Cell Structures

Mr. Skirbst

Cells are the ***basic building block*** *of all living things and are made up of* ***organelles***

Cell Theory

Developed through the work of

1. Hooke

2. Leeuwenhoek

3. Schleiden

Cell Theory

Three (3) points of theory:

Cell Theory

Three (3) points of theory:

1. **All living things made of cells**

Cell Theory

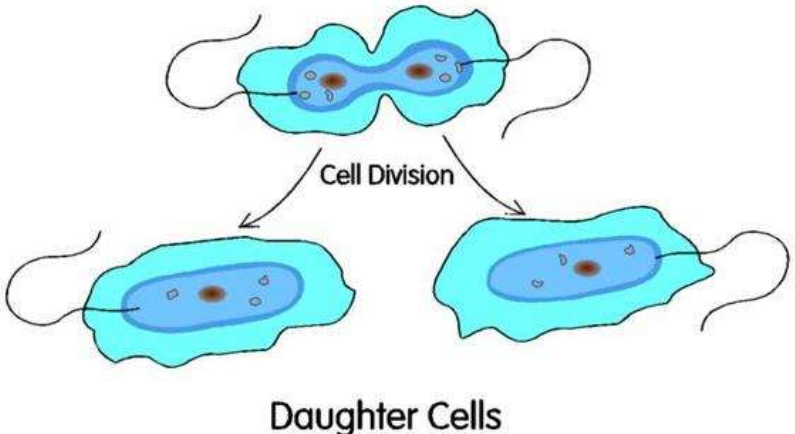
Three (3) points of theory:

1. All living things made of cells
2. **Cells are basic unit of life**

Cell Theory

Three (3) points of theory:

1. All living things made of cells
2. Cells are basic unit of life
3. **Living cells come from living cells**



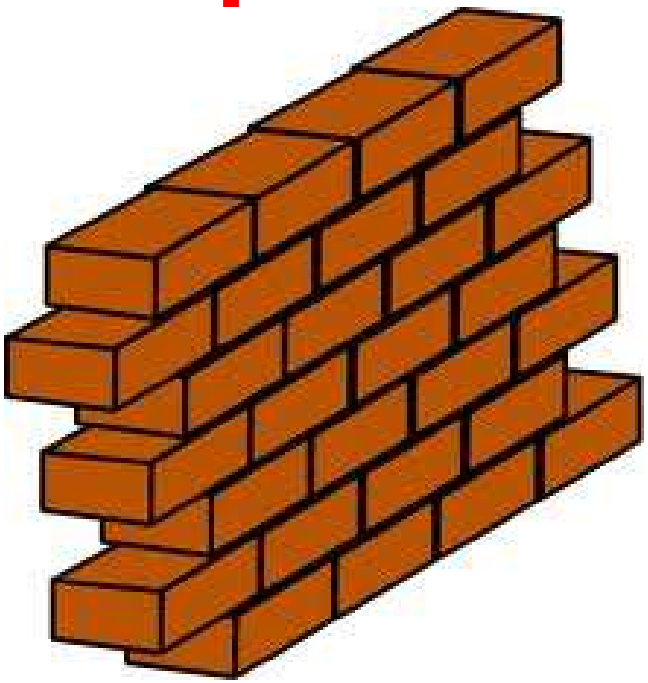
Cell Structures

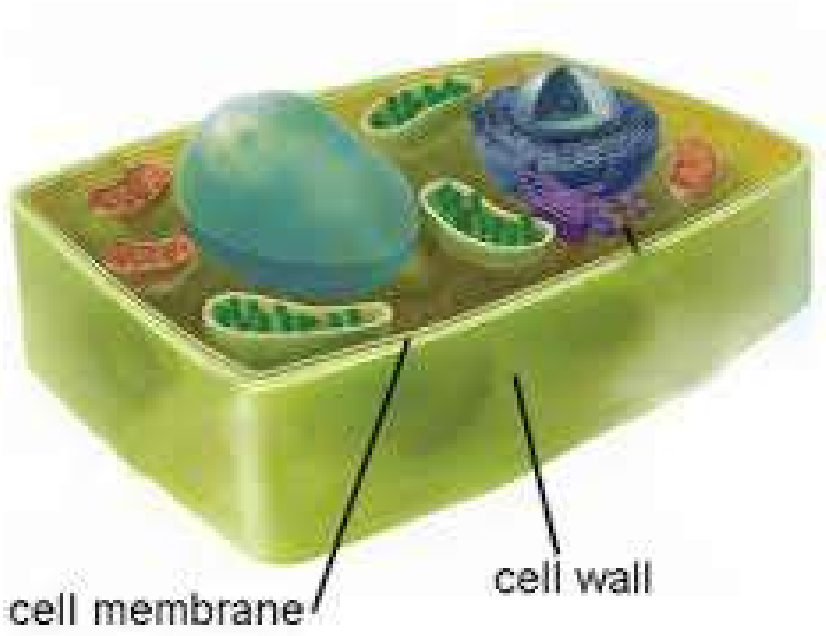
There are 10 basic structures inside cells called organelles

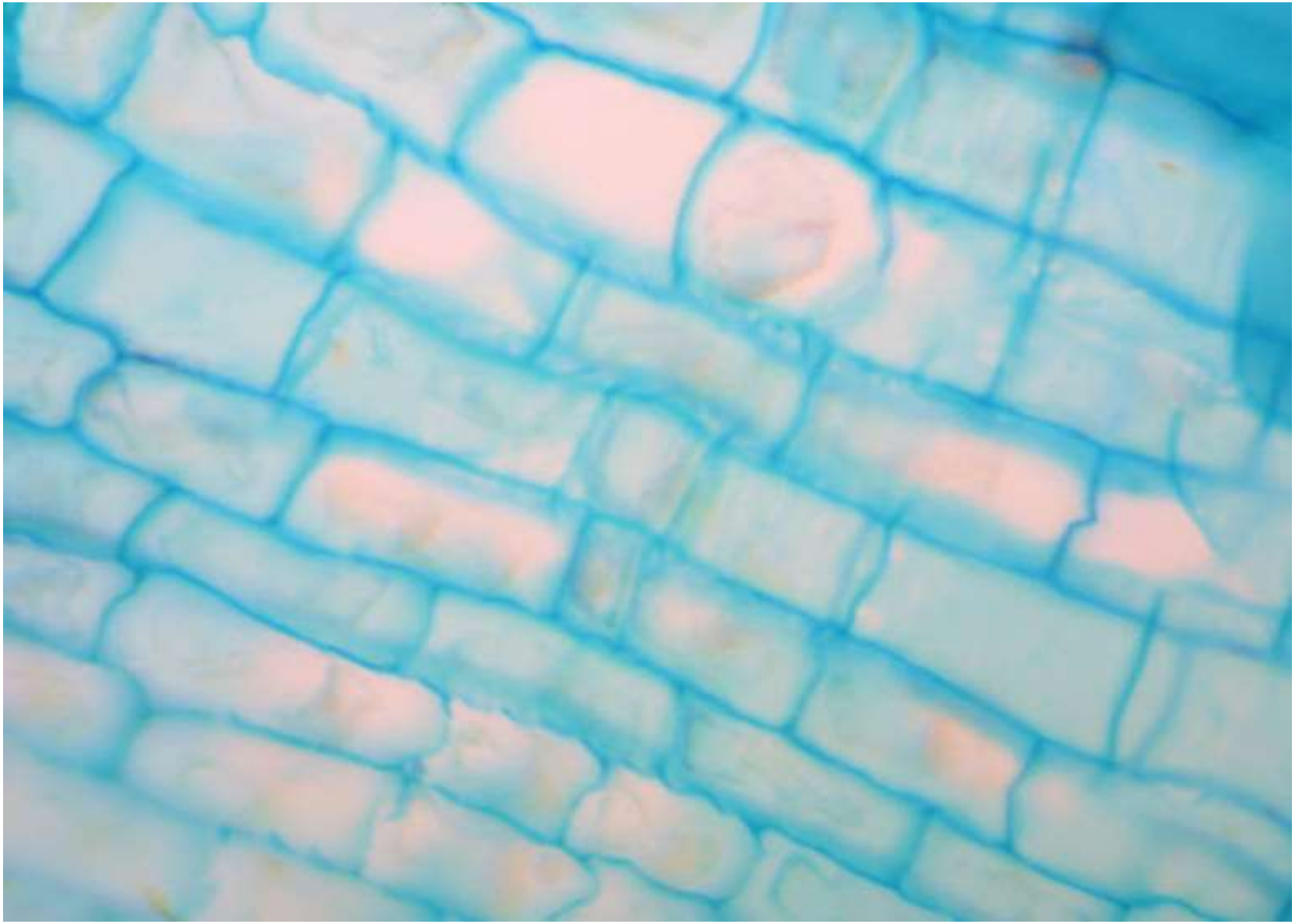
Organelles

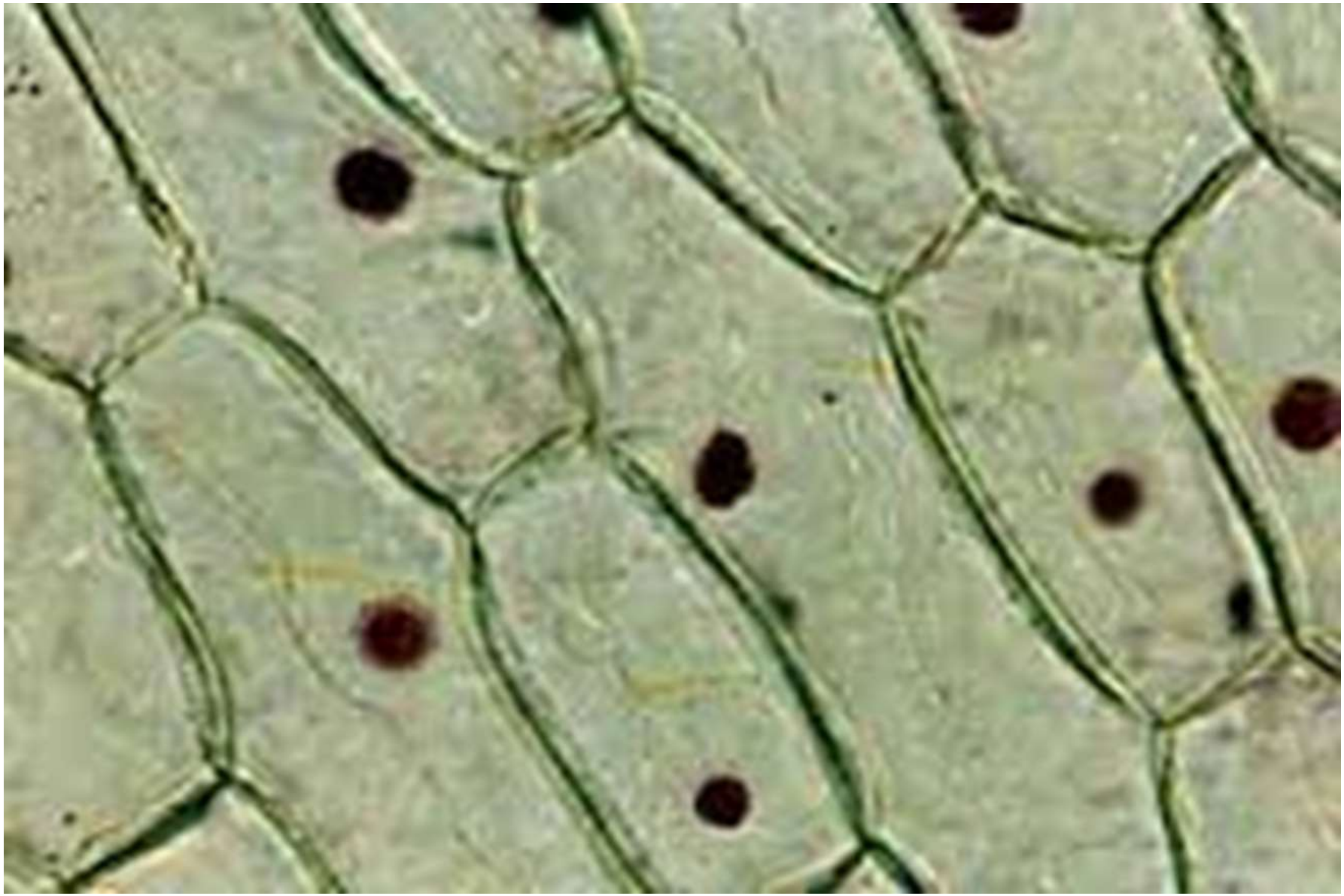
1. **Cell Wall** (**plants** only)

