



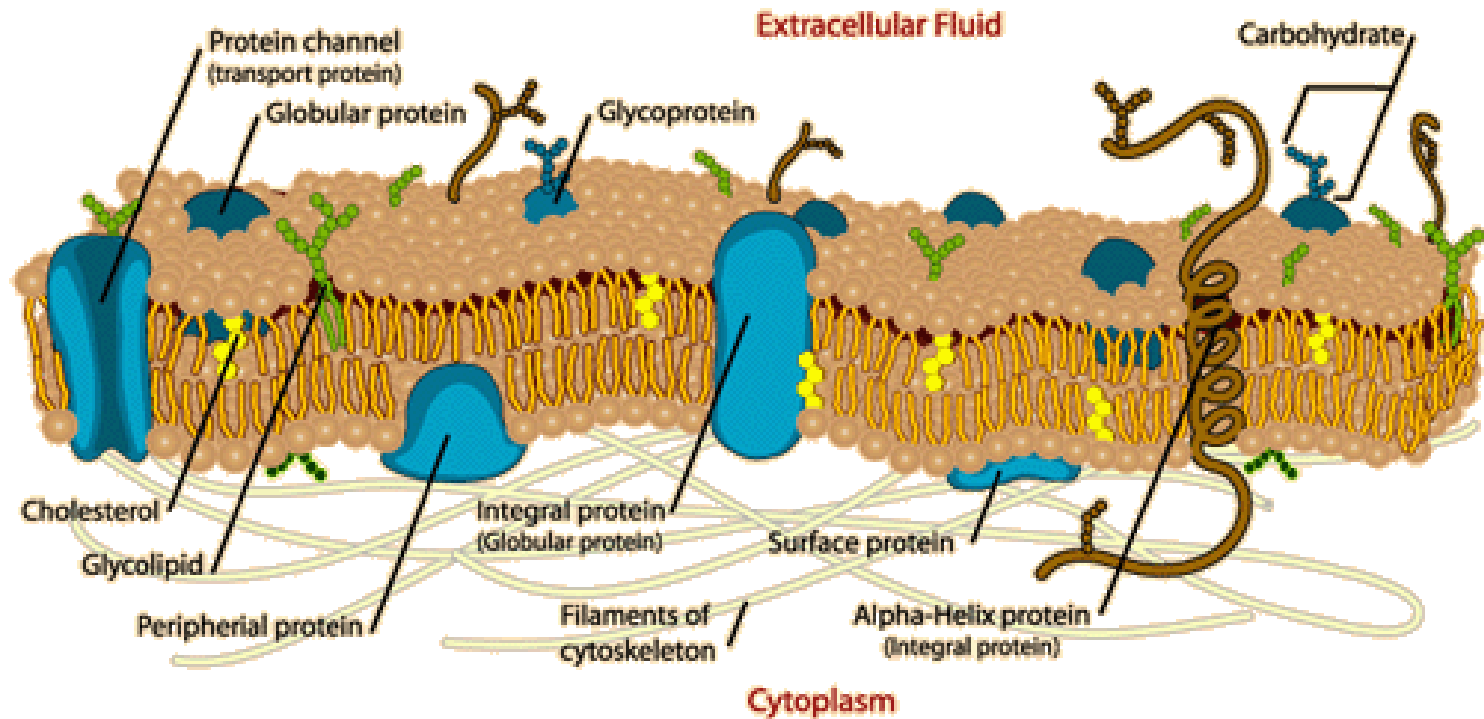
The Cell and its Organelles



Cell Membrane

- ●envelope that protects the cell's content
- ●its structure permits the entrance/exit of substances in/out of the cell

Cell membrane

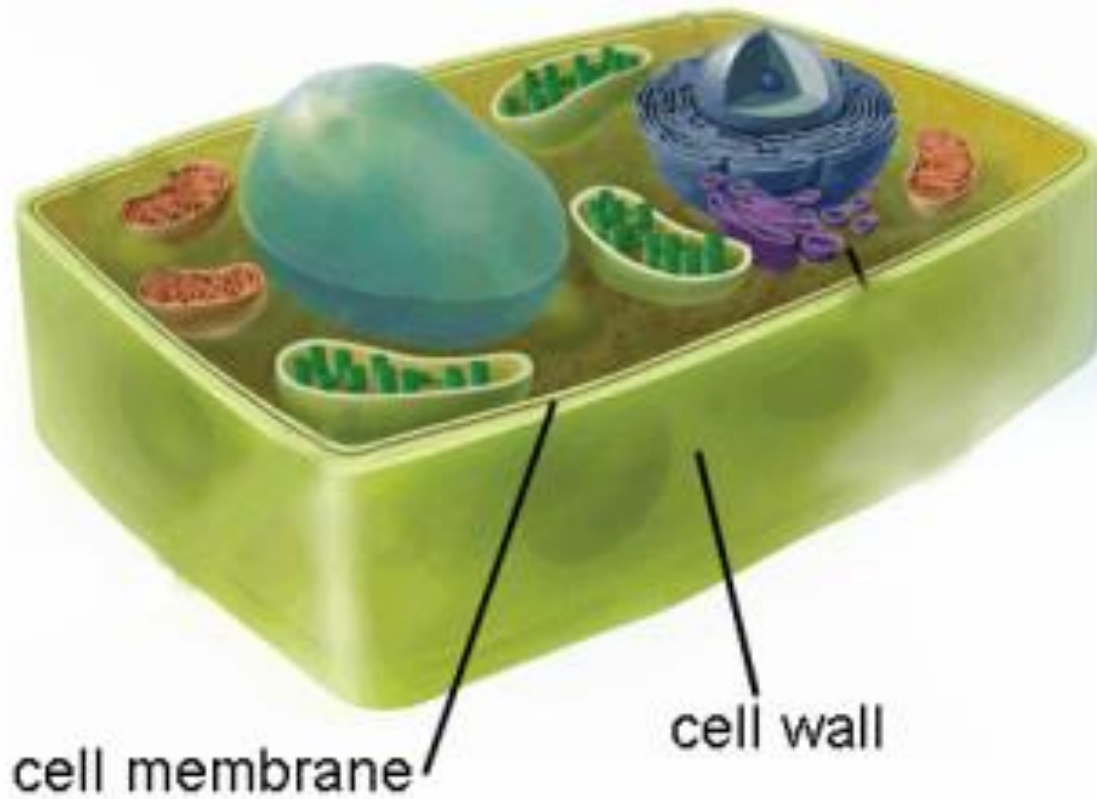




Cell Wall

- ● a rigid layer surrounding the cell membrane
- ● protects and supports the cell
- ● present in plant cells, but also some fungi and bacteria

The Cell Wall



Cytoplasm



- gelatinous substance in which all organelles float
- Mostly made up of water with other dissolved substances

