

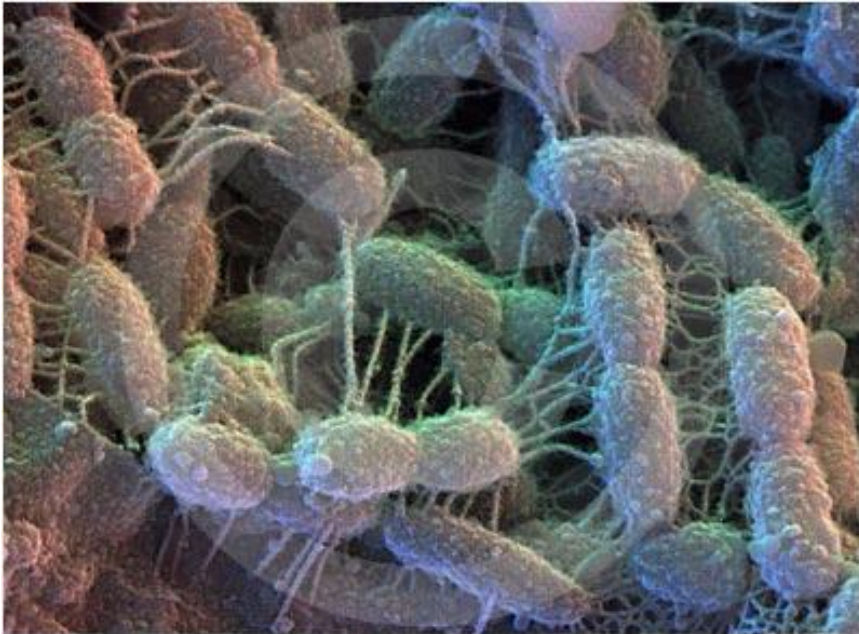
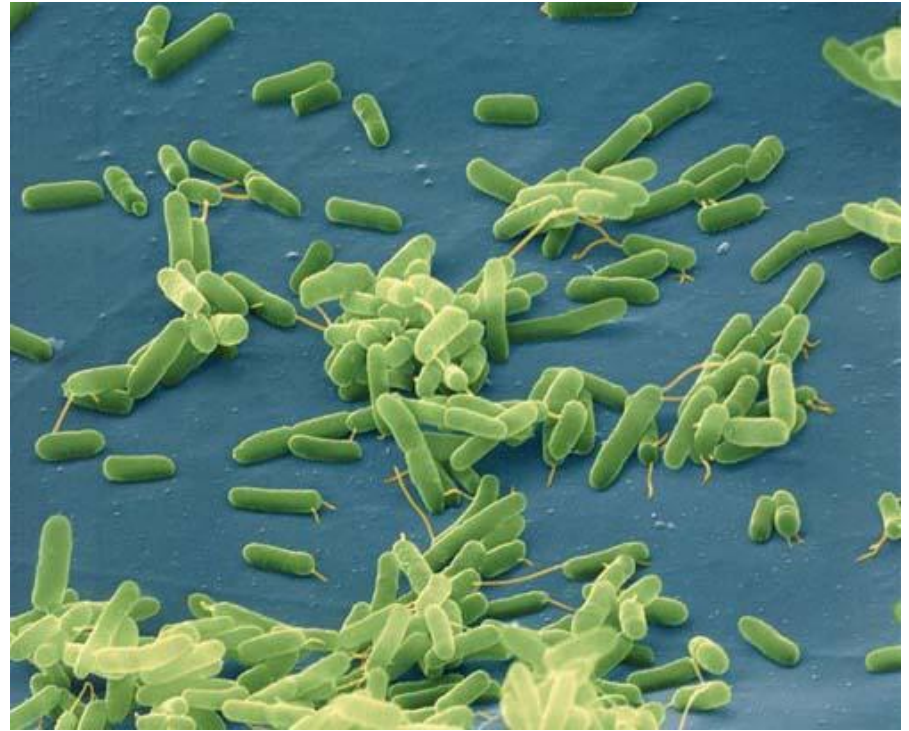
Cells

- the smallest level of the hierarchy that can be considered “life”

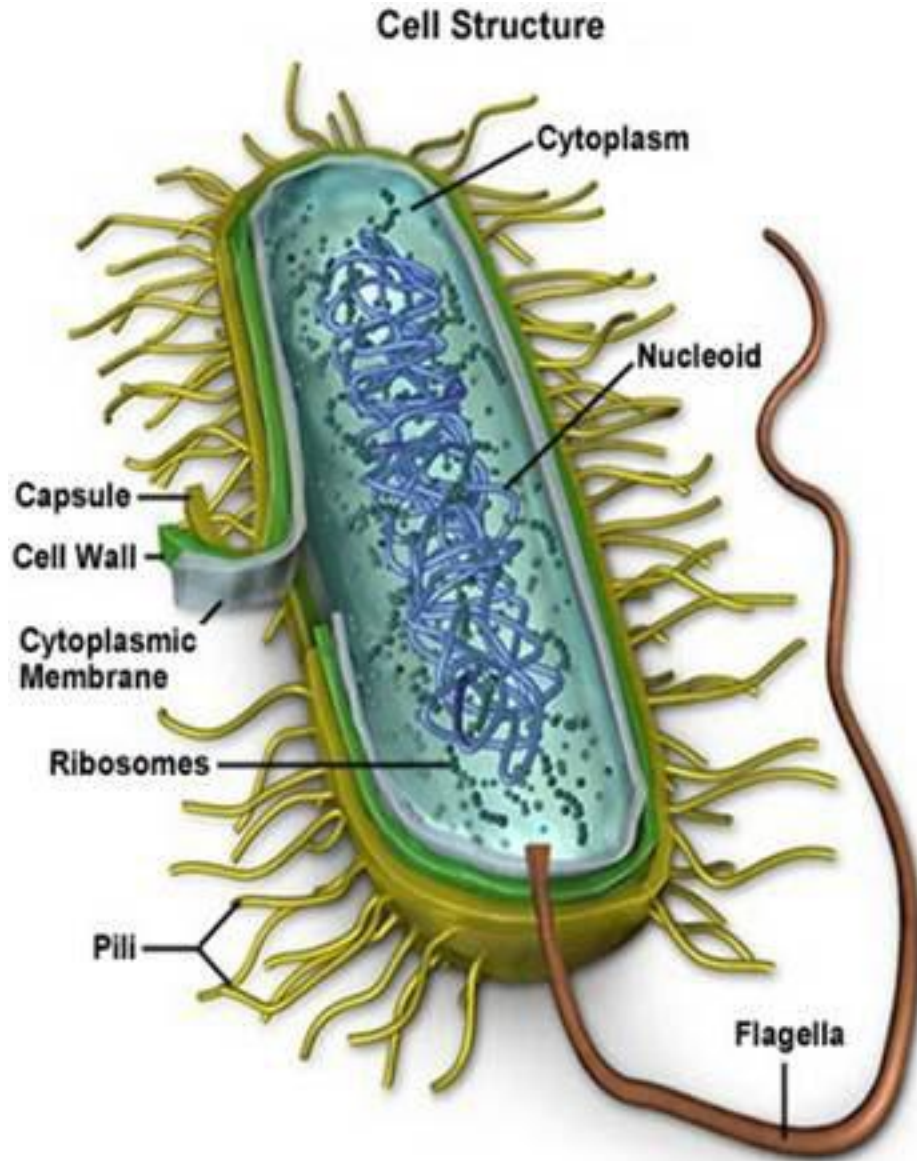
Cell theory:

1. Smallest clearly defined unit of life is the cell.
2. All living organisms are made up of one or more living cells.
3. Cells arise only from other cells.

