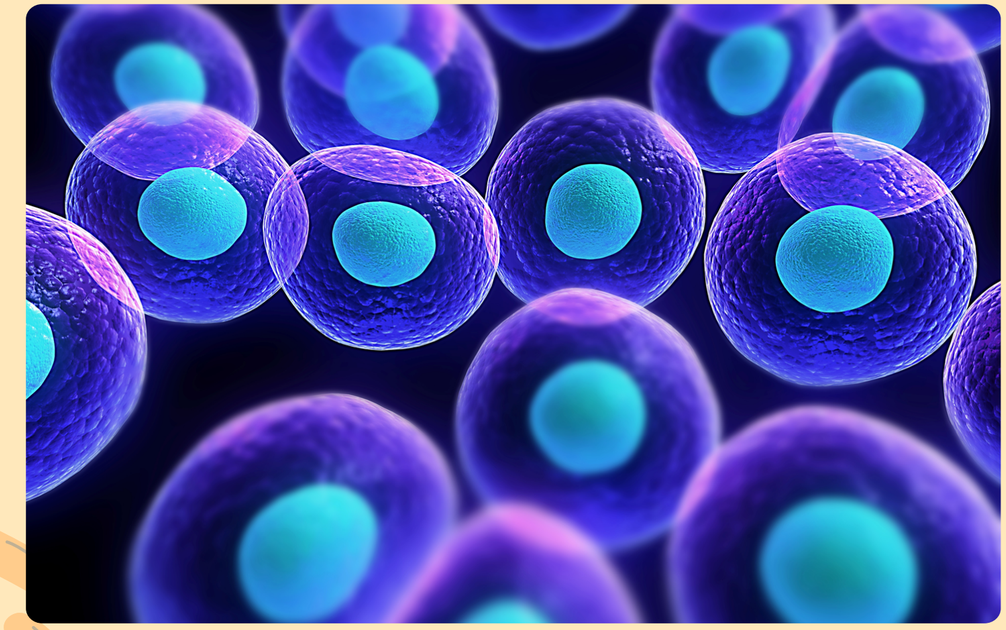
Cell Structures and Function

Prepared by:

SIBOL

Science-Infused Biology Online Learning

CELL



- A cell is the smallest unit that is capable of performing life functions

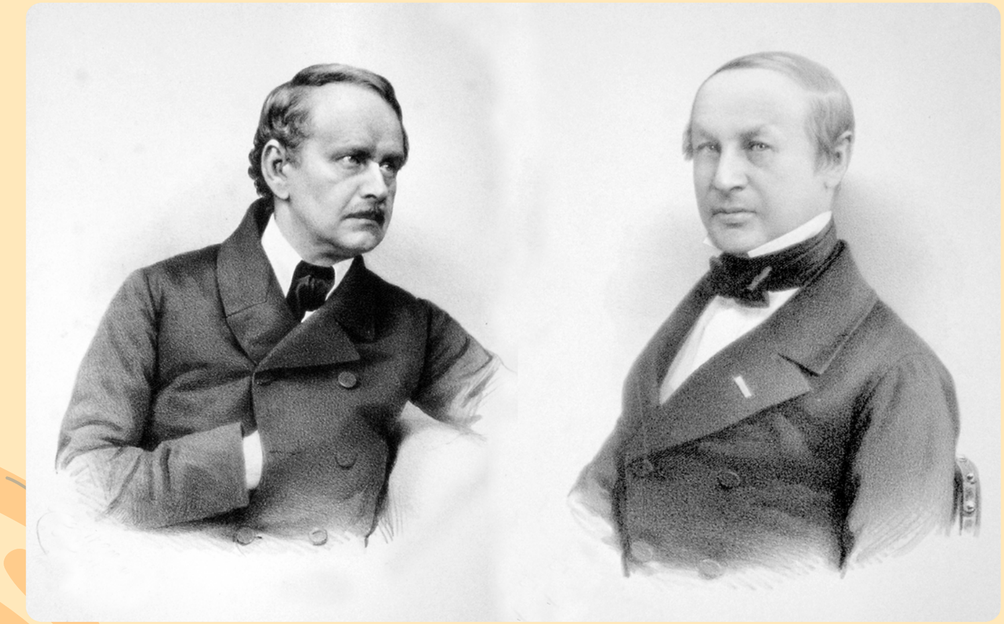
Microscopes and Cells

- 1600's. – Anton van Leeuwenhoek first described living cells as seen through a simple microscope.

Microscopes and Cells

- Robert Hooke first used a compound microscope to view thinly sliced cork cells.
- Compound scopes use a series of lenses to magnify in steps.
- Hooke was the first to use the term “cell”.