The Cytoplasm





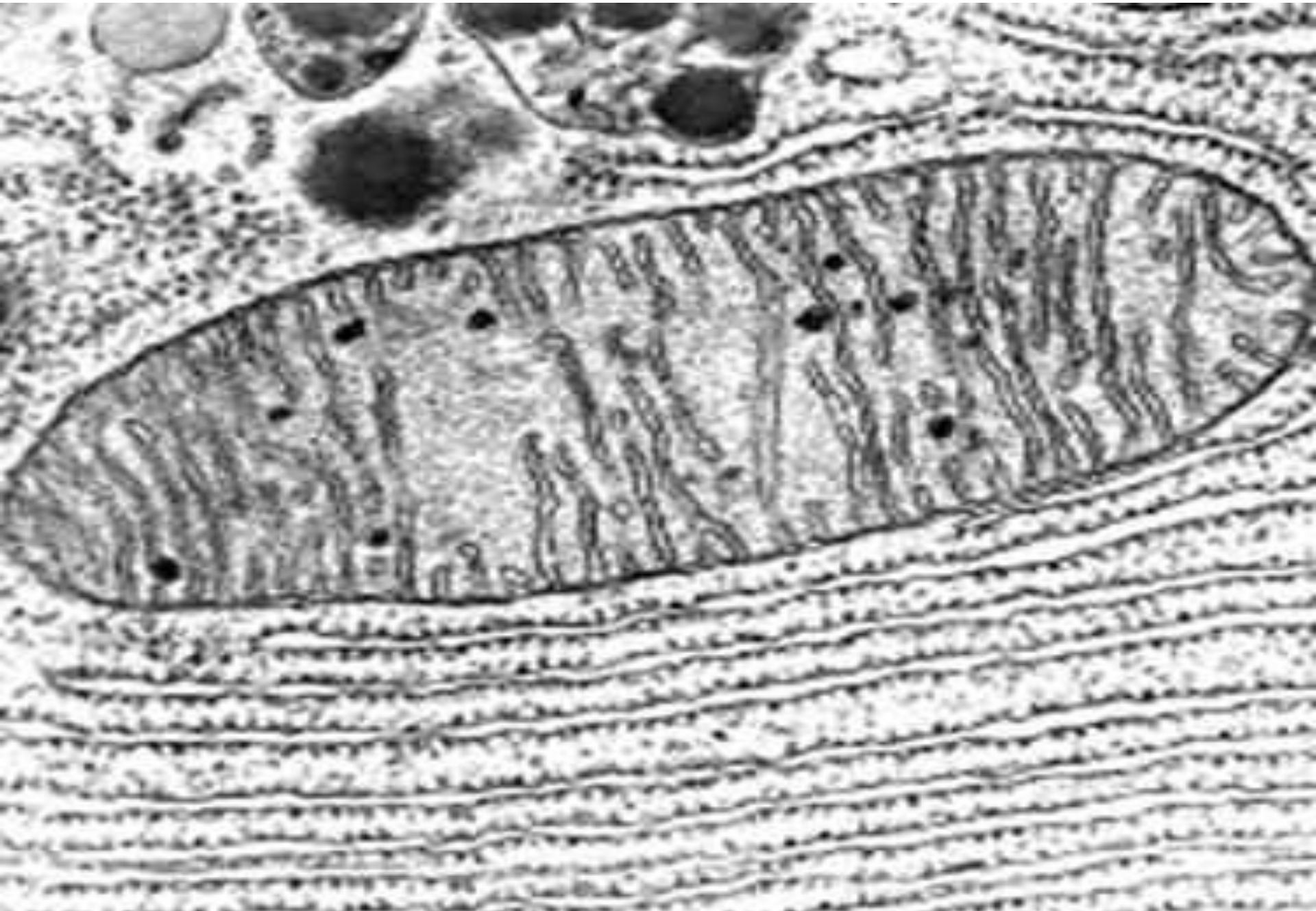
Mitochondria

- Oblong-shaped organelle responsible for the transformation of energy in a cell

Formula:



Mitochondria

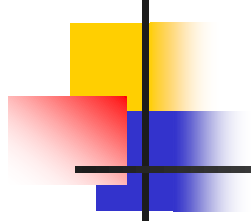


Chloroplast



- Organelle that permits plant cells to convert chemicals into glucose by using a pigment named chlorophyll to absorb sunlight.
- Present only in plant cells and some unicellular organisms
- $\text{energy} + \text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$

Chloroplast



Plant Cell Chloroplast Structure

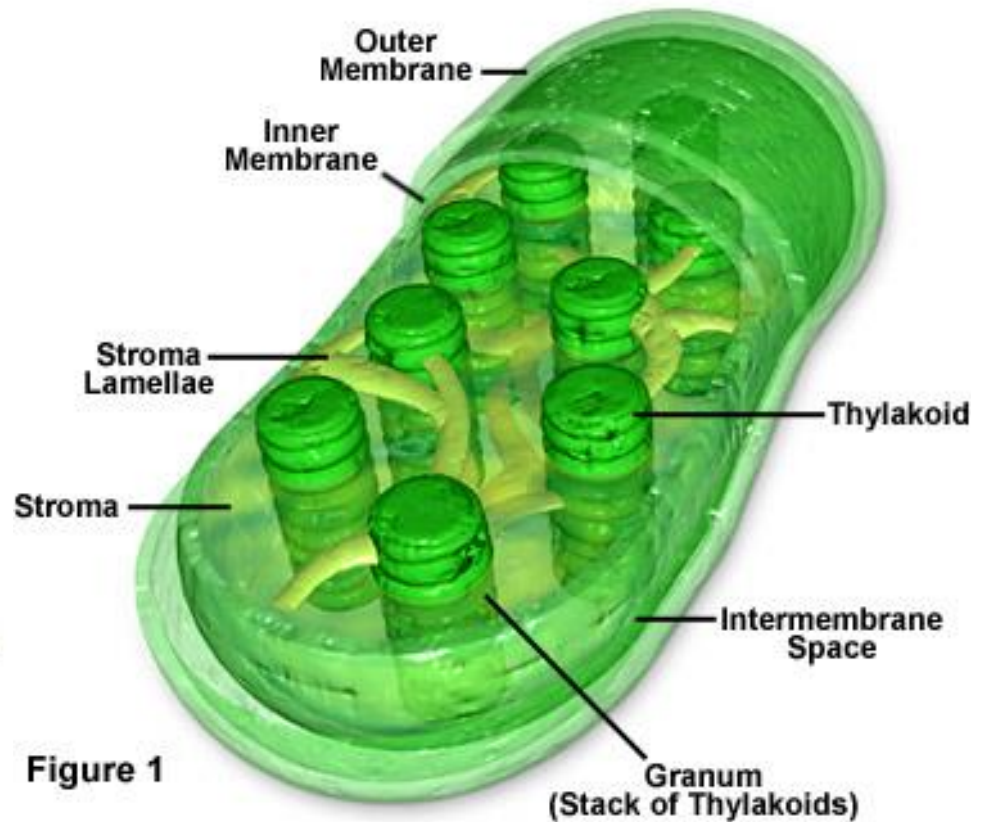
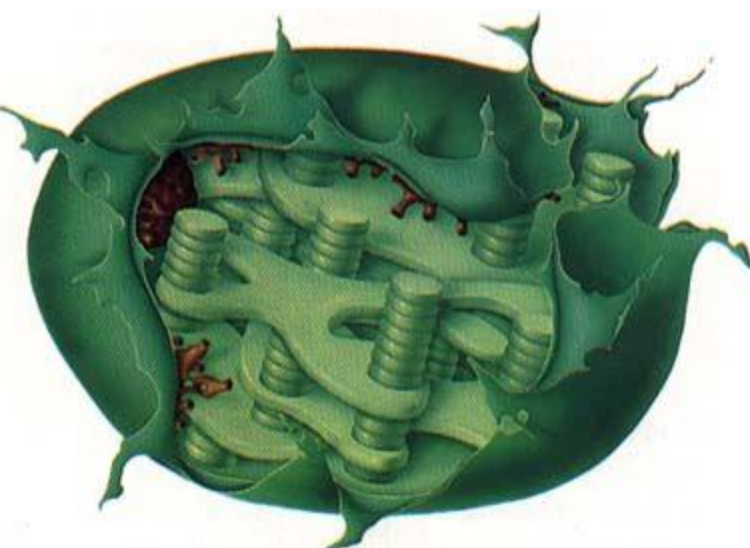


Figure 1



Photosynthesis

Song

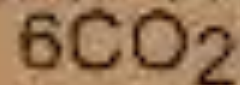
by

Peter Weatherall

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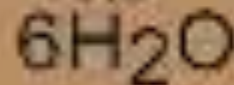


