THE CELL IS THE UNIT OF ALL LIVING THINGS.

CELL MEMBRANE

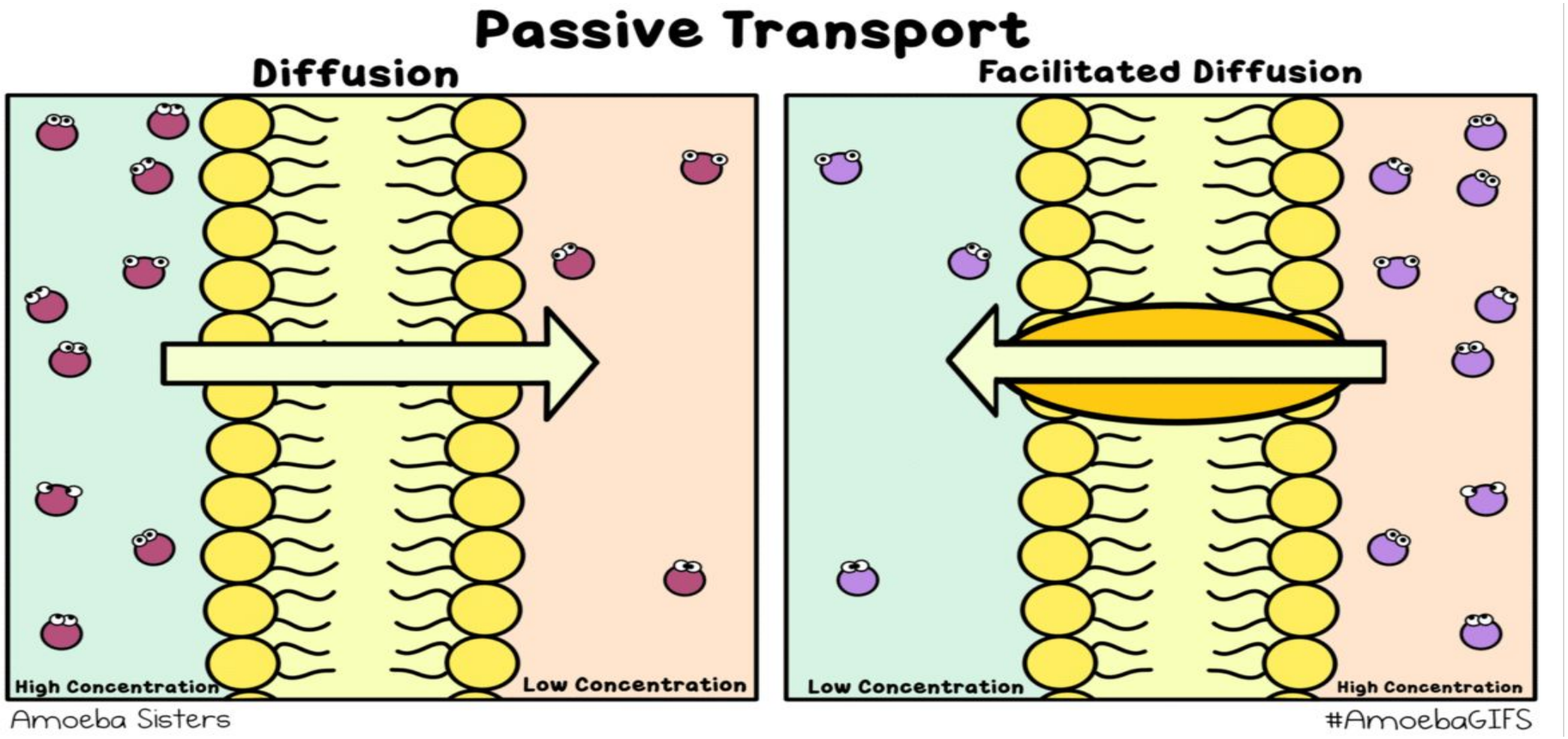
- It is made of lipid, protein, and small amount of carbohydrate
- *Functions*:
- Protection of the cell
- Transports of meterials into or out of the cell
- Gives shape to animal cell
- Holds together all part of cell
- Provides communication between cells

STRUCTURE OF PLASMA MEMBRANE

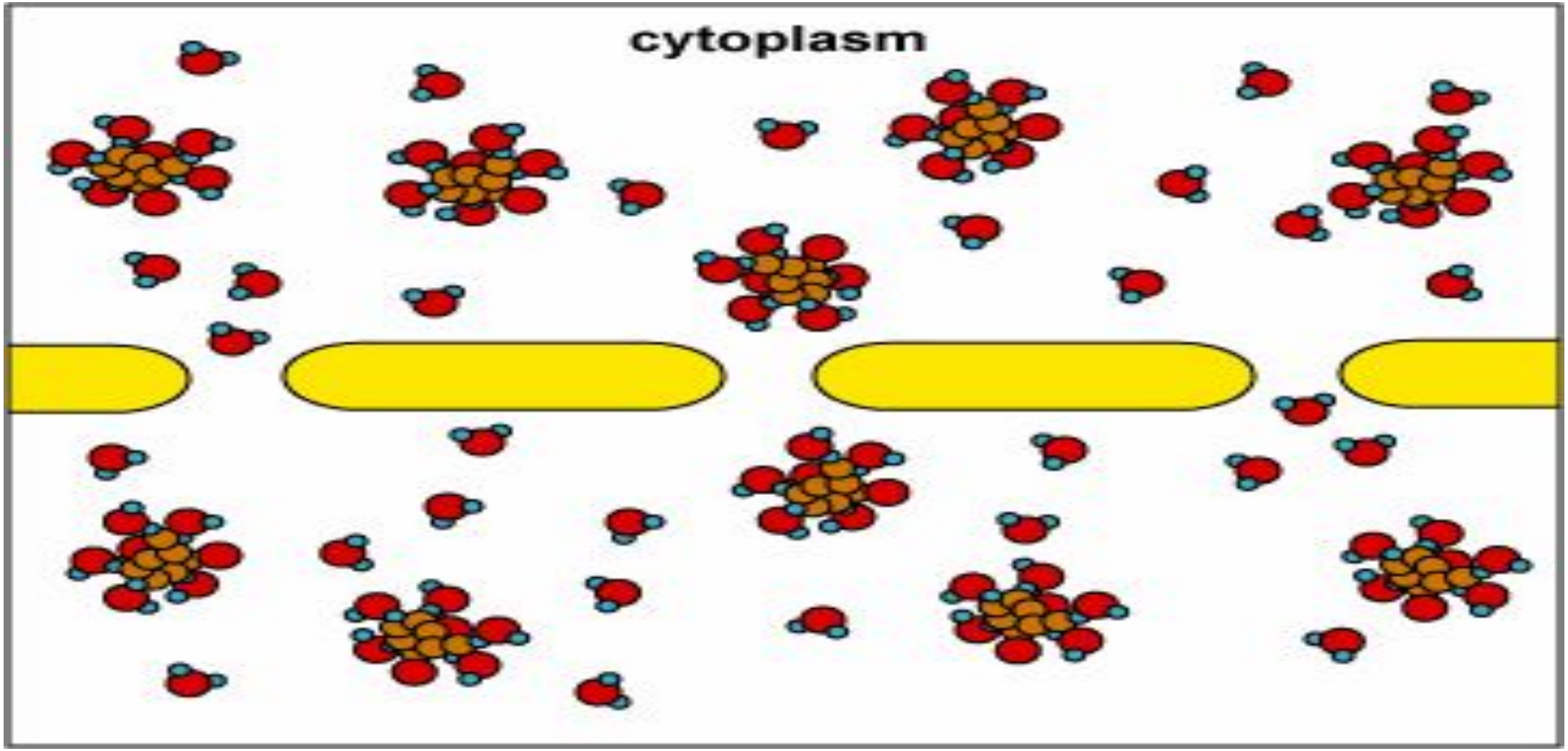
TRANSPORT MATERIALS THROUGH THE CELL MEMBRANE

- The cell membrane is *selectively permeable* structure.
- Material exchange is provided by 3 methods:
- 1. Diffusion(Passive transport)
- 2. Osmosis(Passive transport)
- 3. Active transport