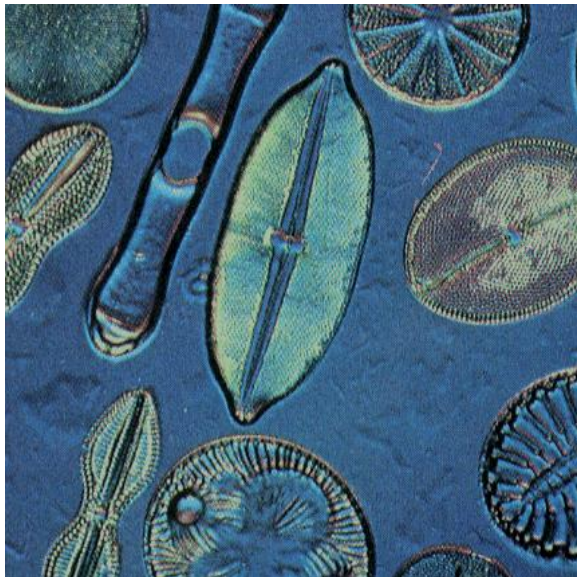
Prokaryotic Cells



Prokaryotic Cell



Eukaryotic Cells



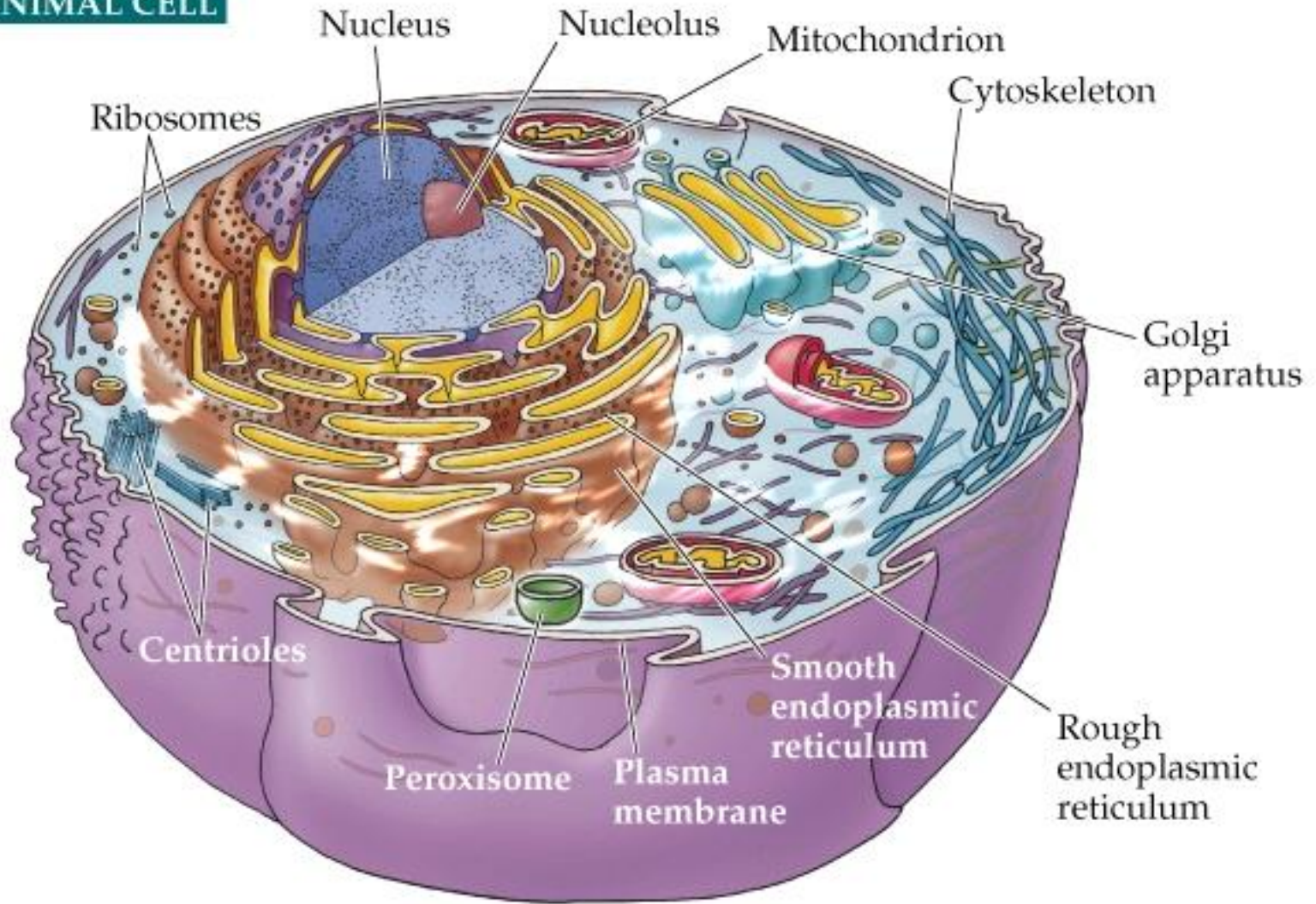
Organelles conferred many benefits:

1. Provide a place for metabolic activities.
2. Allow cells to maintain specific conditions required for each reaction.
3. Increase surface area for reactions.