   * provides **support and protection**







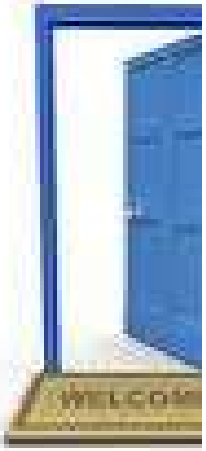


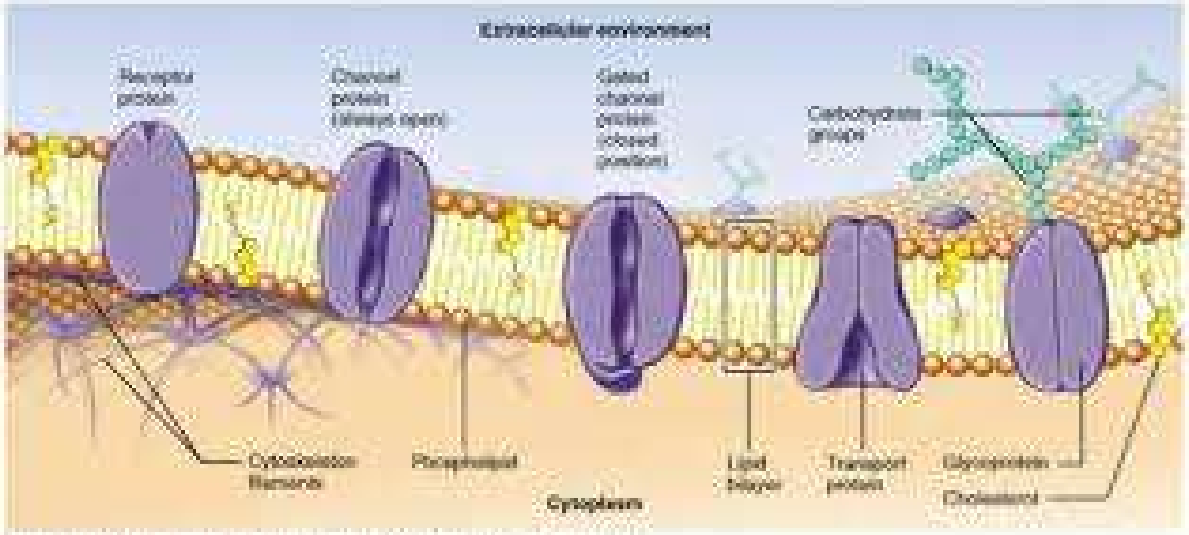
Organelles

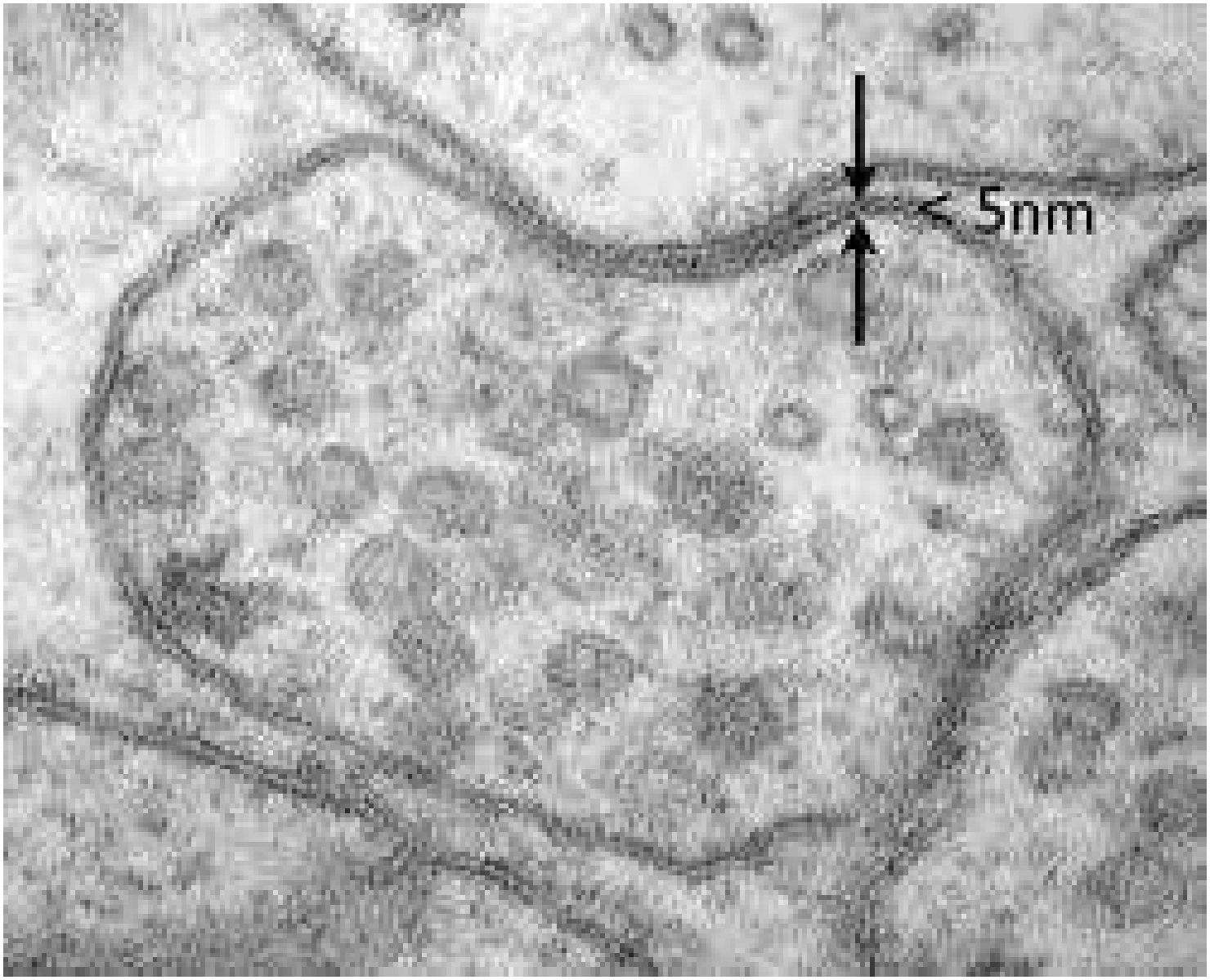
2. **Membrane**

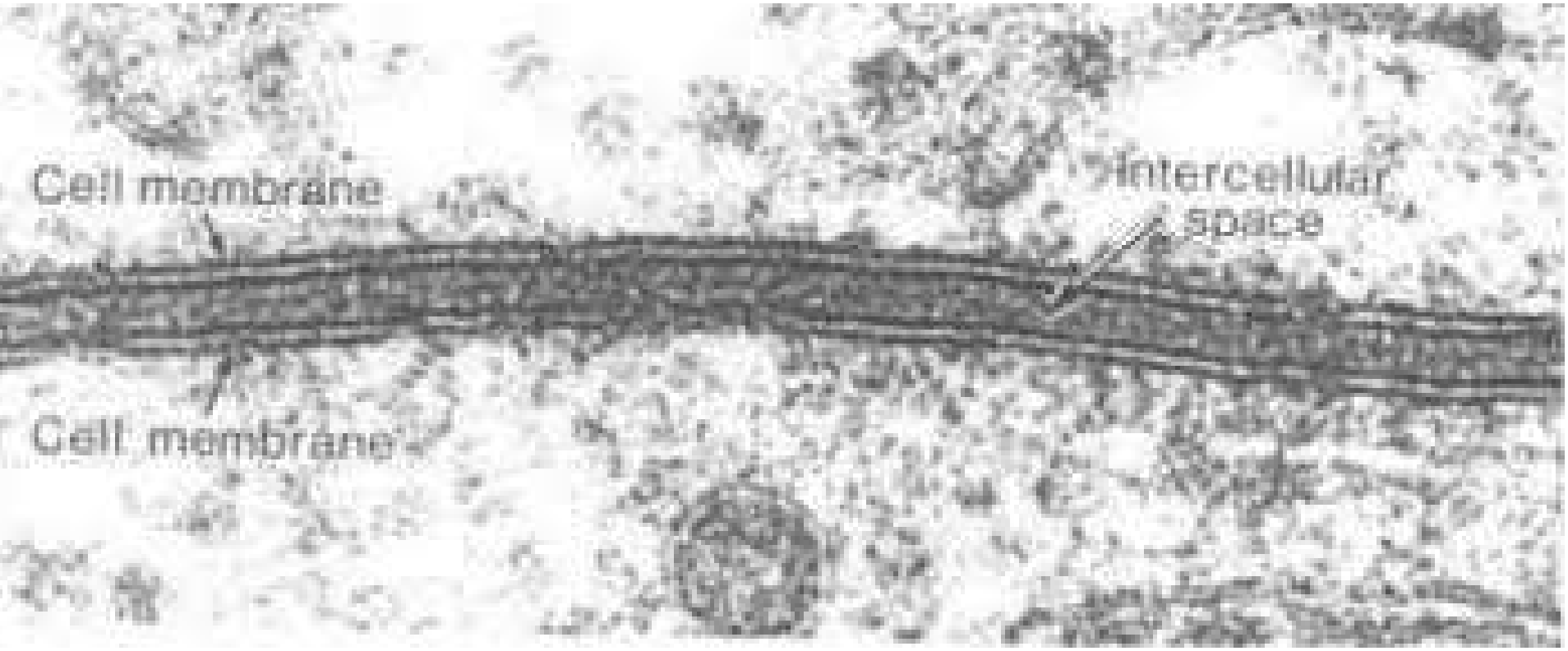
* doorway to the cell

(it is **semipermeable**)





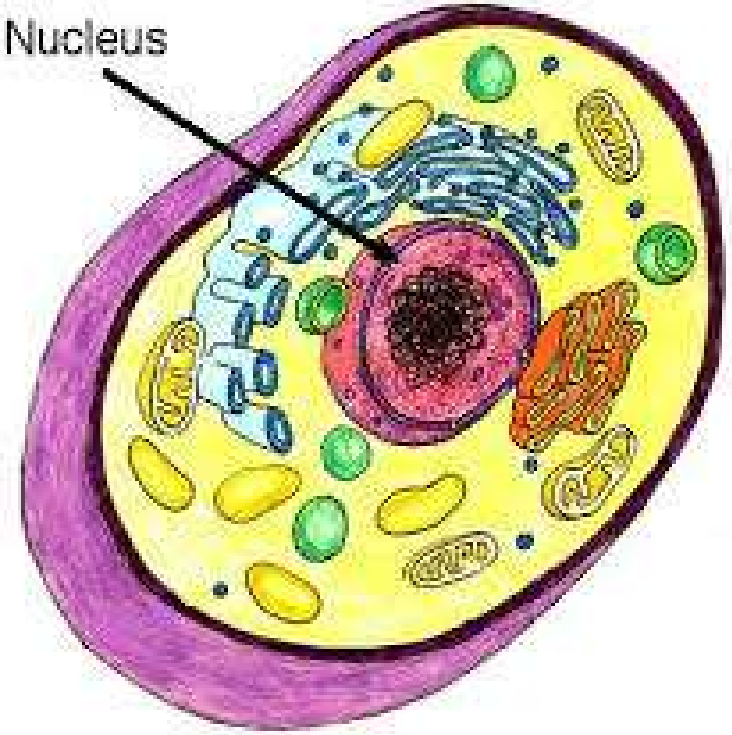

< 5nm

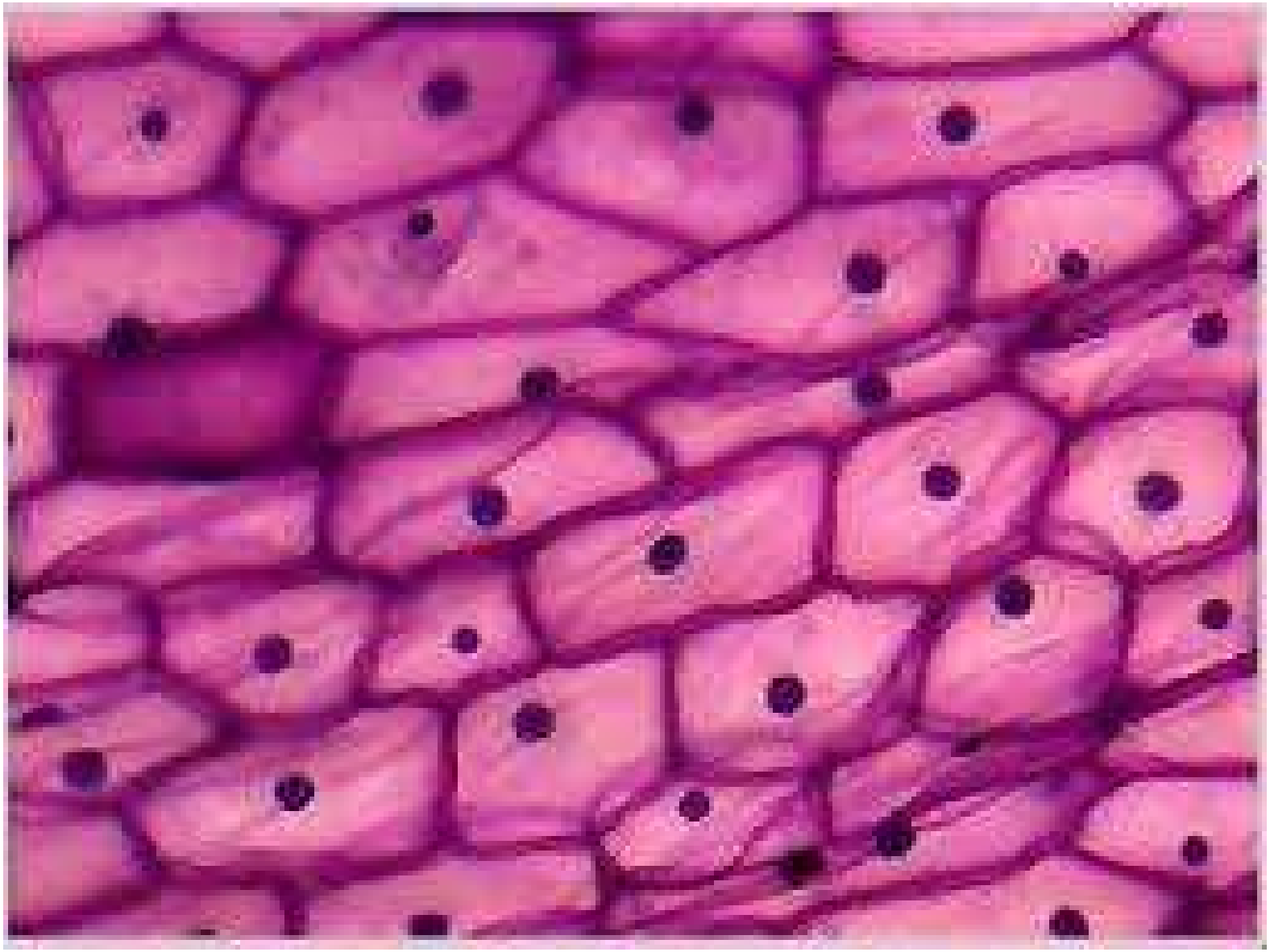

Cell membrane
Intercellular space
Cell membrane

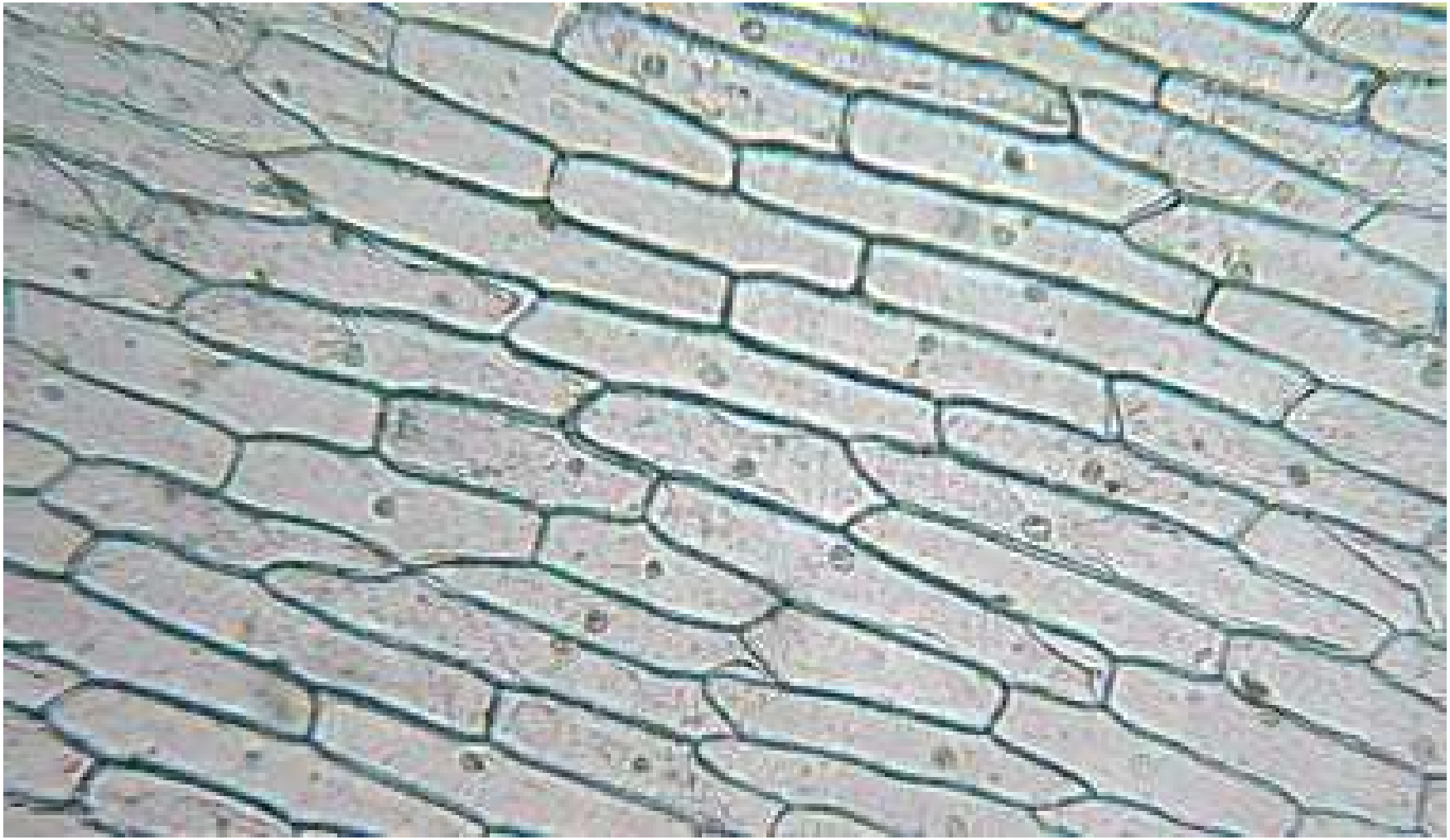
Organelles

3. **Nucleus**

*** control center of cell**







Organelles

3. **Nucleus** (found inside are):