carbon dioxide

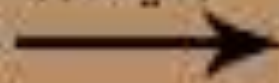


+

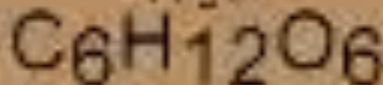
water



sunlight

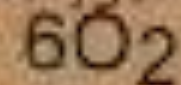


sugar



+

oxygen

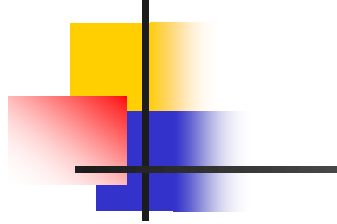
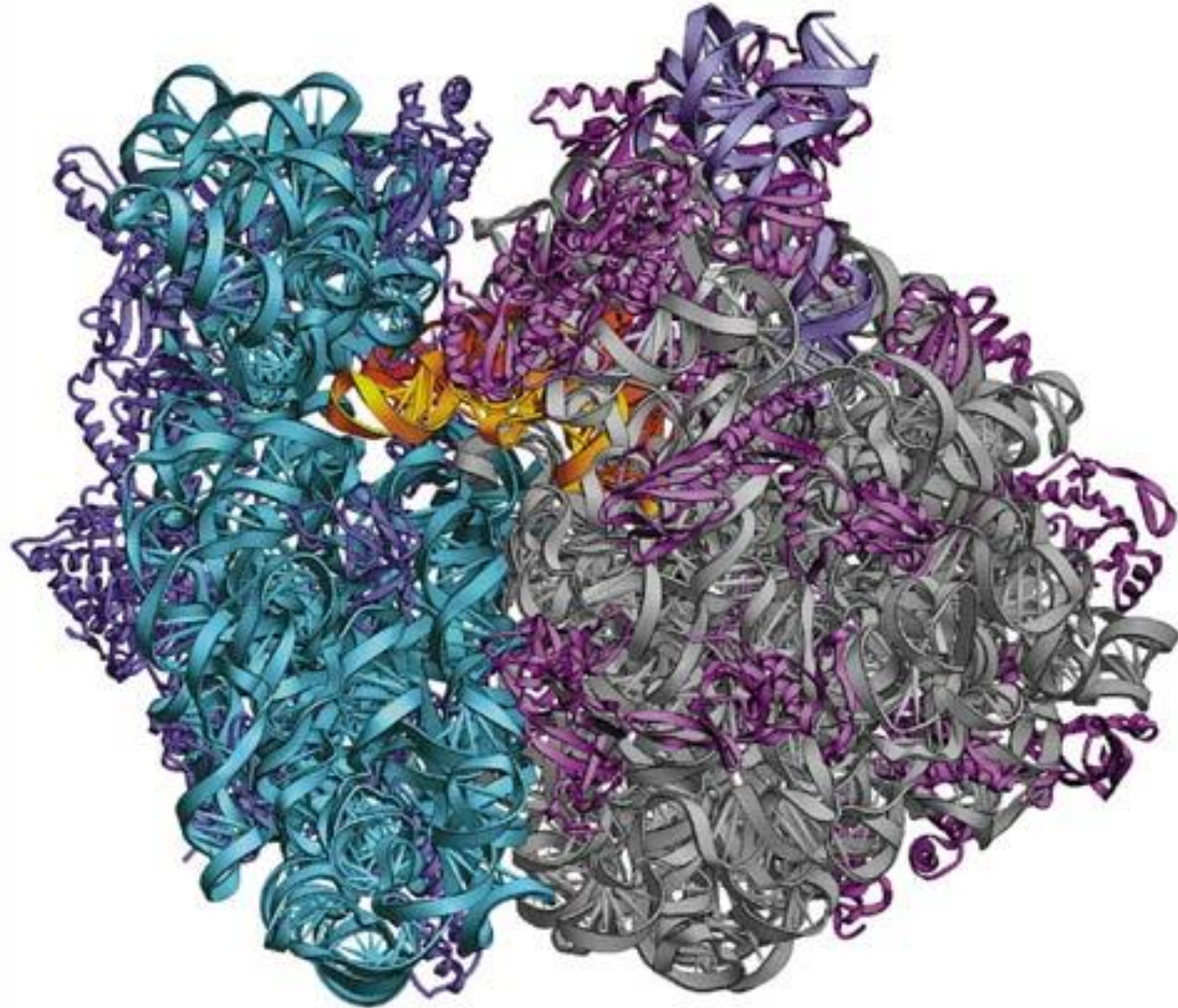




Ribosome

- are the protein builders or the protein synthesizers of the cell. They are like construction guys who connect one amino acid at a time and build long chains (i.e. a protein)