Organelles help increase success in survival & reproduction

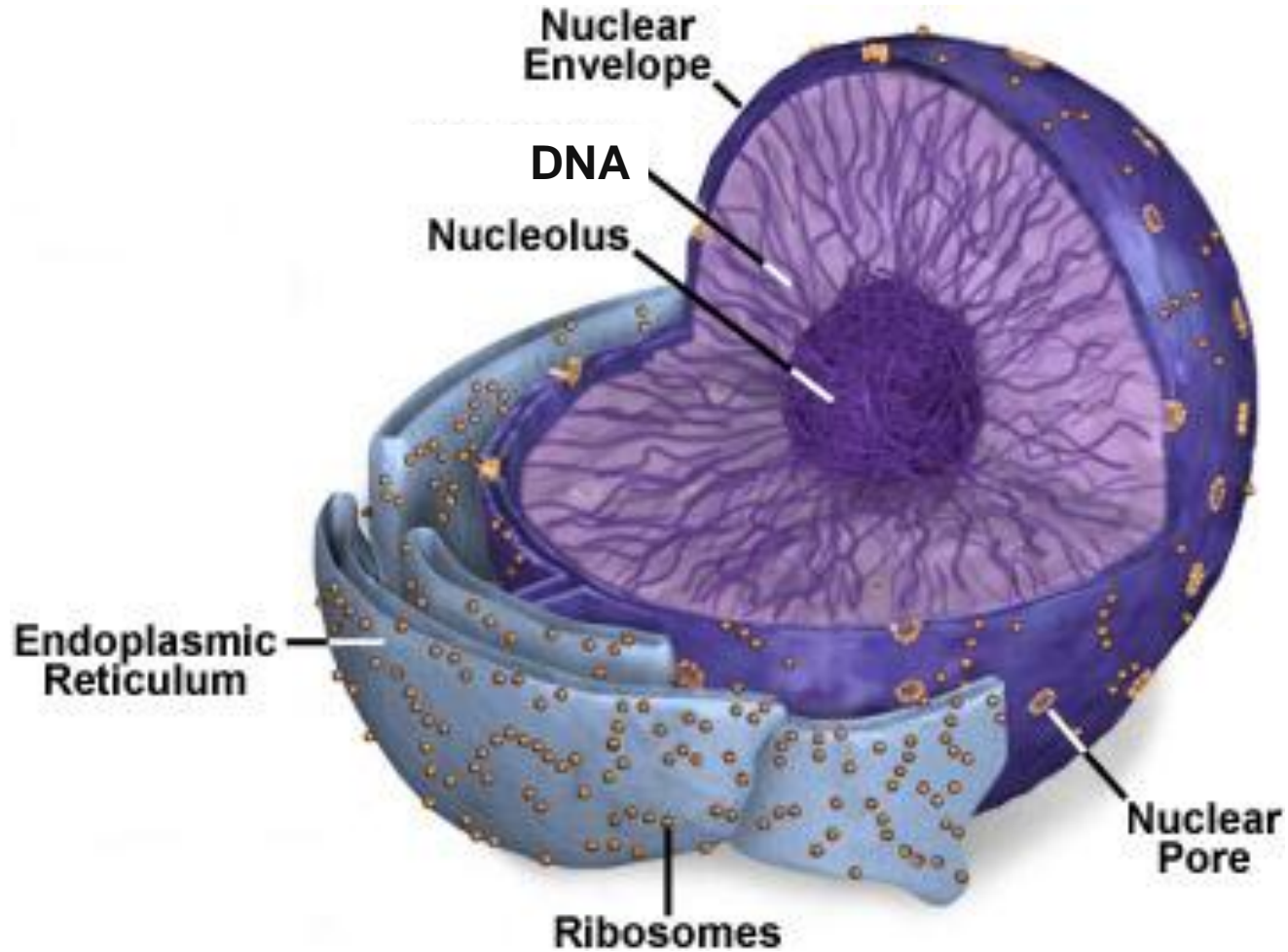
Eukaryotic Cell

AN ANIMAL CELL



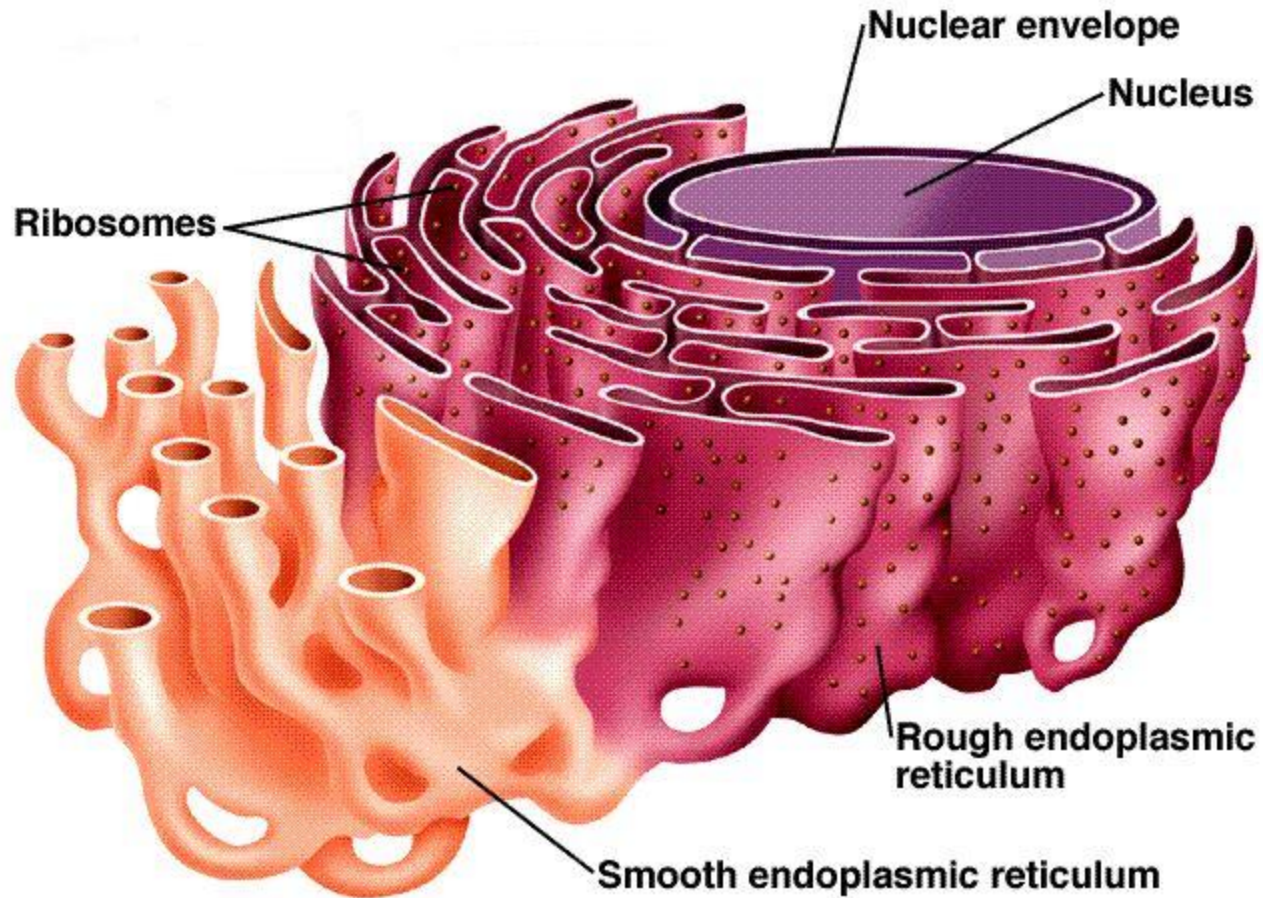
1. Manufacturing

- Nucleus
- Ribosomes



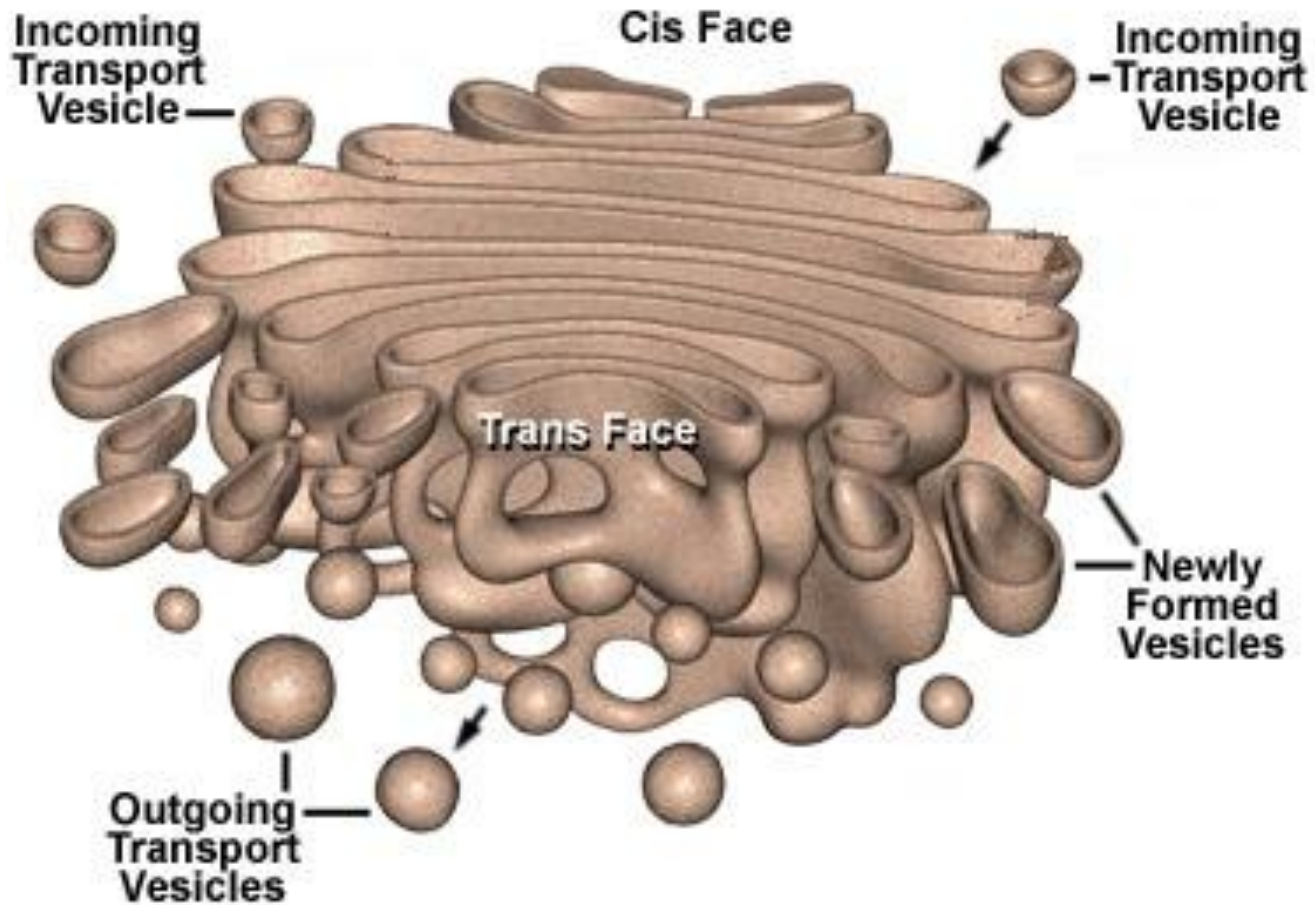
1. Manufacturing

- Endoplasmic Reticulum



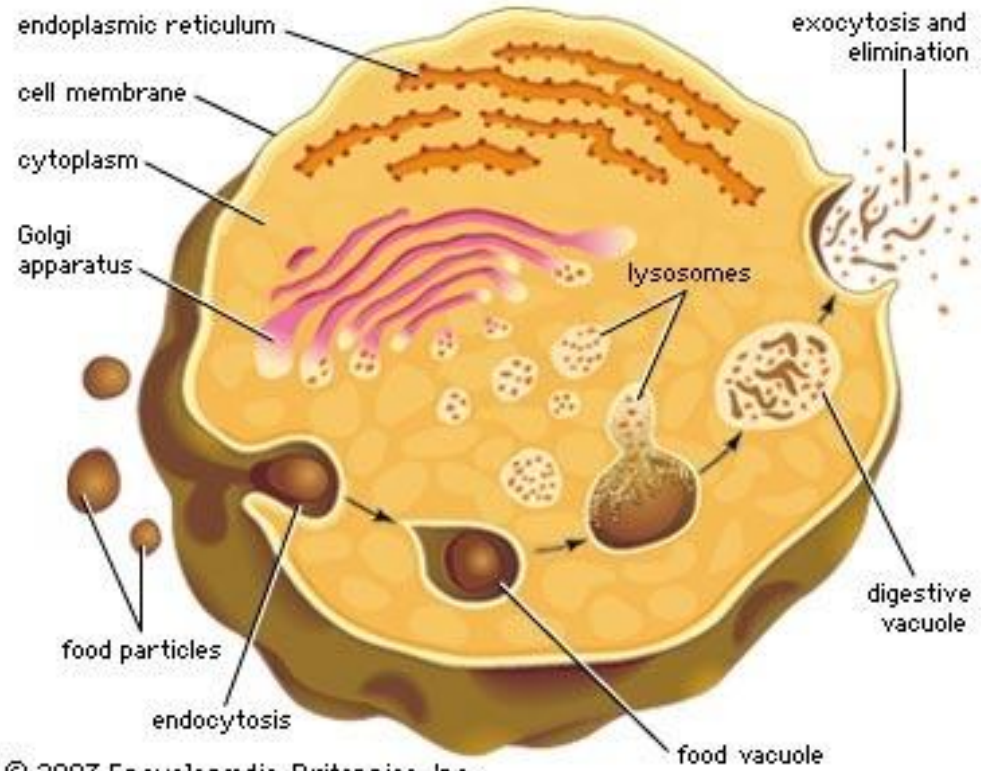
1. Manufacturing