Microscopes and Cells



- 1830's. – Mathias Schleiden identified the plant cells and concluded that all plants are made of cells.
- Theodor Schwann made the same conclusion about animal cells

Cell Theory

- All living things are made up of 1 or more cells.
- Cell is the basic unit of life in all living things.
- All cells come from pre-existing cells through cell division.

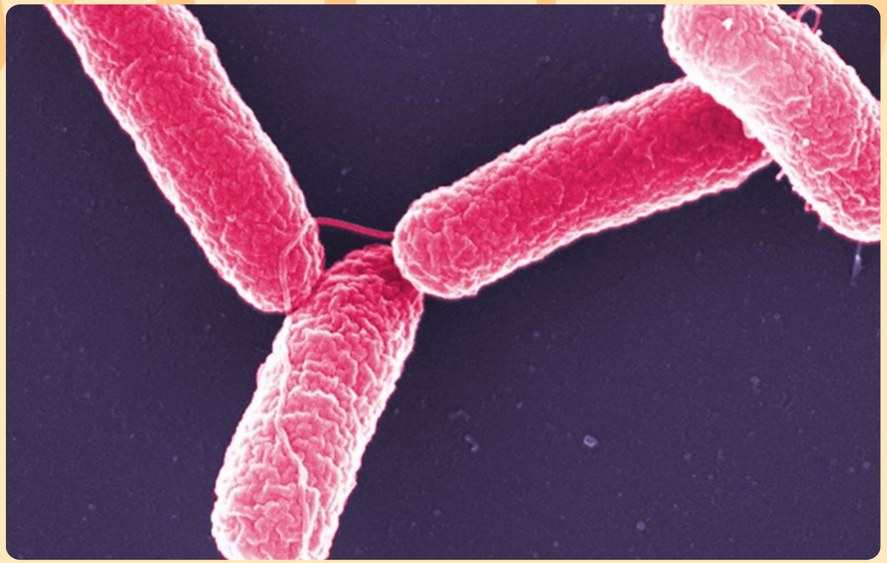
Number of Cells

Organisms may be:

- Unicellular – composed of 1 cell

<u>OR</u>

- Multicellular – made of many cells



Cells can be Eukaryotic or Prokaryotic

Prokaryotes :

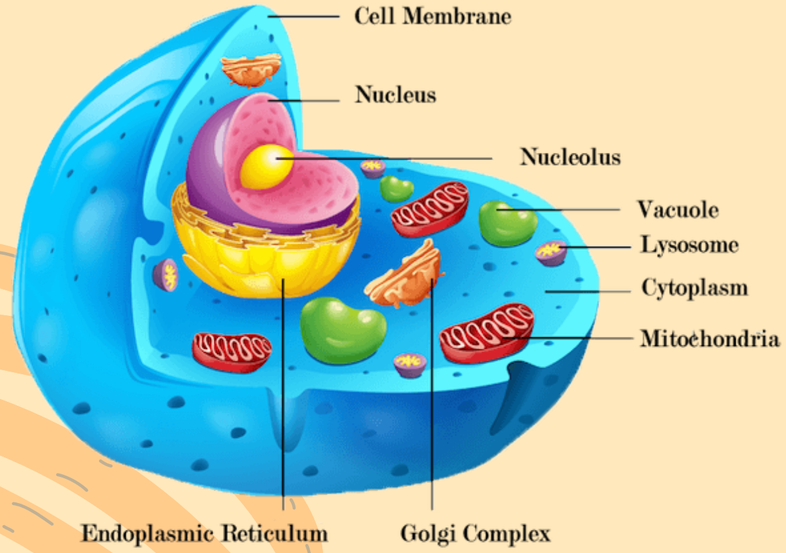
- Unicellular
- do not have a nucleus or organelles

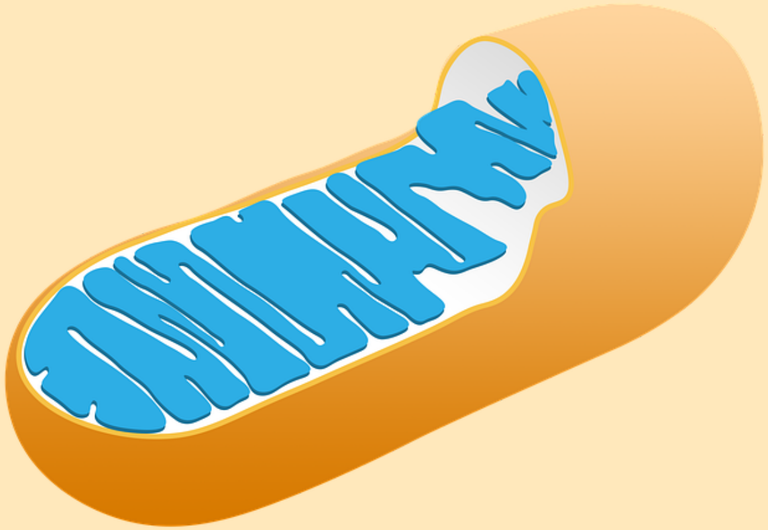
Eukaryotes:

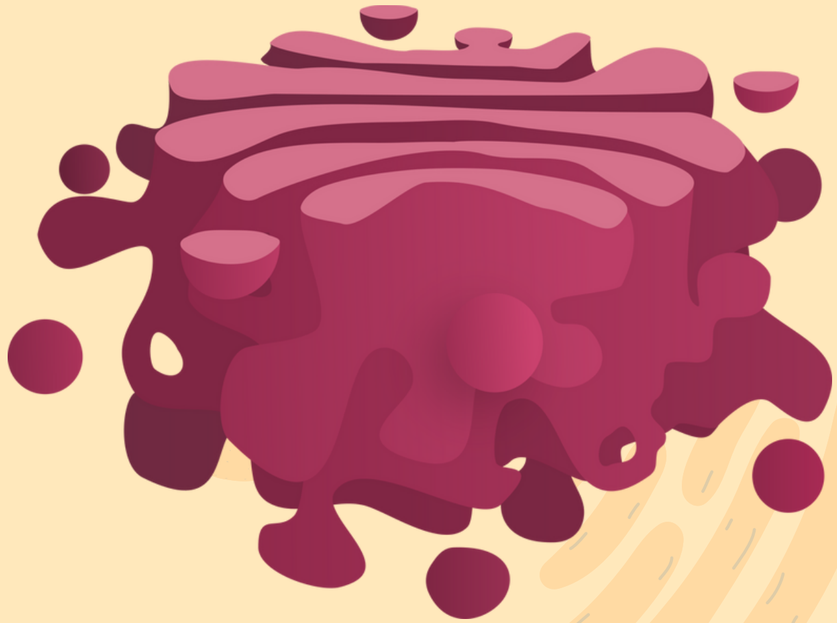
- Multicellular
- Can be found in animals, plants, protist and fungi
- Have a membrane-bound nucleus where their DNA IS STORED

Organelles

- Cell structures that have a specific function and are surrounded by a membrane that are found in eukaryotes only.