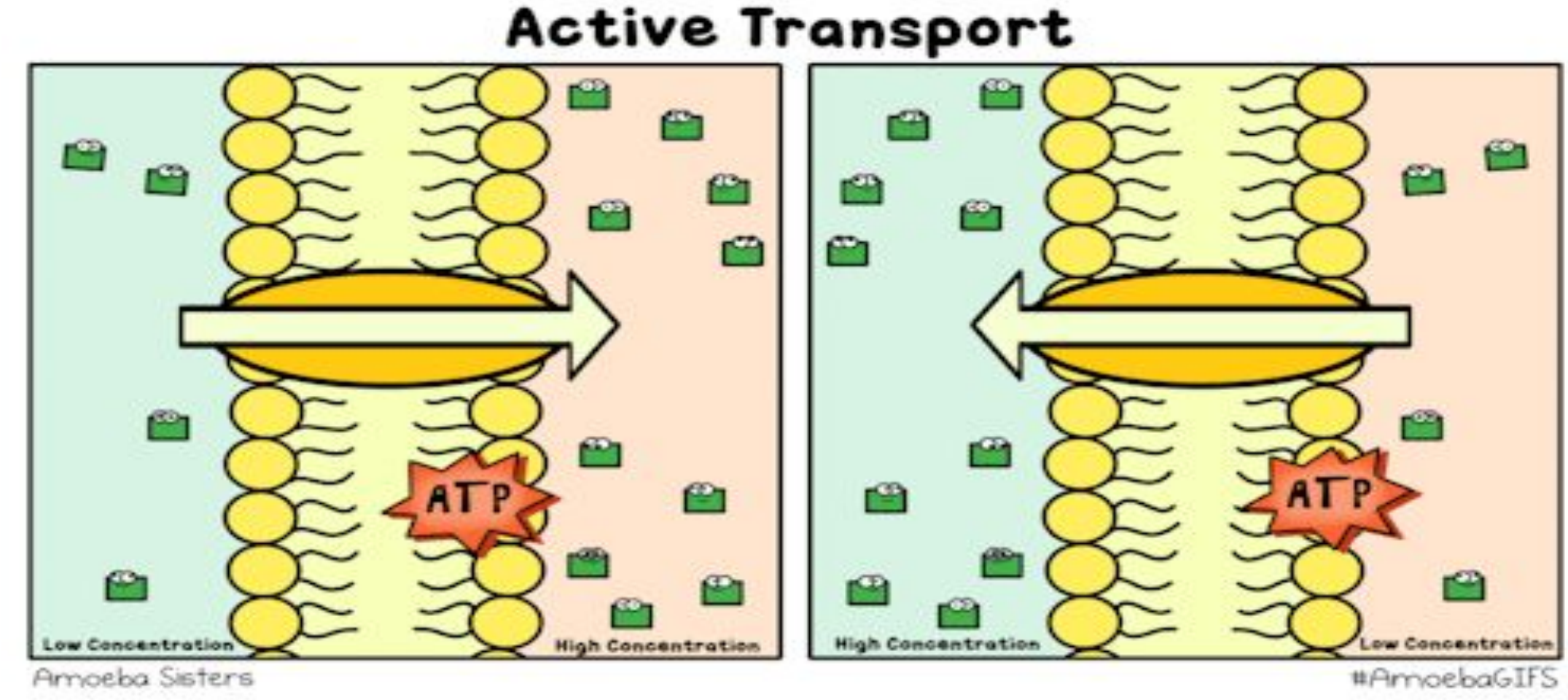
Diffusion is the movement of molecules from the areas of the **high** concentration to areas of **low** concentration



Osmosis is diffusion of water



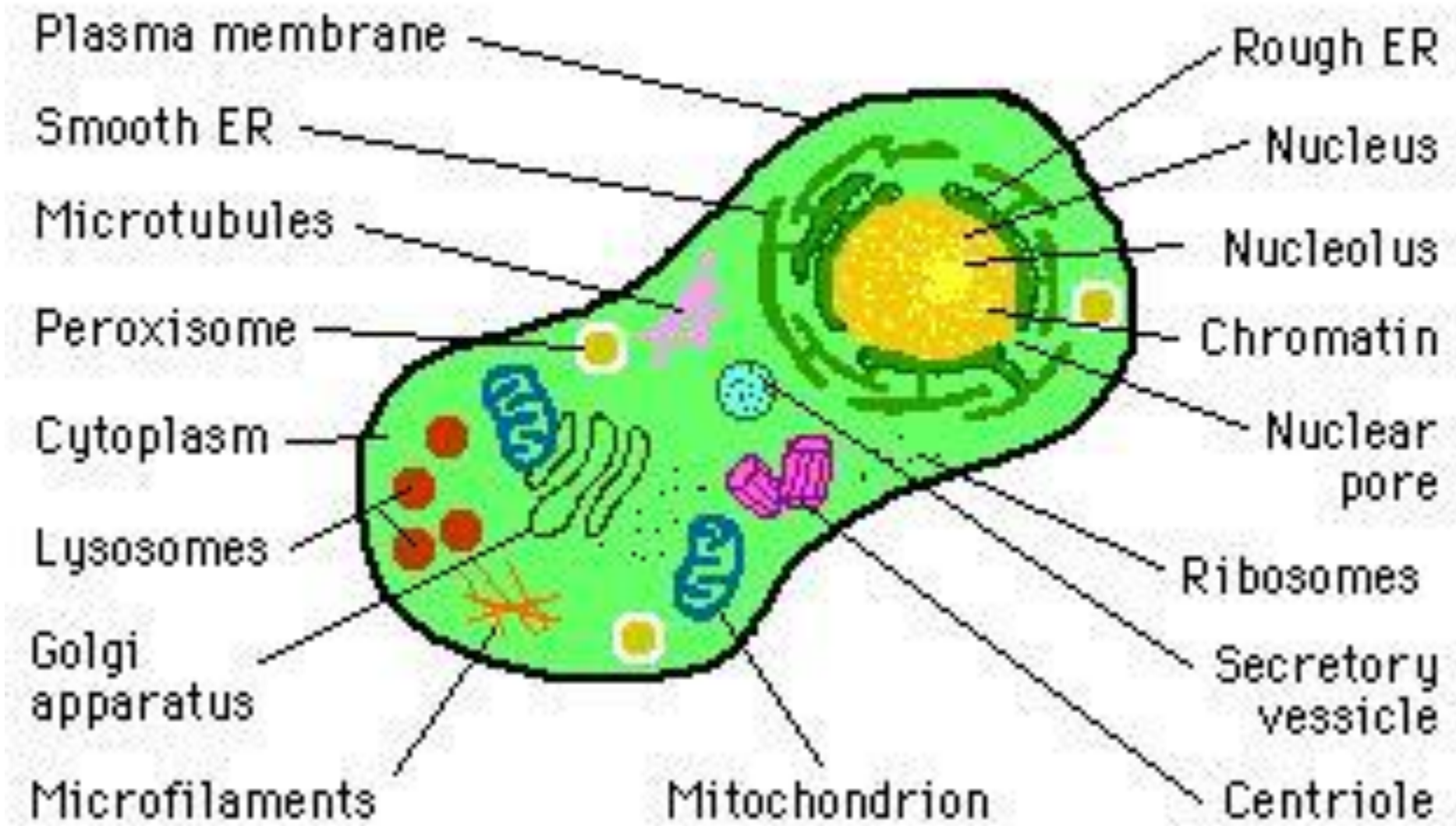
Active transport is movement of molecules from areas of **low** concentration to areas of **high** concentration (energy is used)