Ribosome

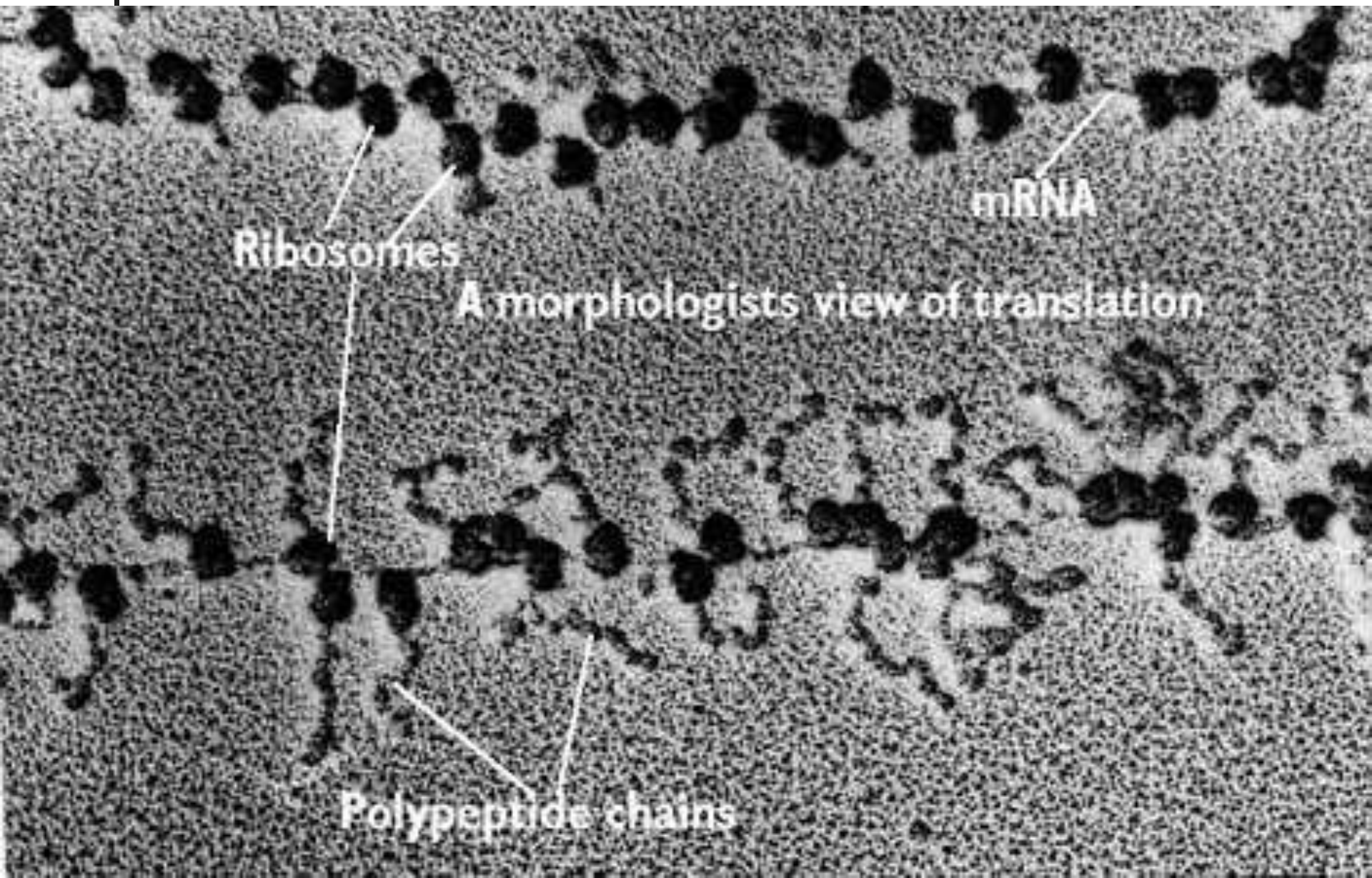


hybrid

medical animation



Ribosomes in action





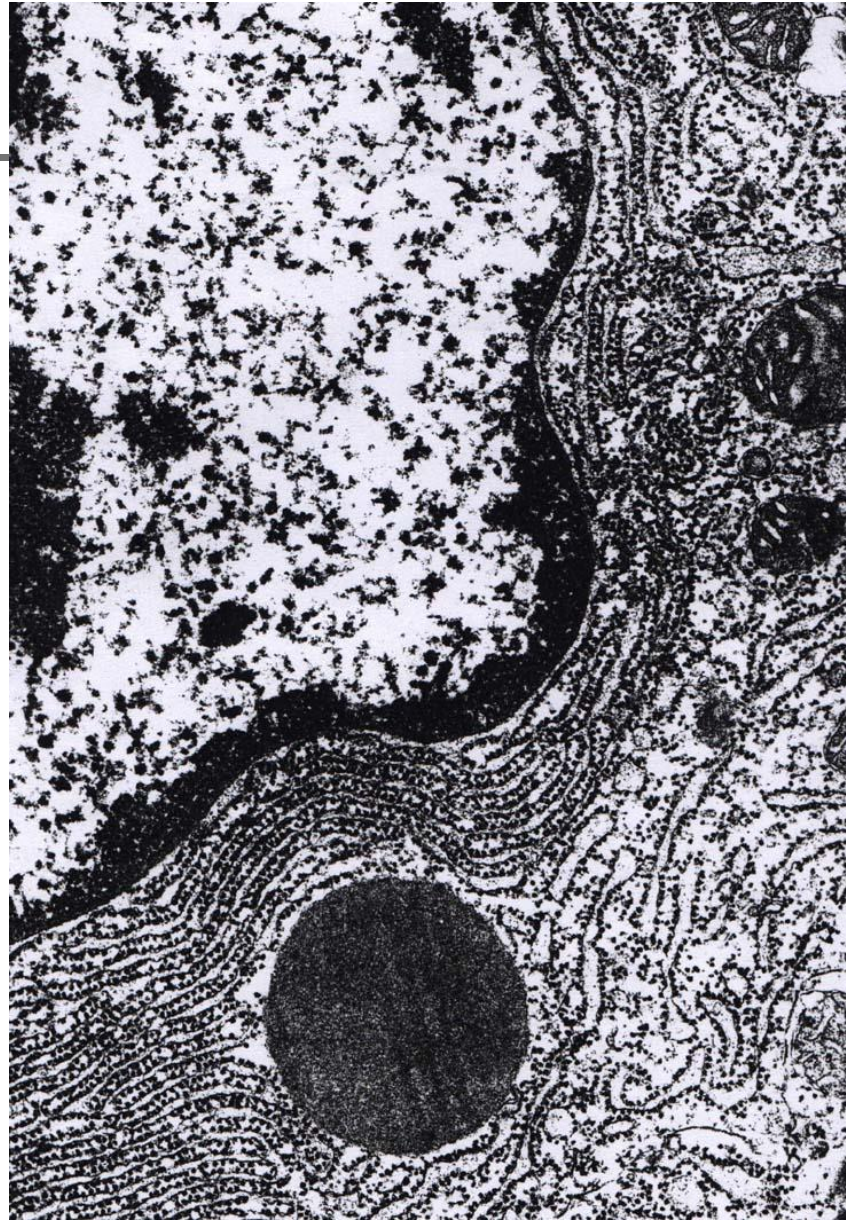
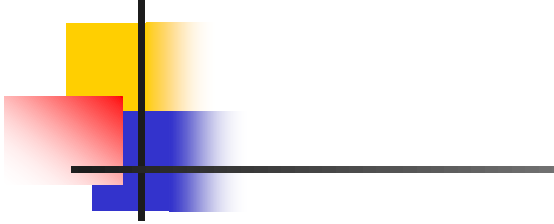
Endoplasmic Reticulum

- a network of tubules in the cytoplasm of a eukaryotic cell. It usually has ribosomes attached and is involved in protein and lipid synthesis