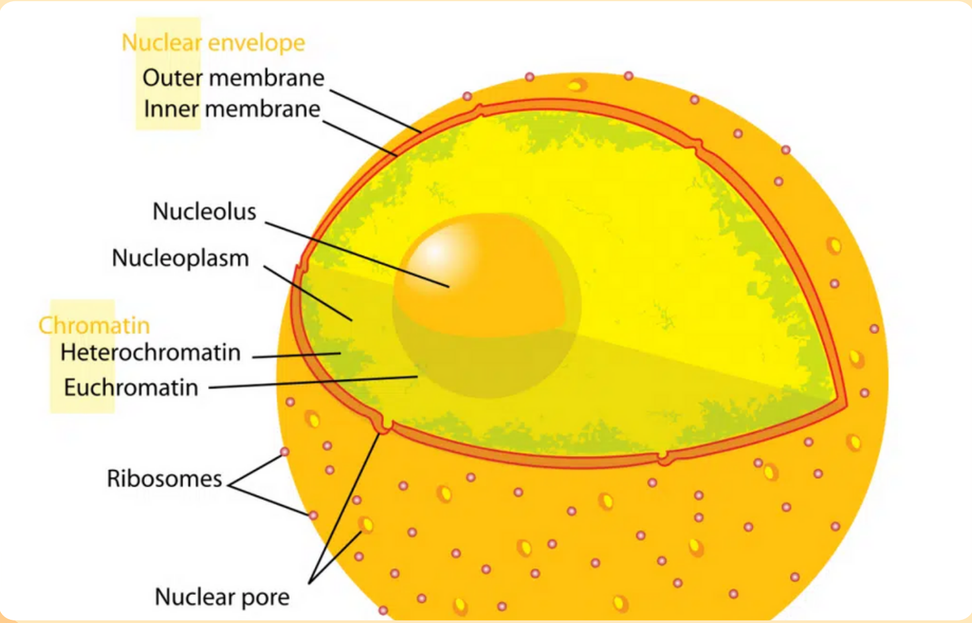
Three Principal Parts of the Cell

1.Nucleus

2.Cell Membrane

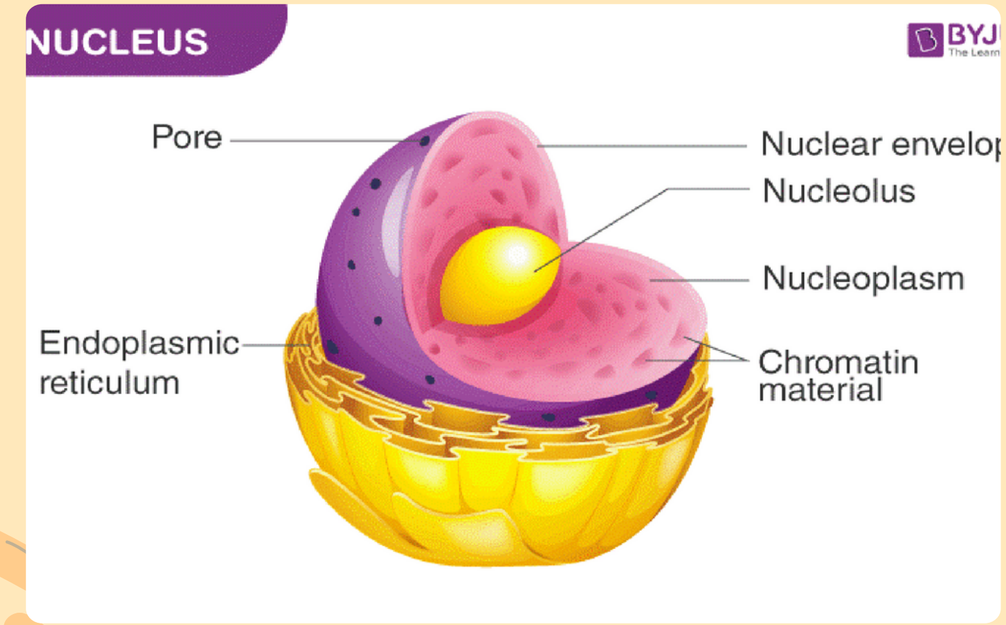
3.Cytoplasm

NUCLEUS



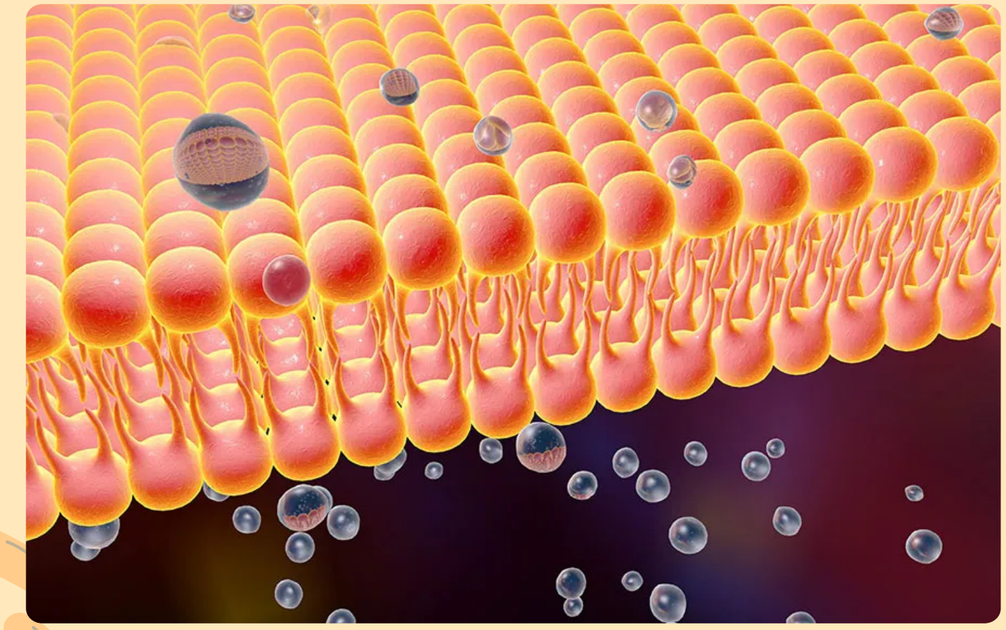
- Discovered by Robert Brown in 1883.
- The nucleus is covered with a membrane that allows materials to pass in and out.
- It is often called the "control center" of the cell because it contains DNA

NUCLEOLUS



- The nucleolus is the largest nuclear organelle and is the primary site of ribosome subunit biogenesis in eukaryotic cells.