- Golgi Apparatus

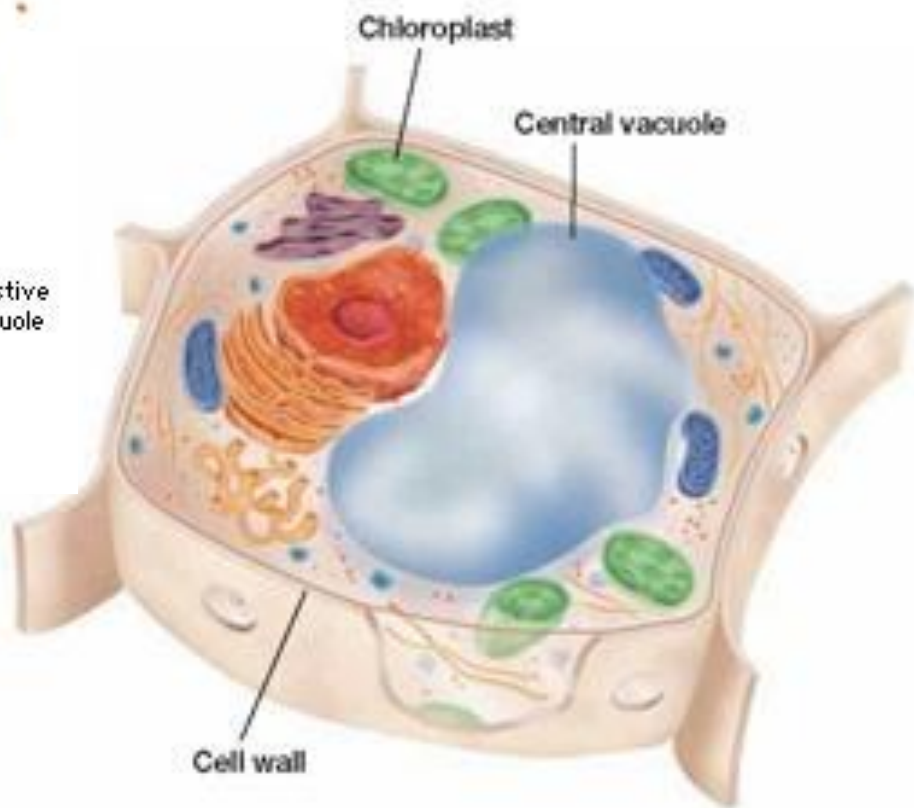


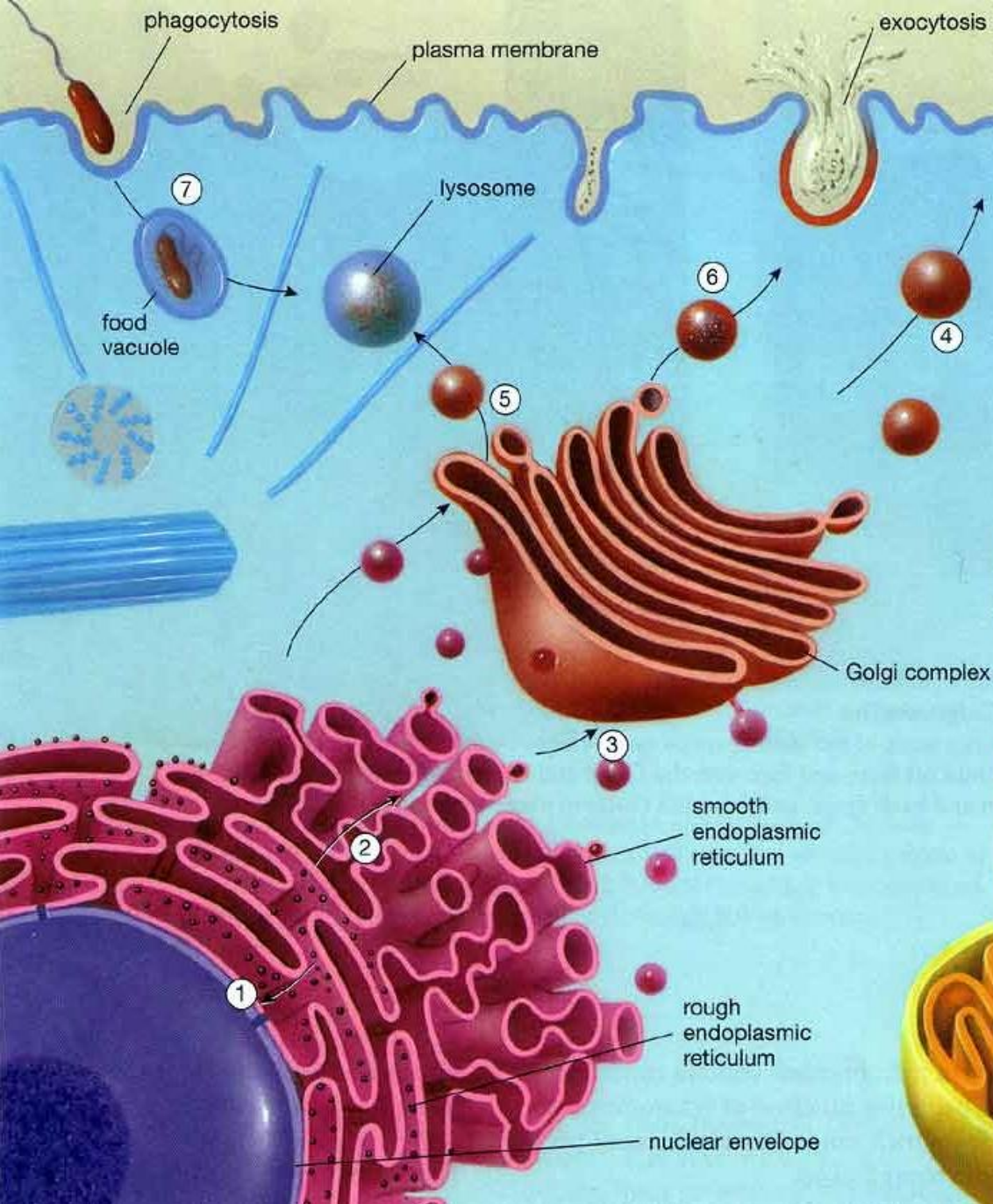
1. Manufacturing

- Vacuoles & vesicles



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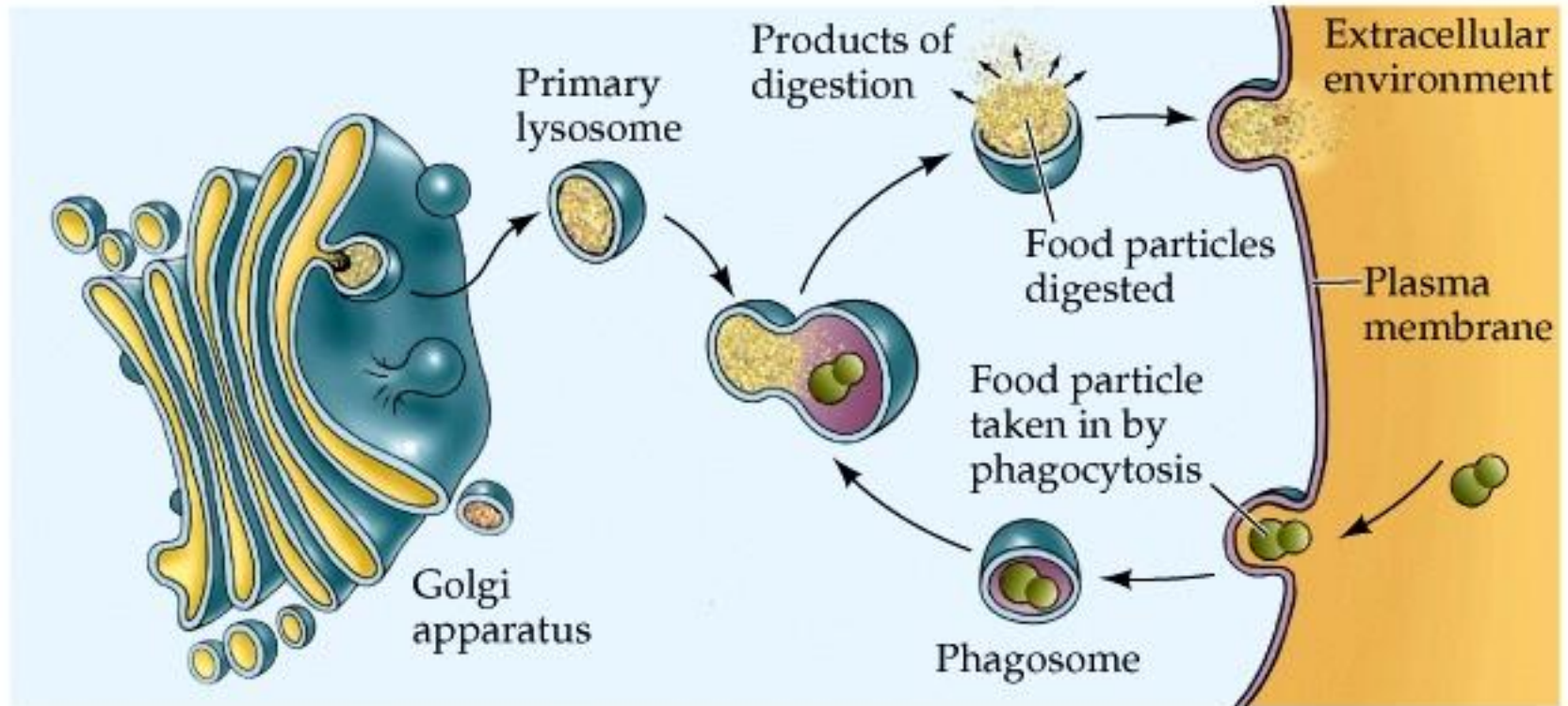
Endomembrane System

- nucleus
 - rough & smooth ER
 - Golgi apparatus
 - vacuoles/vesicles
- = Manufacturing

2. Breakdown

- Lysosomes

(b)