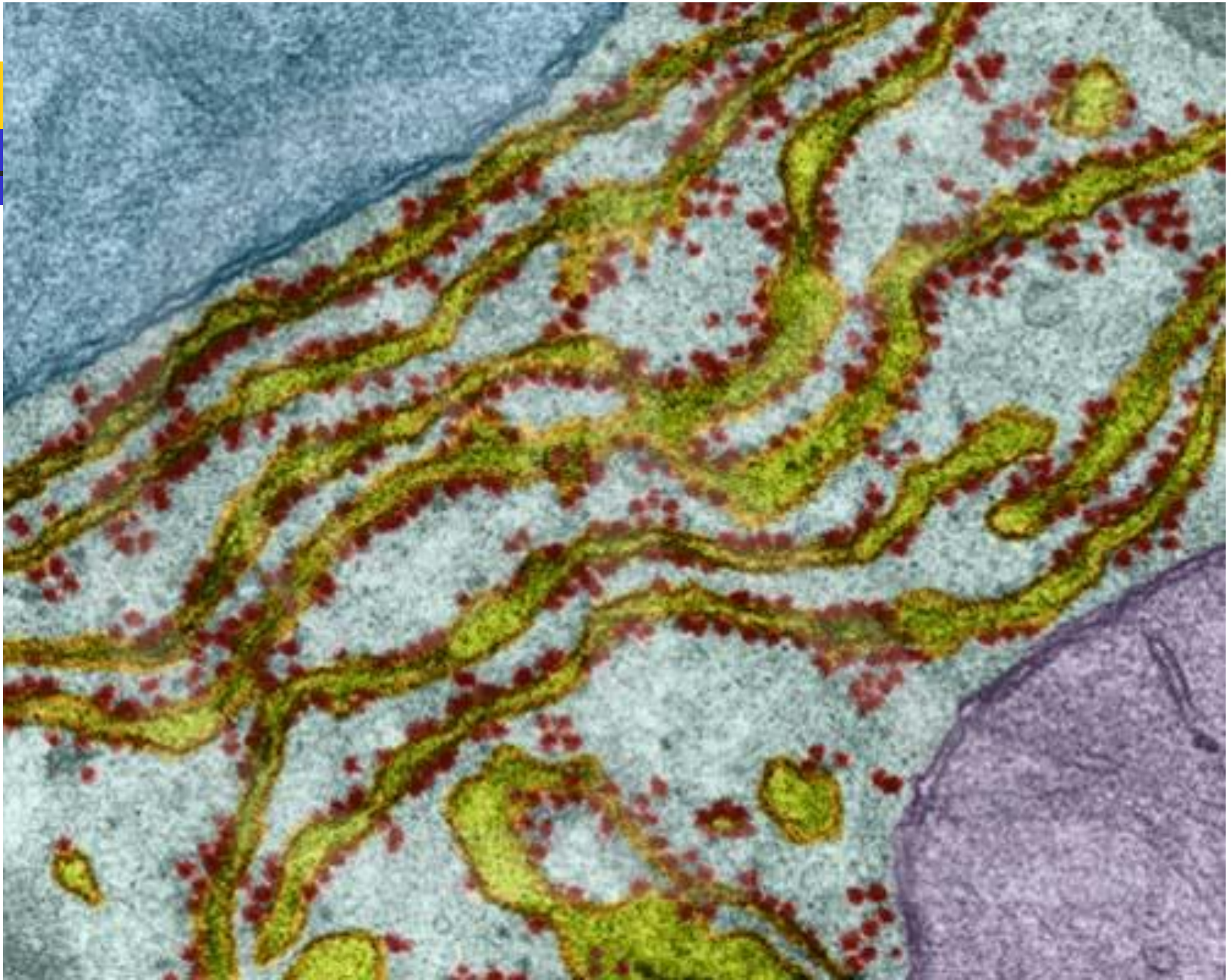
Endoplasmic Reticulum



Endoplasmic Reticulum



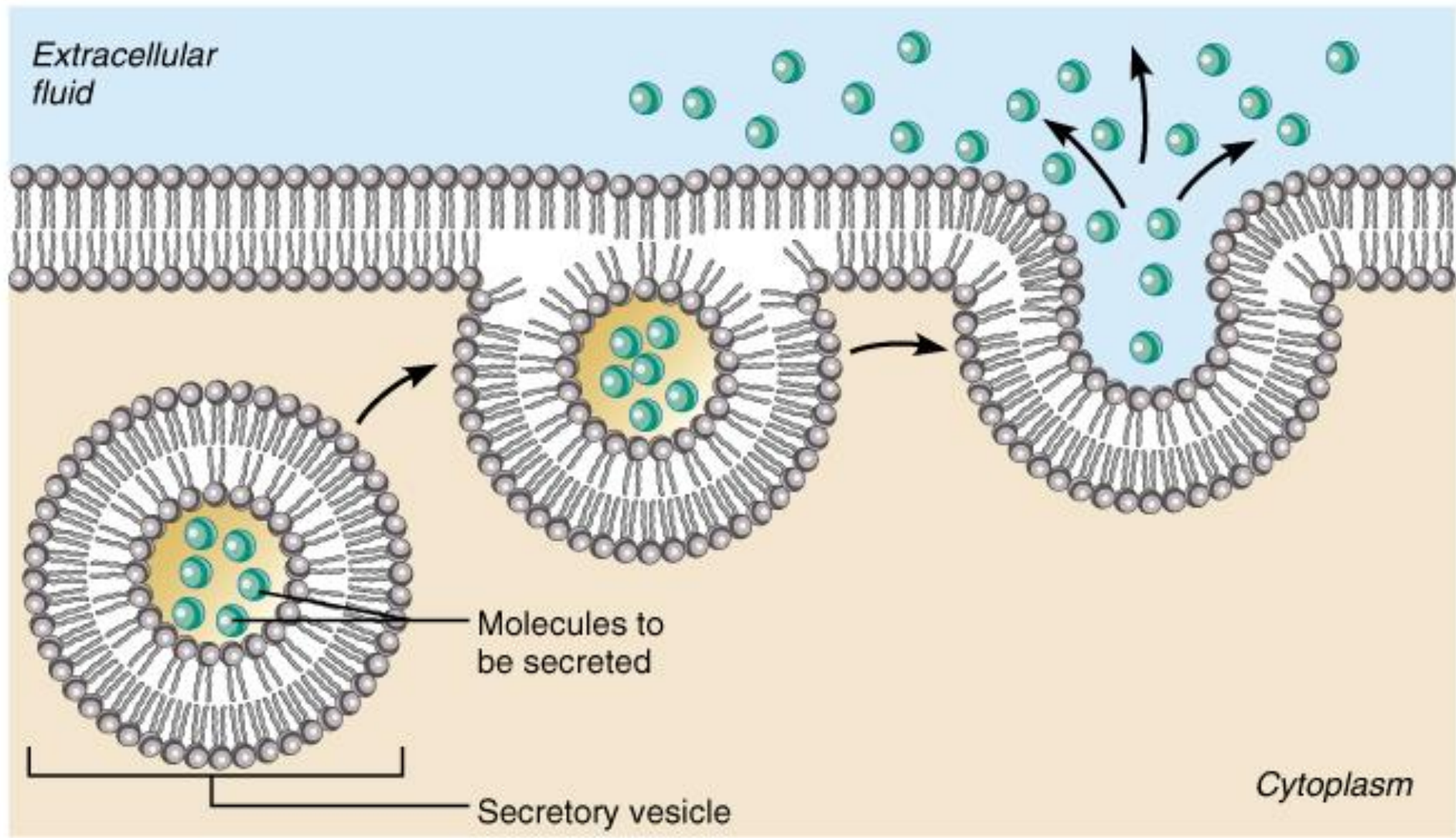
Endoplasmic Reticulum



Vesicles



- A vesicle is a small membrane-bound sack that stores and transports substances throughout the cell
- Important in protein transportation



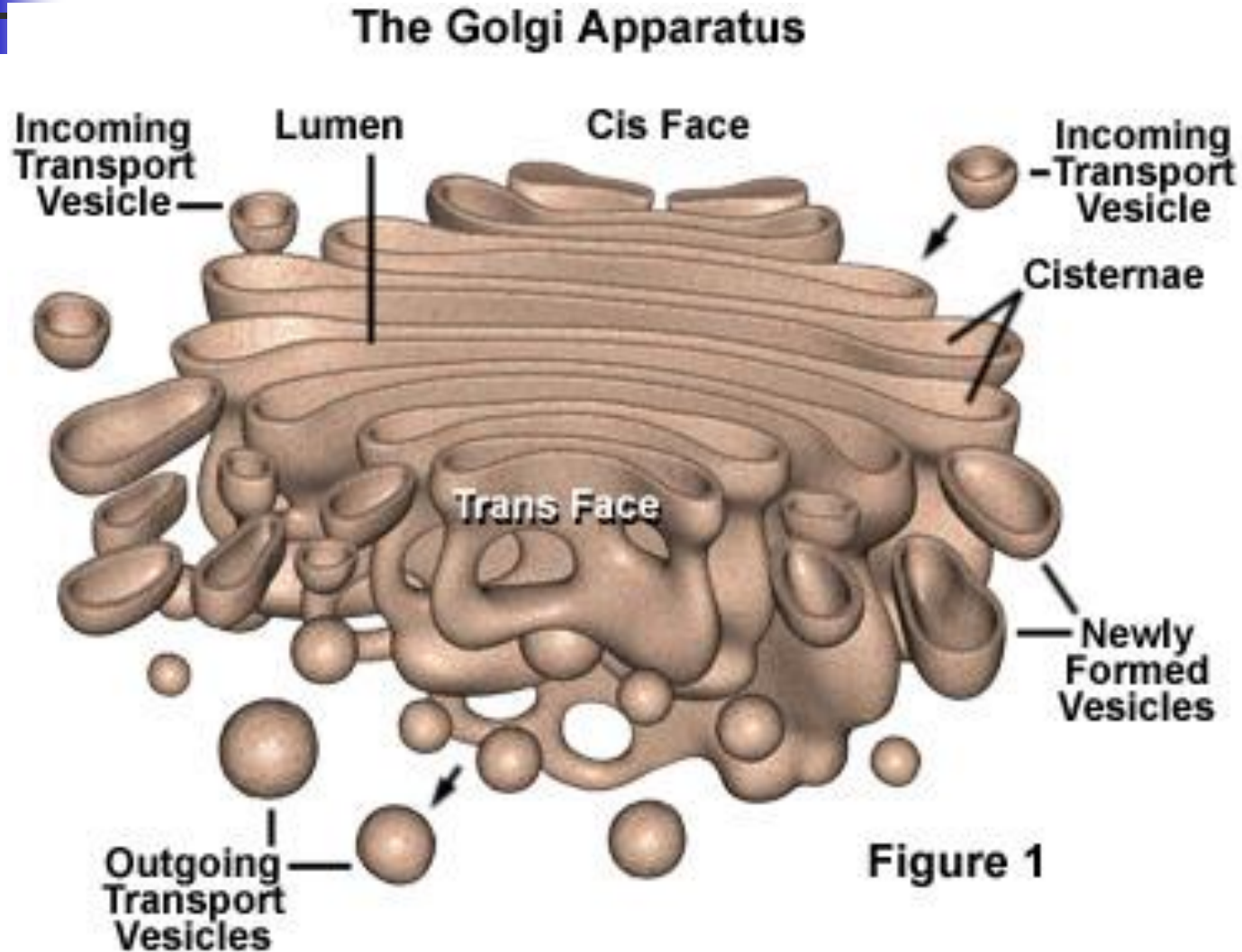
(a)



Golgi Apparatus

- A system of membranes/sacs that acts as a sorting station for proteins

Golgi Apparatus

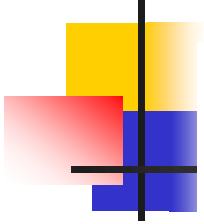
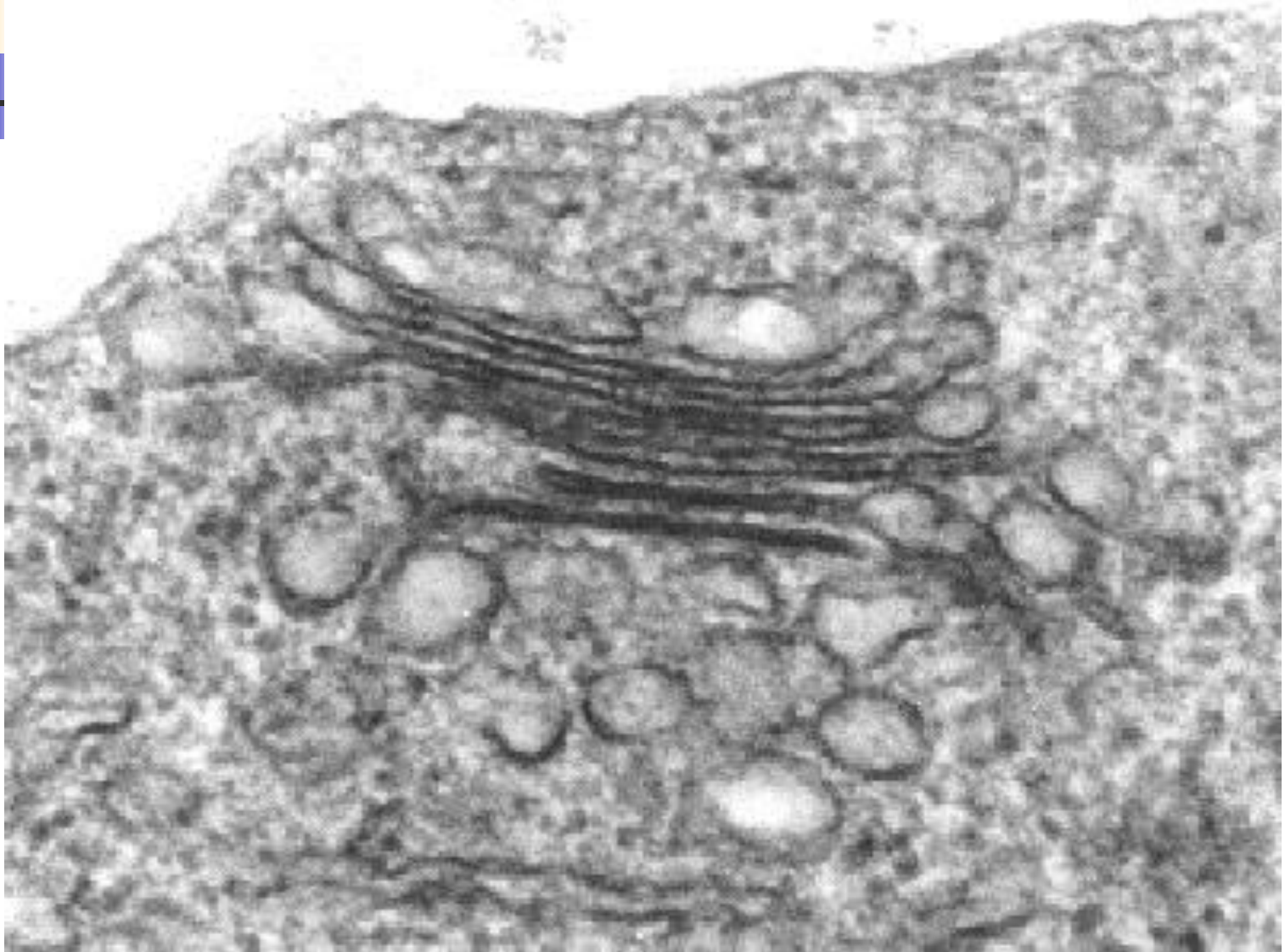