CELL MEMBRANE

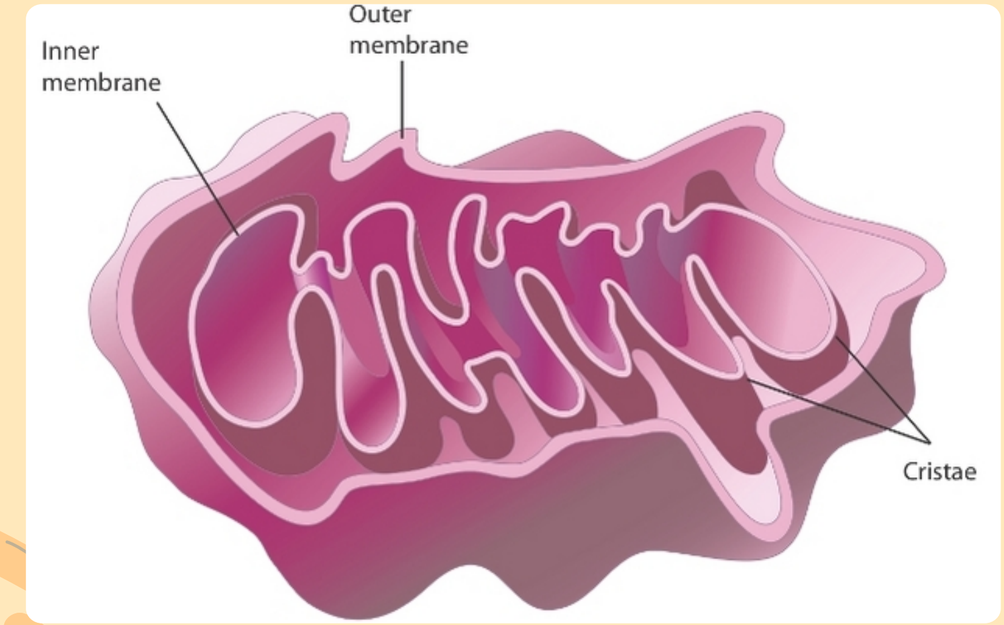


- Is a semi-permeable membrane that facilitate the movement of molecules inside and outside the plant or animal cell.

CYTOPLASM

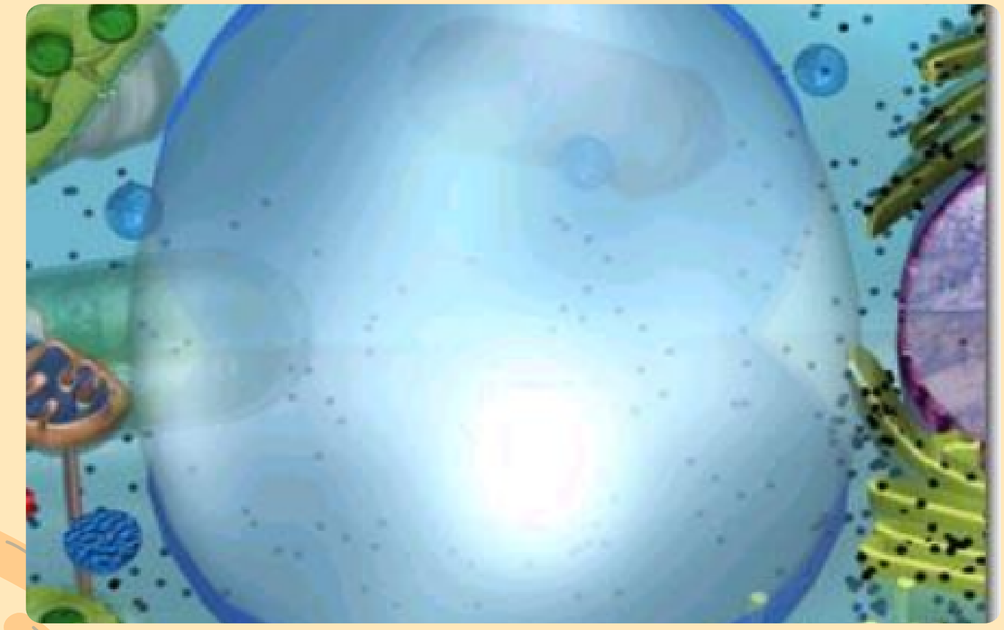
- Surrounded by cell membrane
- Is a viscous fluid or jelly like material where organelles are embedded.
- It's jelly like feature secures the organelles in plants and animals so that remain in space.