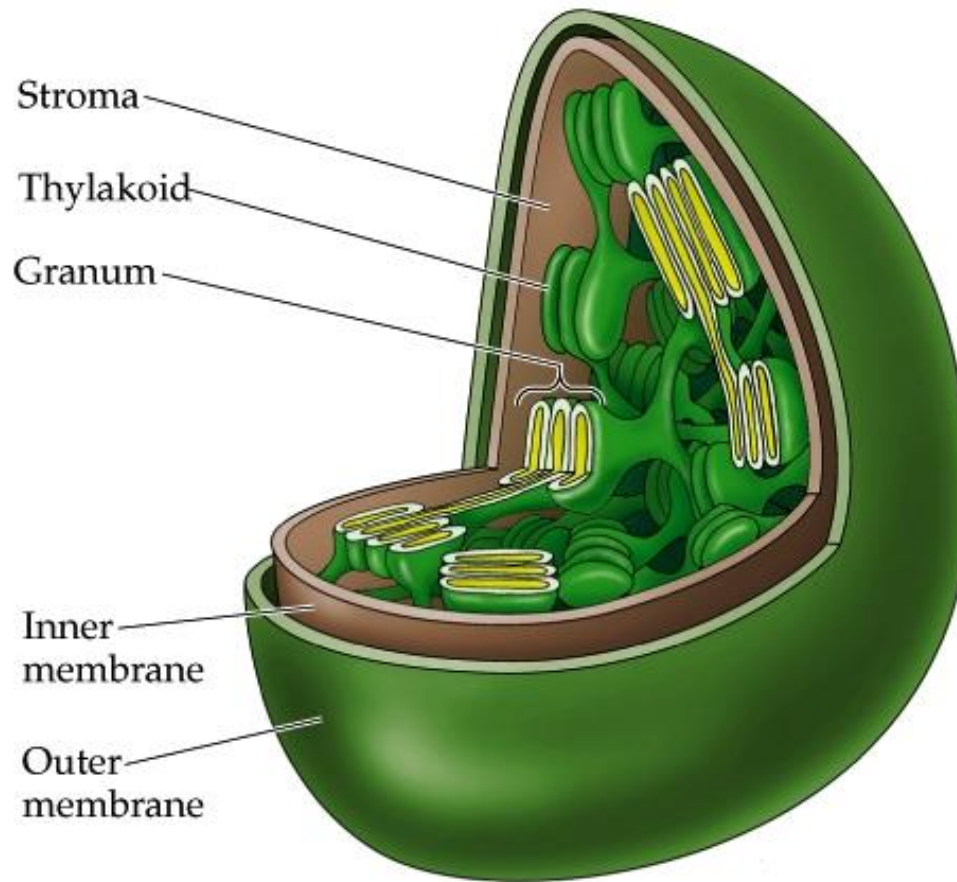


2. Breakdown

- Lysosomes
- Peroxisomes

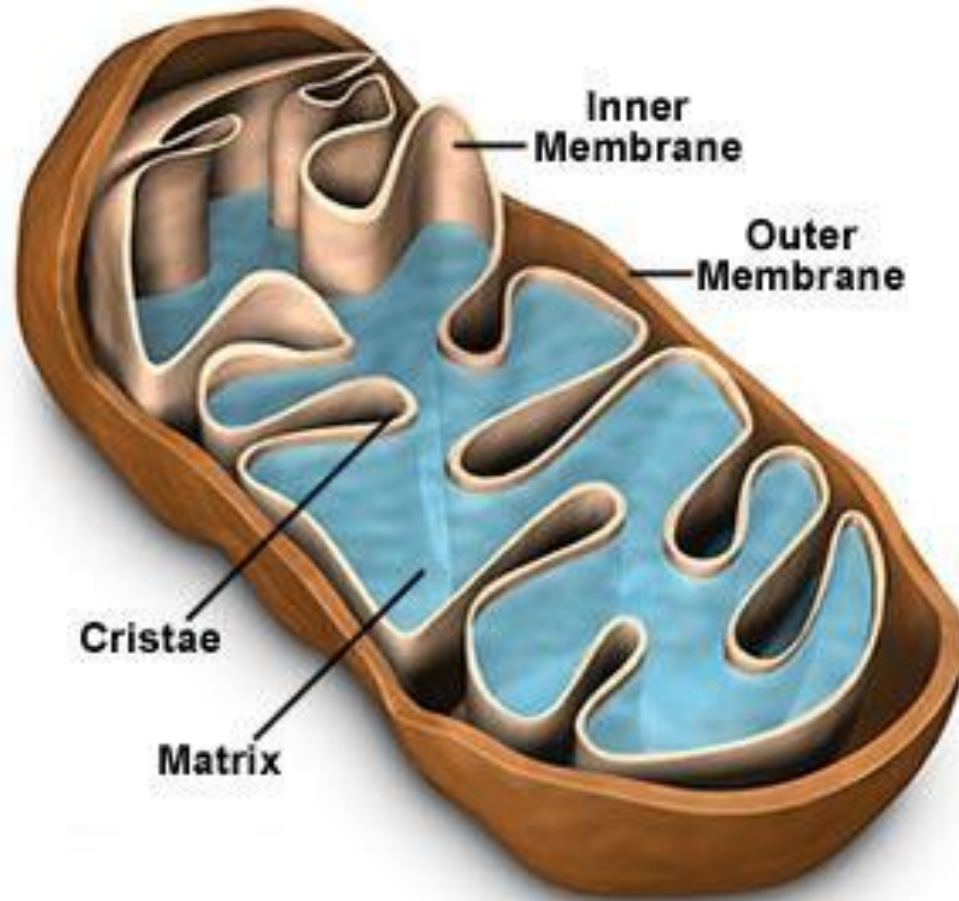
3. Energy Processing

- Chloroplasts



3. Energy Processing

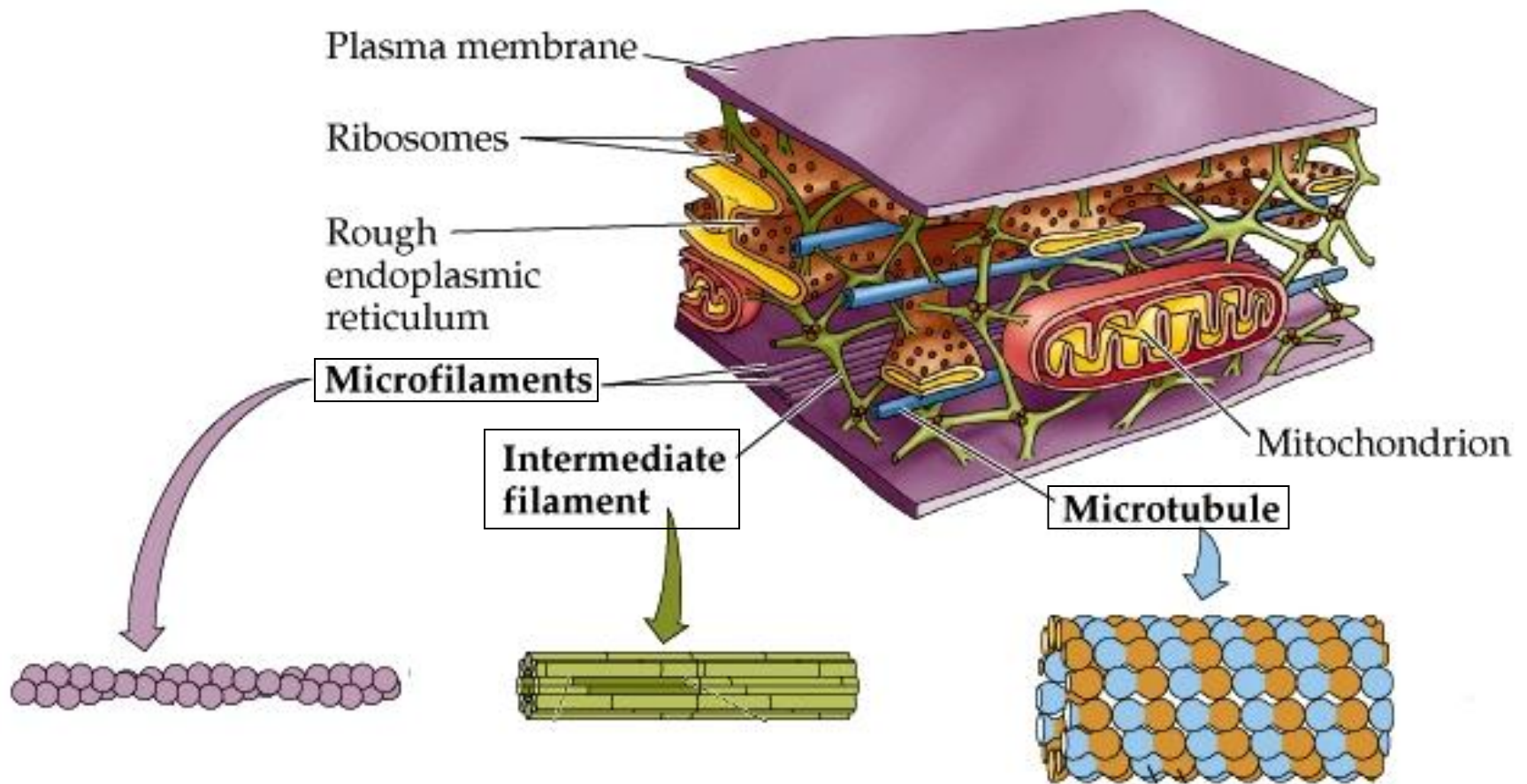
- Mitochondria



4. Support & Communication

- Cytoskeleton

1. Structural support

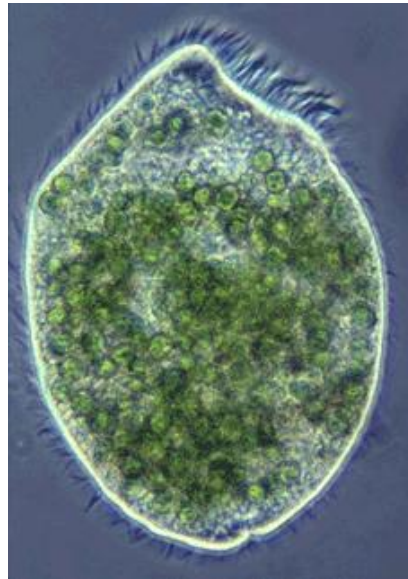