   * **nuclear membrane**
     (doorway to the nucleus)

Organelles

3. **Nucleus** (found inside are):

* nuclear membrane
  (doorway to the nucleus)

* **chromosomes**

  (these direct activities)

Organelles

3. **Nucleus** (found inside are):

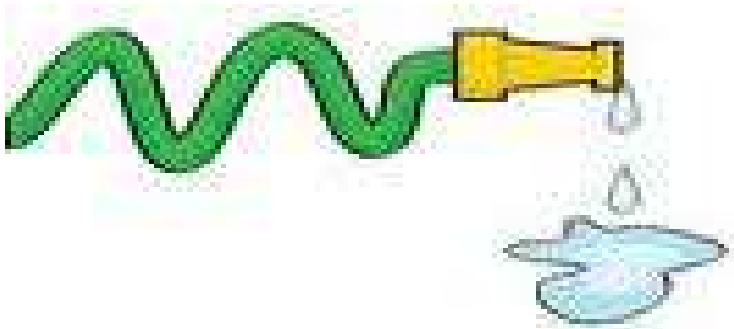
* nuclear membrane
  (doorway to the nucleus)
* chromosomes
  (these direct activities)
* **nucleolus** (little nucleus)

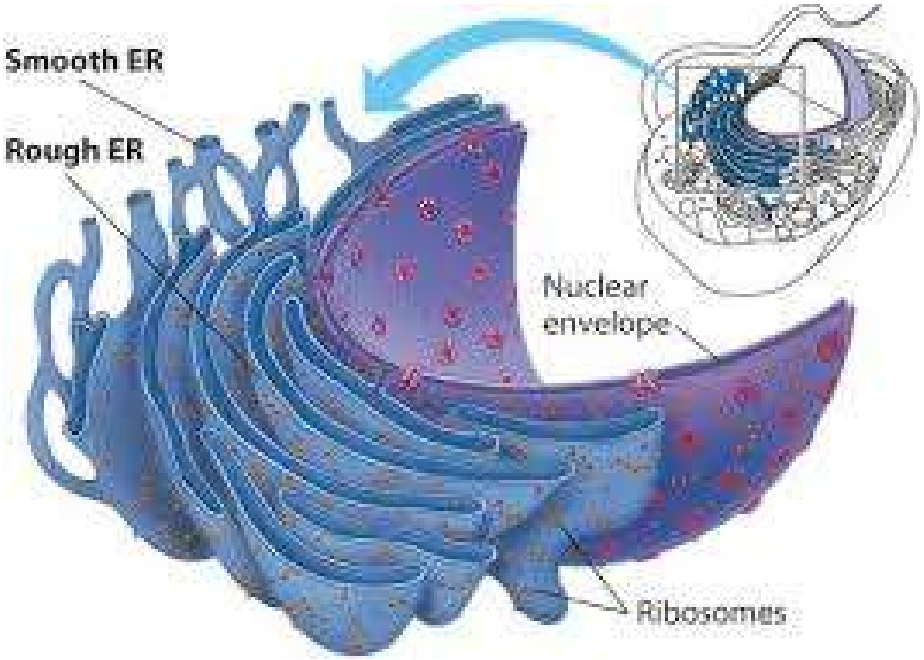
Organelles

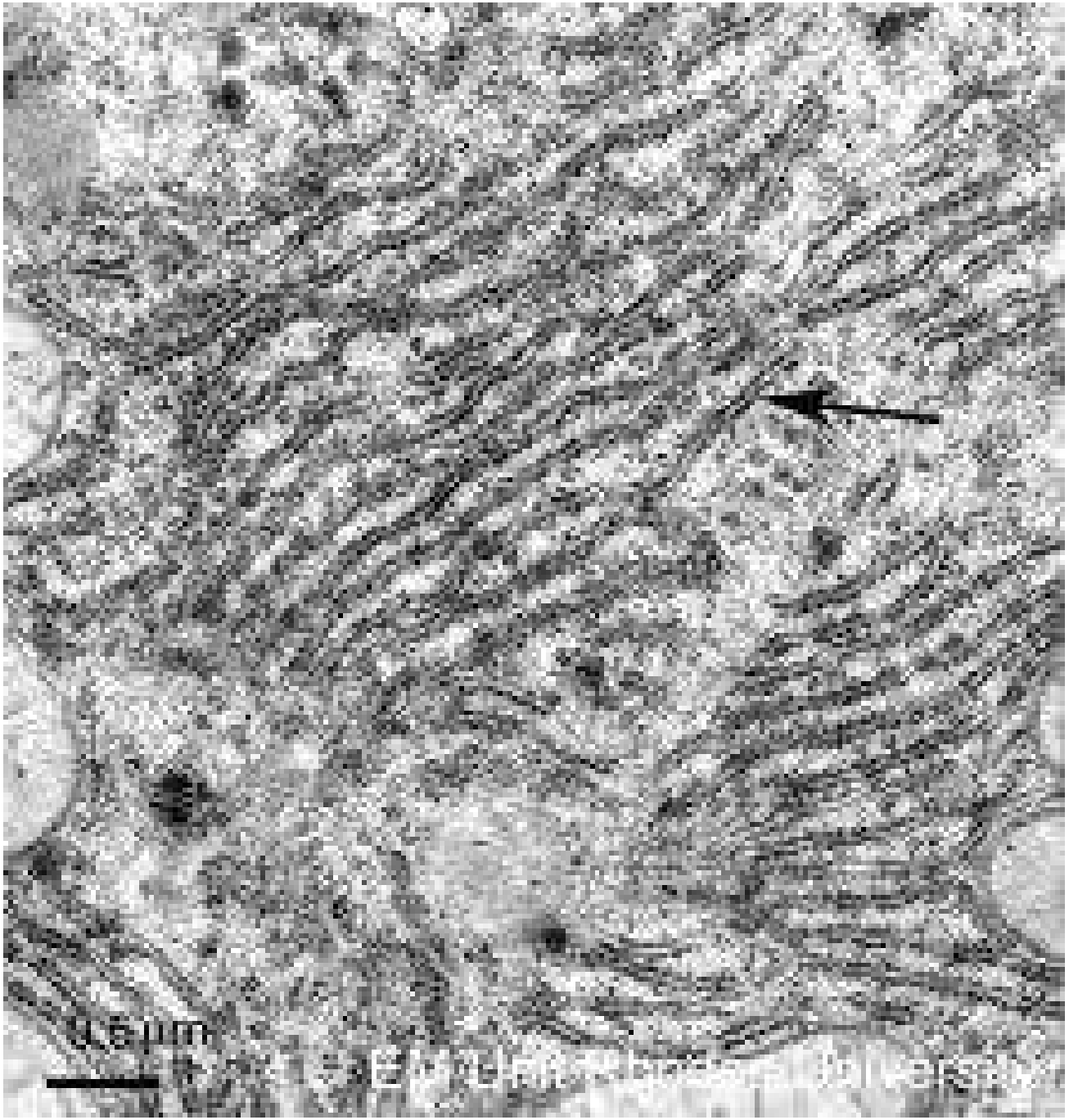
4. Endoplasmic reticulum

* **transportation system**

(carries proteins)



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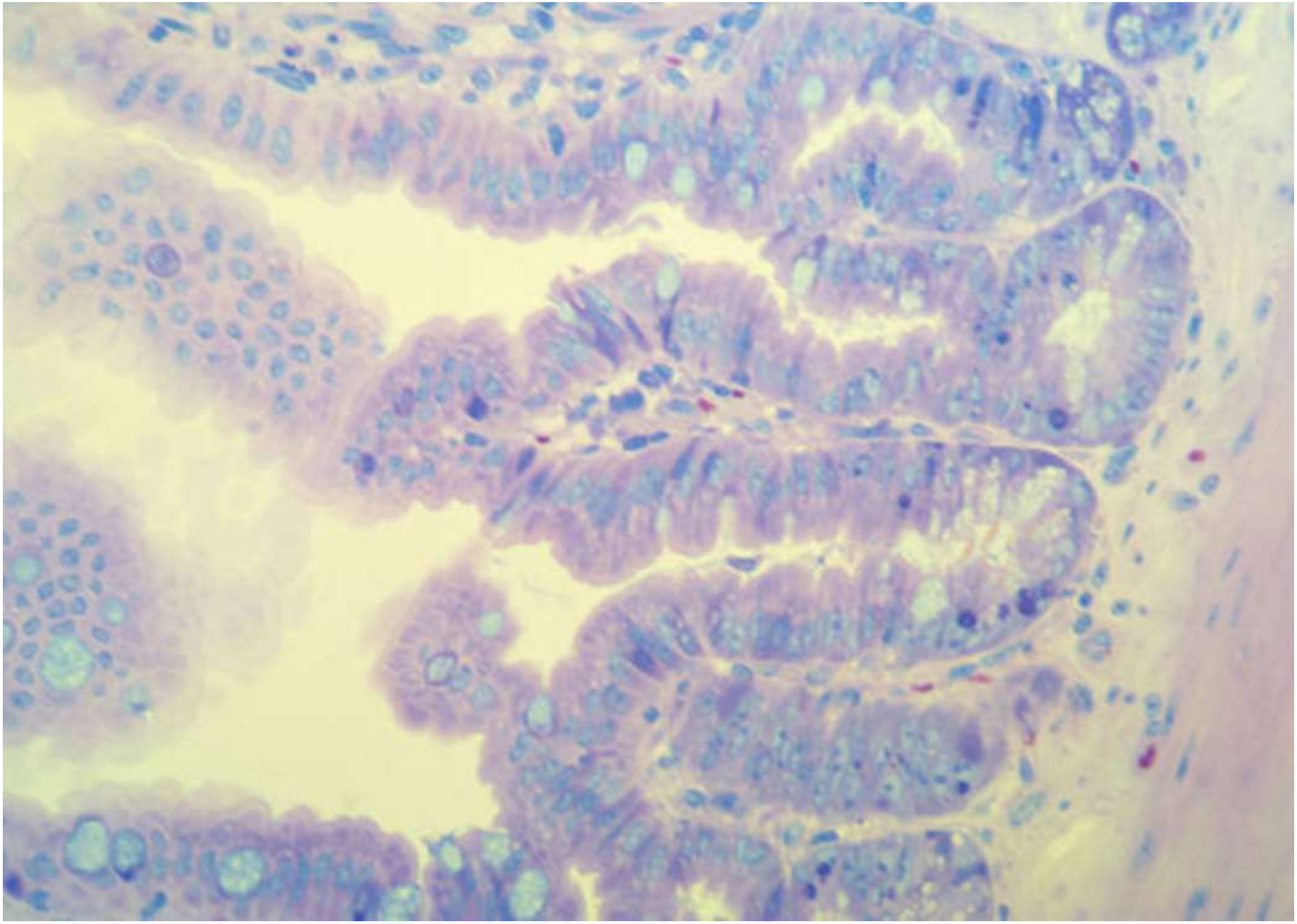
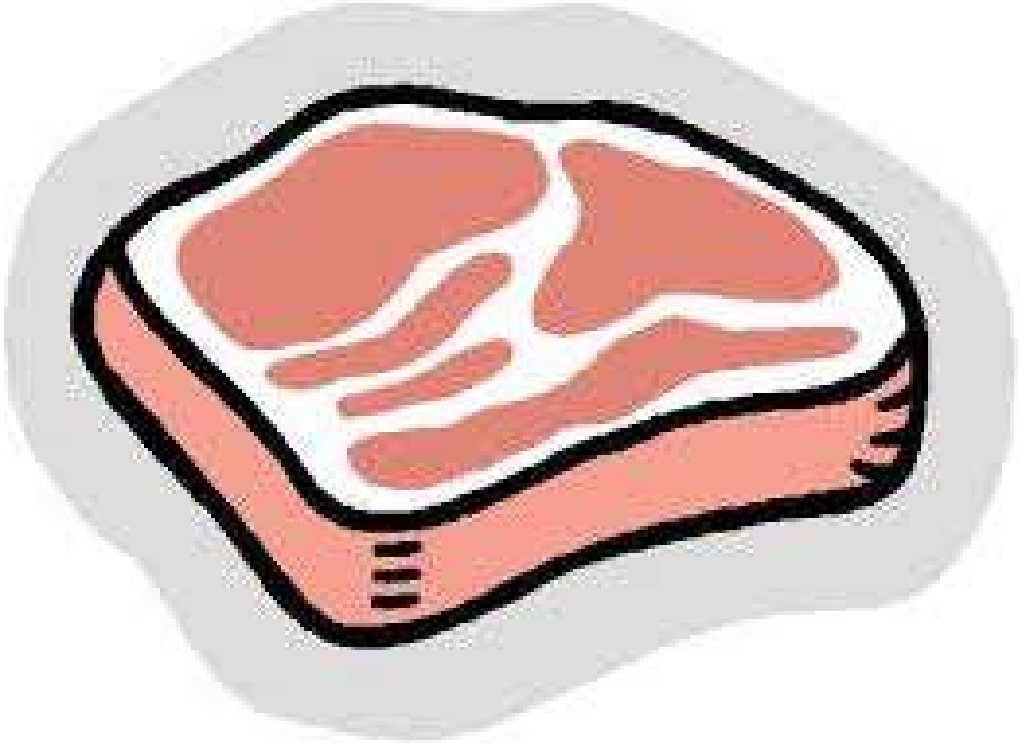
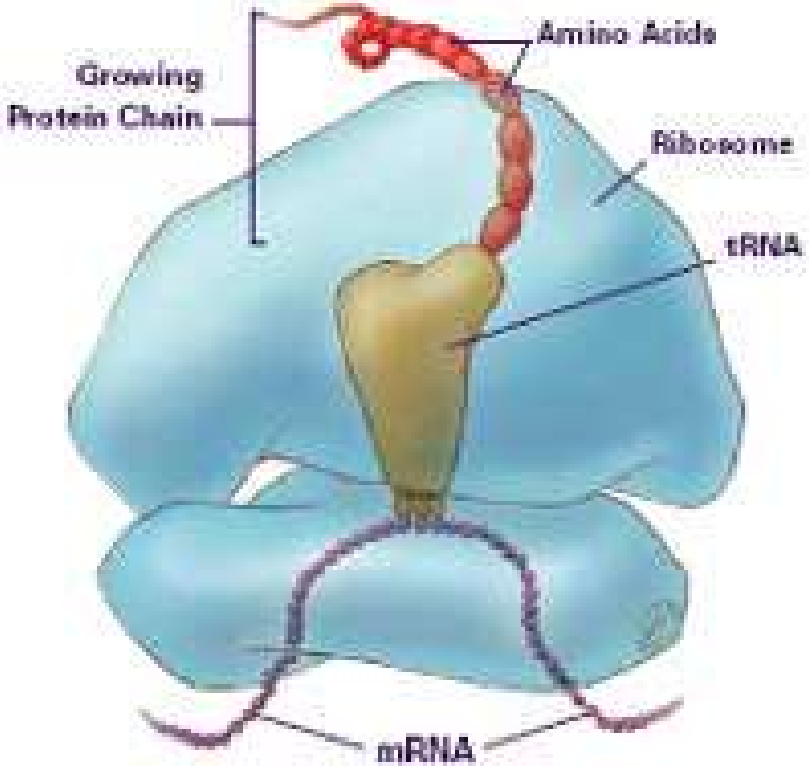