CYTOPLASM

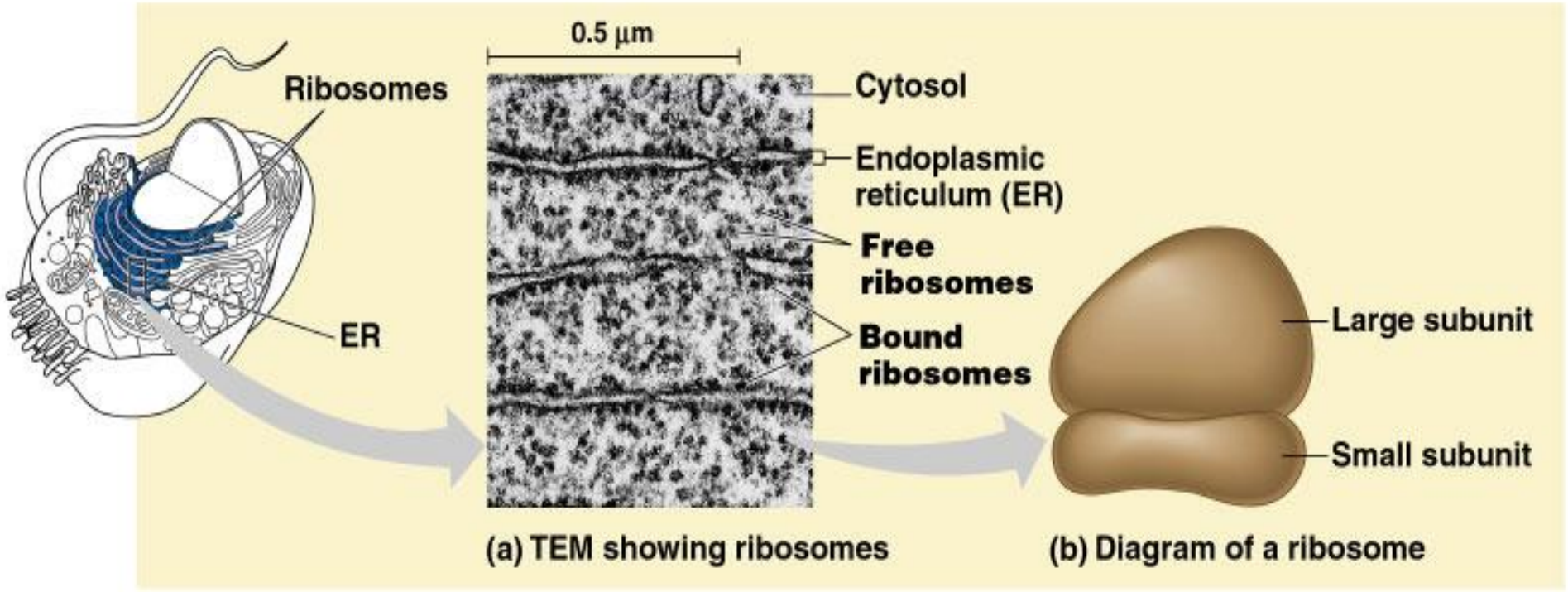
- It is jelly like structure, which is located between cell membrane and nucleus
- Cell organelles are found in cytoplasm

The Cell


Plasma membrane
Smooth ER
Microtubules
Peroxisome
Cytoplasm
Lysosomes
Golgi apparatus
Microfilaments
Mitochondrion
Rough ER
Nucleus
Nucleolus
Chromatin
Nuclear pore
Ribosomes
Secretory vessicle
Centriole

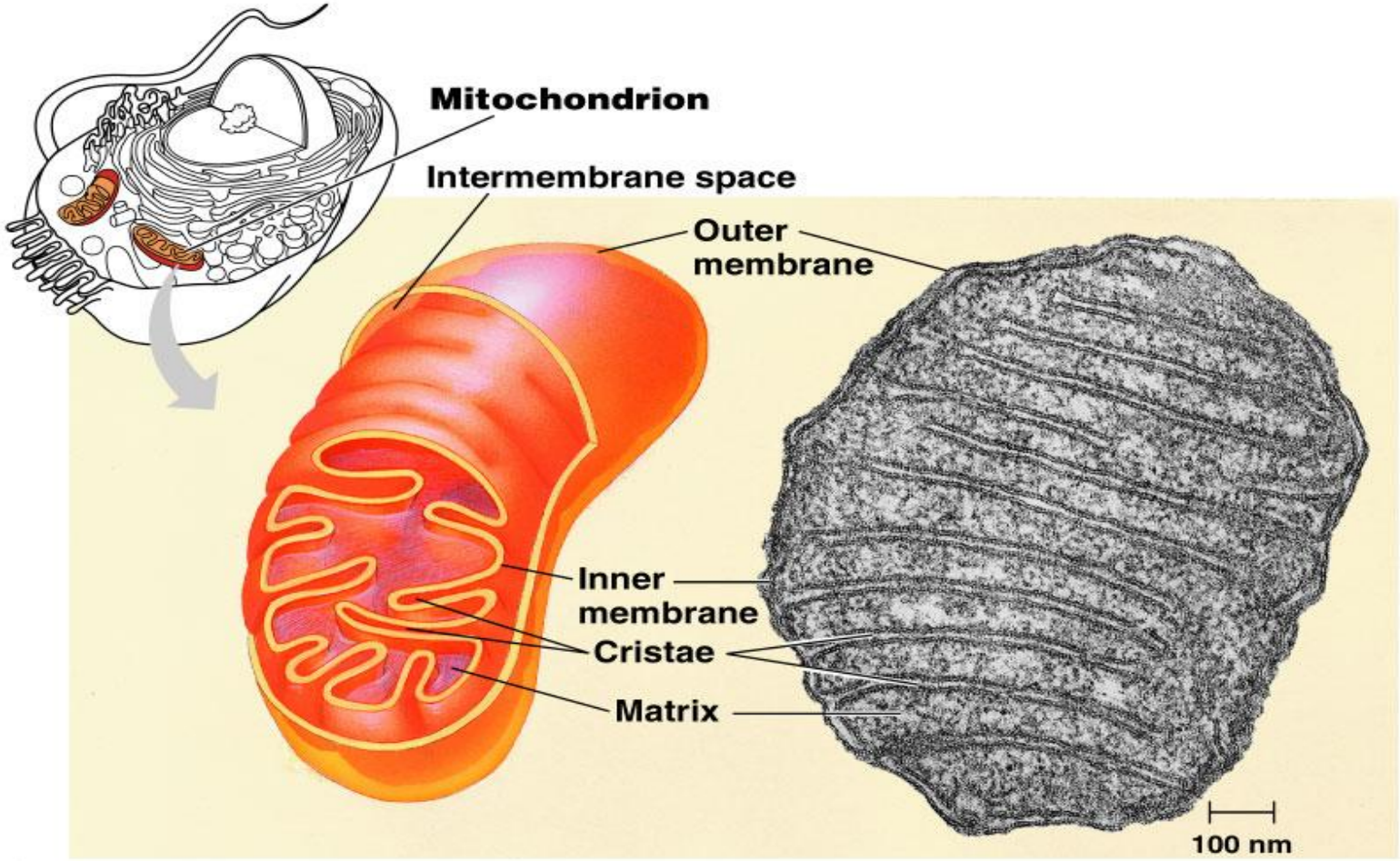
RIBOSOME

- Produces protein
- Consist of 2 subunits
- Found in cytoplasm, ER, nuclear membrane, mitochondria & chloroplasts