4. Support & Communication

- Cytoskeleton

- 2. Cell movement

Cilia

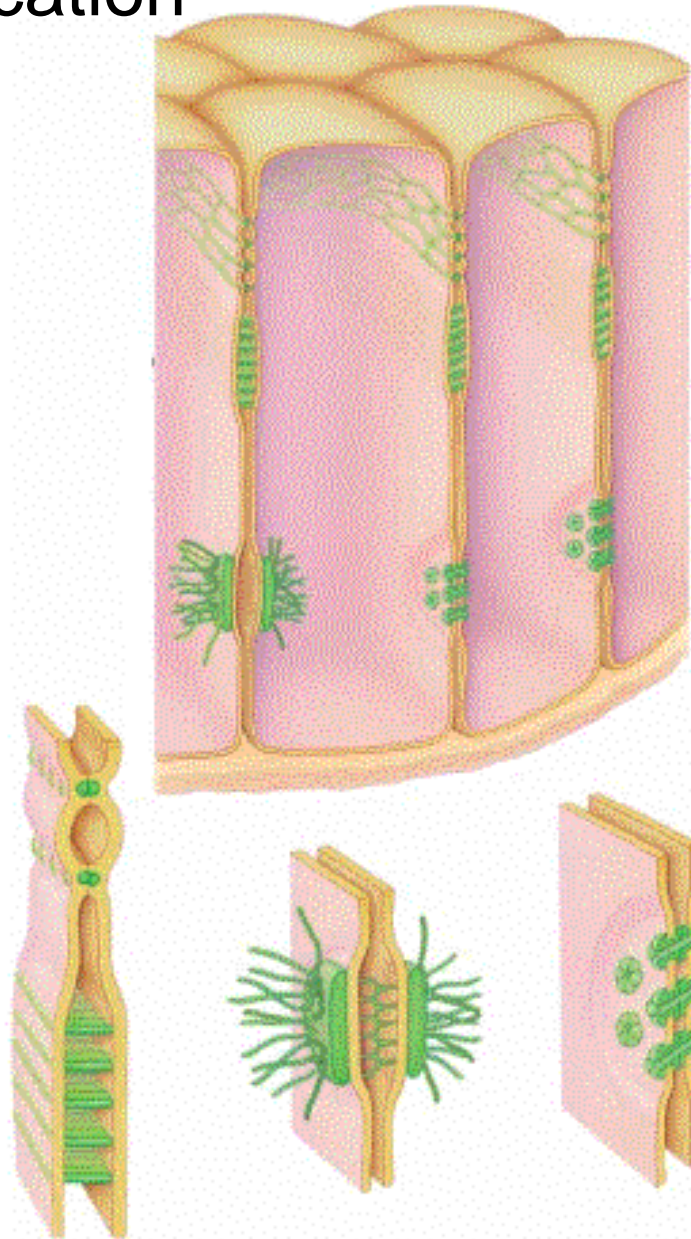


Flagella



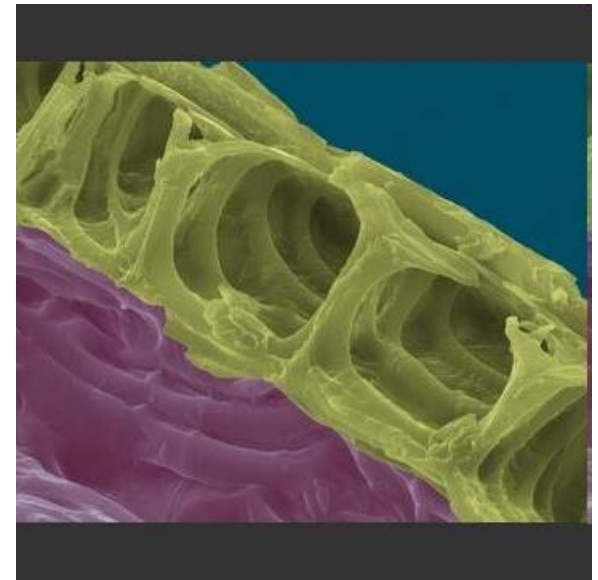
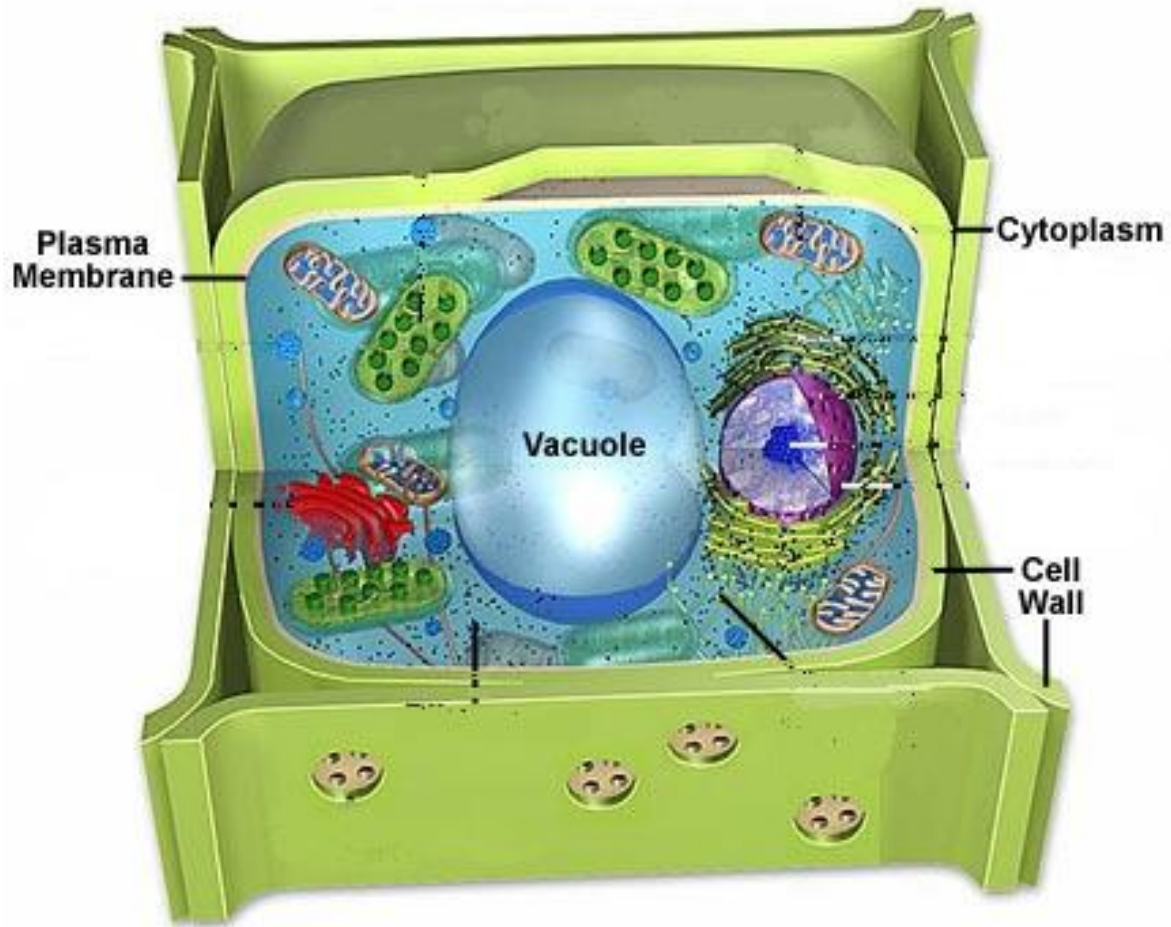
4. Support & Communication

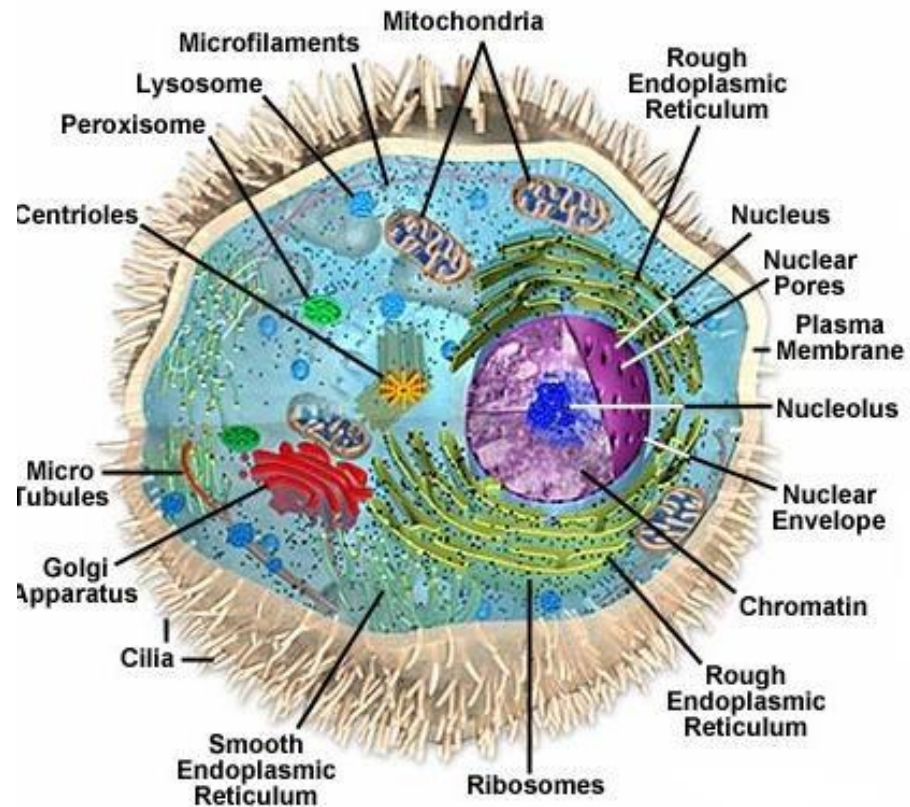
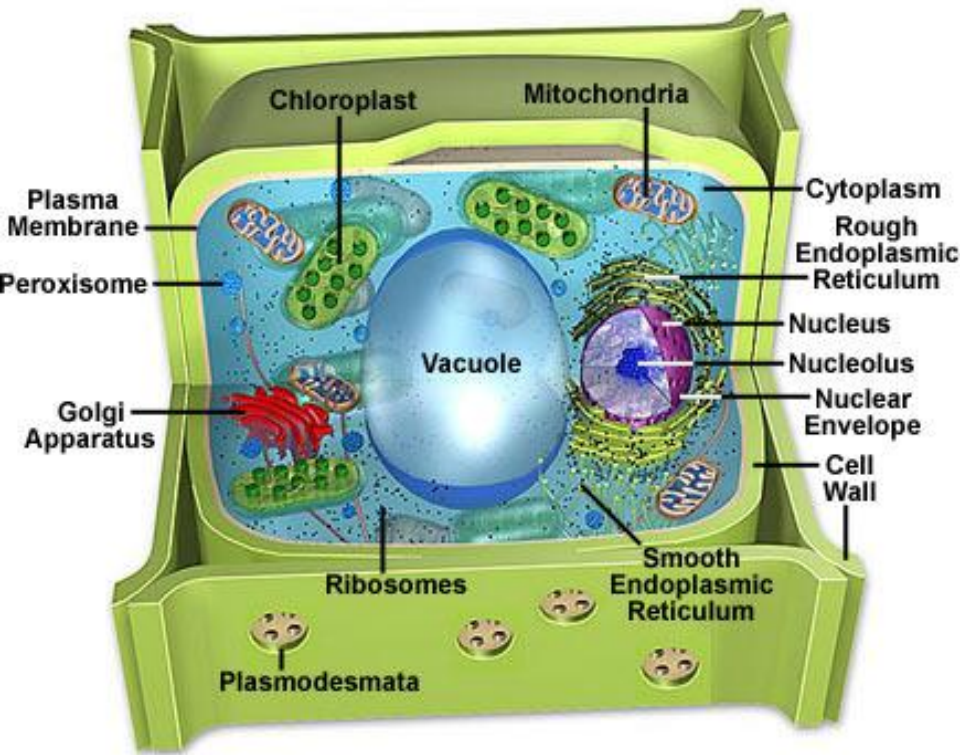
- Cell Junctions