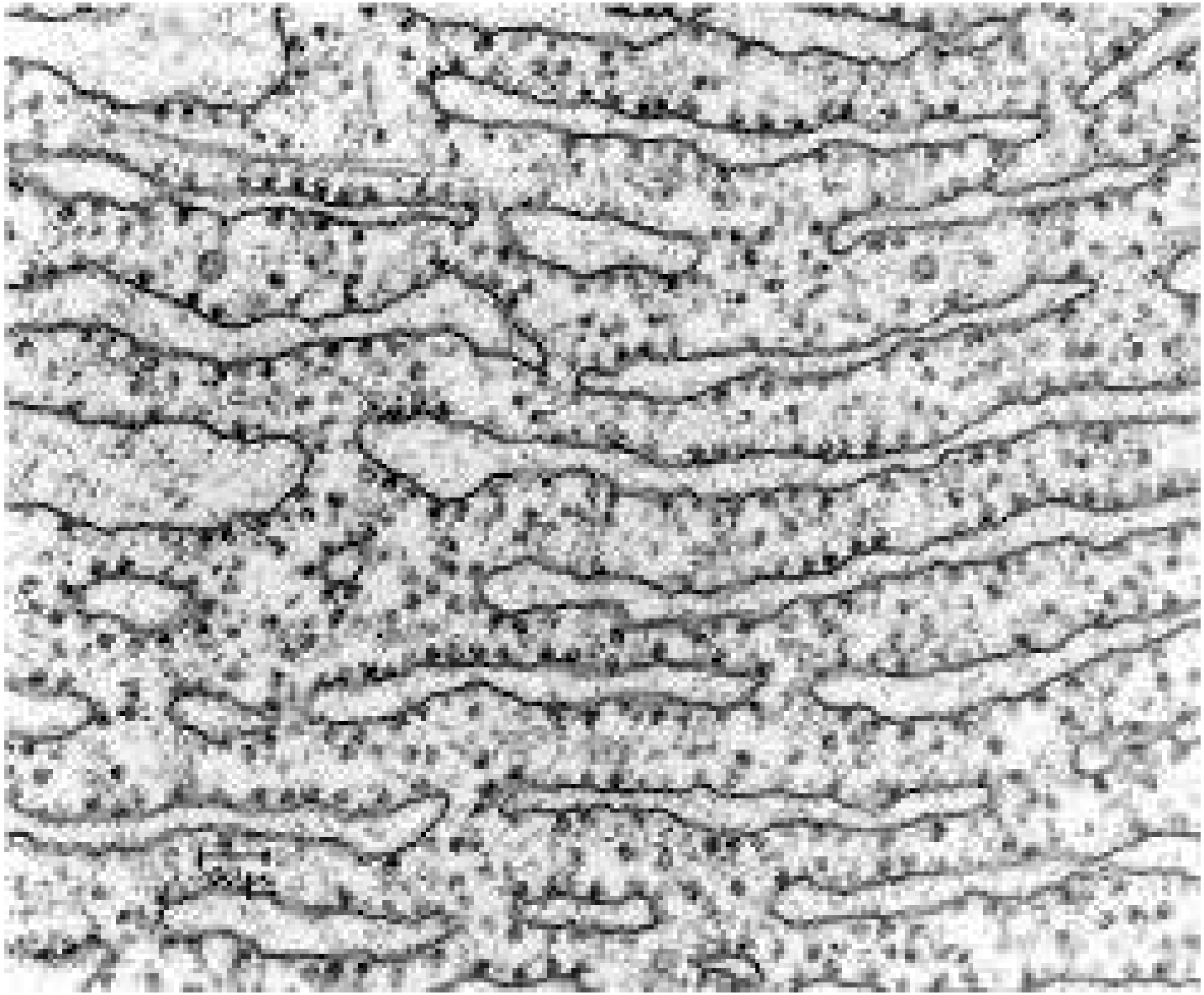
Organelles

5. Ribosomes

* protein factories



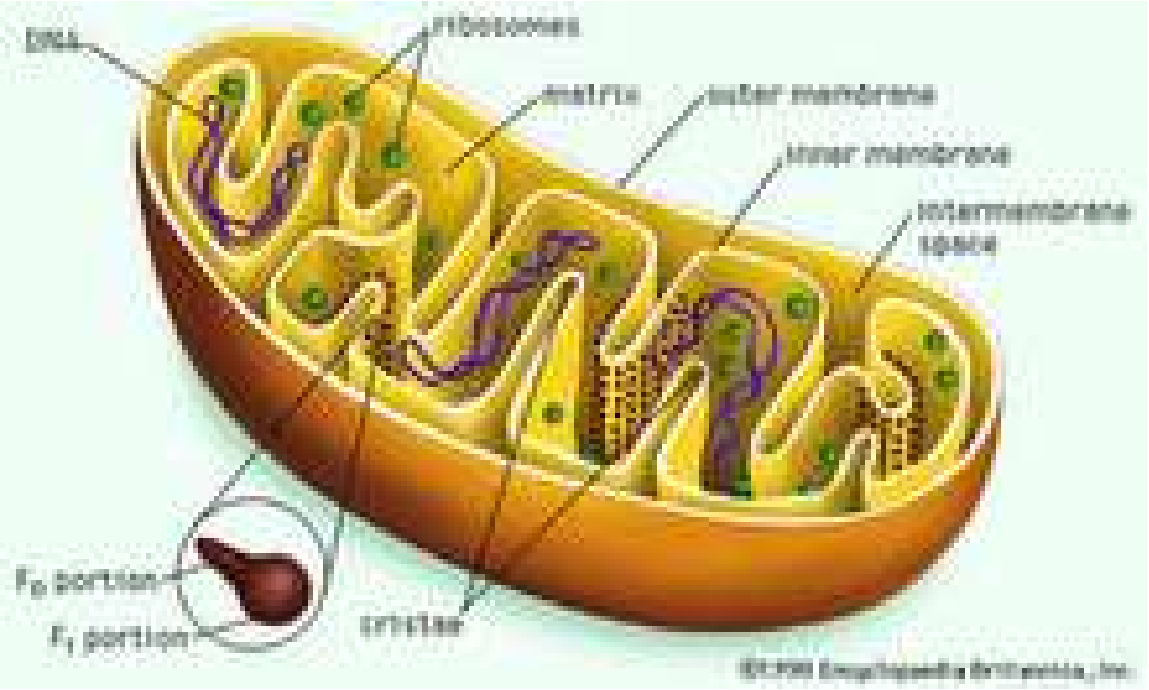


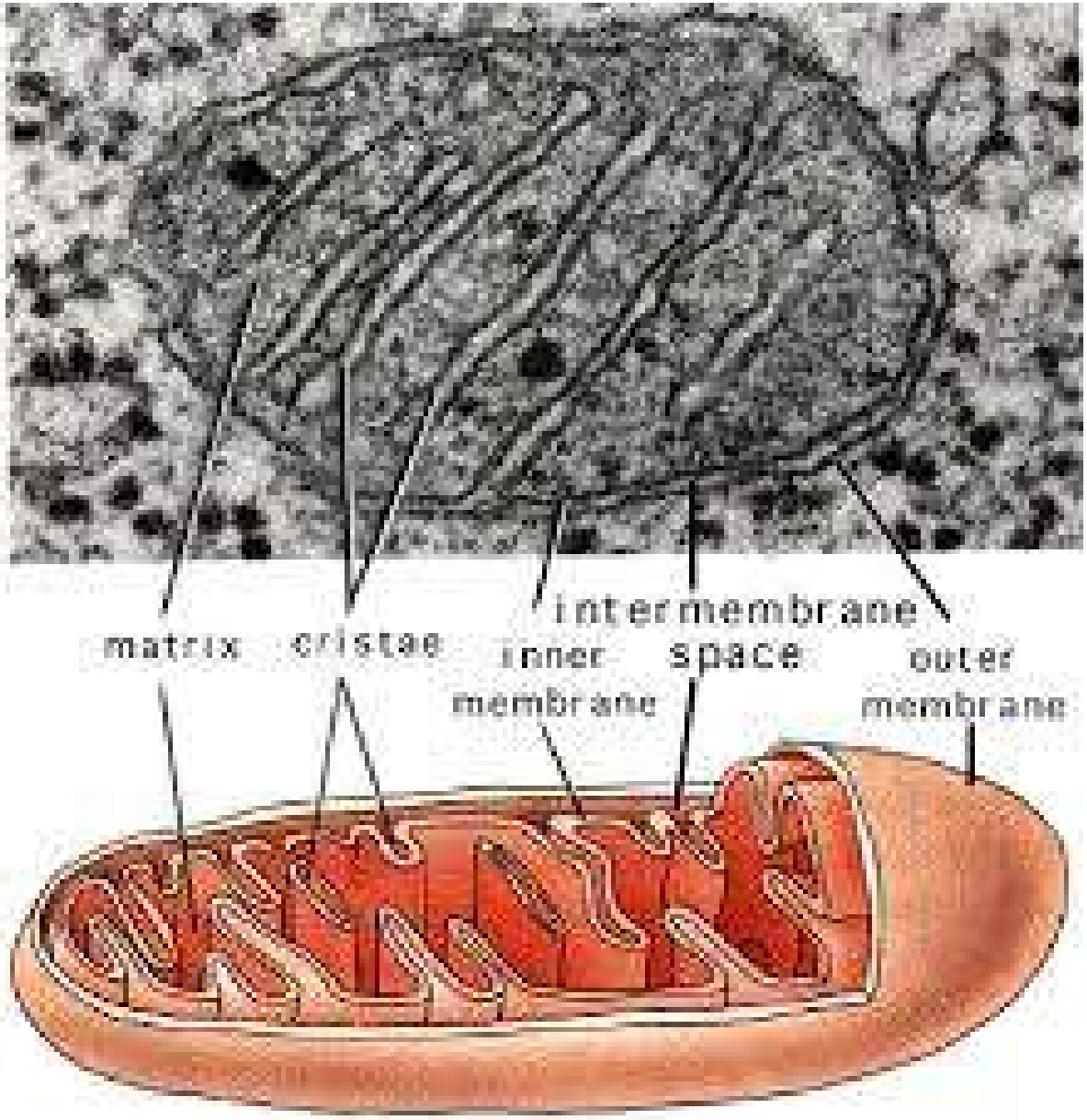


Organelles

6. **Mitochondria**

*** powerhouse of the cell**

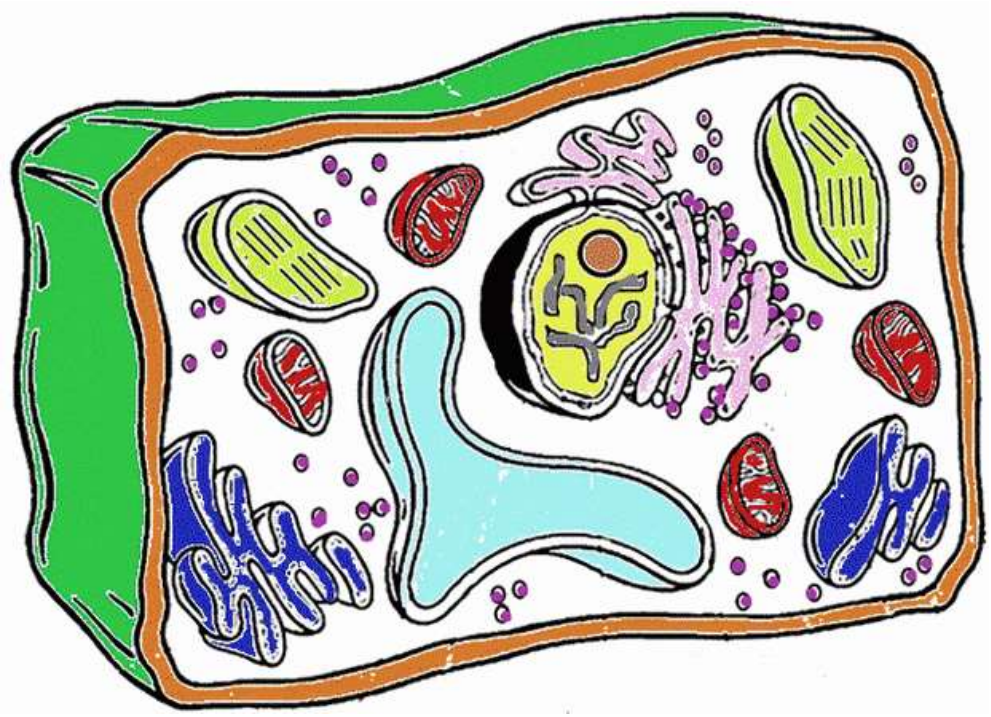


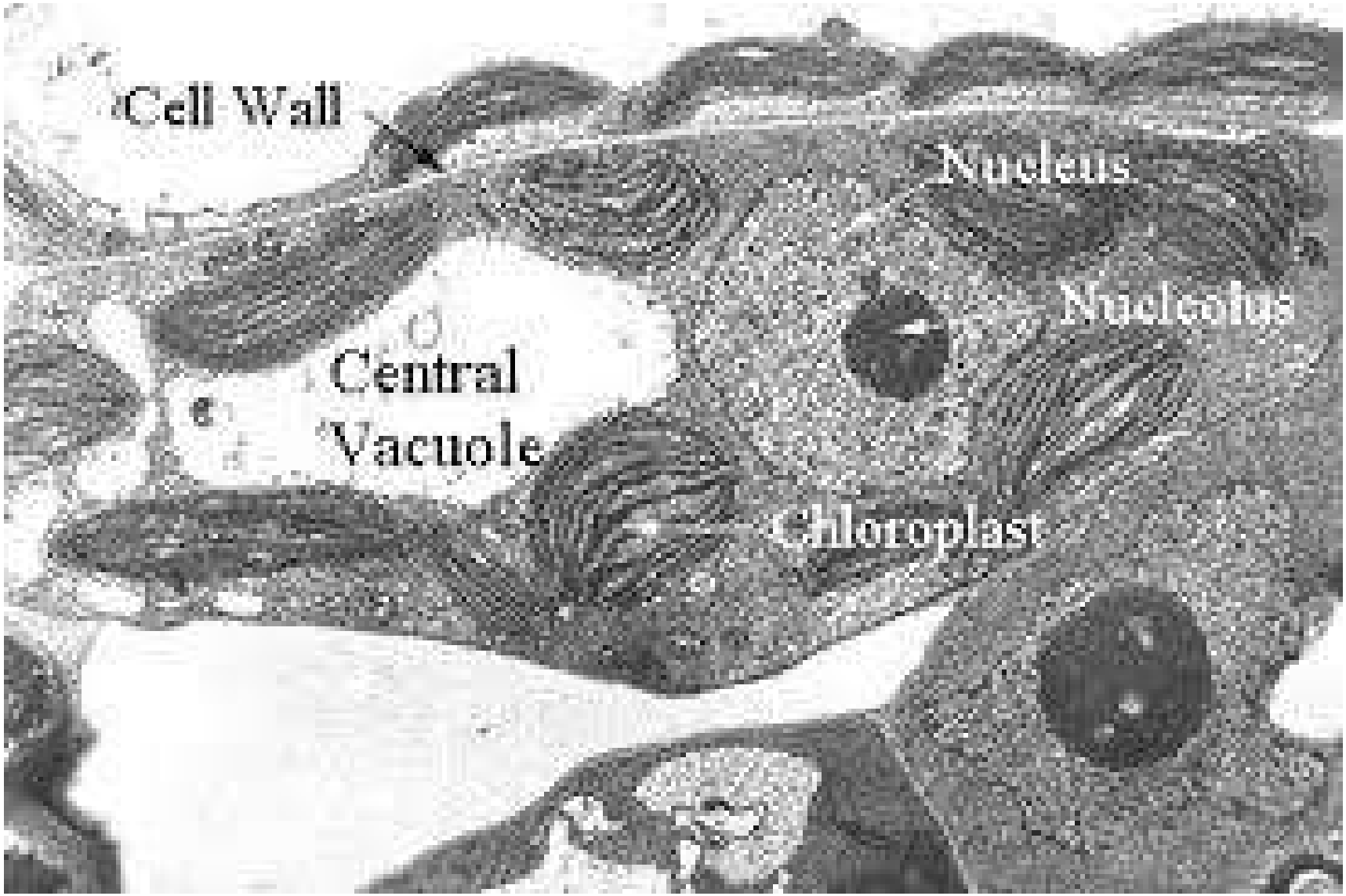

matrix
cristae
intermembrane
space
inner
membrane
outer
membrane