Golgi Apparatus



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L' appareil de Golgi

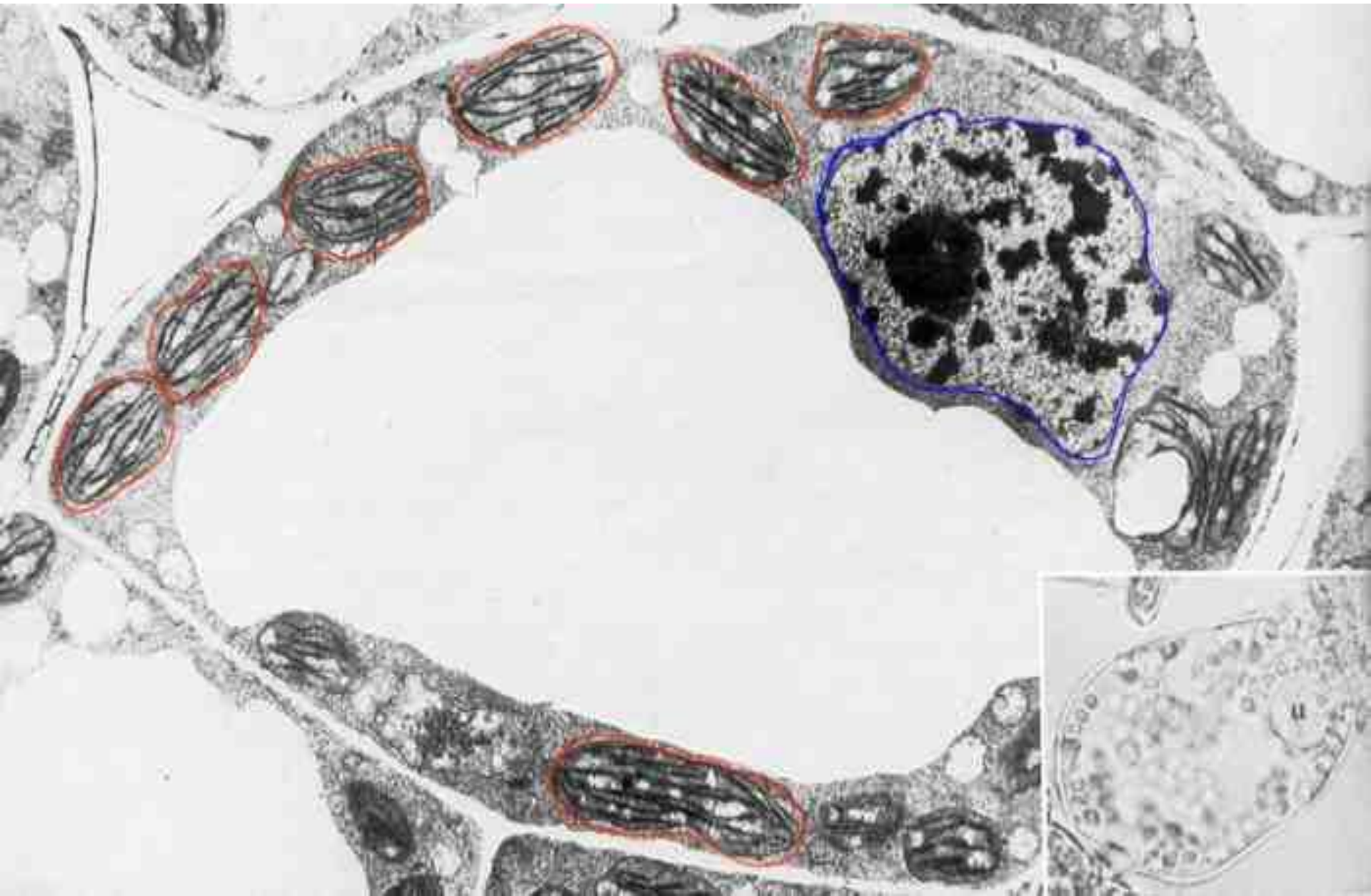


Vacuole

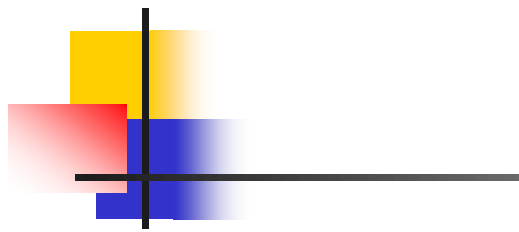
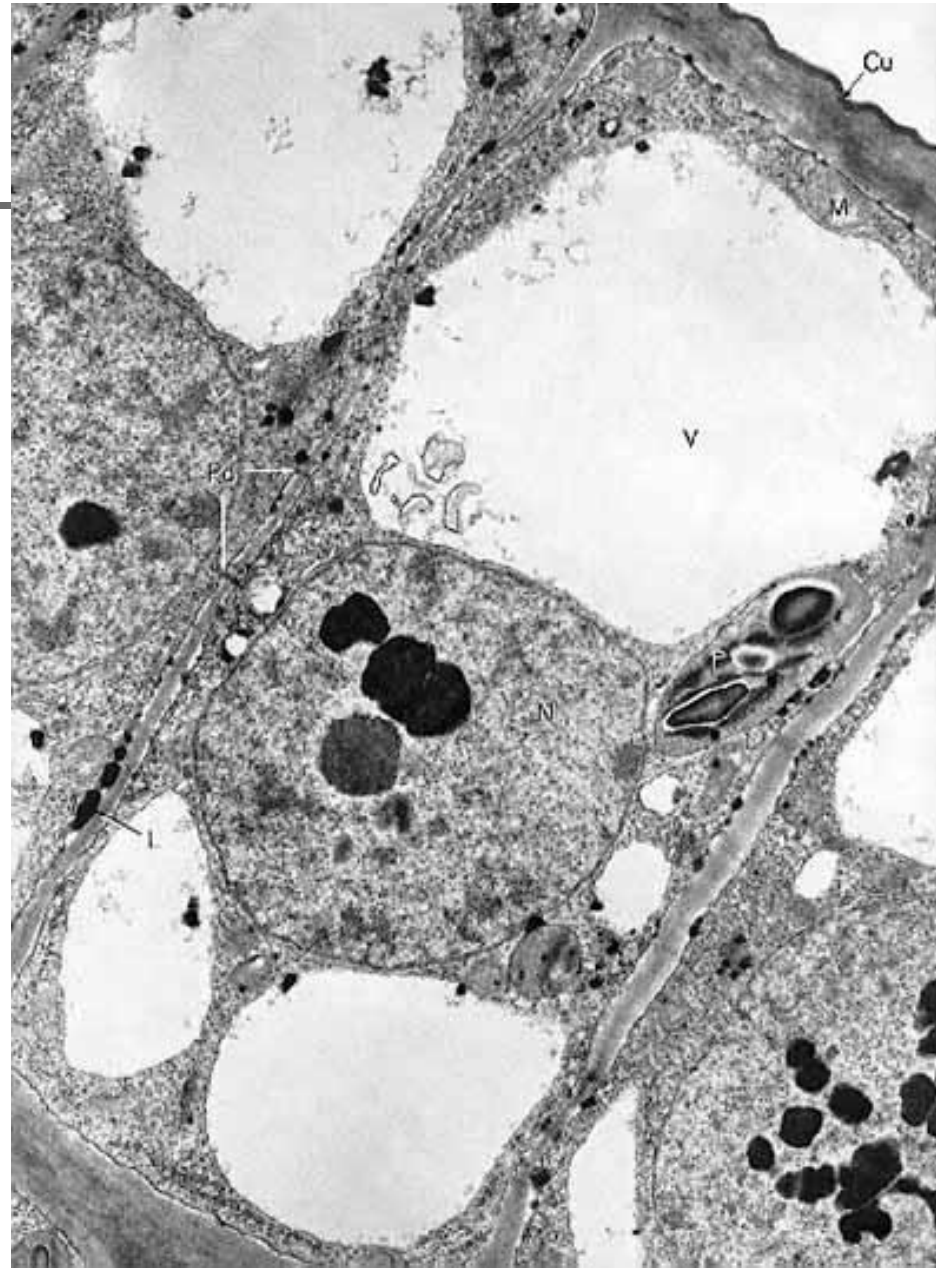