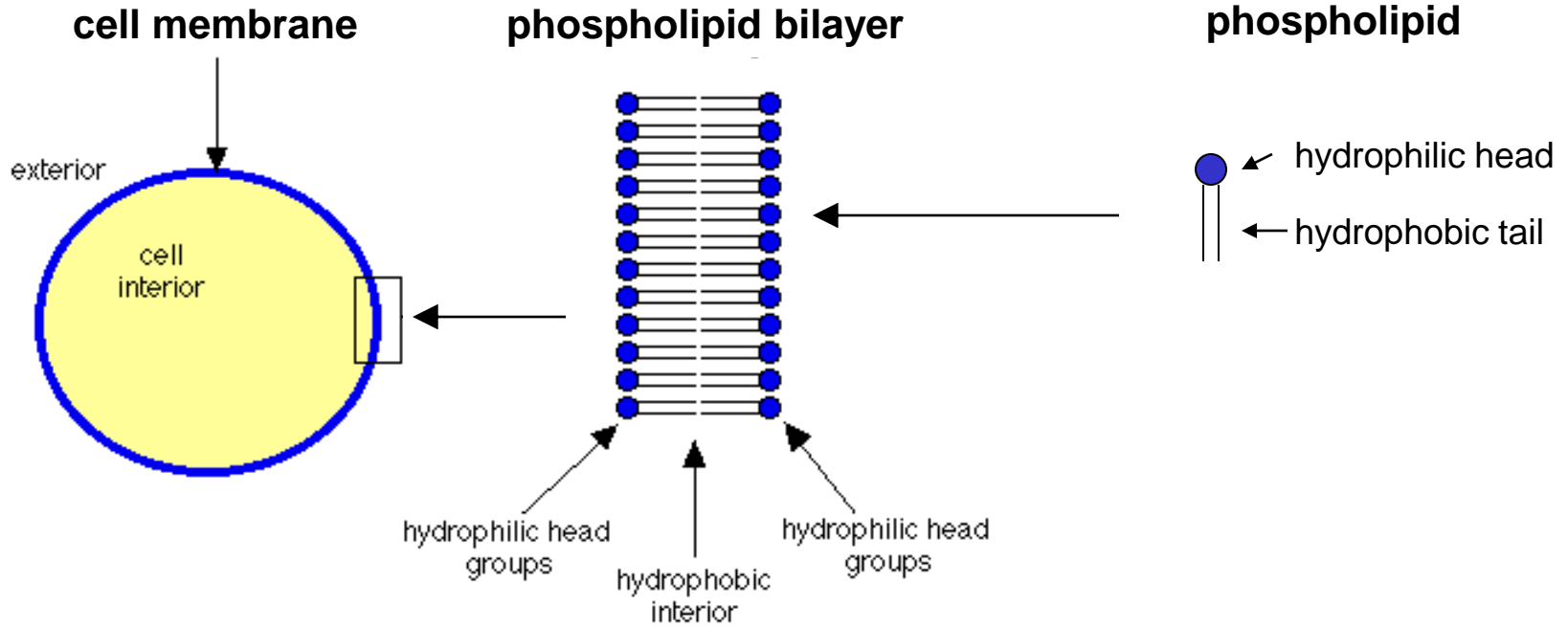
4. Support & Communication

- Cell Walls



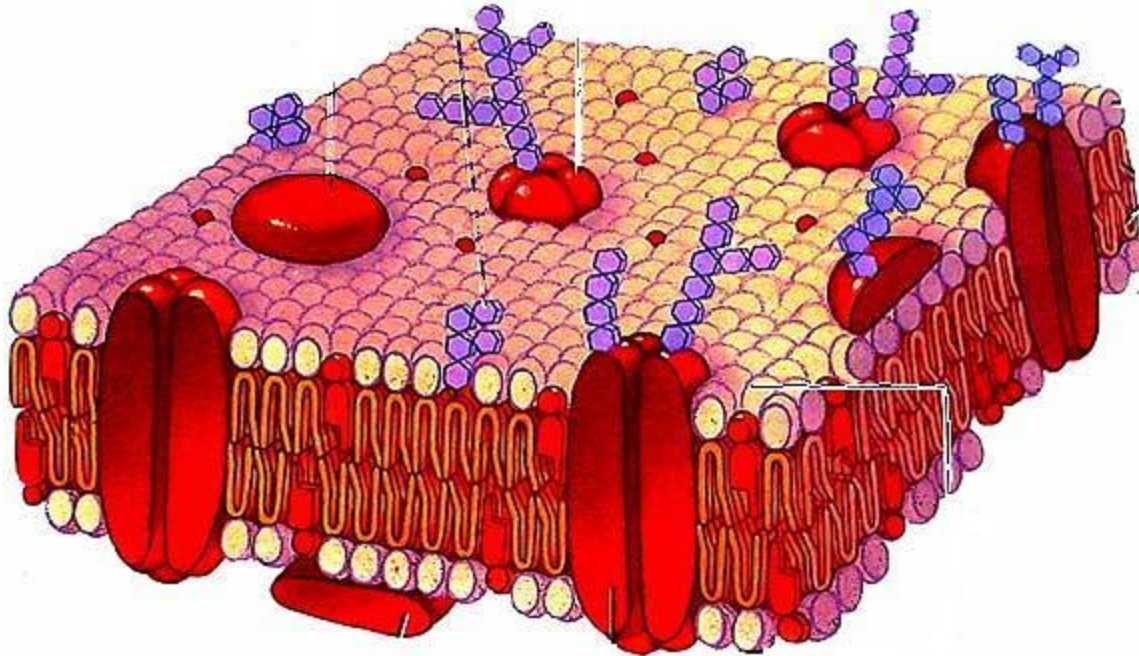


Membranes



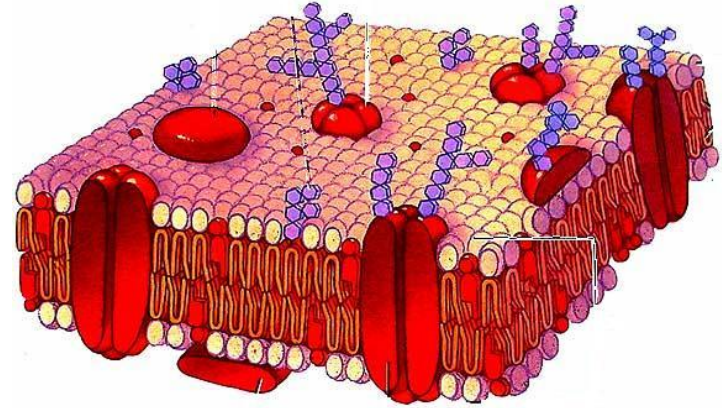
Membrane Structure

Fluid Mosaic of Embedded Molecules



Functions of Embedded Molecules

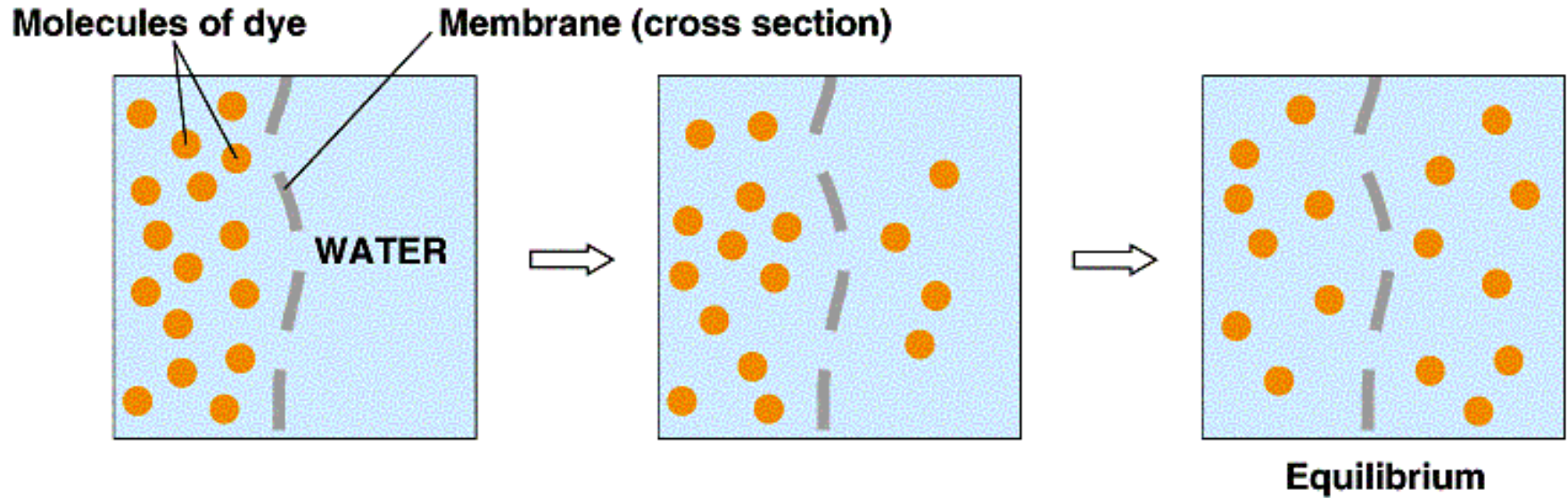
1. Cell identification or recognition
2. Enzyme catalysts
3. Receptors
4. Cell junctions
5. Molecular transport



Molecular Transport

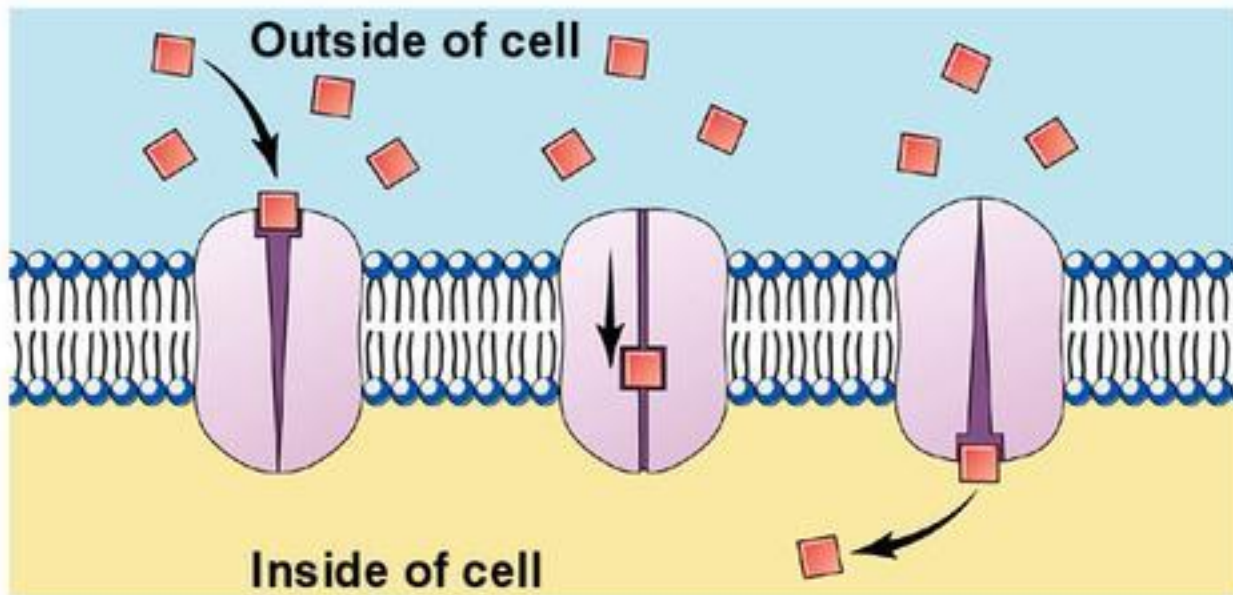
Structure allows membranes to be selectively, or semi-, permeable.