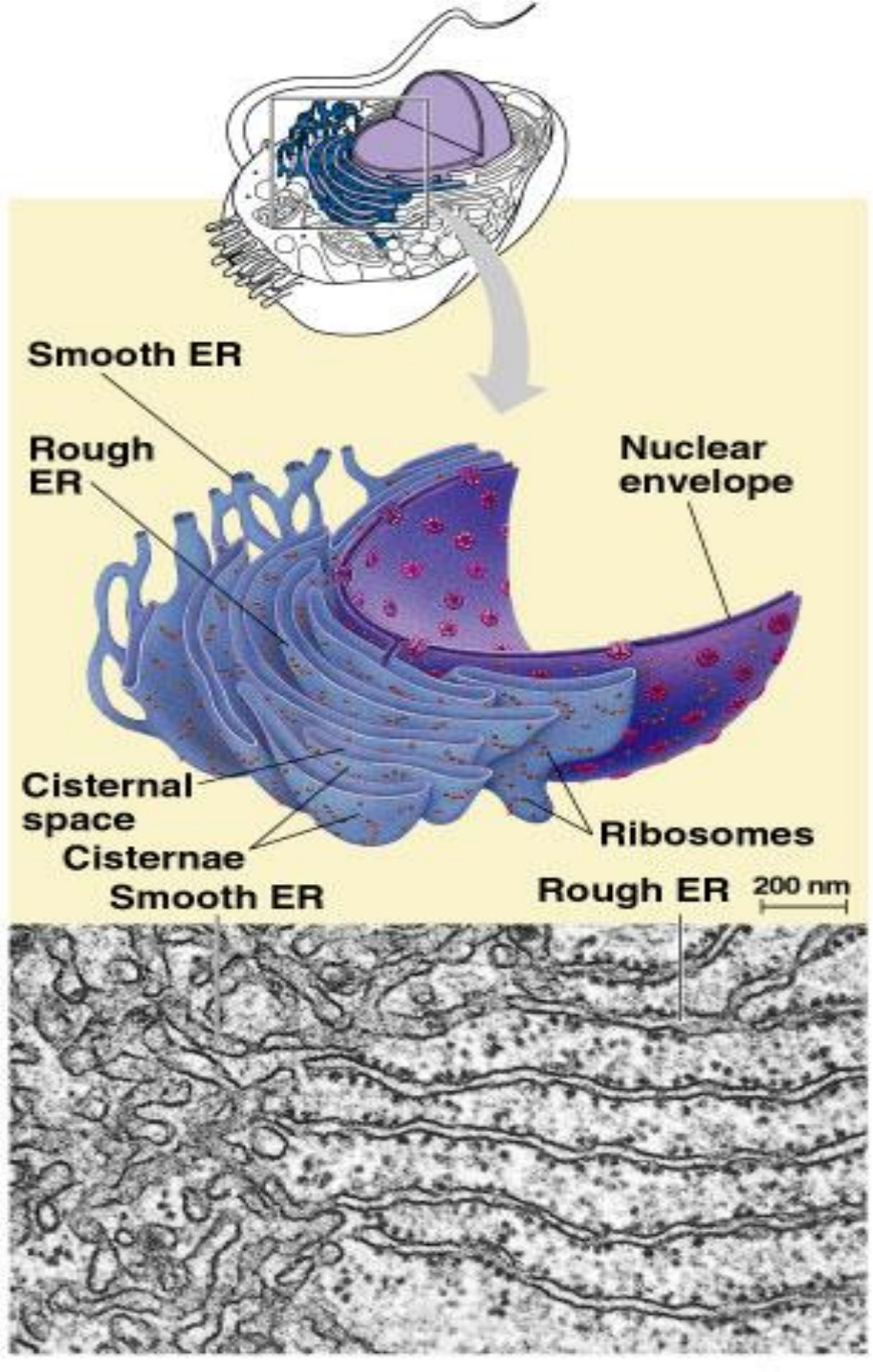
MITOCHONDRIA

- Produce ATP(energy)
- Composed of 2 membrane



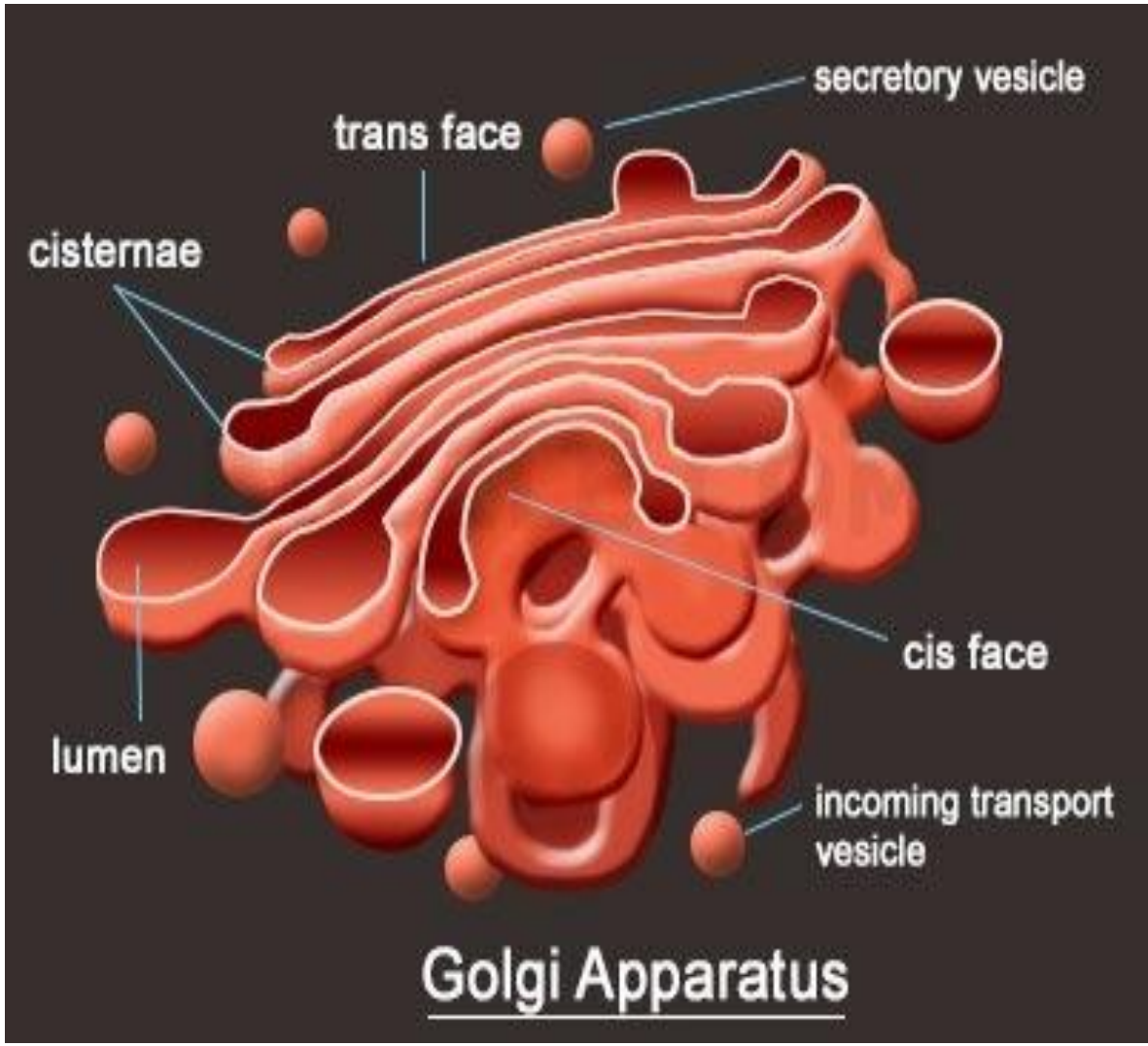
ENDOPLASMIC RETICULUM

- Transport system of the cell
- Produces & transports lipids & proteins



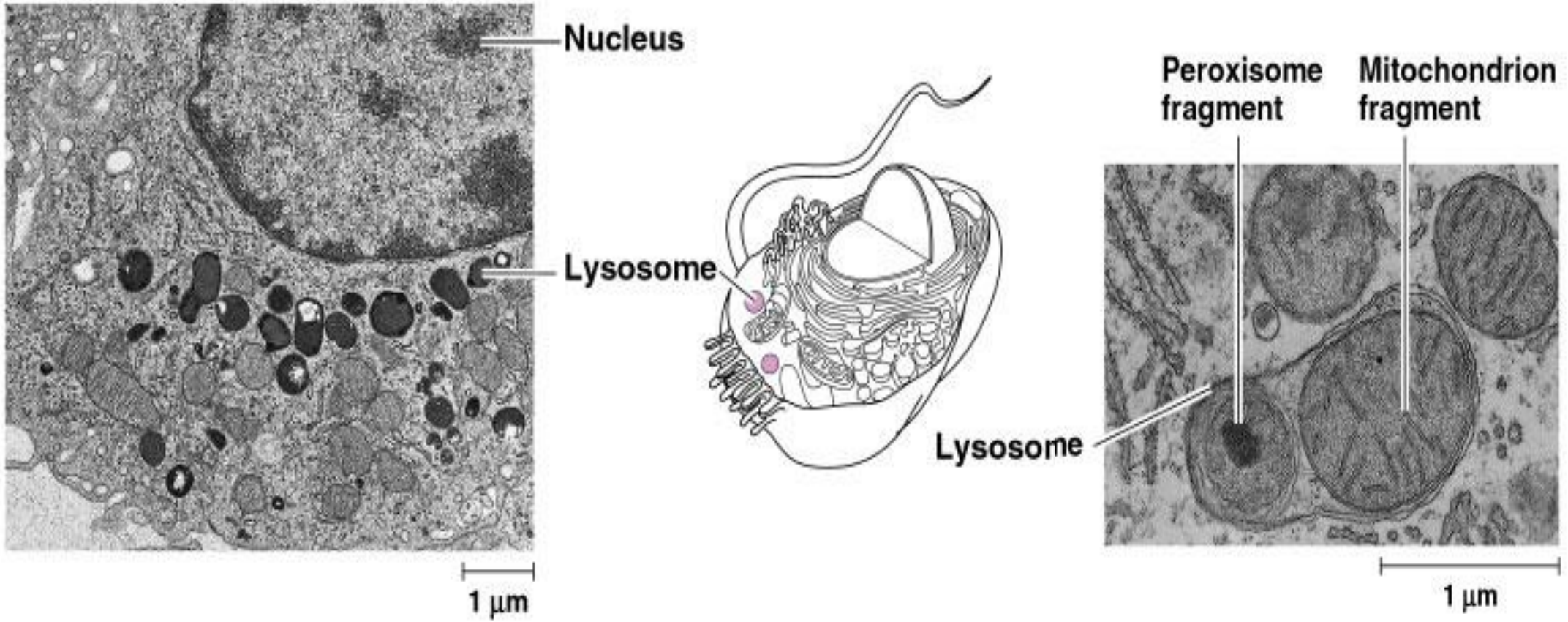
GOLGI BODY

- Packaging system of cell(in transport)
- Produces special materials such as milk



LYSOSOME

- Digestion of the molecules in the cell

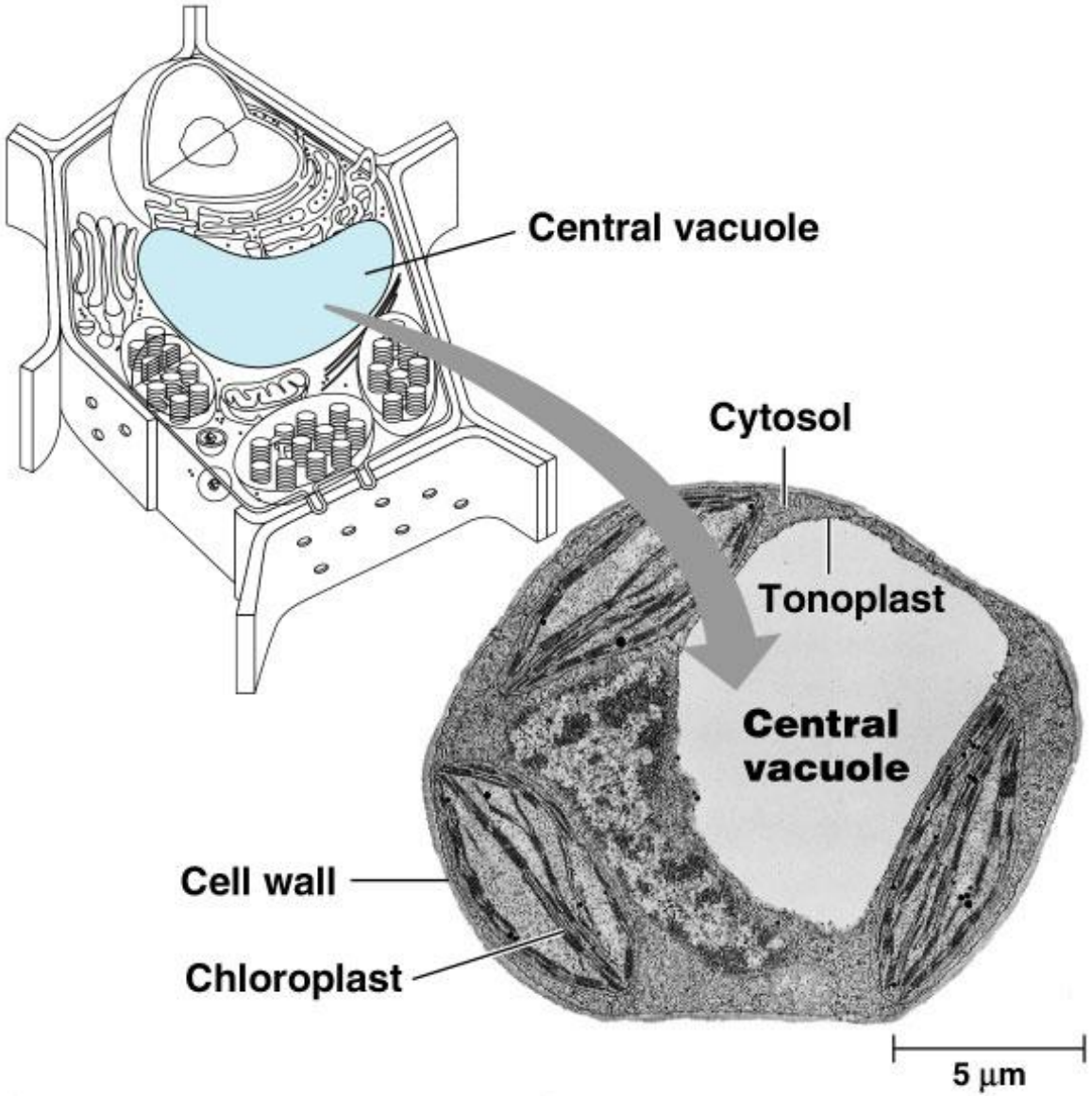


(a) Lysosomes in a white blood cell

(b) A lysosome in action

VACUOLE

- Storage center of the cell
- (H2O, MINERAL AND WASTE)
- Single layered membrane called as tonoplast

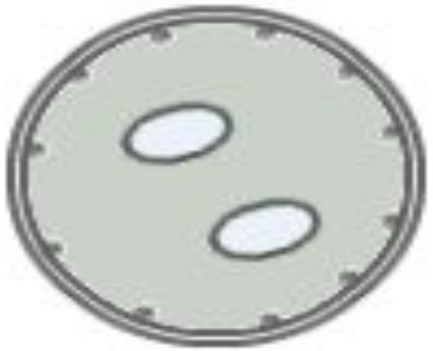


Plastids

- Plastids are unique structures, which are found only in plants.
- There are 3 types of plastids:
- 1. chloroplasts(green) {used in photosynthesis}
- 2. chromoplasts (red yellow etc.) {gives color to flowers}
- 3. leucoplasts(colorless) {storage starch}