Organelles

7. Vacuoles

* storage tanks (food and water)

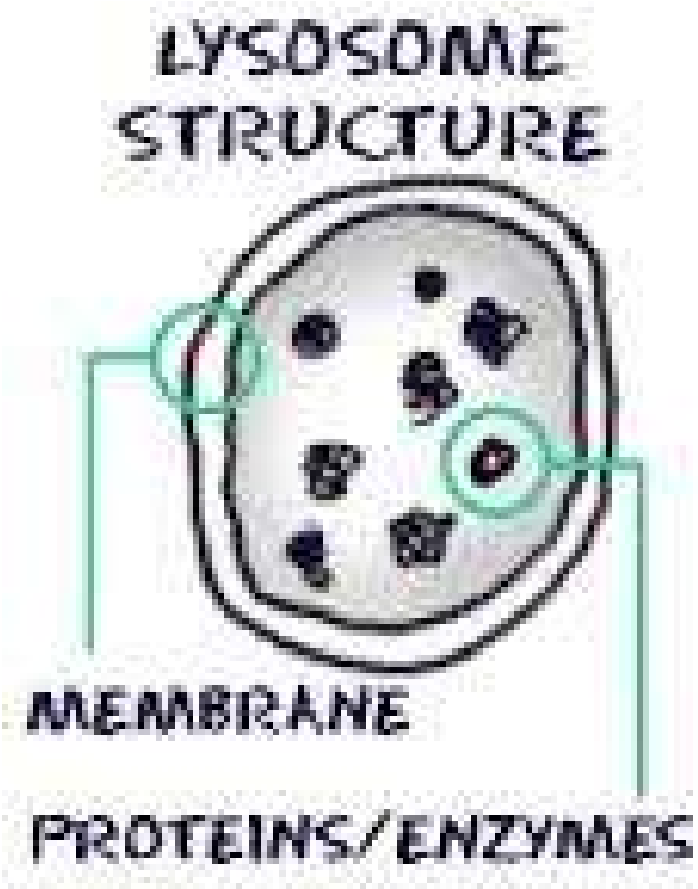


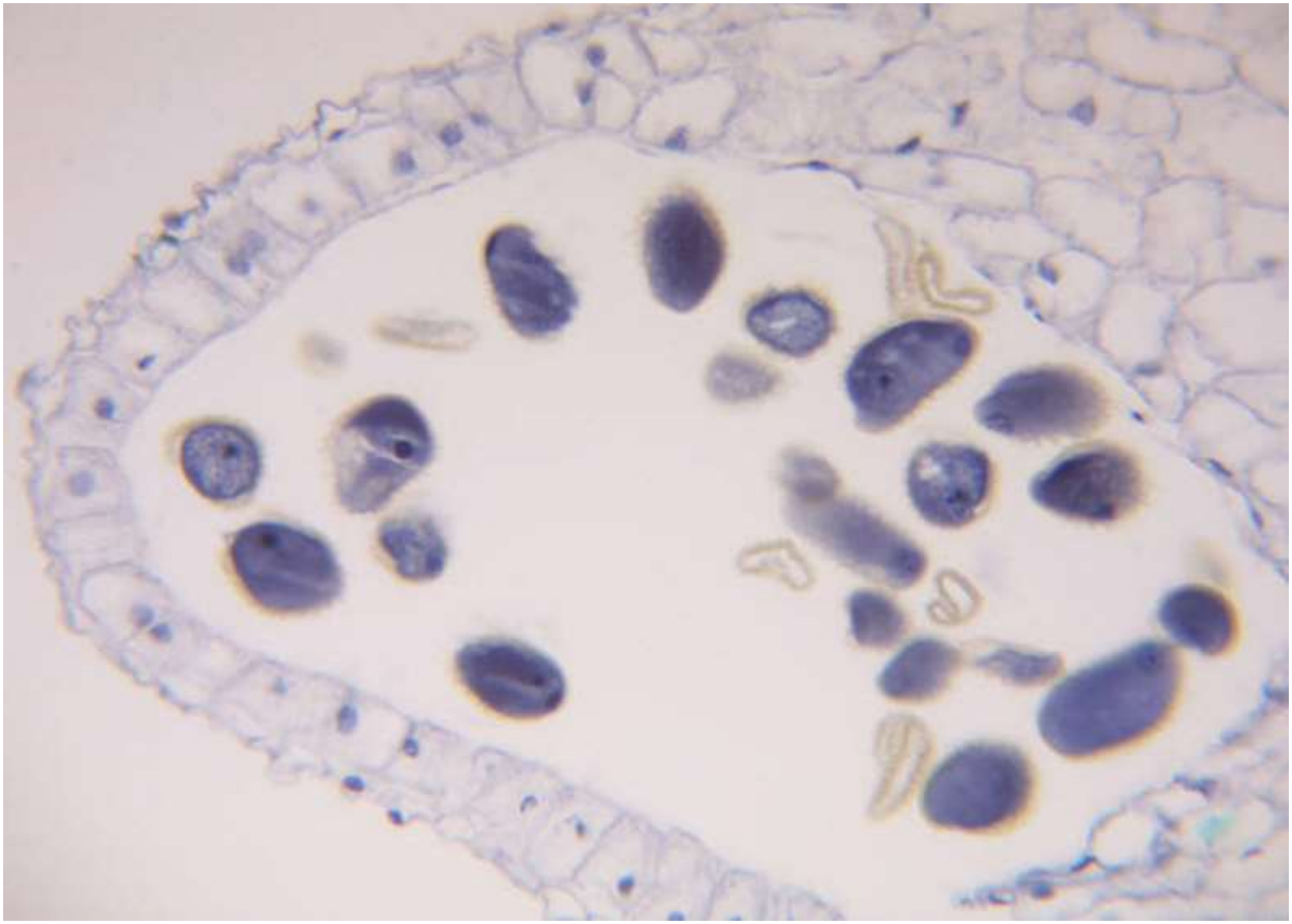

Cell Wall
Nucleus
Nucleolus
Central
Vacuole
Chloroplast

Organelles

8. **Lysosomes**

* **clean-up crew**

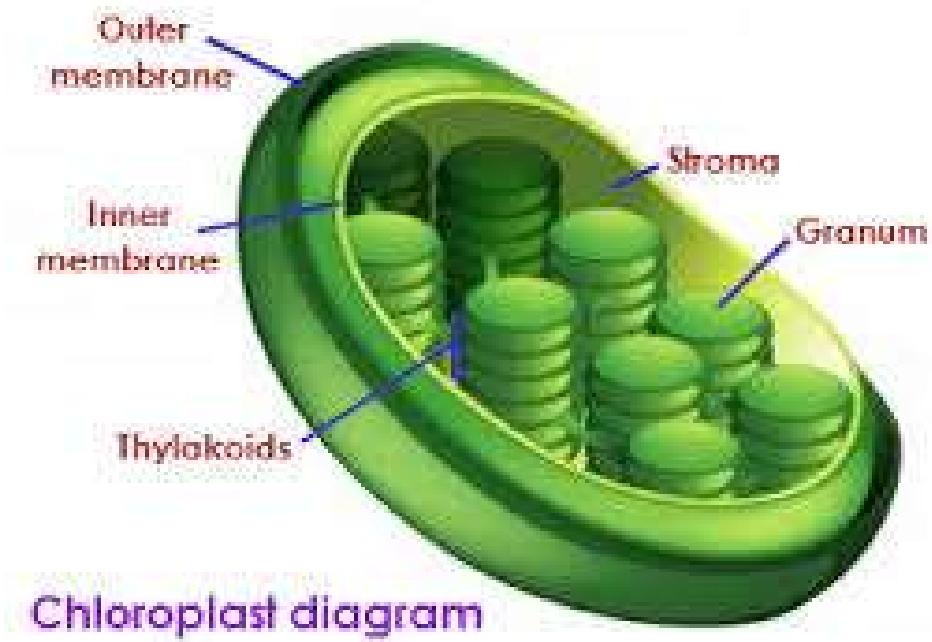


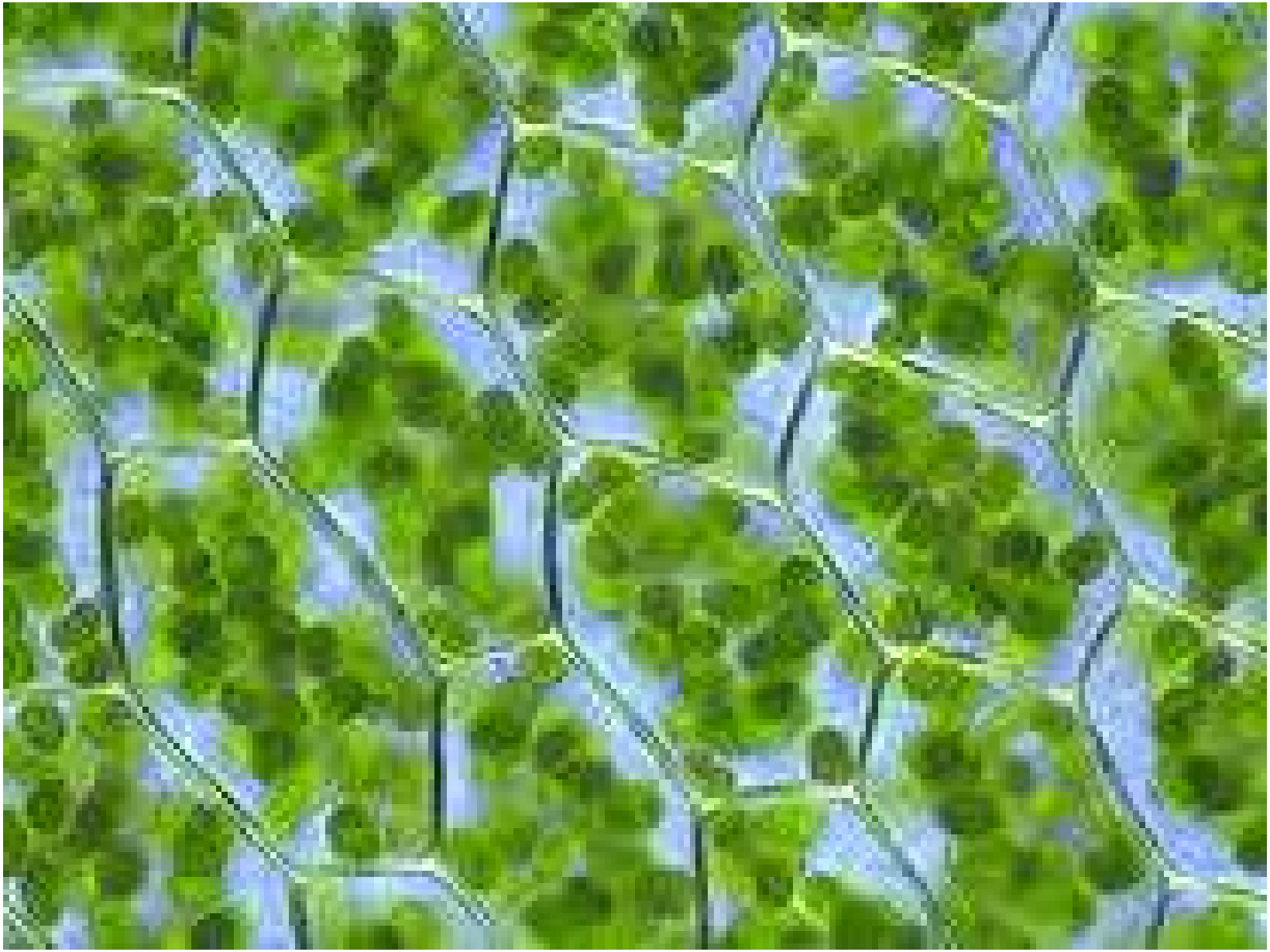


Organelles

9. **Chloroplasts** (plants only)

