Human Biology
Typical Cell Structure

Lab : 1

Stage : 1st

Course : First

By Assistant lecturer

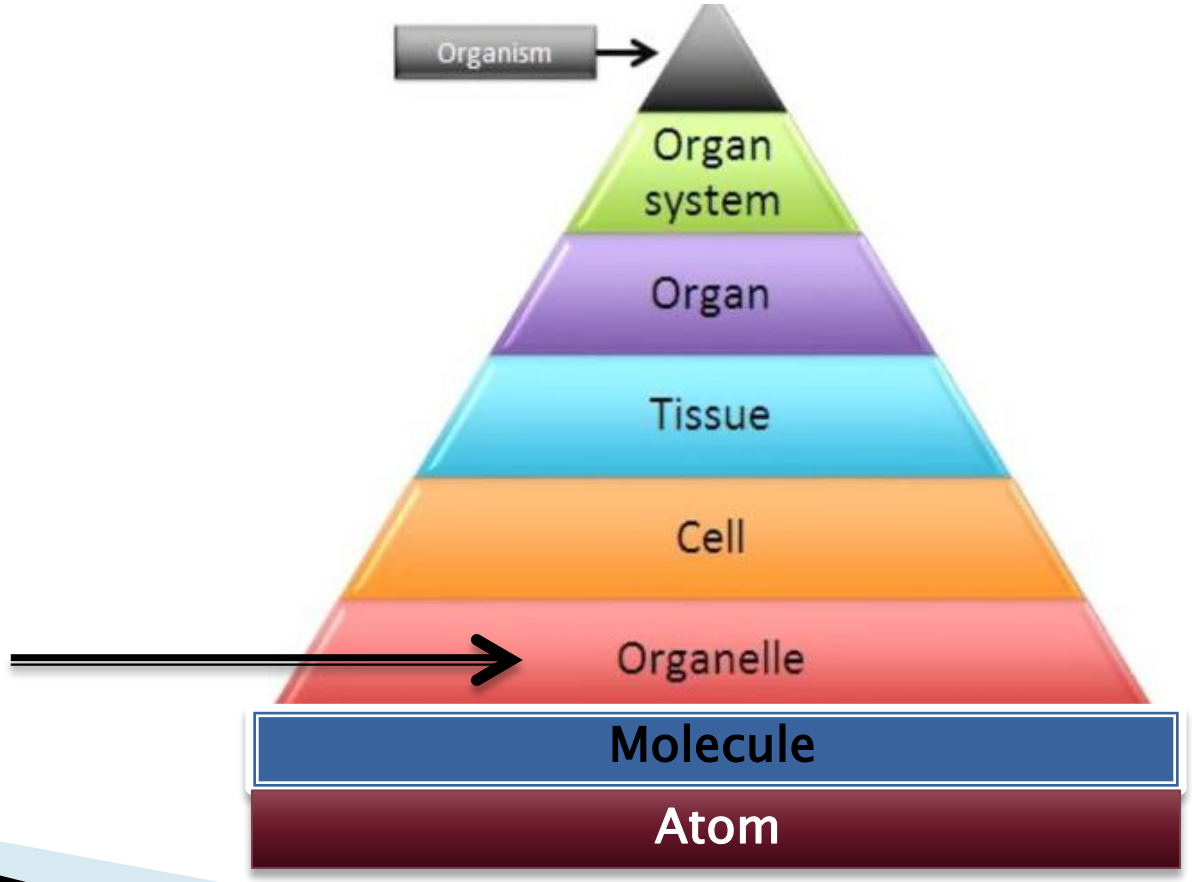
Huda Muhammed Muzher

Sarah Mussa Mahmood

Levels of Organization

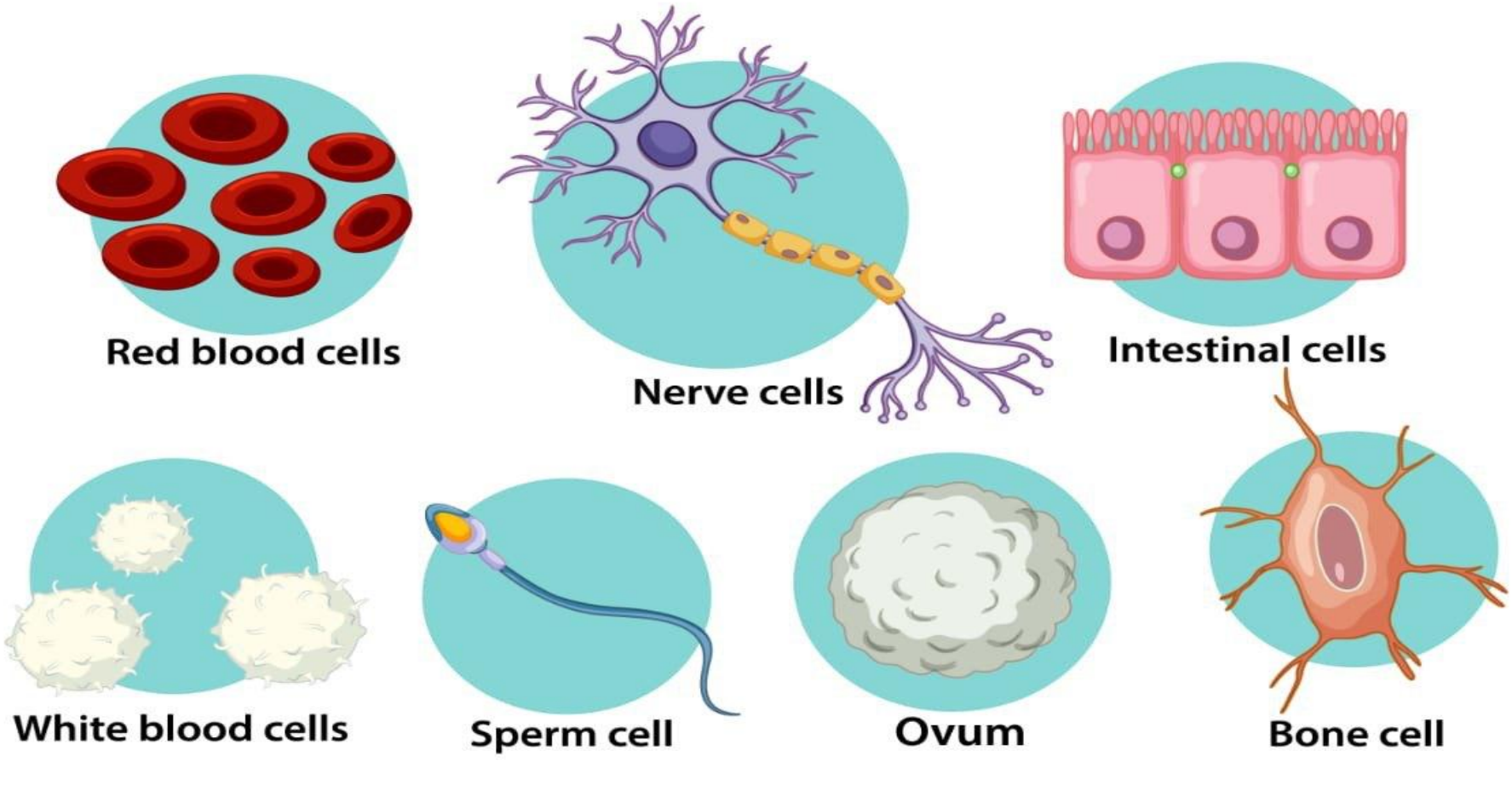
- There are levels of organization, it is called a hierarchy.