MITOCHONDRIA



- Are called “powerhouses” of cells produce much of energy a plant or animal cell needs to carry out its functions.
- Center of cellular respiration

VACUOLE



- Storage area of the cell. It store water, food, and waste.

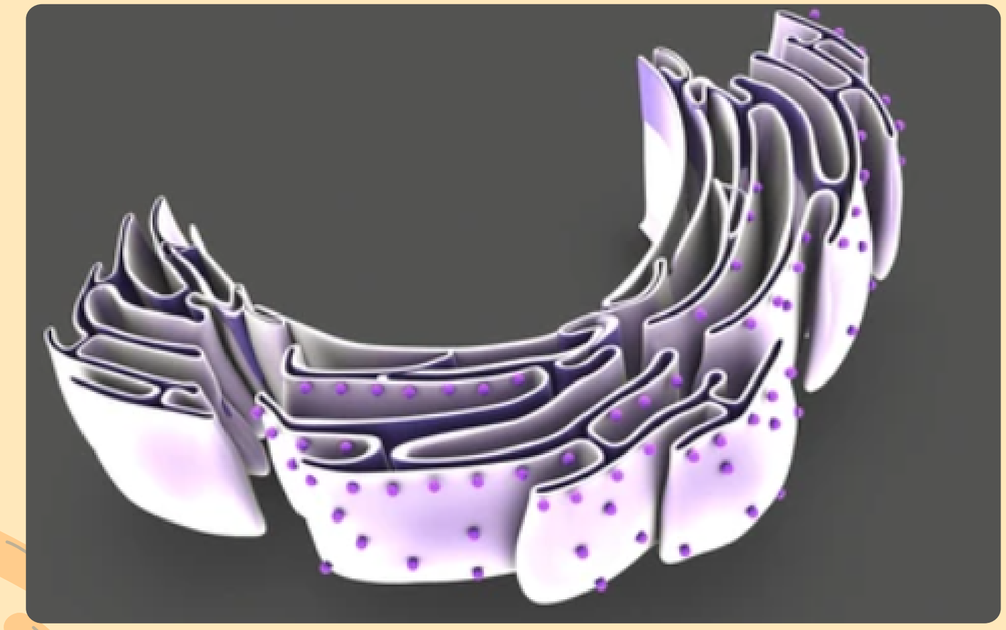
ENDOPLASMIC RETICULUM (ER)

- Is a series of tunnels throughout the cytoplasm.
- Transport proteins from one part of the cell to another.
- There are two types of ER: smooth and rough endoplasmic reticulum.

SMOOTH ENDOPLASMIC RETICULUM

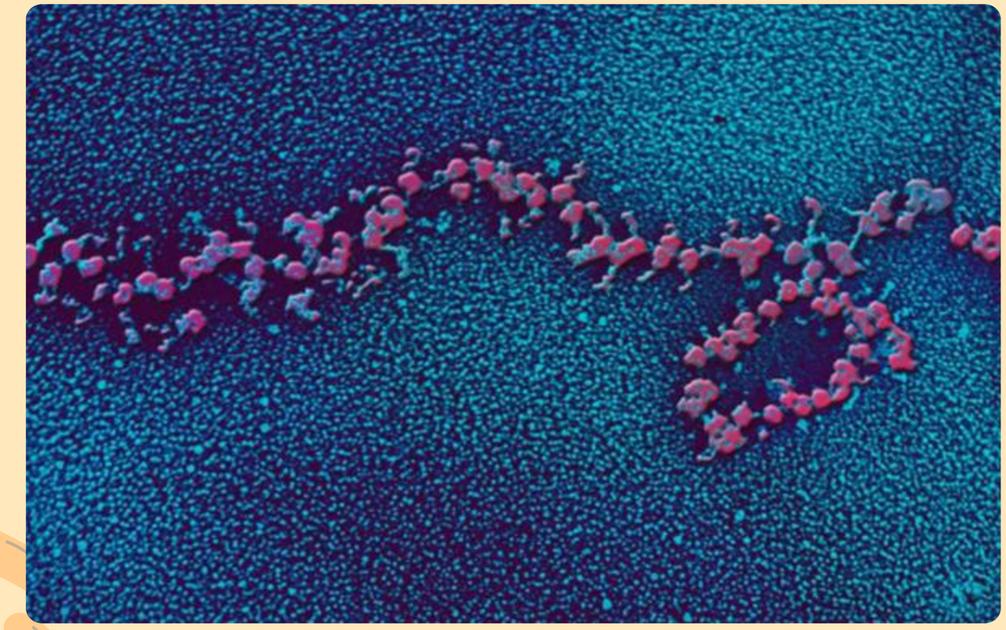
- ribosome free and function in detoxification of lipids.