Chromoplast

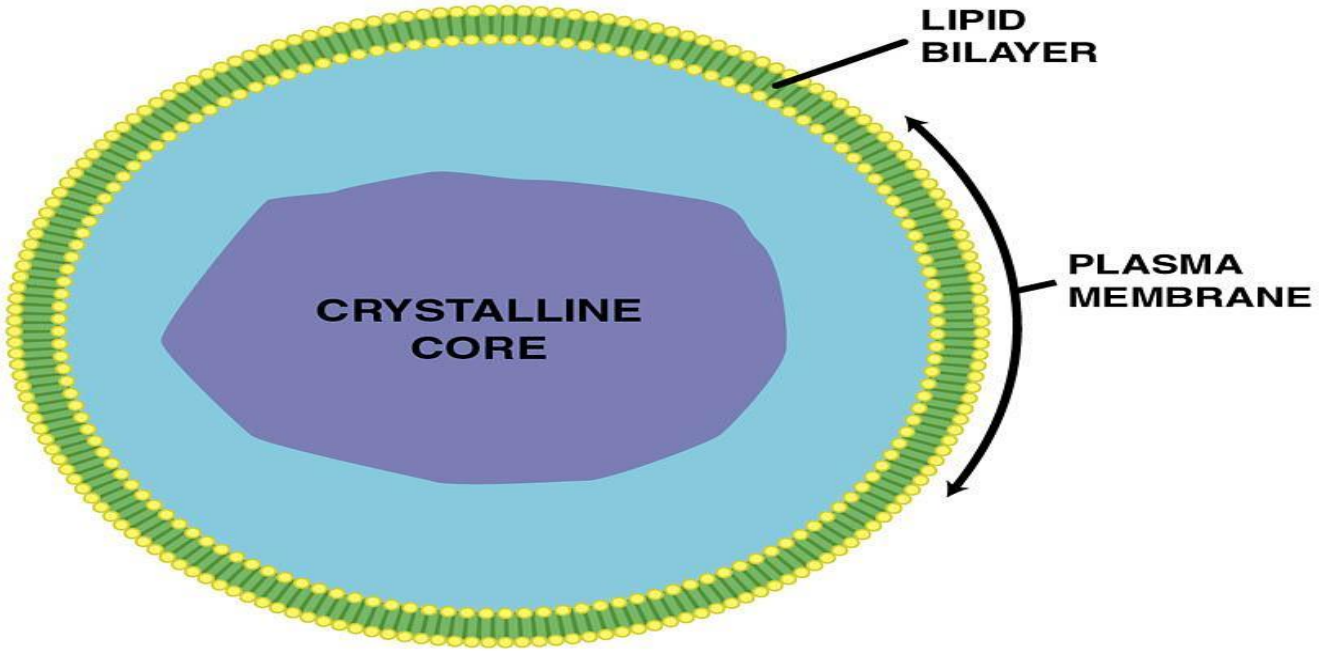
Chloroplast



Leukoplast

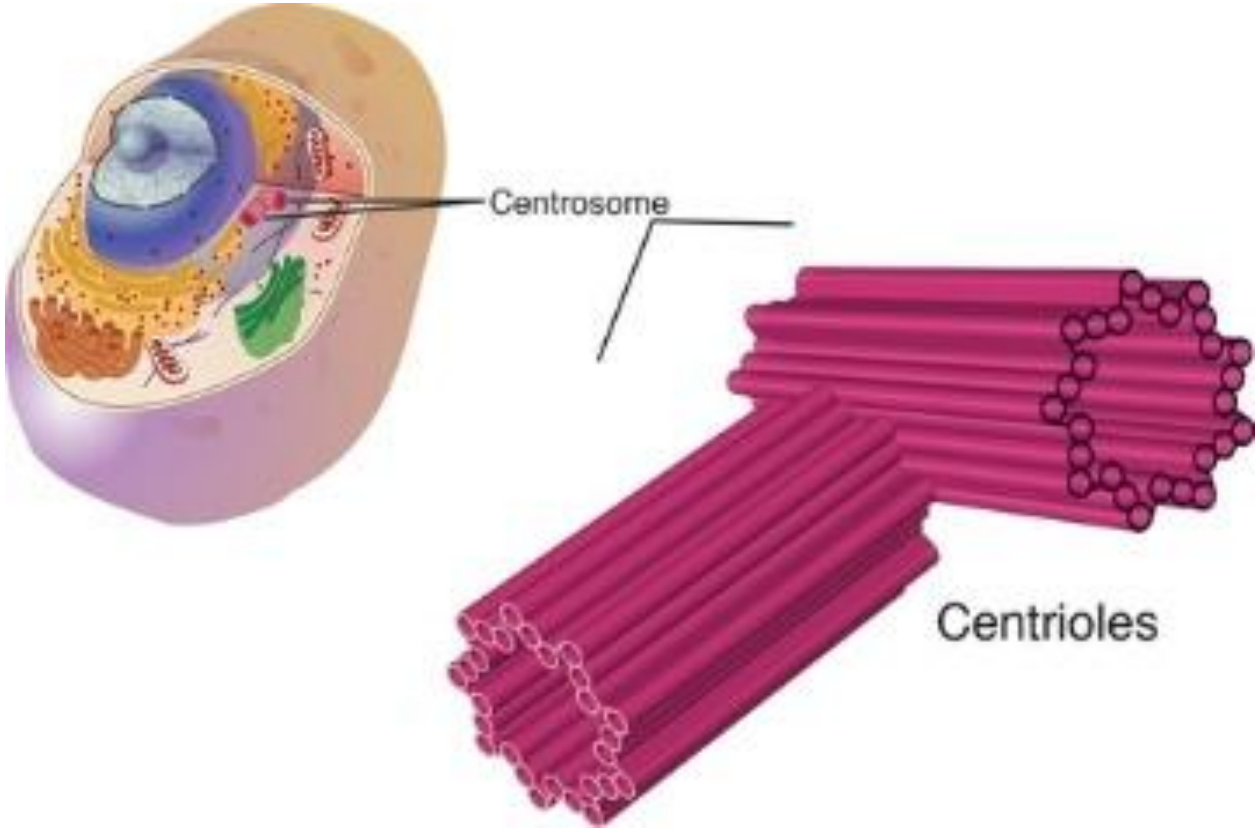
Peroxisomes

- Spherical single layered organelles
- Destroy harmful substances
- Breaks down fatty acids in animal cells