1- Atom
2- Molecules
3- Organelle
4- cell
5- Tissue
6- Organ
7- Organ System
8- Organism



Cells

- **Cells**: are the basic building blocks of all living things.



Cell Types

1- Prokaryotic cell

2- Eukaryotic cell including :

a-Plant Cell

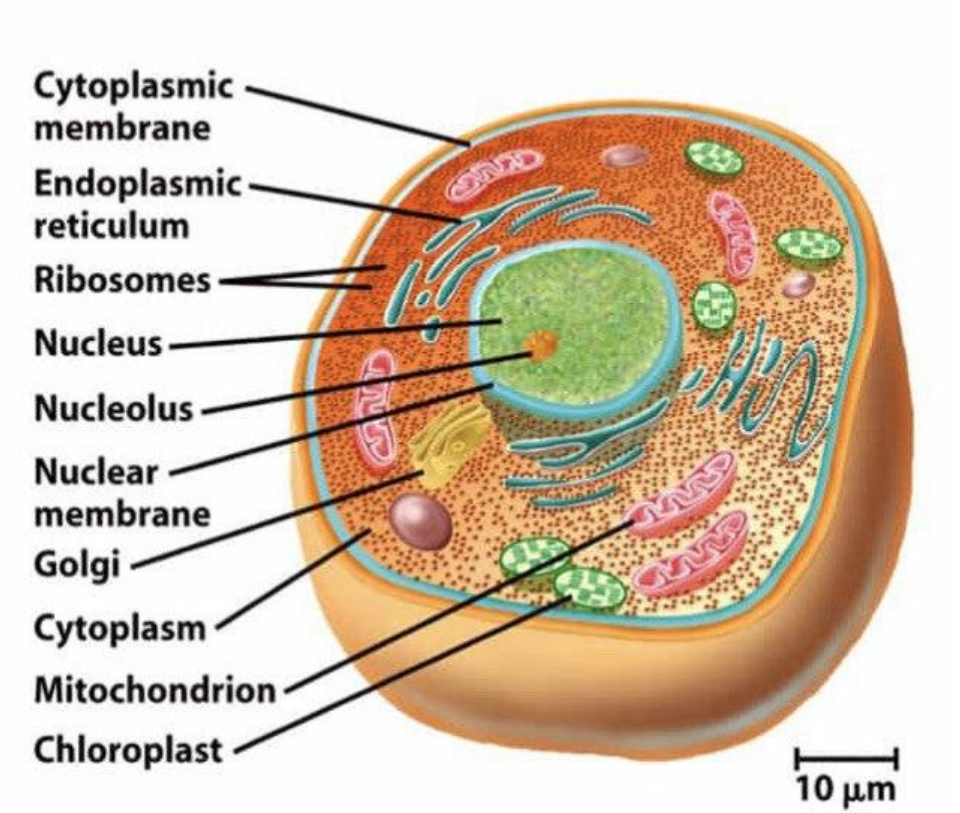
b-Animal cell

Prokaryotic cell

- Do not have nucleus, however, have DNA
- No membrane bound nucleus
- Organelles not bound by membranes
- Include Bacteria

Eukaryotic cells

- Surrounded by membranes
- Nucleus bound by membrane
- Including all of our body cells
- Have many organelles
- Eukaryotic cell is larger than Plant cell



Cell Structure

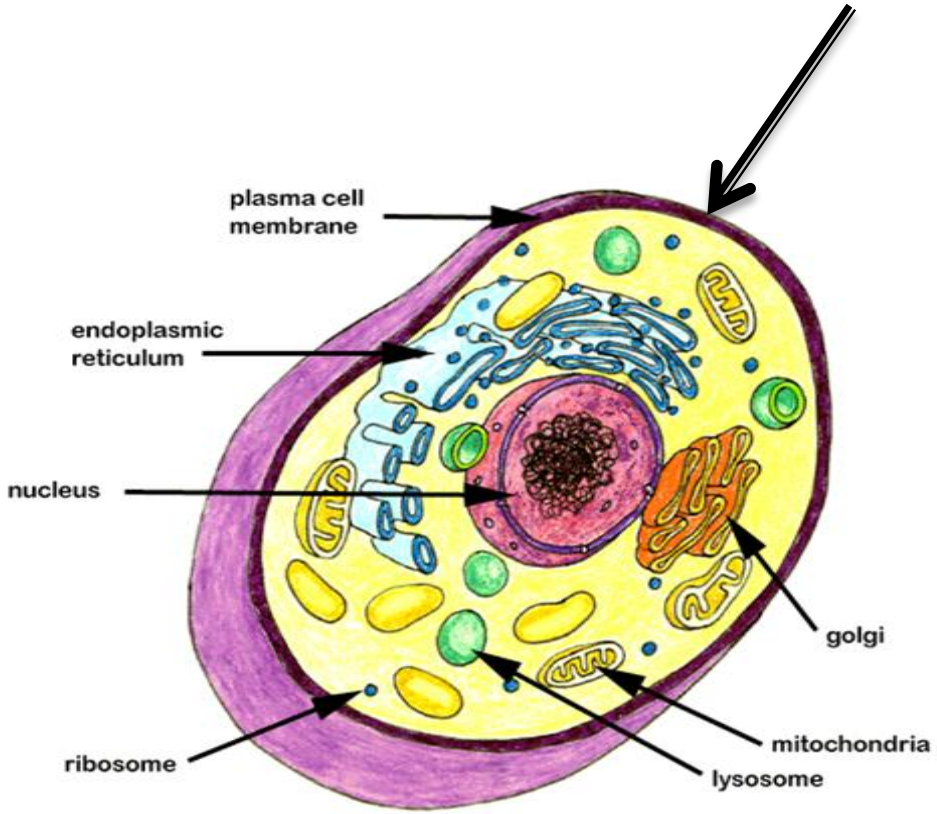
1-Surrounding the Cell

- Cell Membrane

2-Inside the Cell

1. Cytoplasm
2. Nucleus
3. Nucleolus
4. Nuclear Membrane
5. Mitochondria
6. Ribosomes
7. Endoplasmic reticulum
8. Golgi apparatus
9. Lysosomes
10. Vacuoles
11. Chloroplast (plants)