*** energy producers**

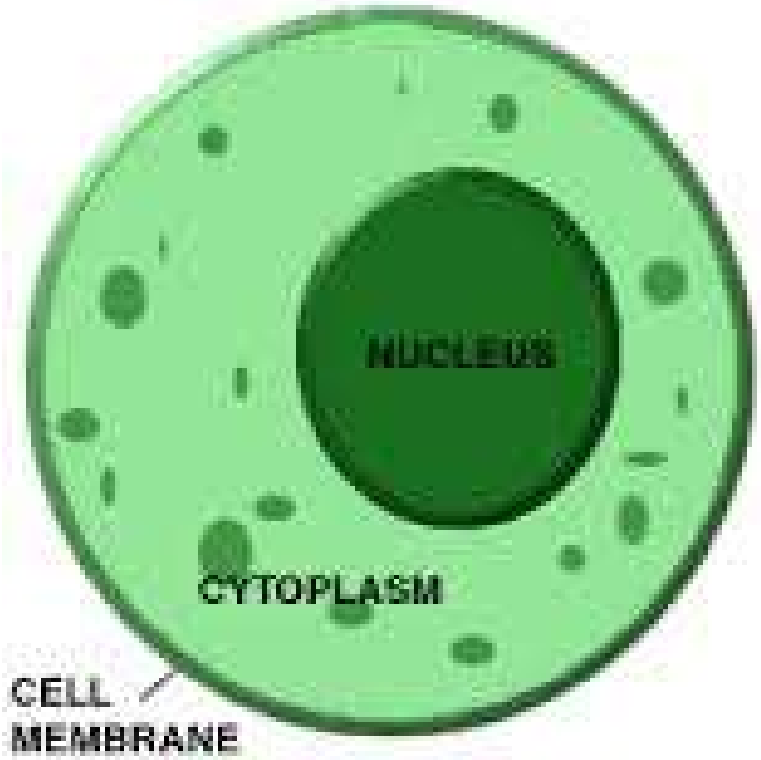




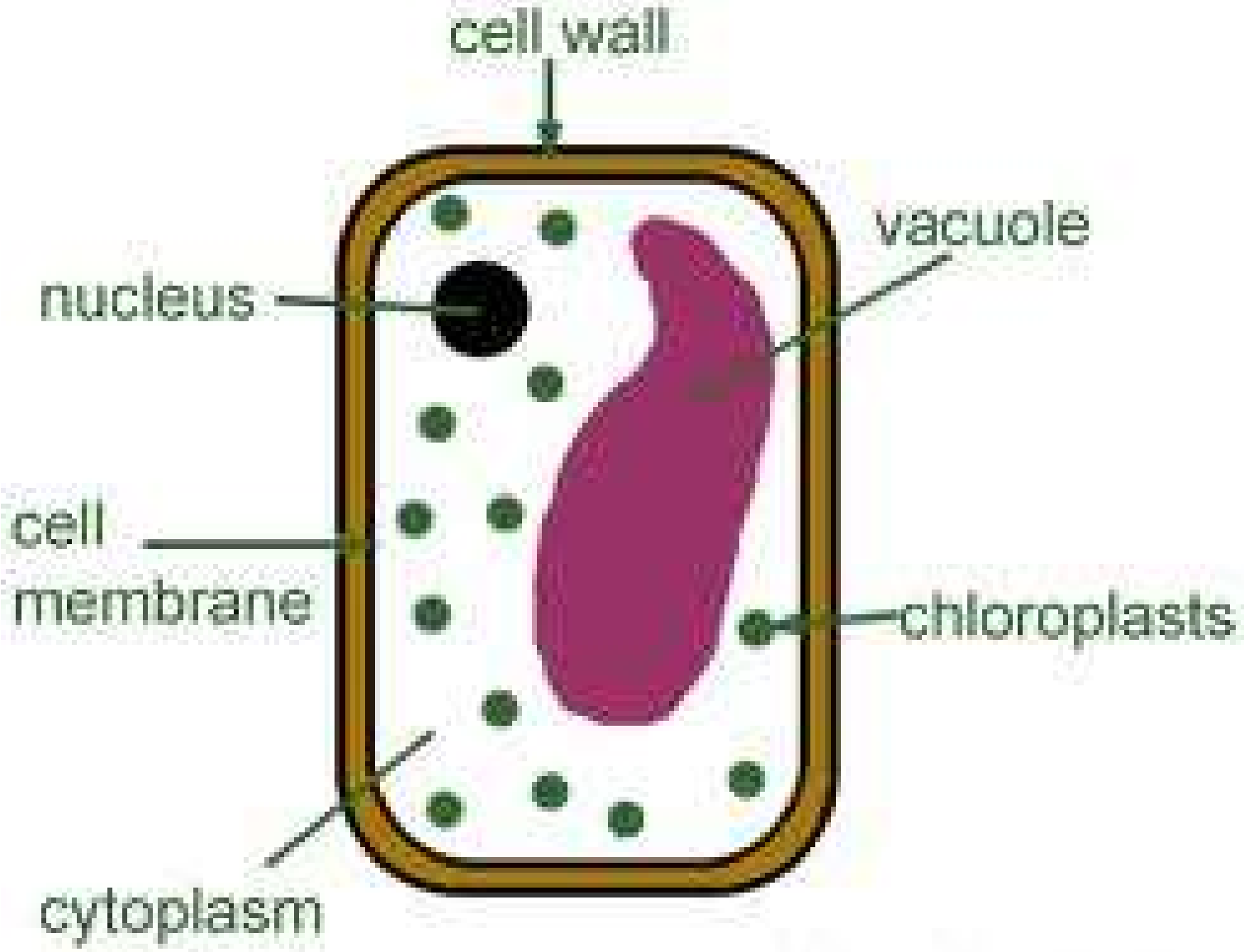
Organelles

10. Cytoplasm

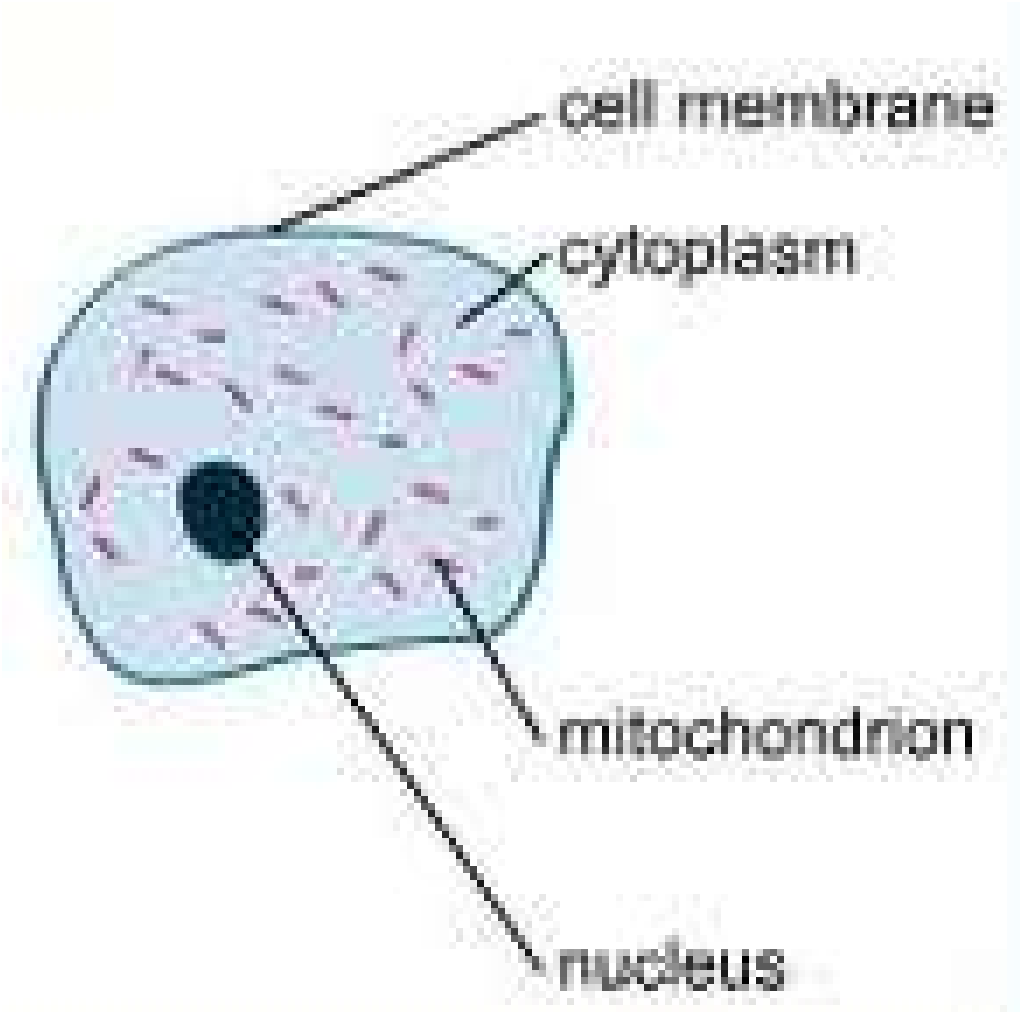
* jelly-like material inside a cell

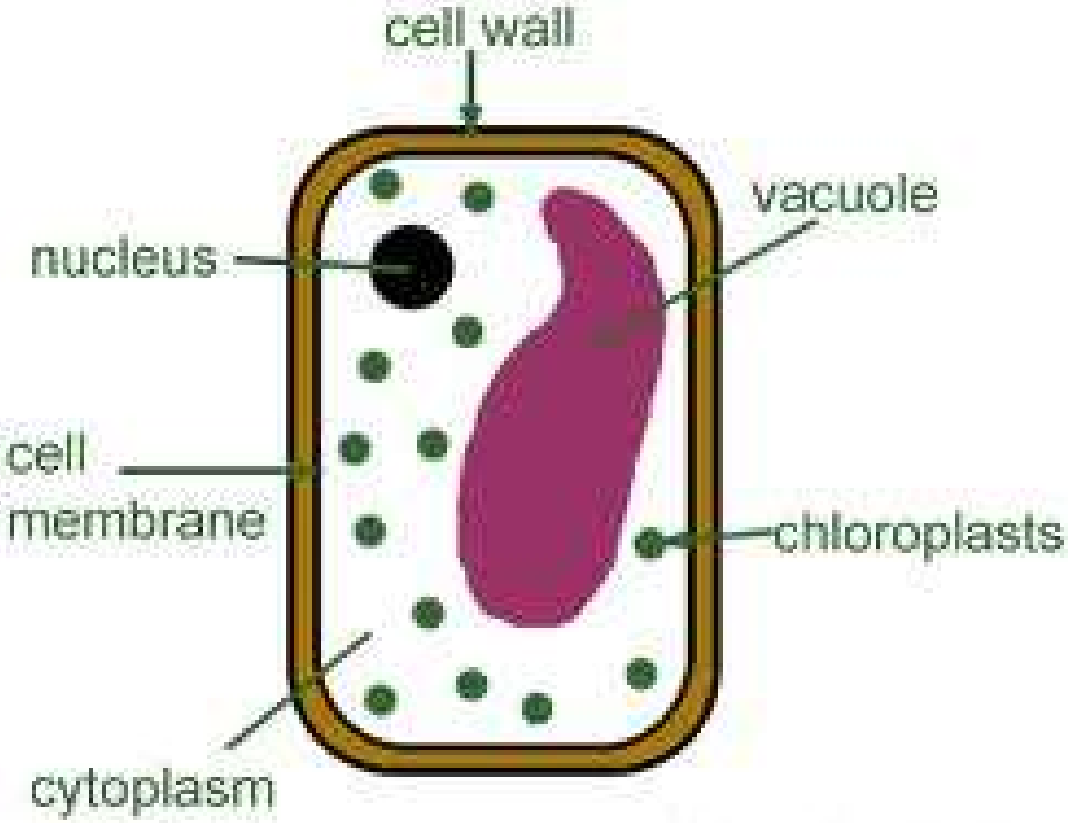


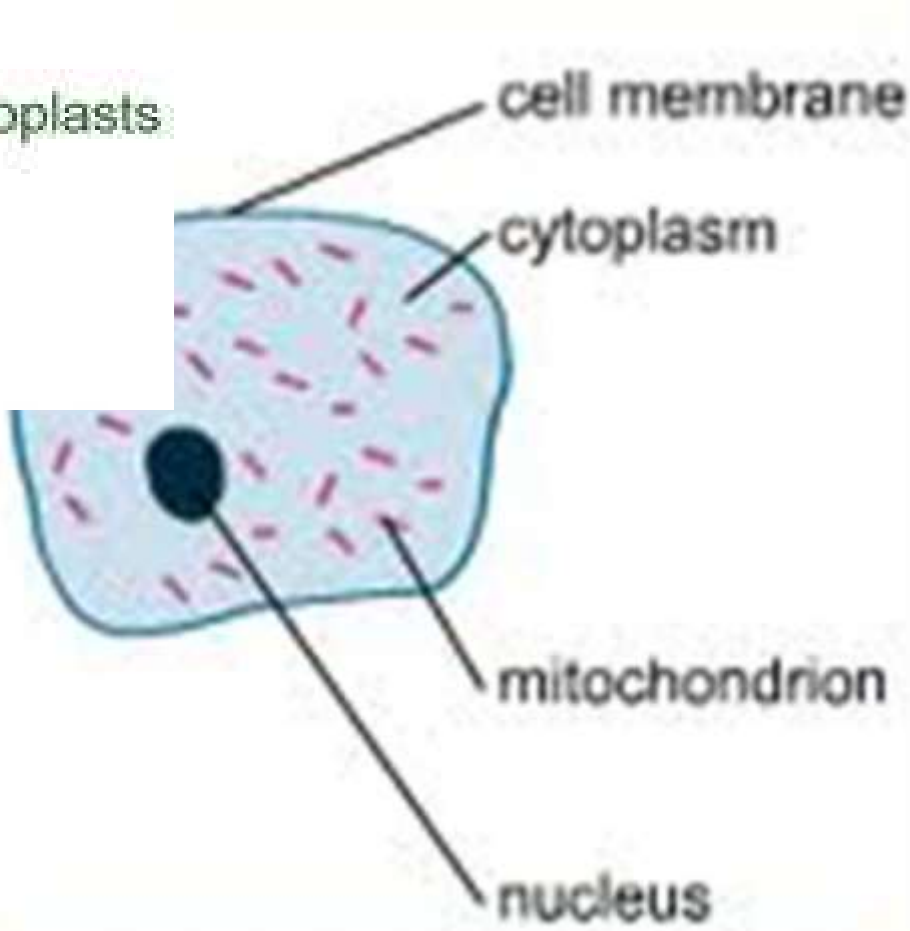
Typical Plant Cell



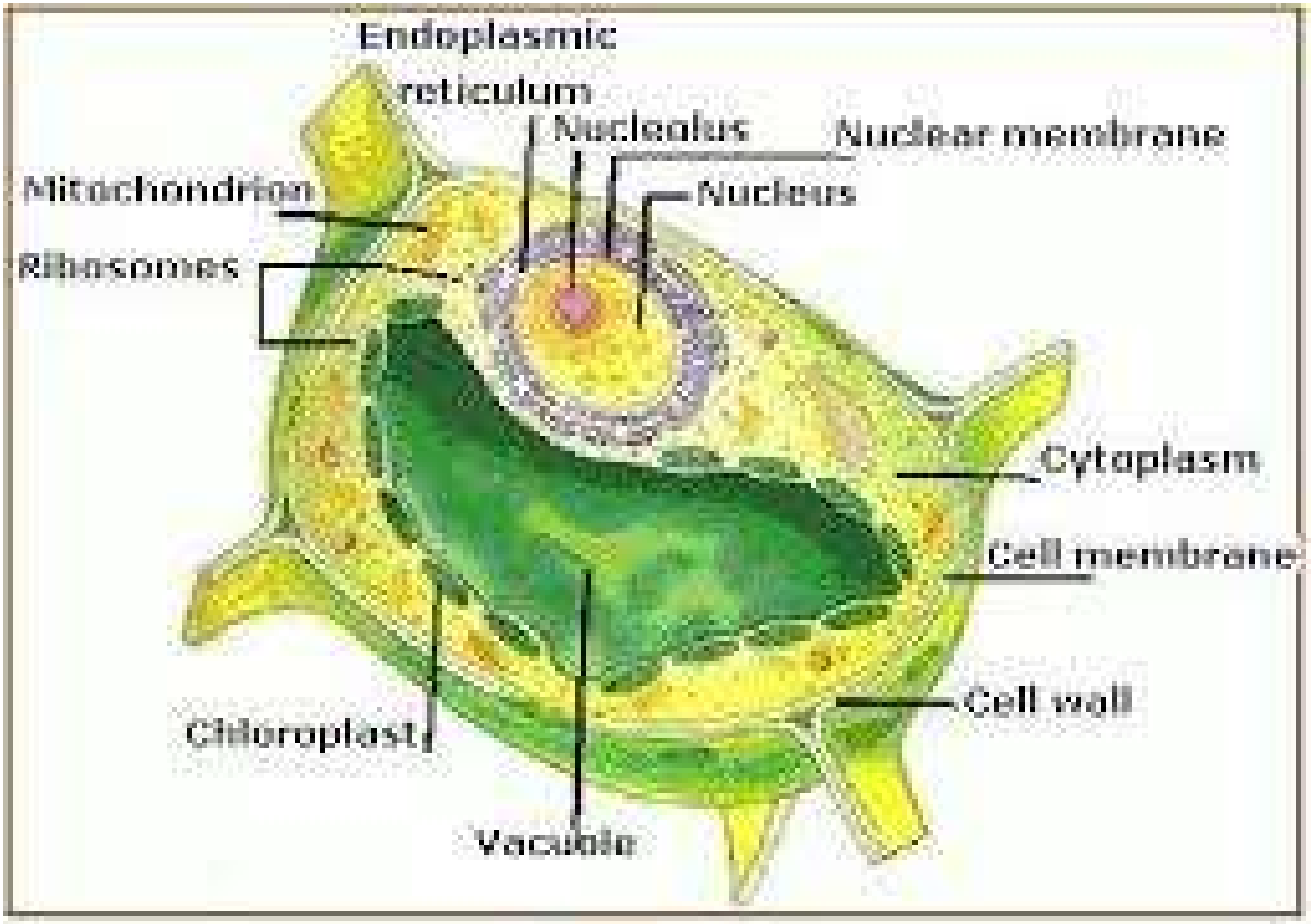
Typical Animal Cell




cell wall
vacuole
nucleus
cell
membrane
chloroplasts
cytoplasm

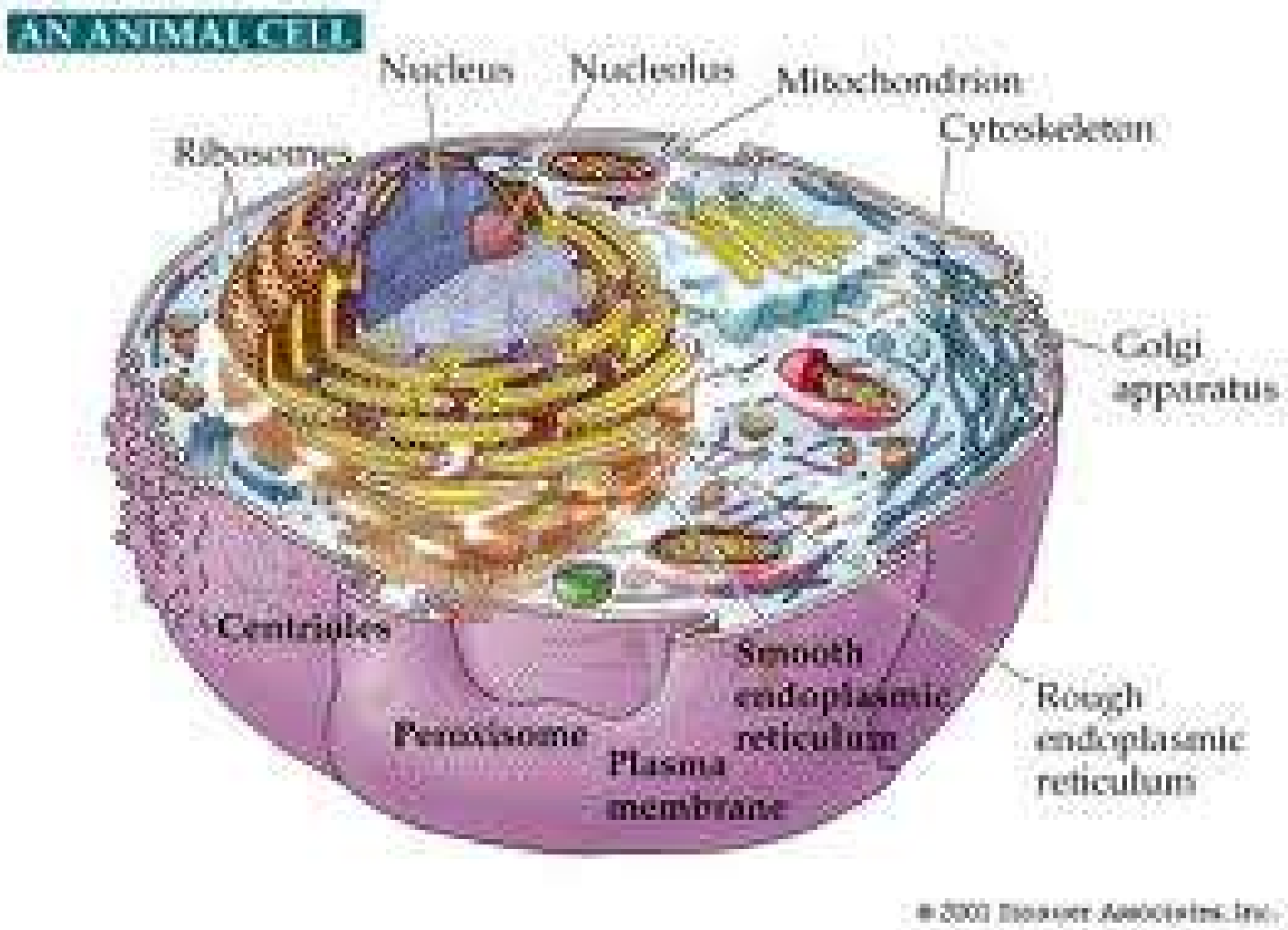

cell membrane
cytoplasm
mitochondrion