ROUGH ENDOPLASMIC RETICULUM



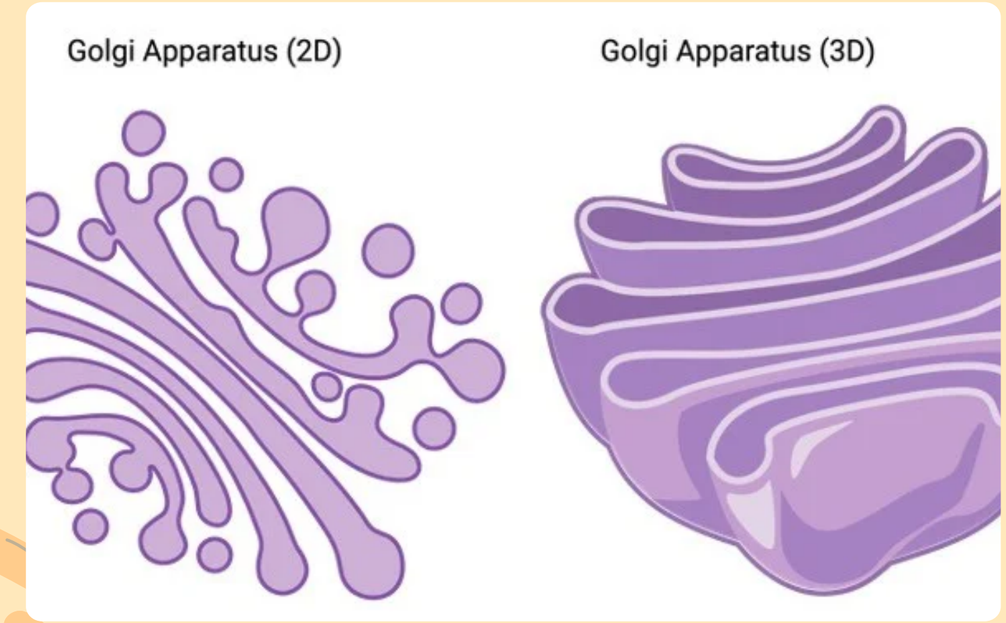
- contains ribosomes and releases newly made protein of the cell

RIBOSOMES



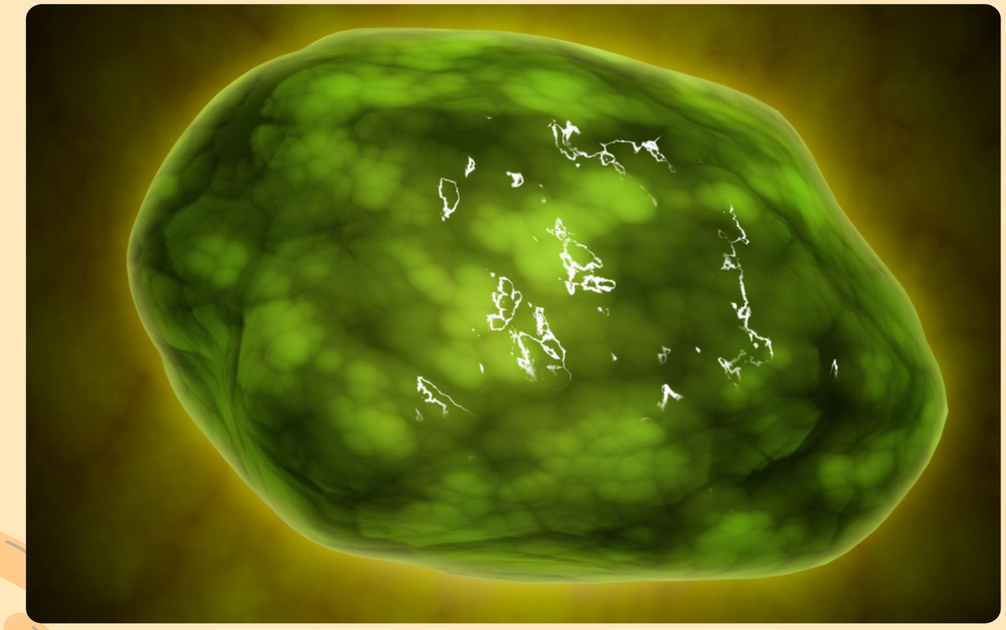
- Are “protein factories of the cell, all the functions and processes in plant and animal cell requires protein.