Cell Membrane or plasma membrane or cytoplasmic membrane



Structure:

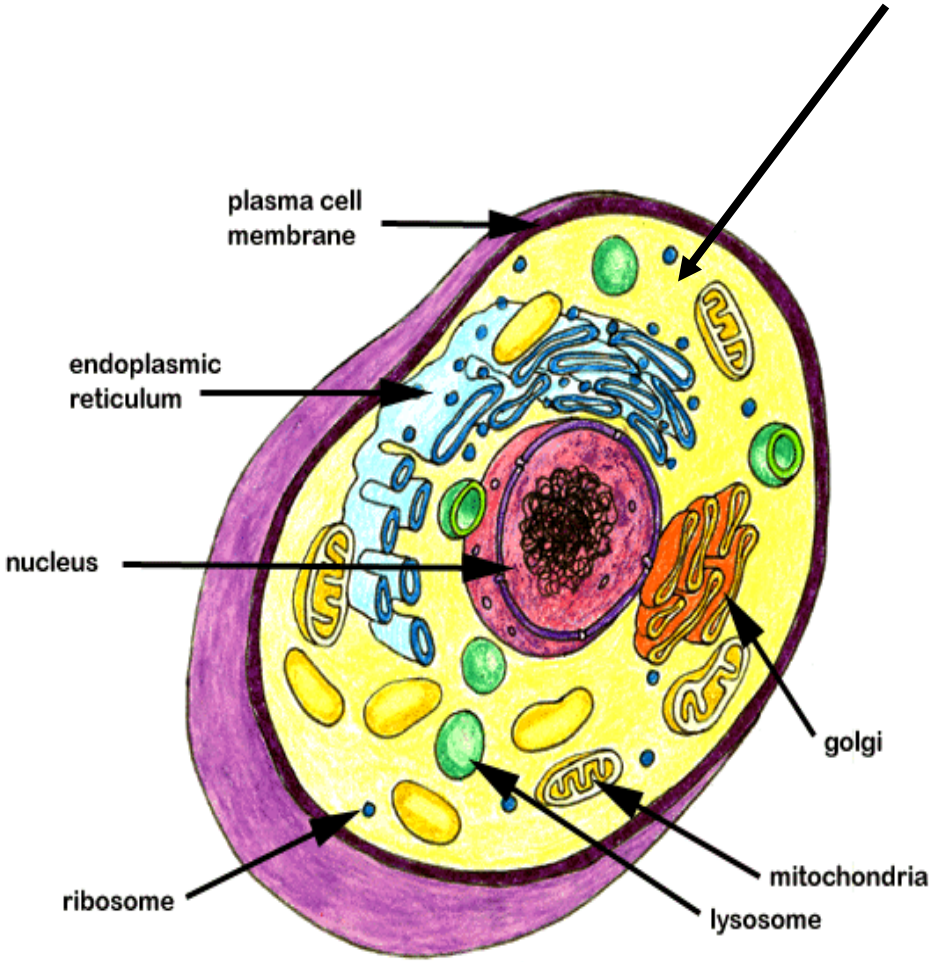
•Jelly-like fluid that Contains cell contents

•Double layer of phospholipids & proteins

Function (job):

•surrounds and protects the organelles.

Cytoplasm



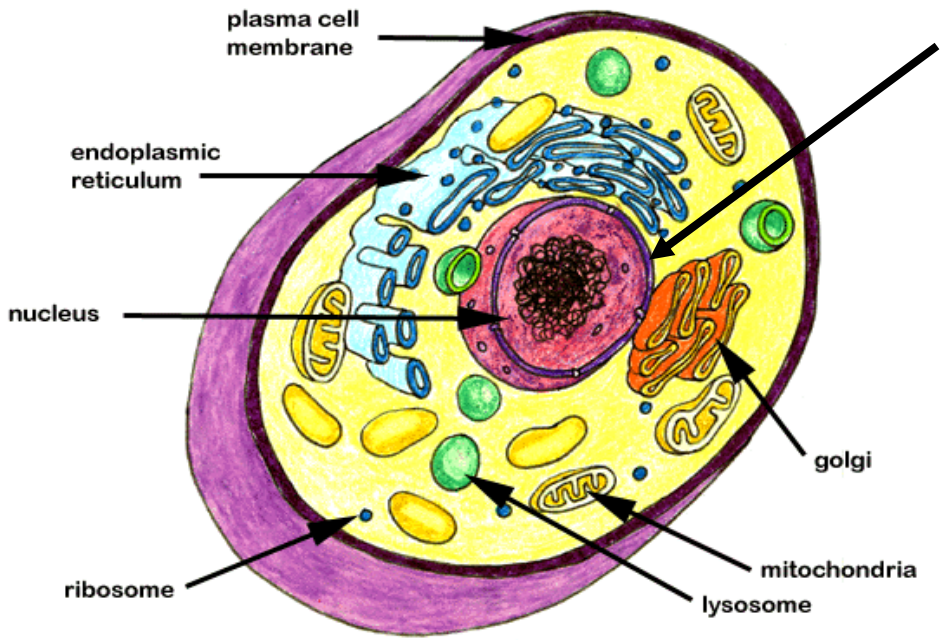
Structure:

•Viscous fluid containing organelles

Function (job):

•Protection the components of the cell from damage

Nucleus



Nucleus in the center

Structure:

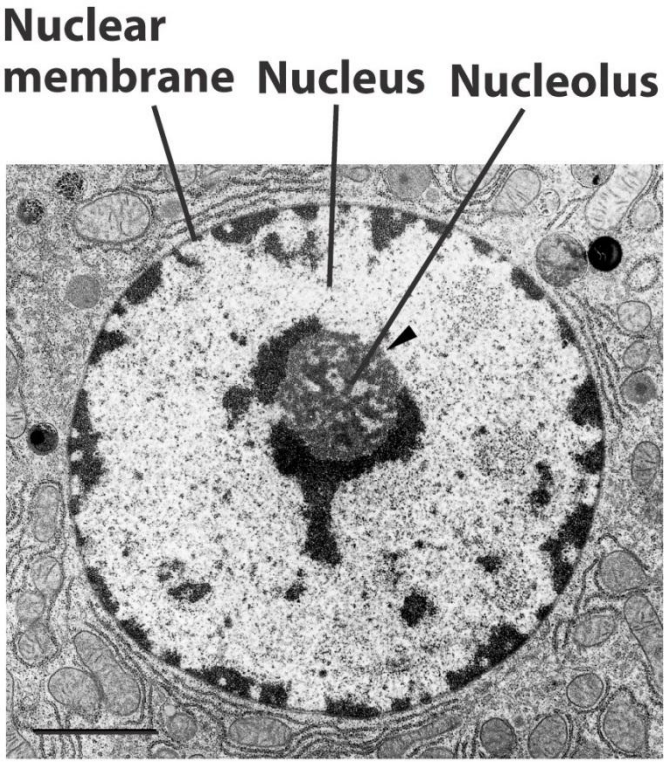
- Usually round/oval
- Near center
- Surround by nuclear membrane

Function (job):

- Contains genetic material DNA

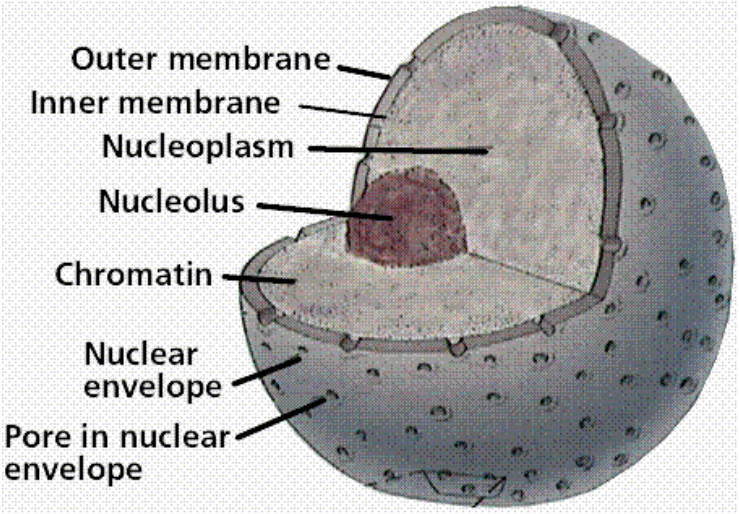
Nucleolus

- Most cells have 2 or more
- Forms ribosomes

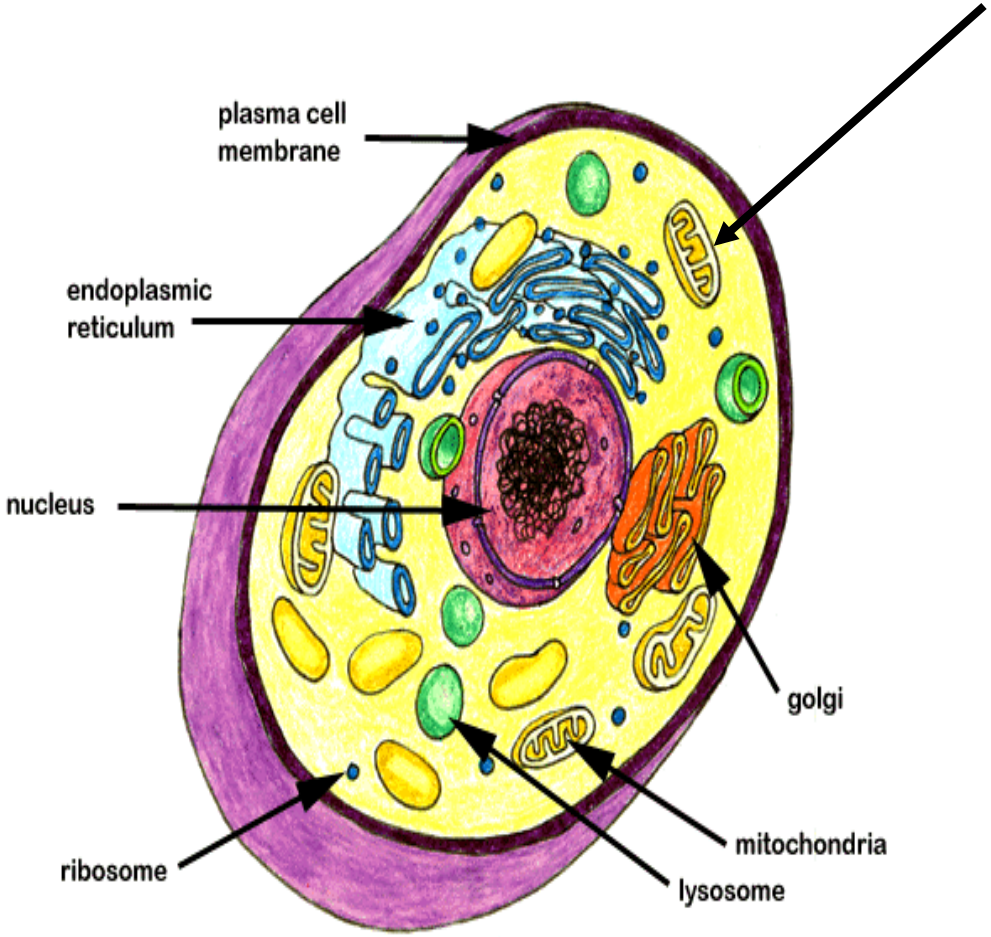


Nuclear Membrane

- Double membrane
- Surrounds the nucleus.