CENTRIOLES

- Founds in pairs adjacent to nucleus.
- Responsible to cell division



NUCLEUS

- Controls all activity in the cell
- Has double layered membrane

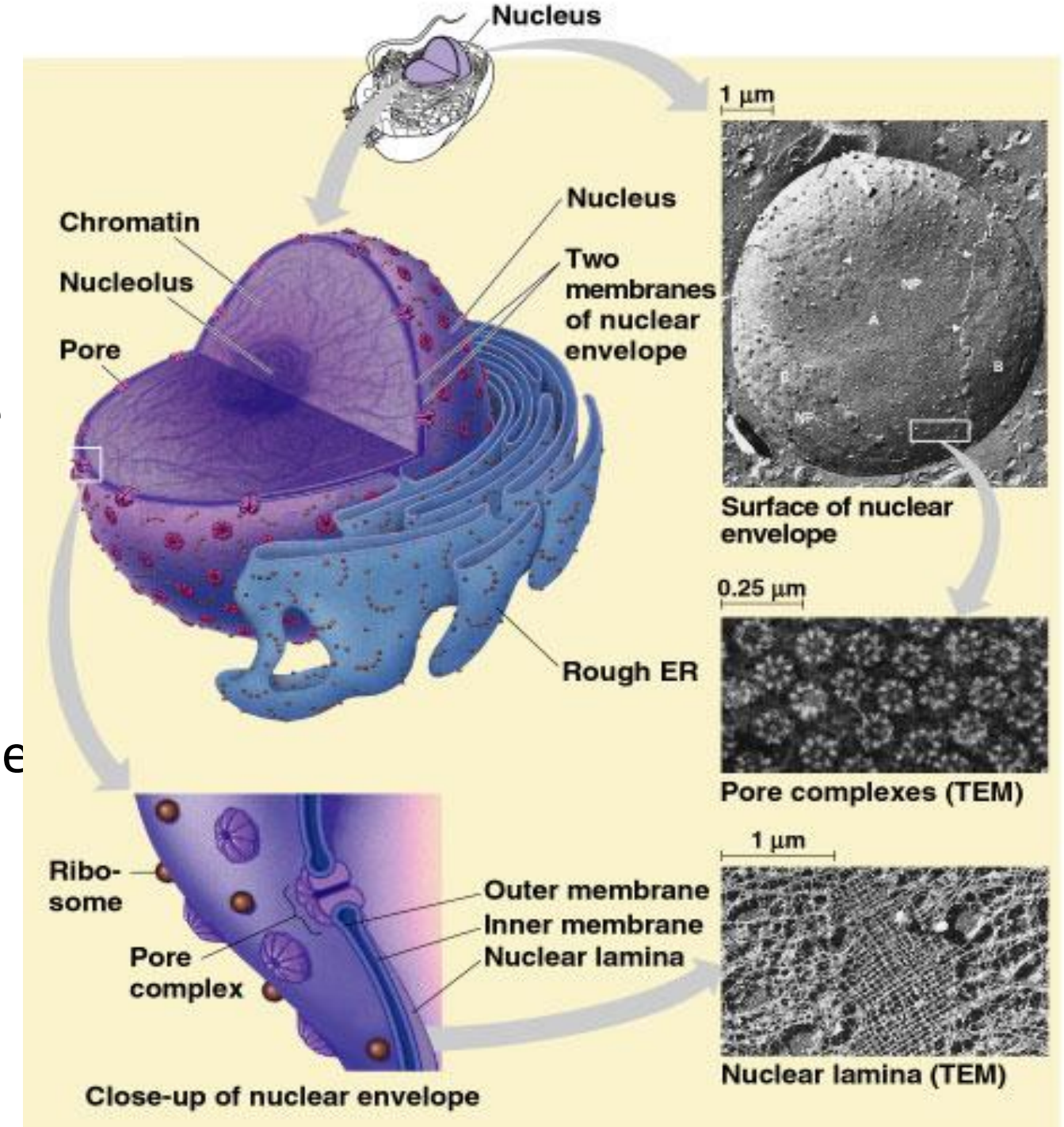
& lot of pores

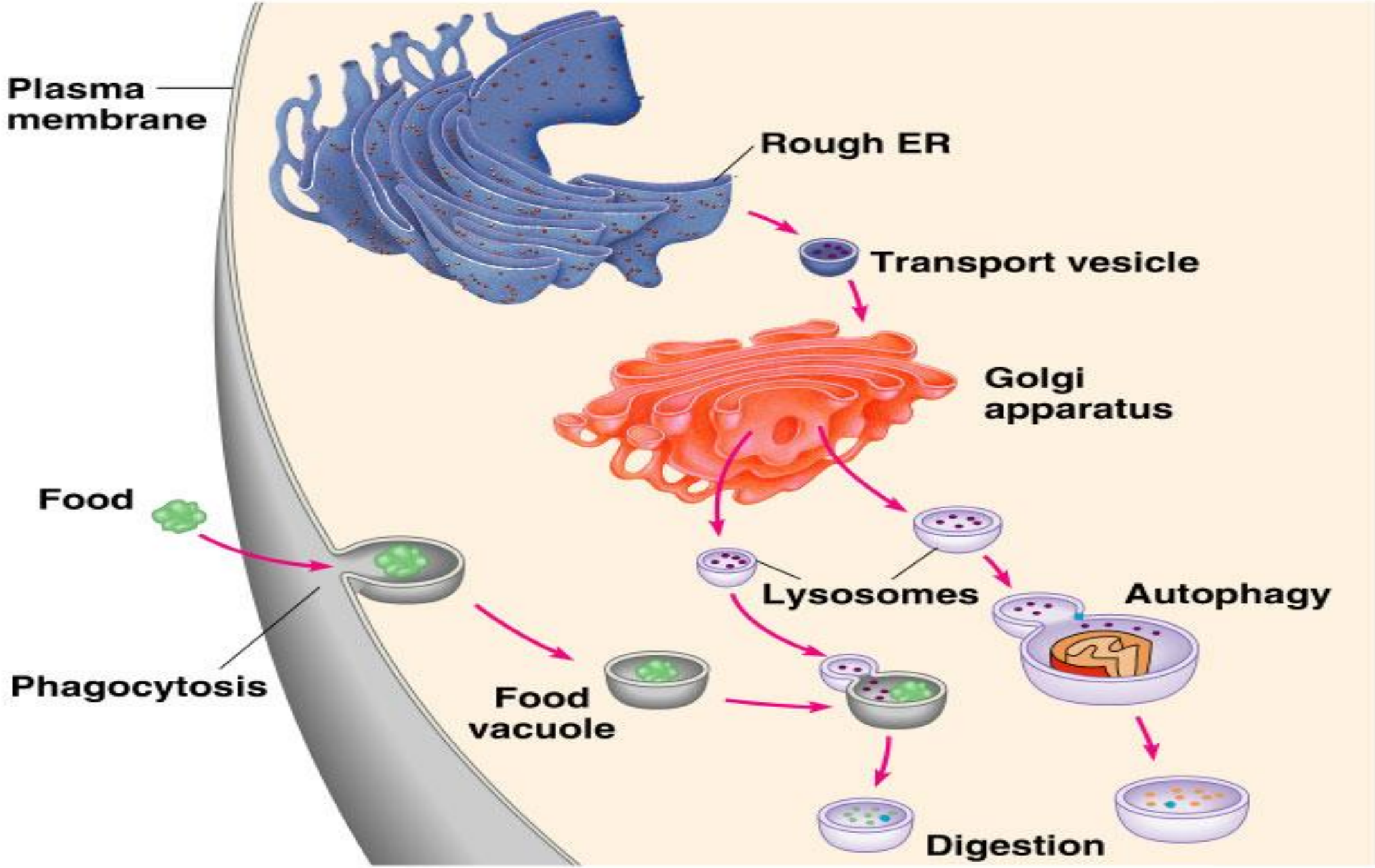
- Nucleolus is small structure in

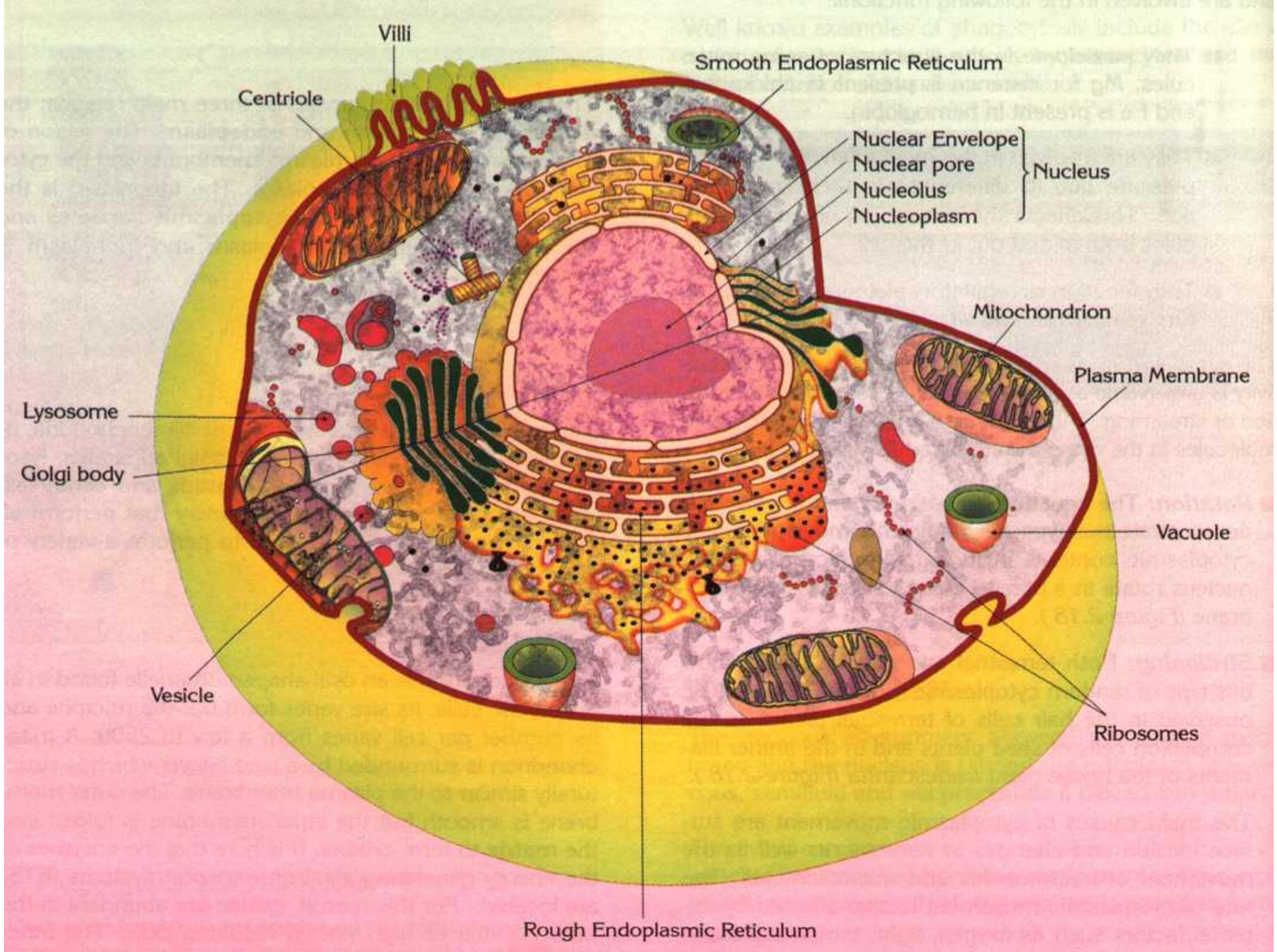
Nucleus{produces ribosomes}

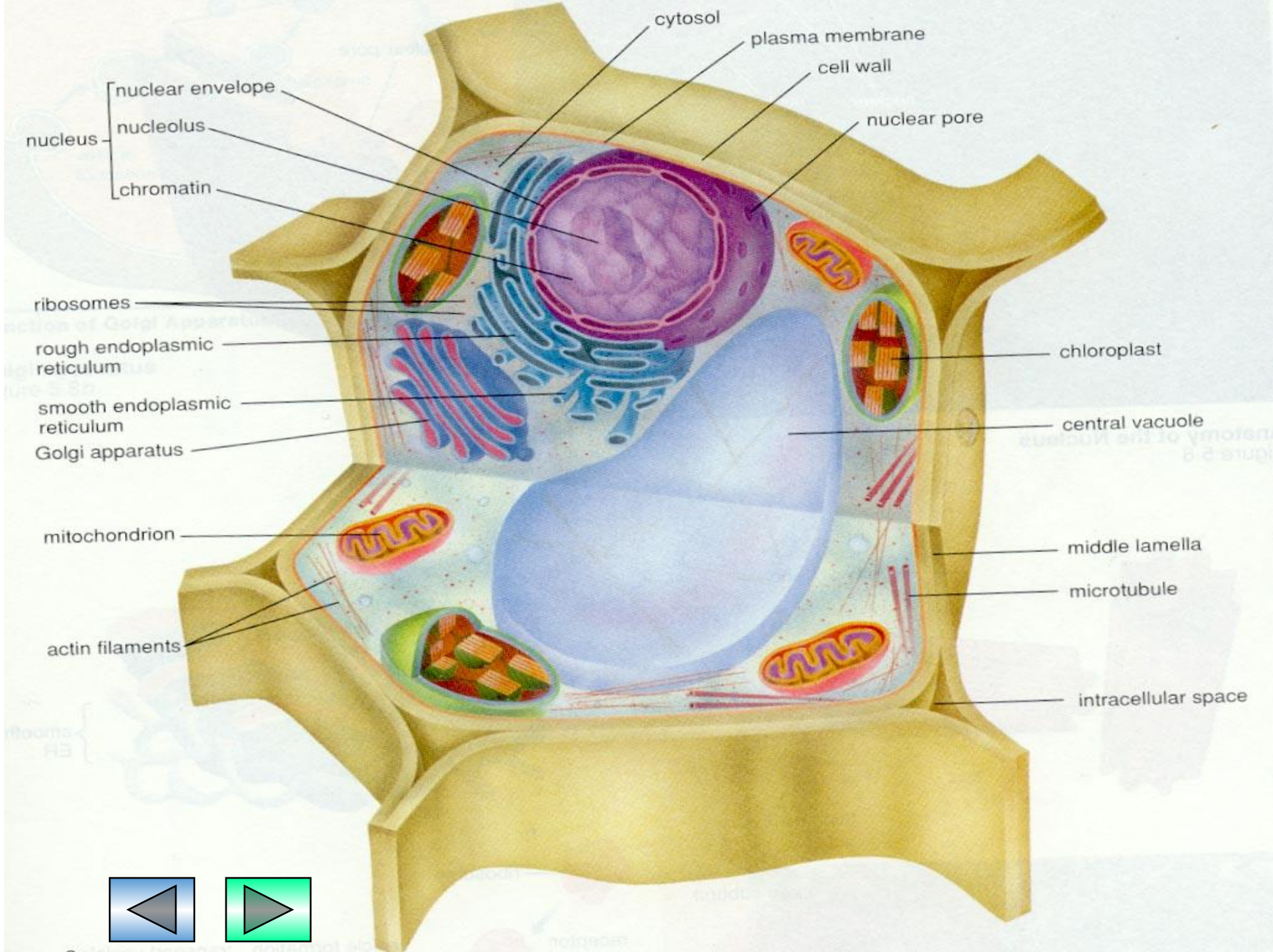
Hereditary material found in the

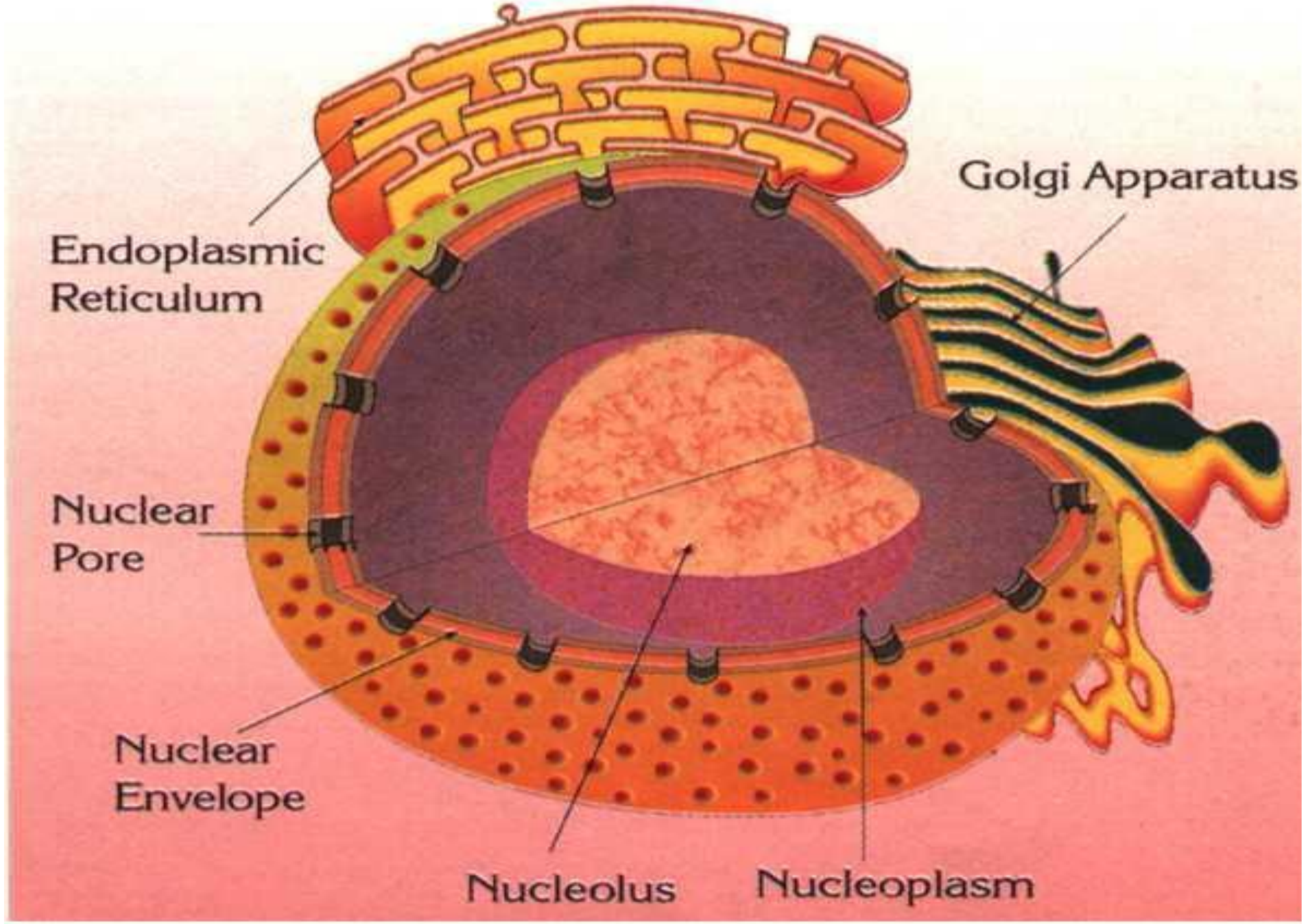
Form of DNA




Plasma membrane
Rough ER
Transport vesicle
Golgi apparatus
Food
Lysosomes
Autophagy
Phagocytosis
Food vacuole
Digestion


Villi
Centriole
Smooth Endoplasmic Reticulum
Nuclear Envelope
Nuclear pore
Nucleolus
Nucleoplasm
Nucleus
Mitochondrion
Plasma Membrane
Lysosome
Golgi body
Vacuole
Vesicle
Ribosomes
Rough Endoplasmic Reticulum


cytosol
plasma membrane
cell wall
nuclear pore
nucleus
nuclear envelope
nucleolus
chromatin
ribosomes
rough endoplasmic reticulum
smooth endoplasmic reticulum
Golgi apparatus
mitochondrion
actin filaments
chloroplast
central vacuole
middle lamella
microtubule
intracellular space


Endoplasmic
Reticulum
Golgi Apparatus
Nuclear
Pore
Nuclear
Envelope
Nucleolus
Nucleoplasm