nucleus

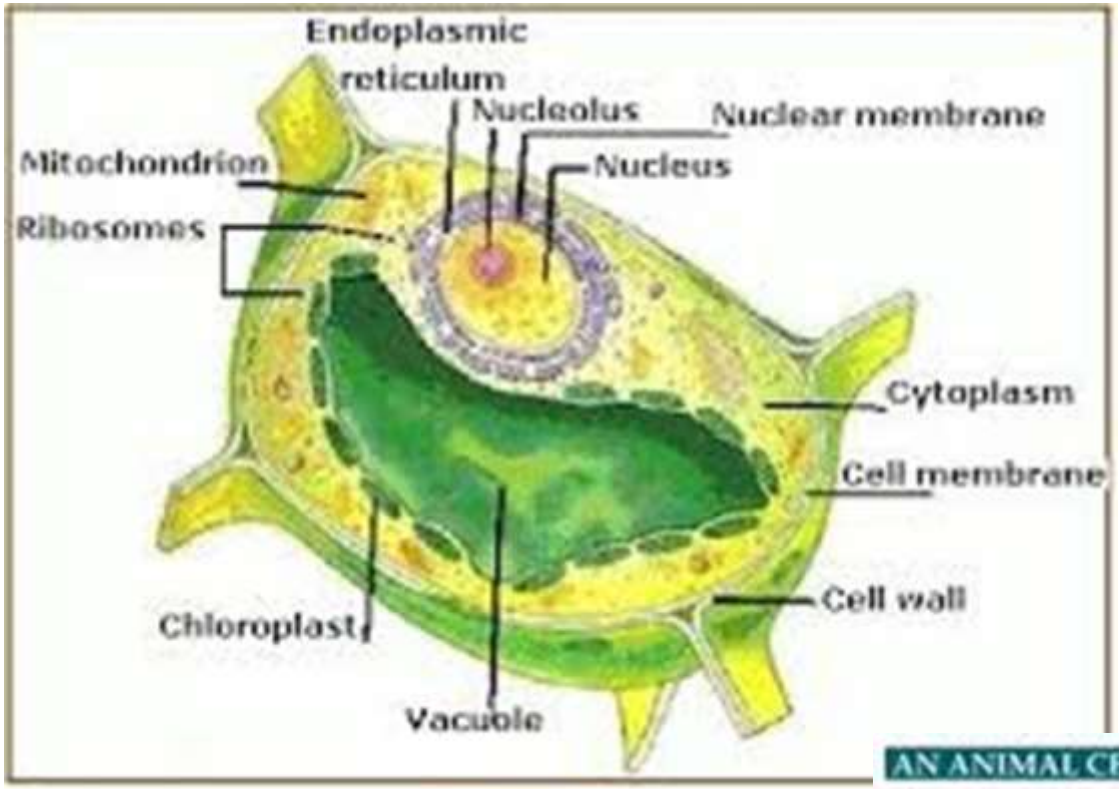
Typical Plant Cell



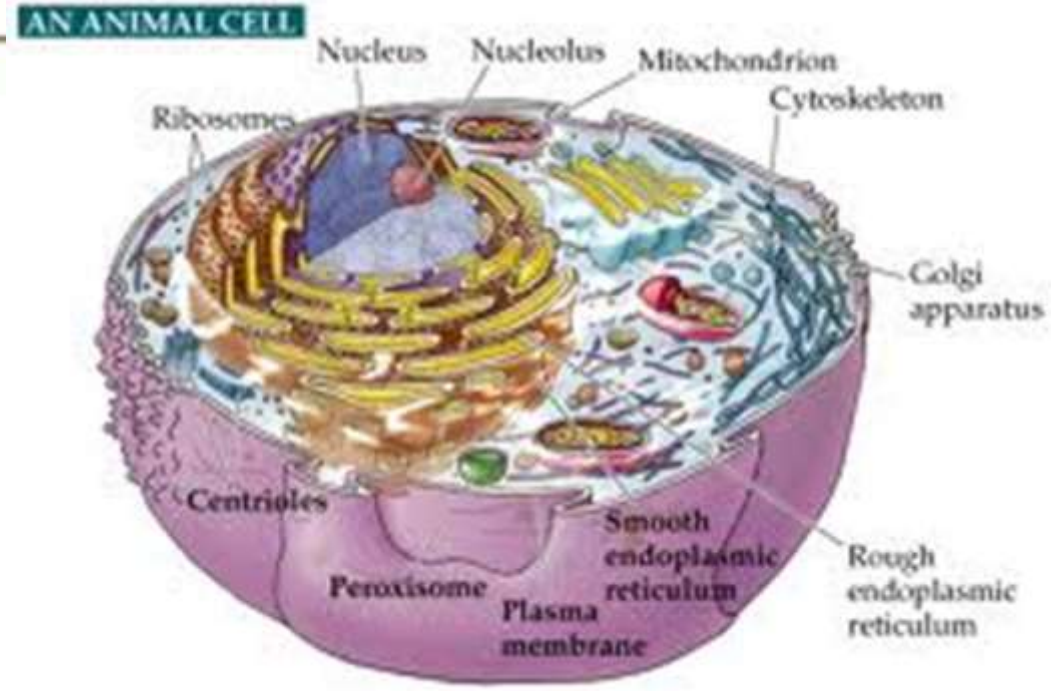
Plant Cell

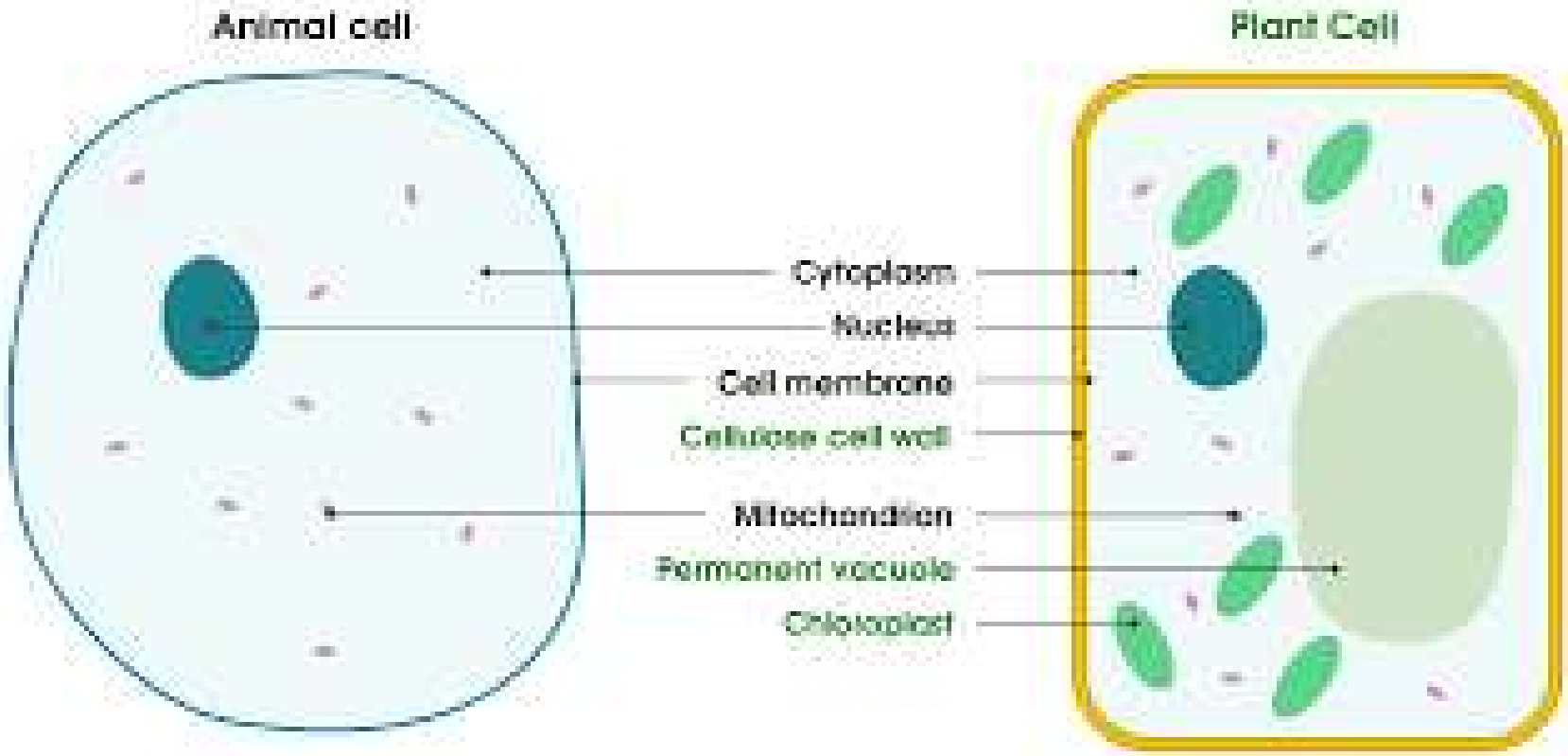
Typical Animal Cell

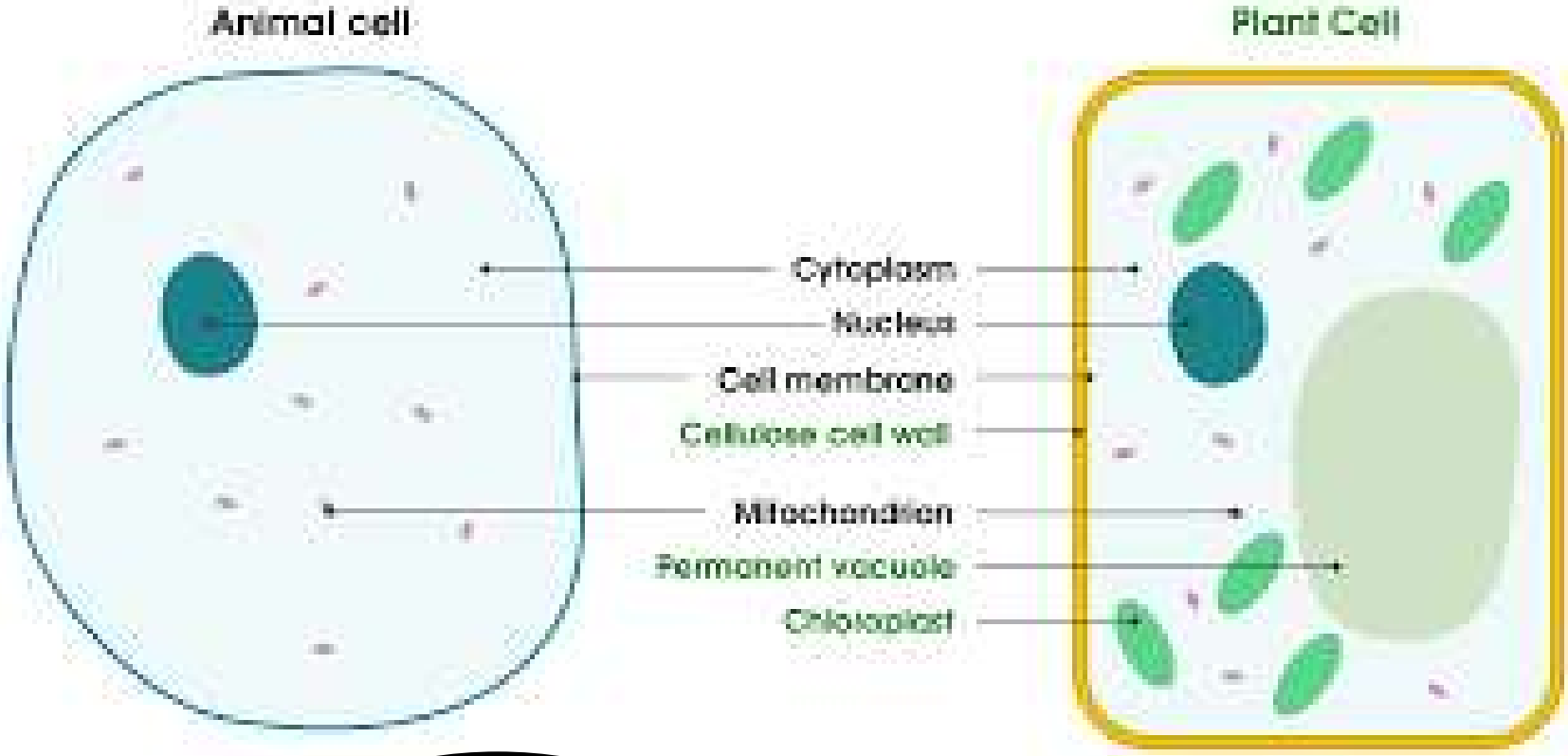



Endoplasmic reticulum
Nucleolus
Nuclear membrane
Mitochondrion
Nucleus
Ribosomes
Cytoplasm
Cell membrane
Cell wall
Chloroplast
Vacuole

Plant Cell


AN ANIMAL CELL
Nucleus
Nucleolus
Mitochondrion
Cytoskeleton
Ribosomes
Golgi apparatus
Centrioles
Smooth endoplasmic reticulum
Rough endoplasmic reticulum