Mitochondria

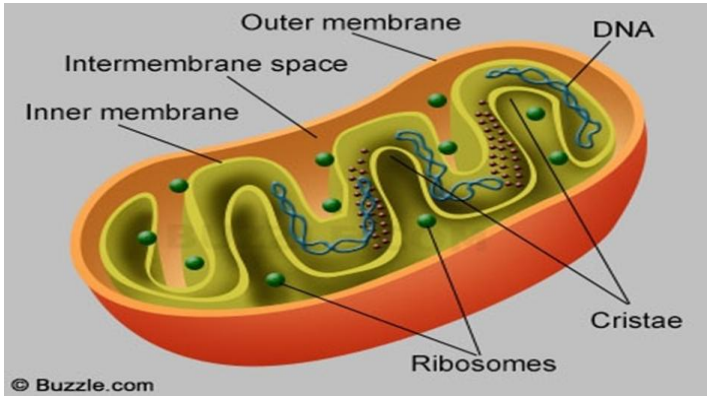


Structure:

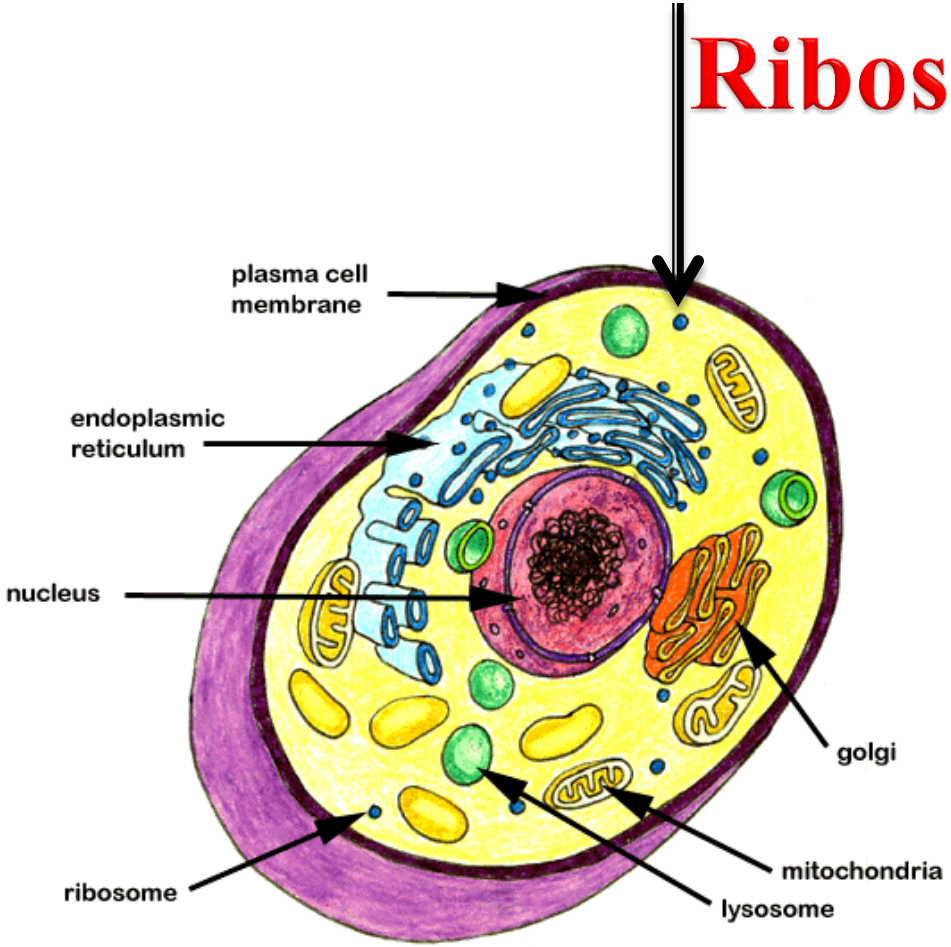
•<u>oval</u> shaped

•Function (job):

•Produces energy



Ribosomes



They can either float freely in the cell or sit on the surface of the rough endoplasmic reticulum in eukaryotic cells.

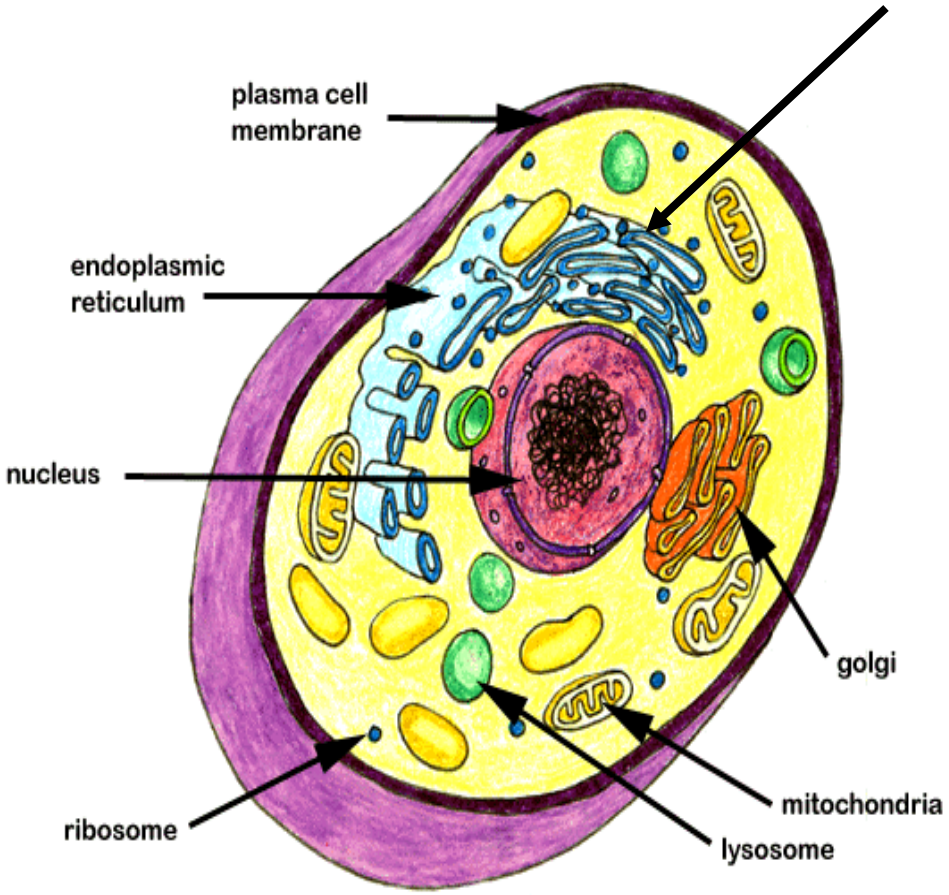
Structure:

- Tiny particle, so small, they can see only with an electron microscope.
- Each cell contains thousands

Function (job):

- composed of Protein

Endoplasmic Reticulum



Structure:

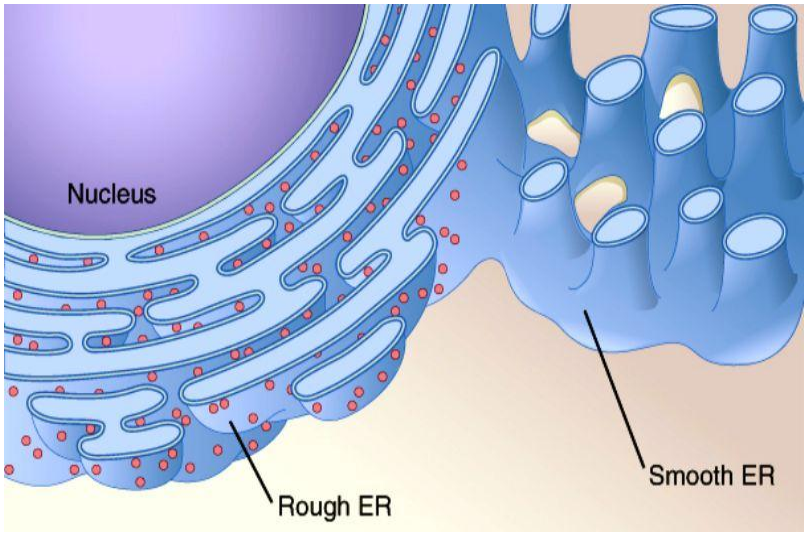
•Like tubes

•Smooth ER - no ribosomes attached

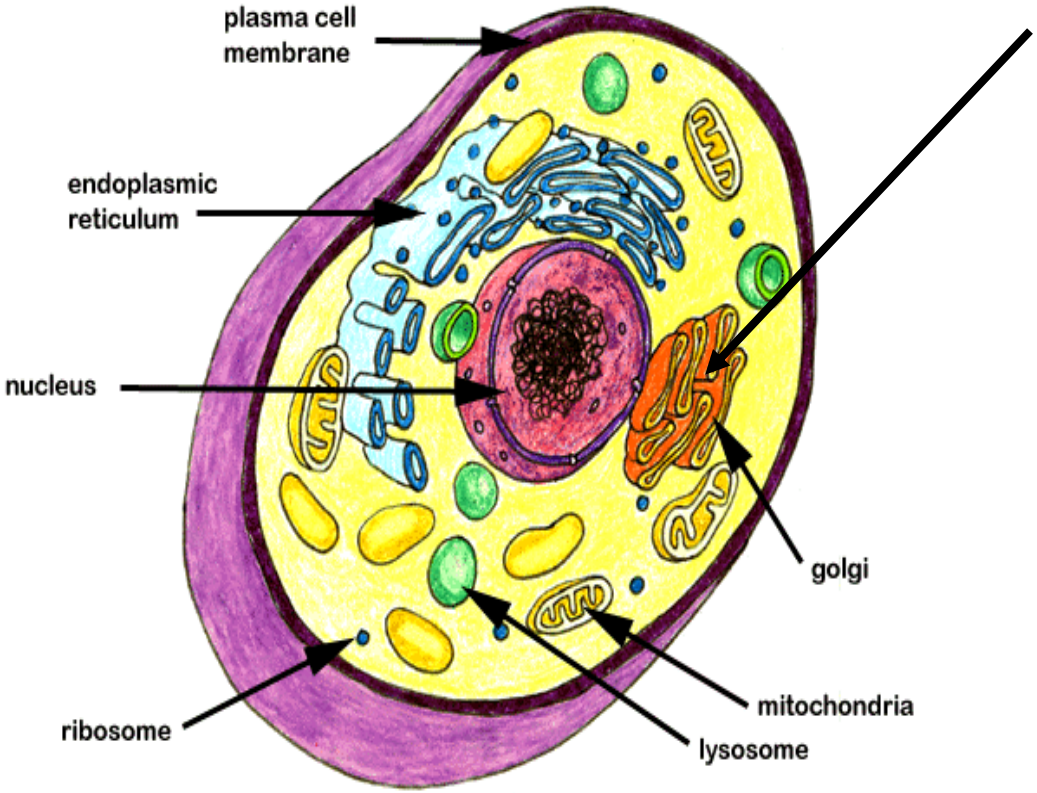
•Rough ER - ribosomes are attached

•Function (job):

•Ptotein synthesis , lipid synthesis , storing calcium,



Golgi Bodies or Golgi apparatus



Structure:

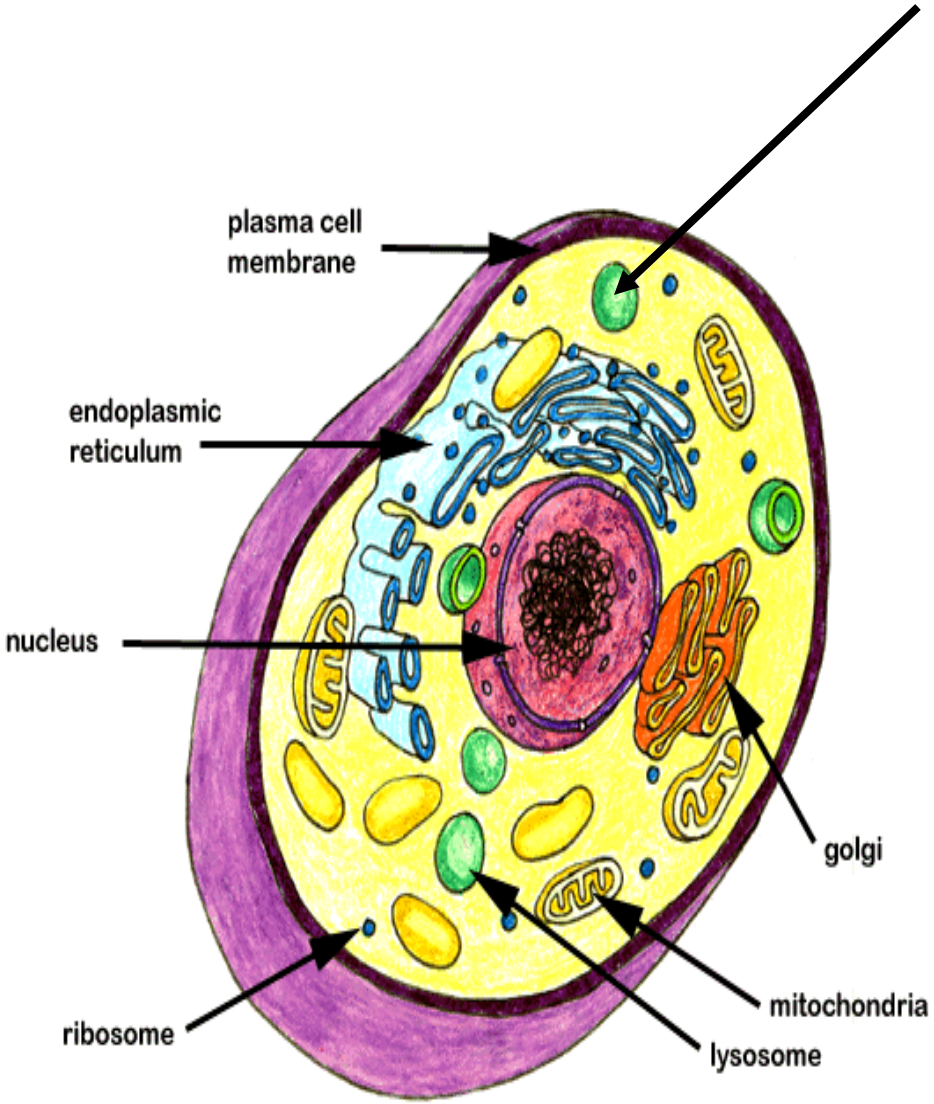
•Series of flattened sacs

•Function (job):

•Secrete proteins

•Move materials within and out of the cell.

Lysosomes



Structure:

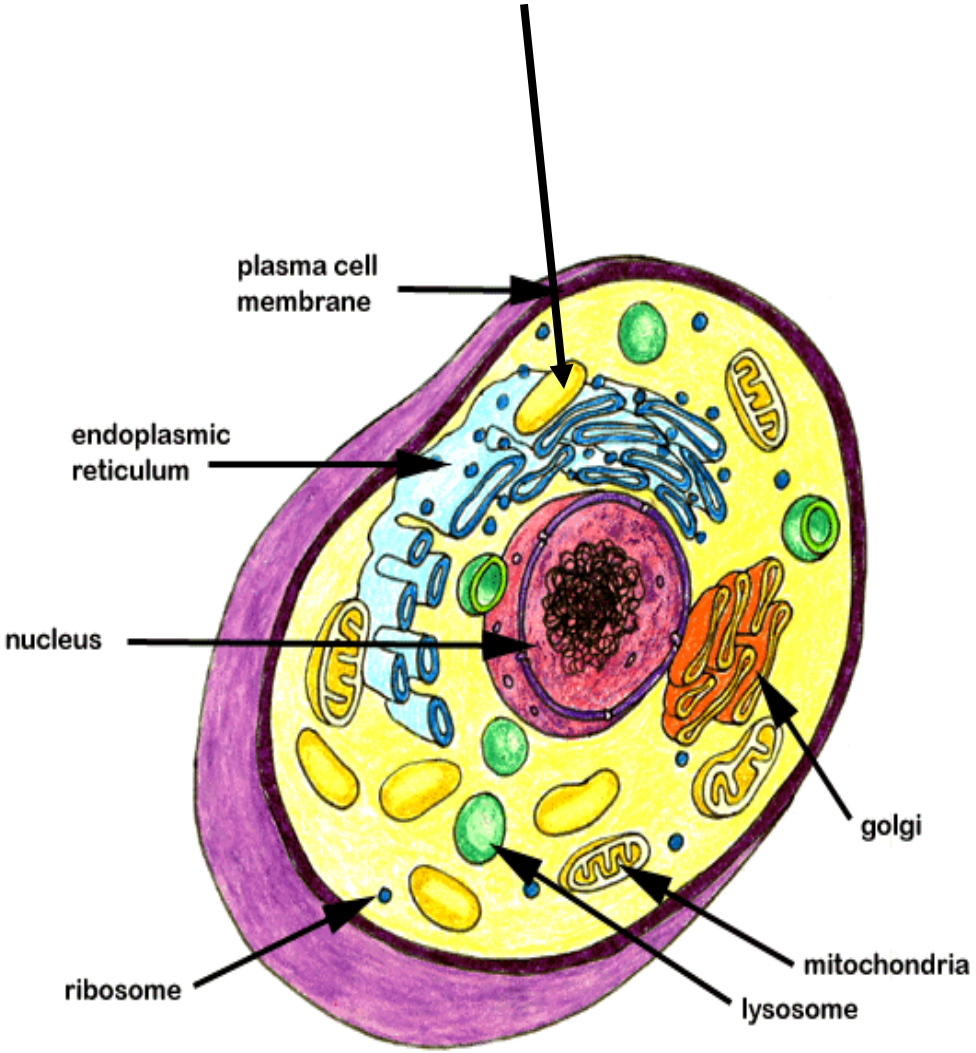
•Round organelles surrounded by membrane

Function (job):

•Transports undigested material to cell membrane for removal

•Contains digestive enzymes that destroy damaged organelles and invaders

Vacuoles



Structure:

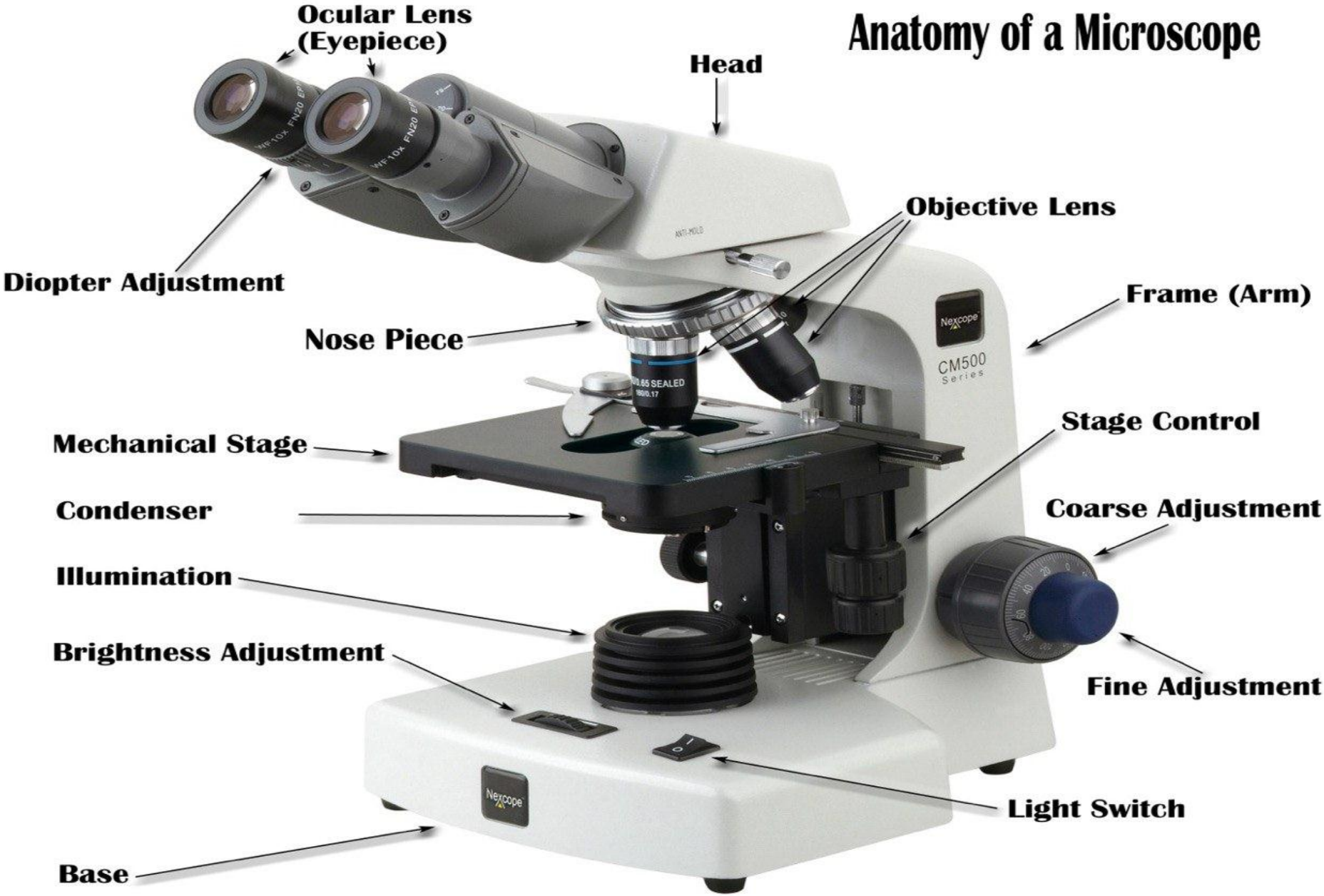
•Membrane bound storage sacs

•Function (job):

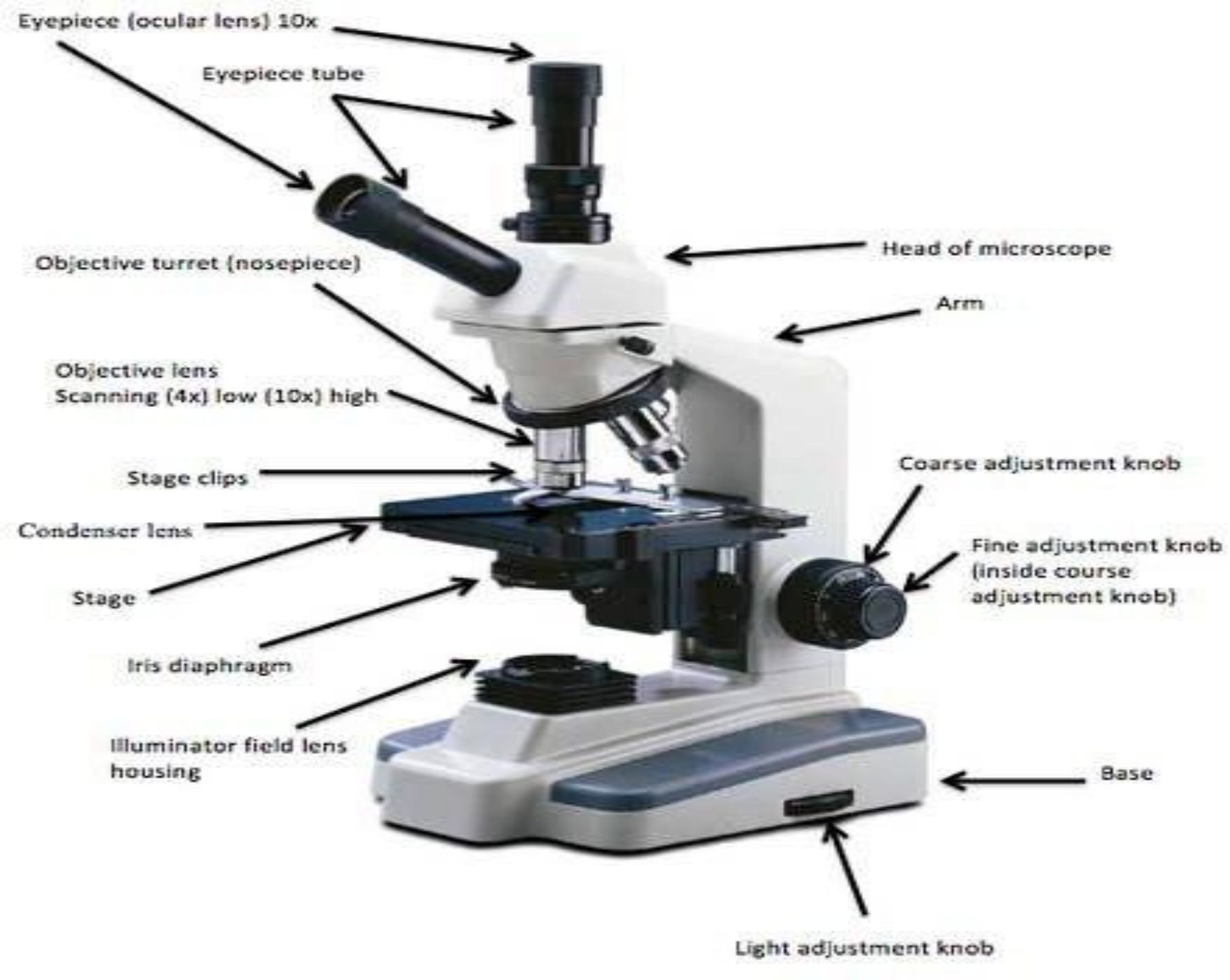
•Stores food and water

•Stores waste and helps the cell get rid of waste

Anatomy of a Microscope



© OnFocus Laboratories


Eyepiece (ocular lens) 10x
Eyepiece tube
Objective turret (nosepiece)
Head of microscope
Arm
Objective lens
Scanning (4x) low (10x) high
Stage clips
Coarse adjustment knob
Condenser lens
Fine adjustment knob
(inside course
adjustment knob)
Stage
Iris diaphragm
Illuminator field lens
housing
Base
Light adjustment knob

THANK YOU FOR LISTENING