GOLGI BODIES



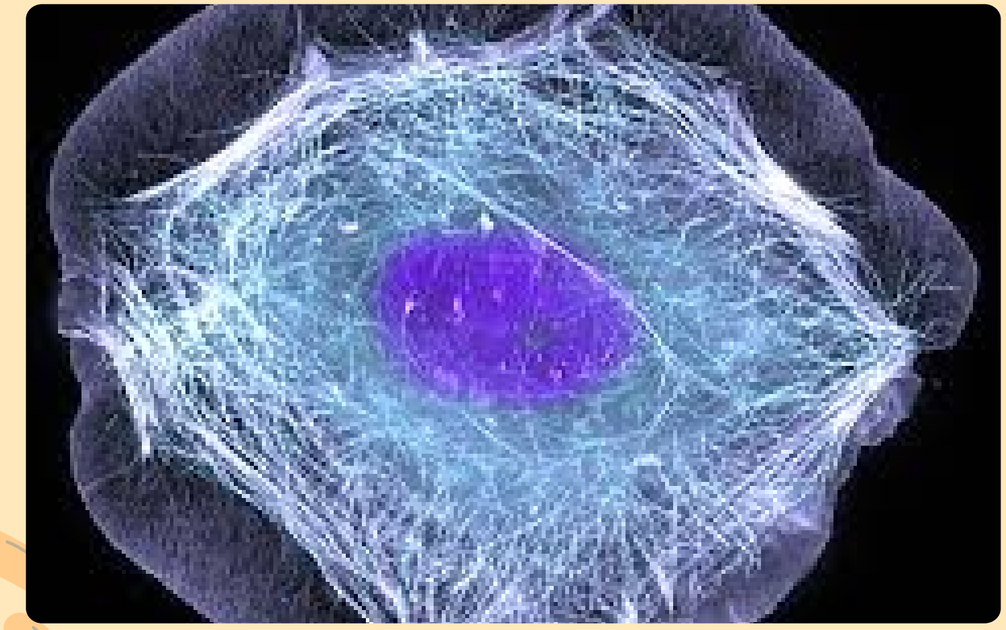
- Receive proteins and other compounds from ER. They package these materials and distribute them to the plant and animal part of the cell.

LYSOSOME



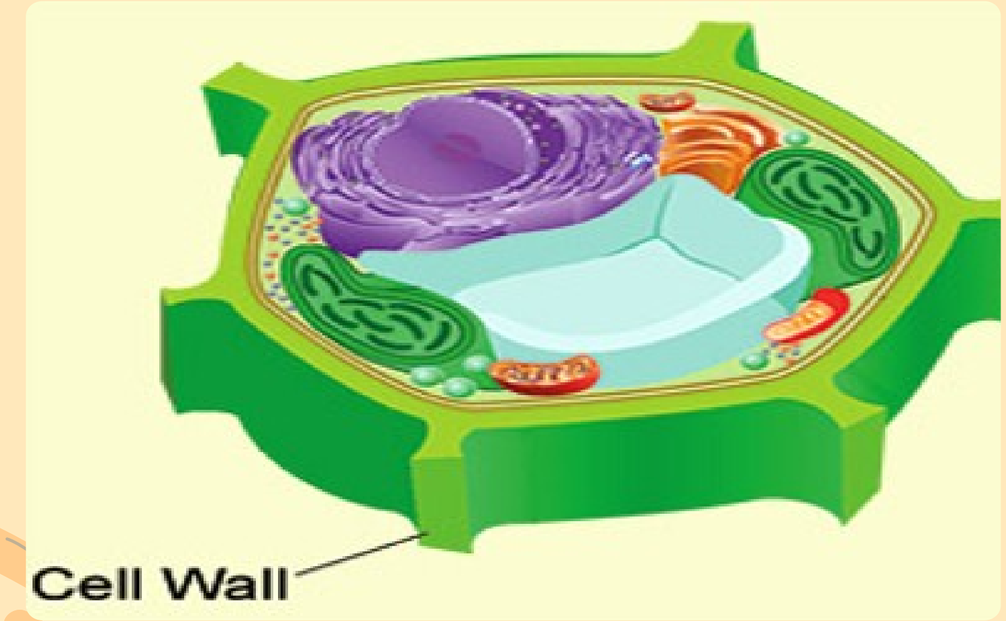
- Contains hydrolytic enzymes that can break things down.
- It picks up bacteria, food, and organelles in plant and animal cell and break them into small pieces that can be reused.

CYTOSKELETON



- Series of fibers made from proteins. It provides structure to the cell and gives it its shape.

CELL WALL



- The cell wall distinguishes plant cells from animal cells.
- Contains cellulose that provides support (rigidity) & protection

SIBOL

Science–Infused Biology Online Learning

That's All!