- storage bubble in the cell
- Stores water, nutrients and waste
- Very large in plant cells

Vacuoles



More Vacuoles

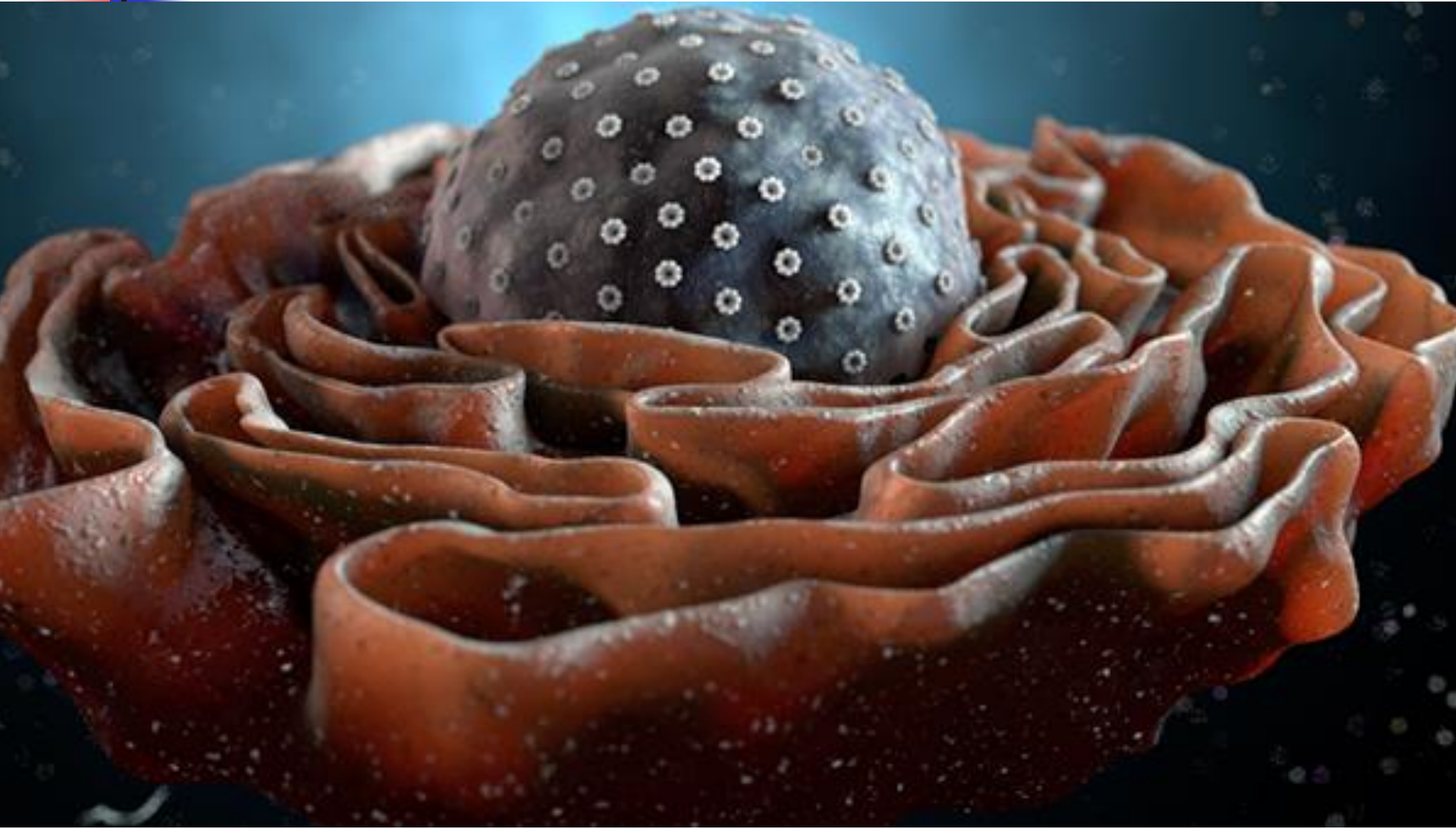


The Nucleus

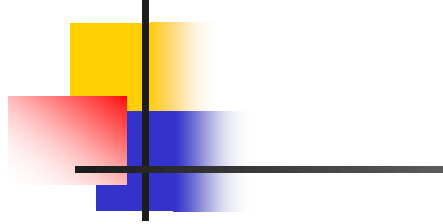
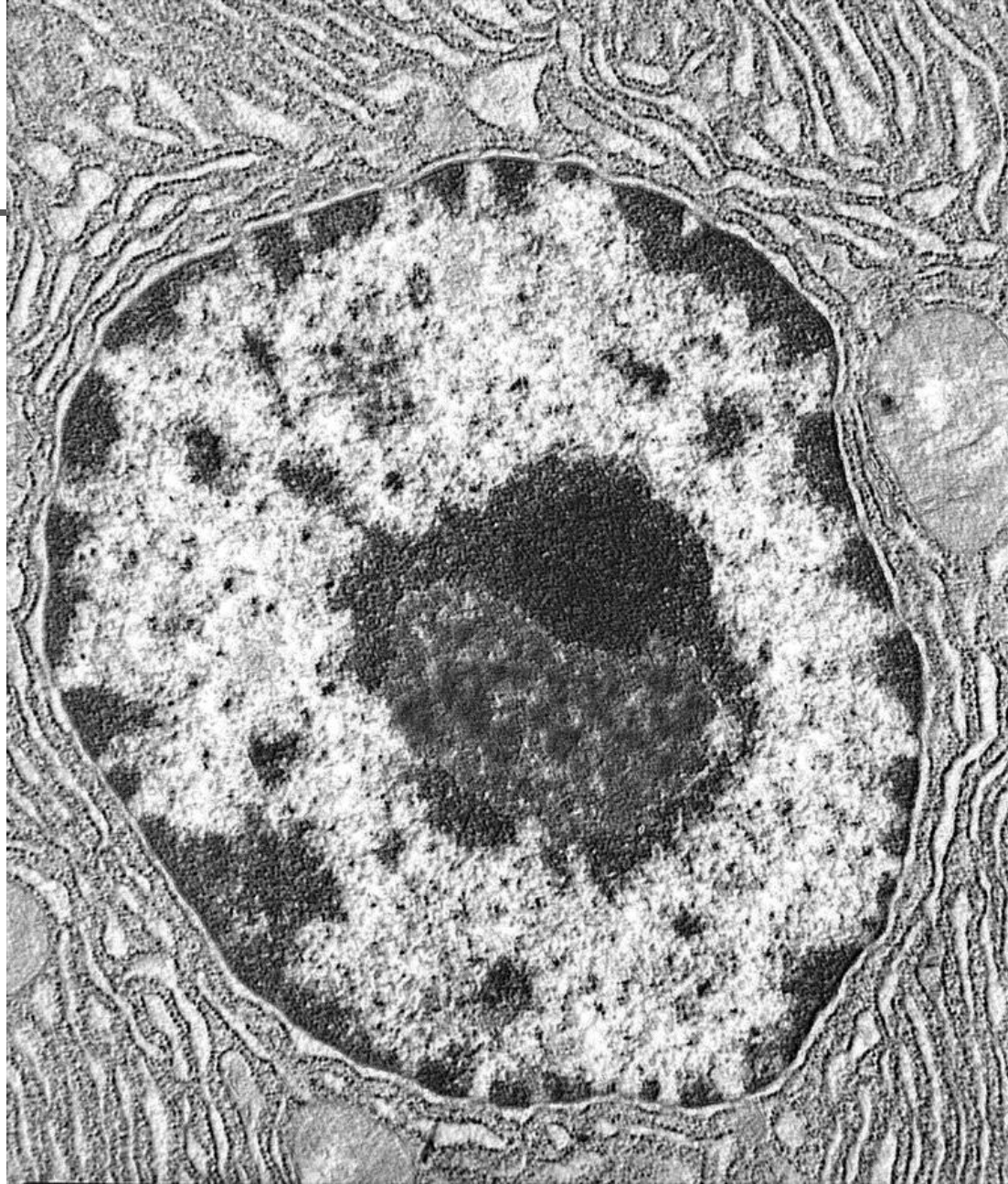