Peroxisome
Plasma membrane


Animal cell
Plant Cell
Cytoplasm
Nucleus
Cell membrane
Cellulose cell wall
Mitochondrion
Permanent vacuole
Chloroplast


Animal cell
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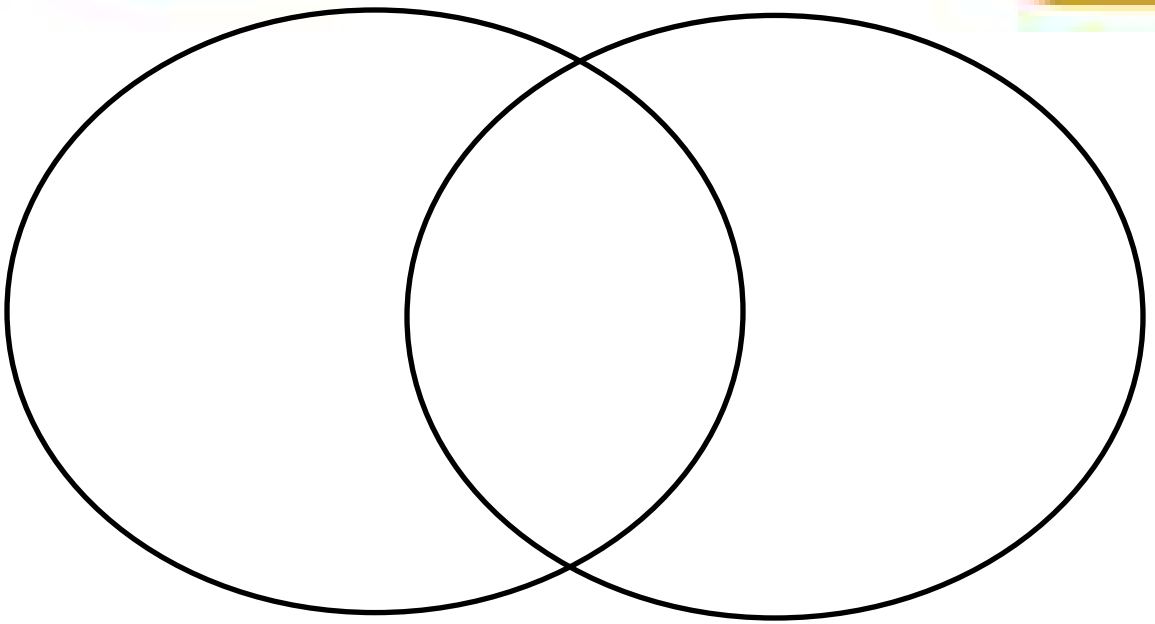
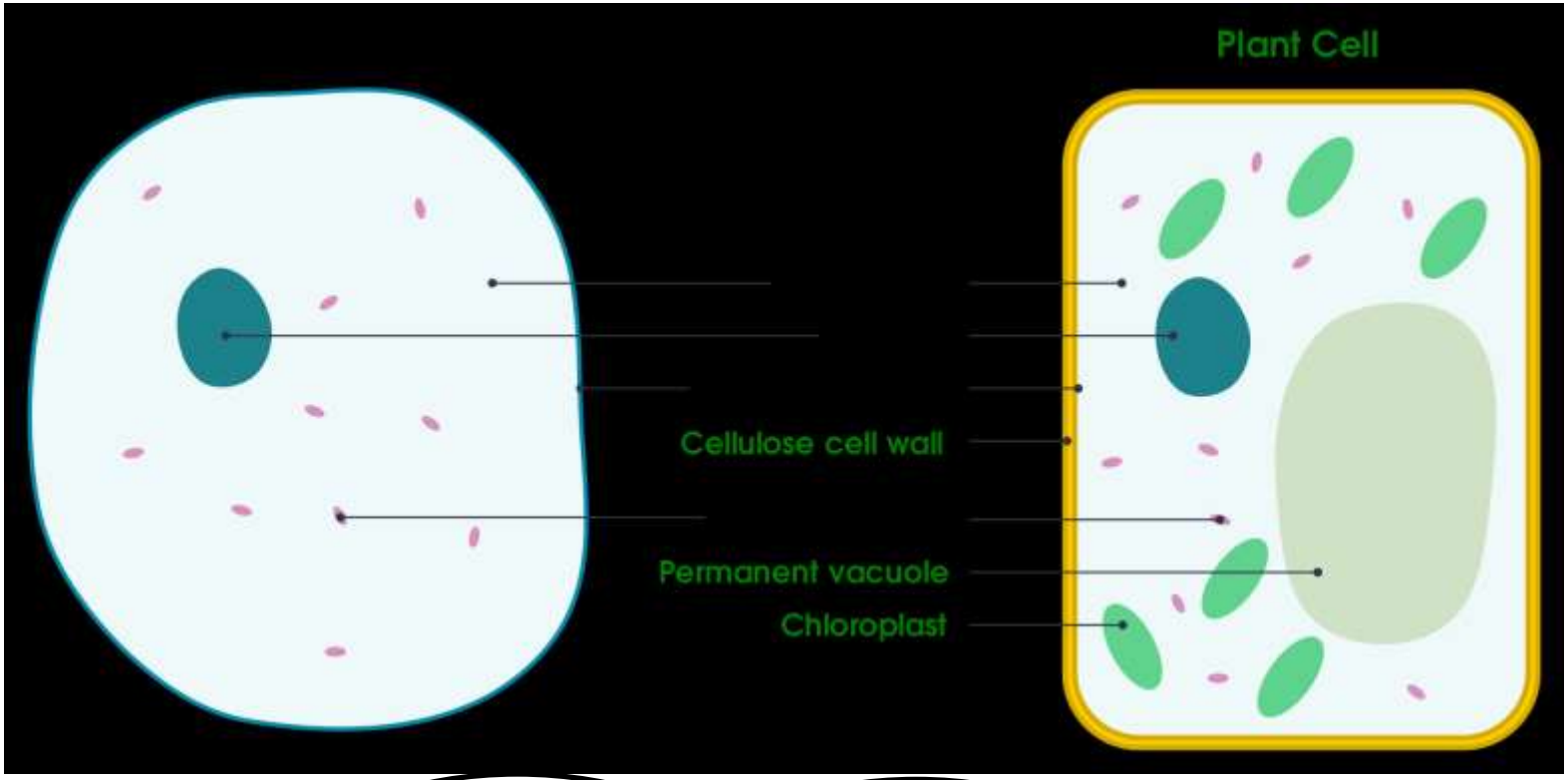
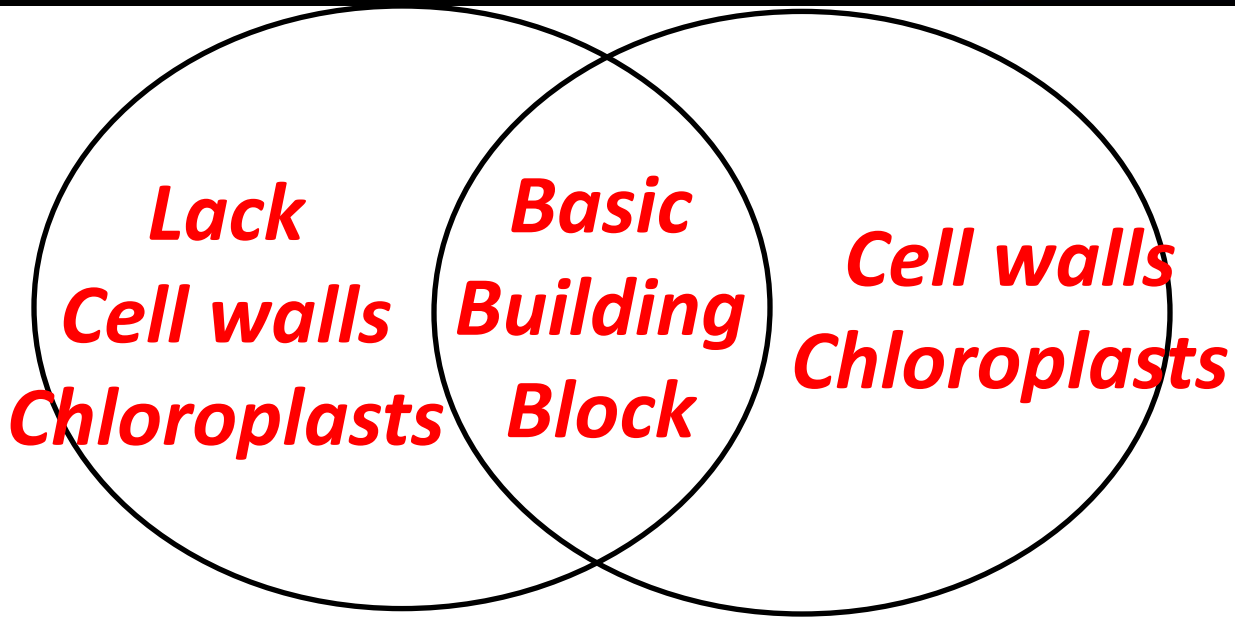
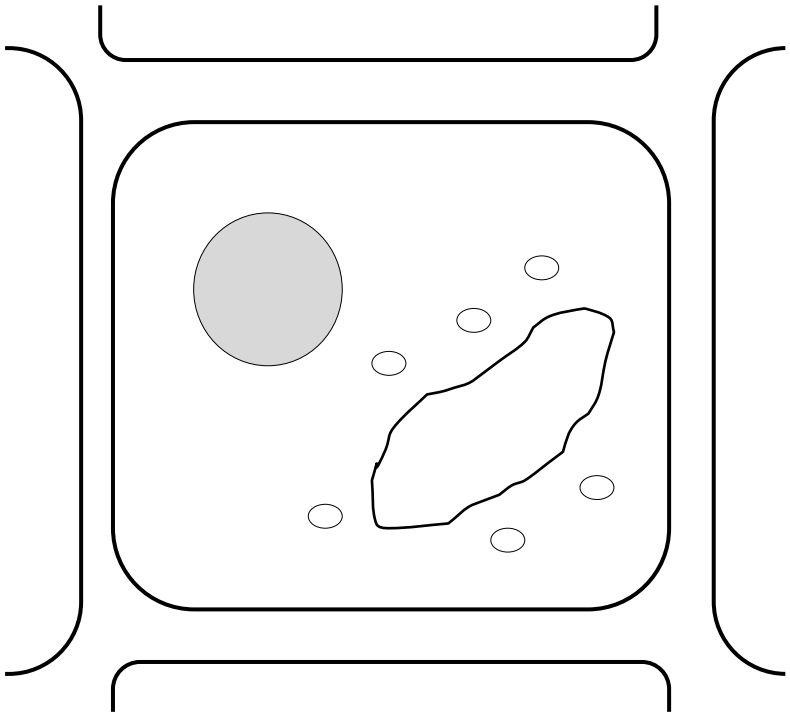



Plant Cell
Cellulose cell wall
Permanent vacuole
Chloroplast


Lack
Cell walls
Chloroplasts
Basic
Building
Block
Cell walls
Chloroplasts

Typical Cell