1. Passive transport via simple diffusion



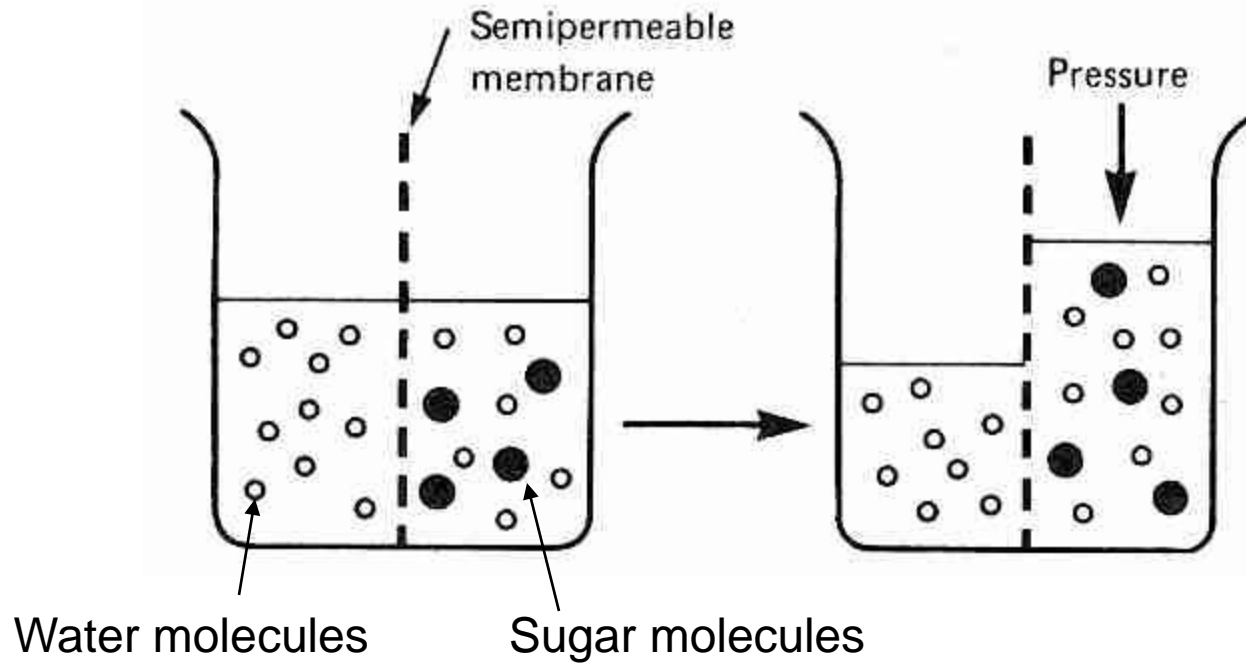
1. Passive transport

A. Facilitated diffusion



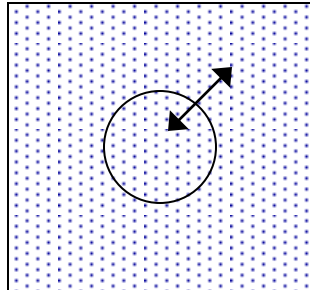
1. Passive transport

B. Osmosis

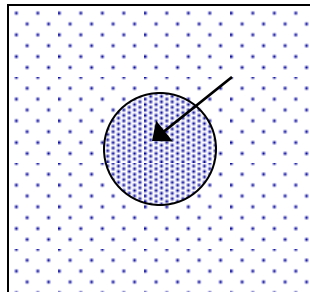


1. Passive transport

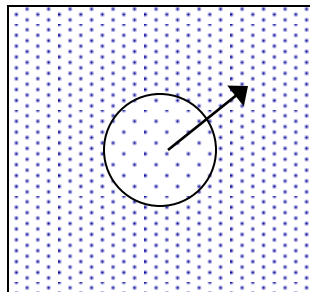
B. Osmosis



Isotonic = concentration of solutes equal outside and inside of cell

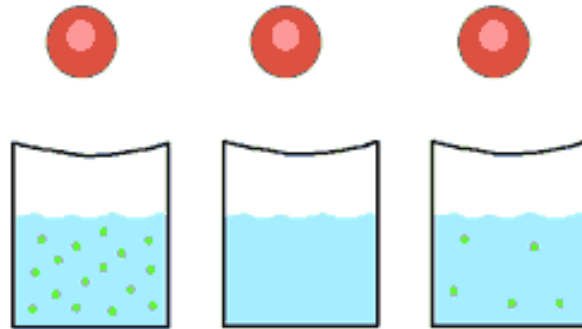


Hypotonic = concentration of solutes lower outside of cell than inside of cell.

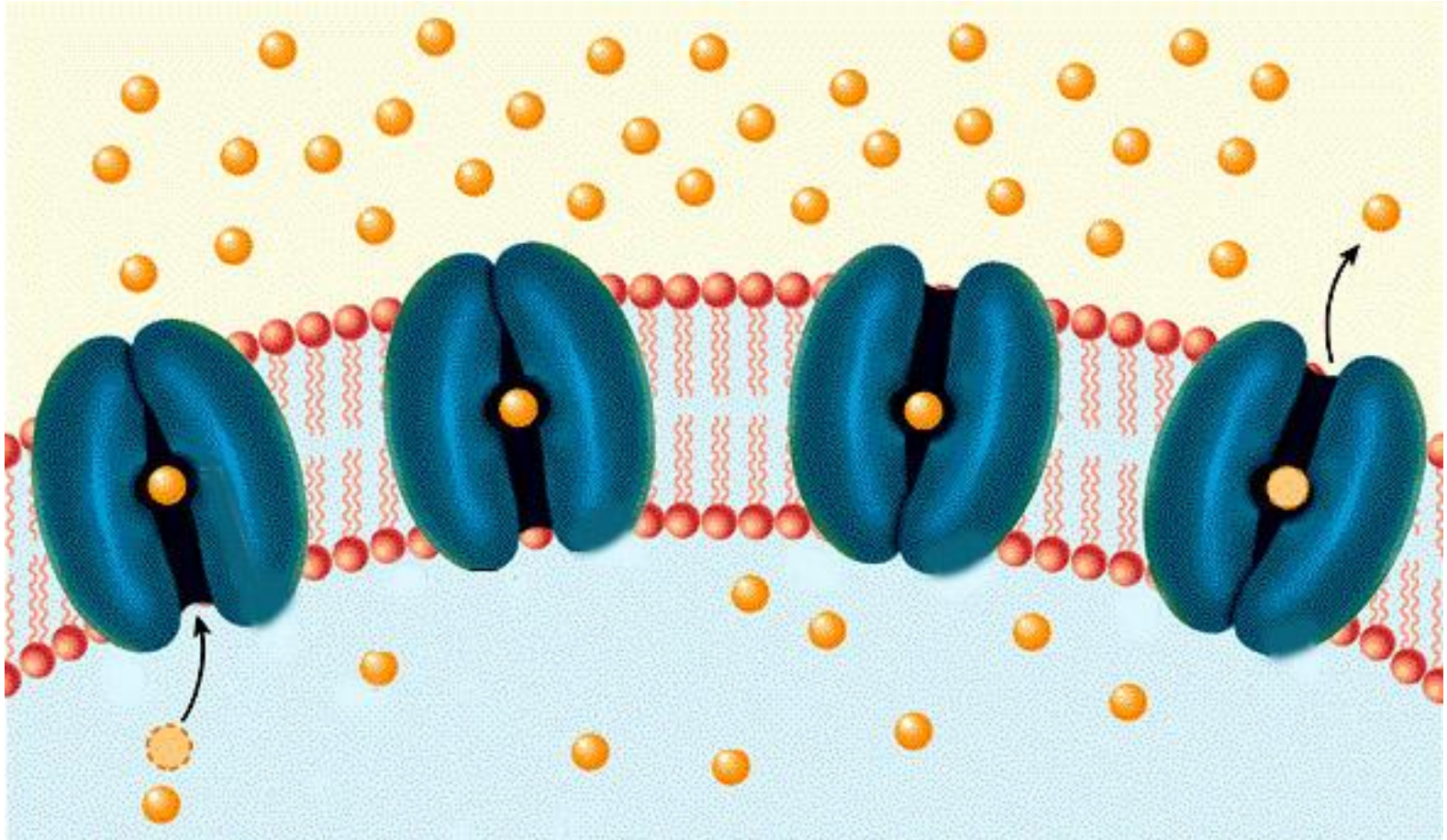


Hypertonic = concentration of solutes higher outside of cell than inside of cell.

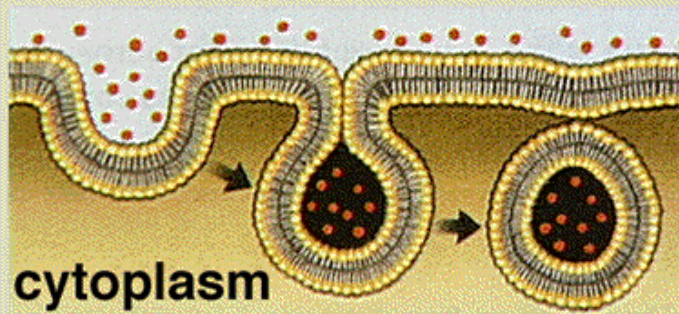
Osmosis



2. Active transport

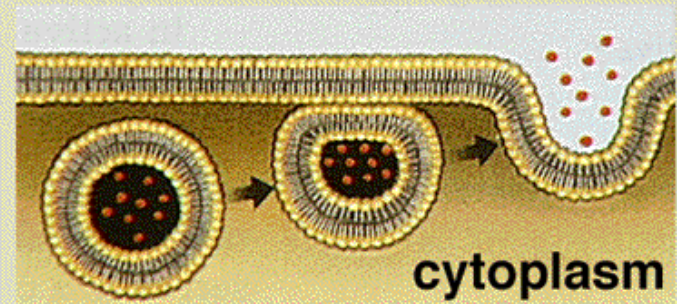


3. Endocytosis



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4. Exocytosis



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