- Organelle that contains most of the cell's genetic material
- contains DNA (Deoxyribonucleic Acid)
- DNA is organised into chromosomes when the cell divides

Nucleus



Nucleus



Le nucléole



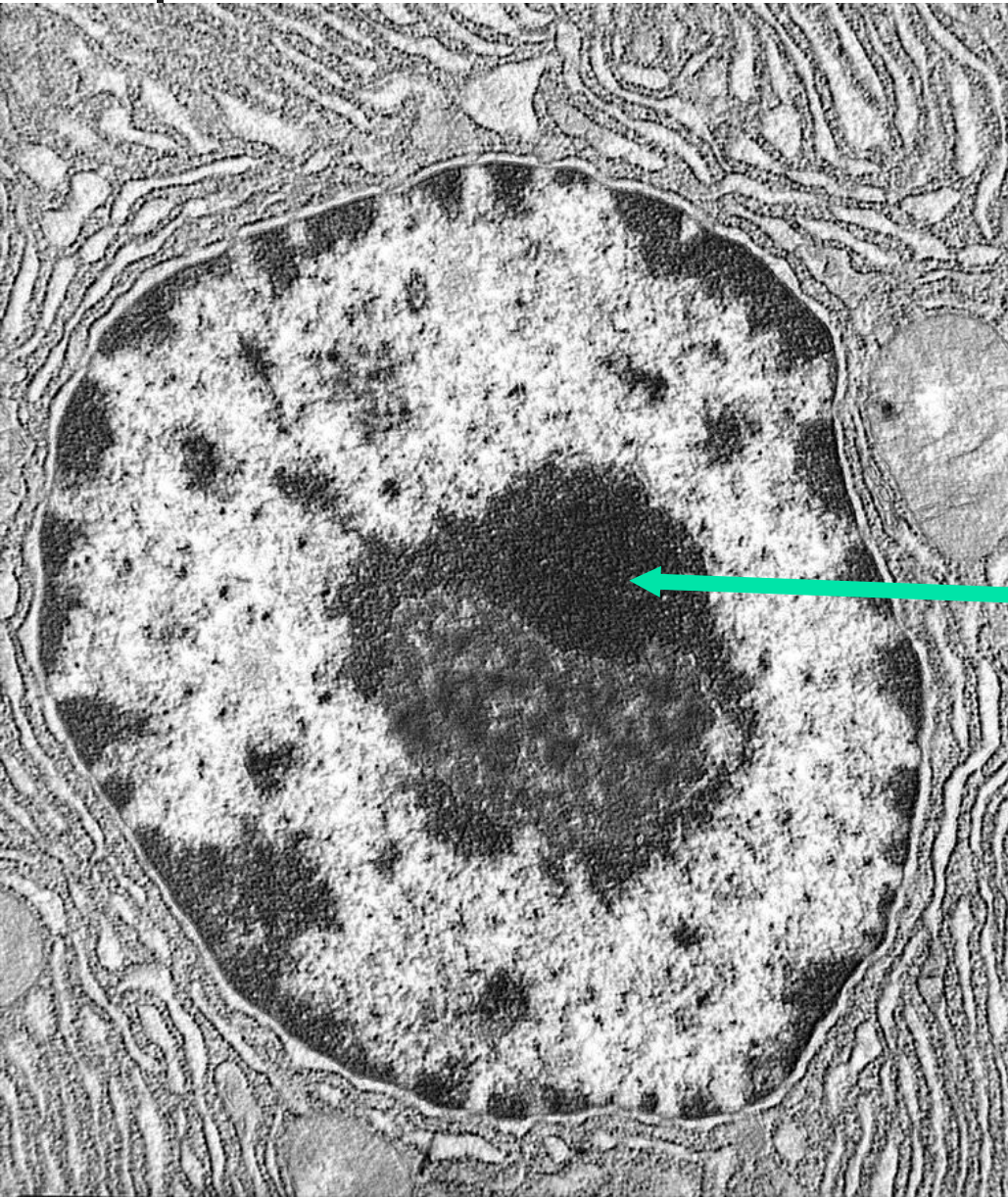
nucléole



Nucleolus

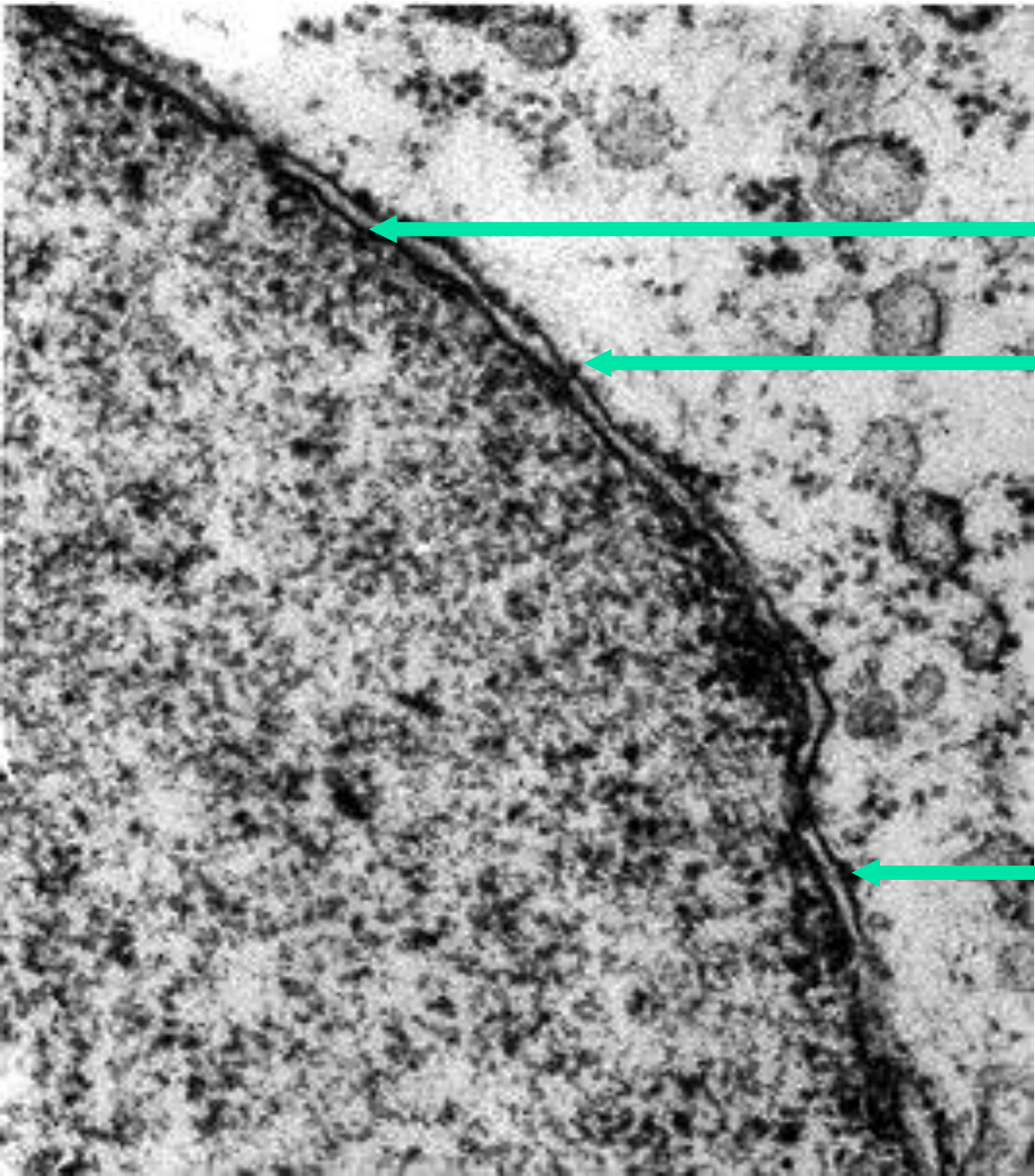
- Responsible for creating ribosomes
- Exists within the nucleus

Nucleolus

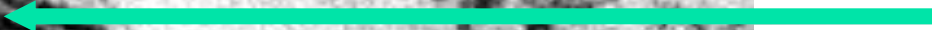


← nucléole

Nuclear Pores



Nuclear Membrane



Nuclear Pores



Nuclear Pores



