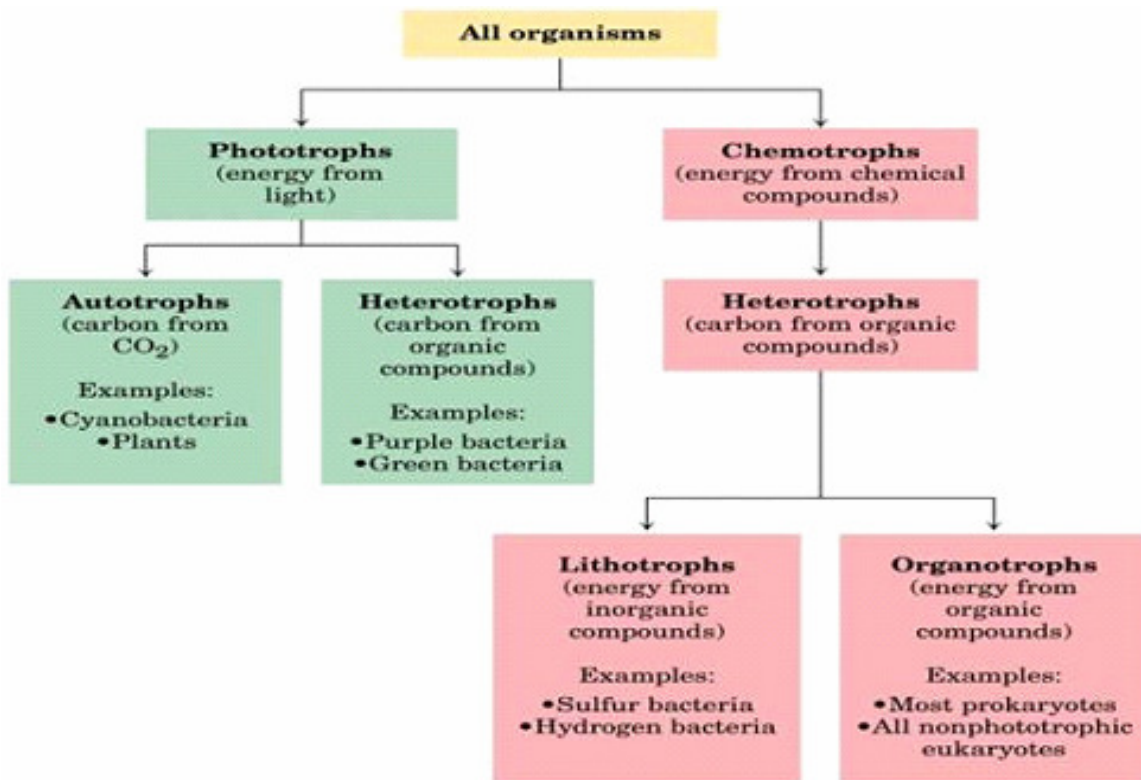
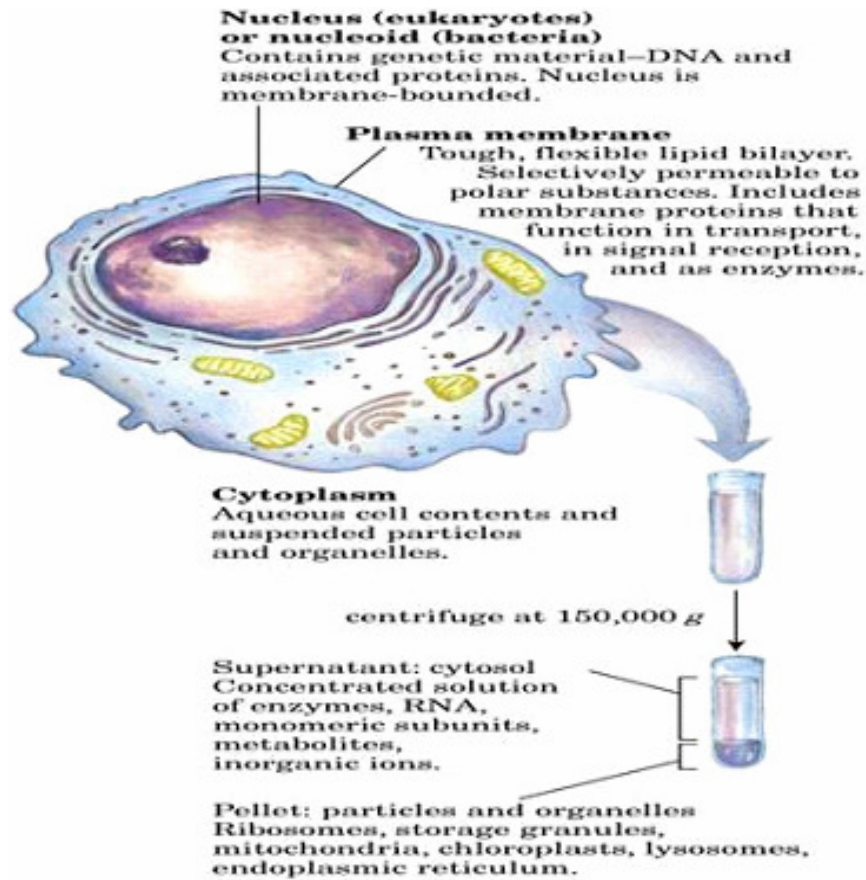


Cells



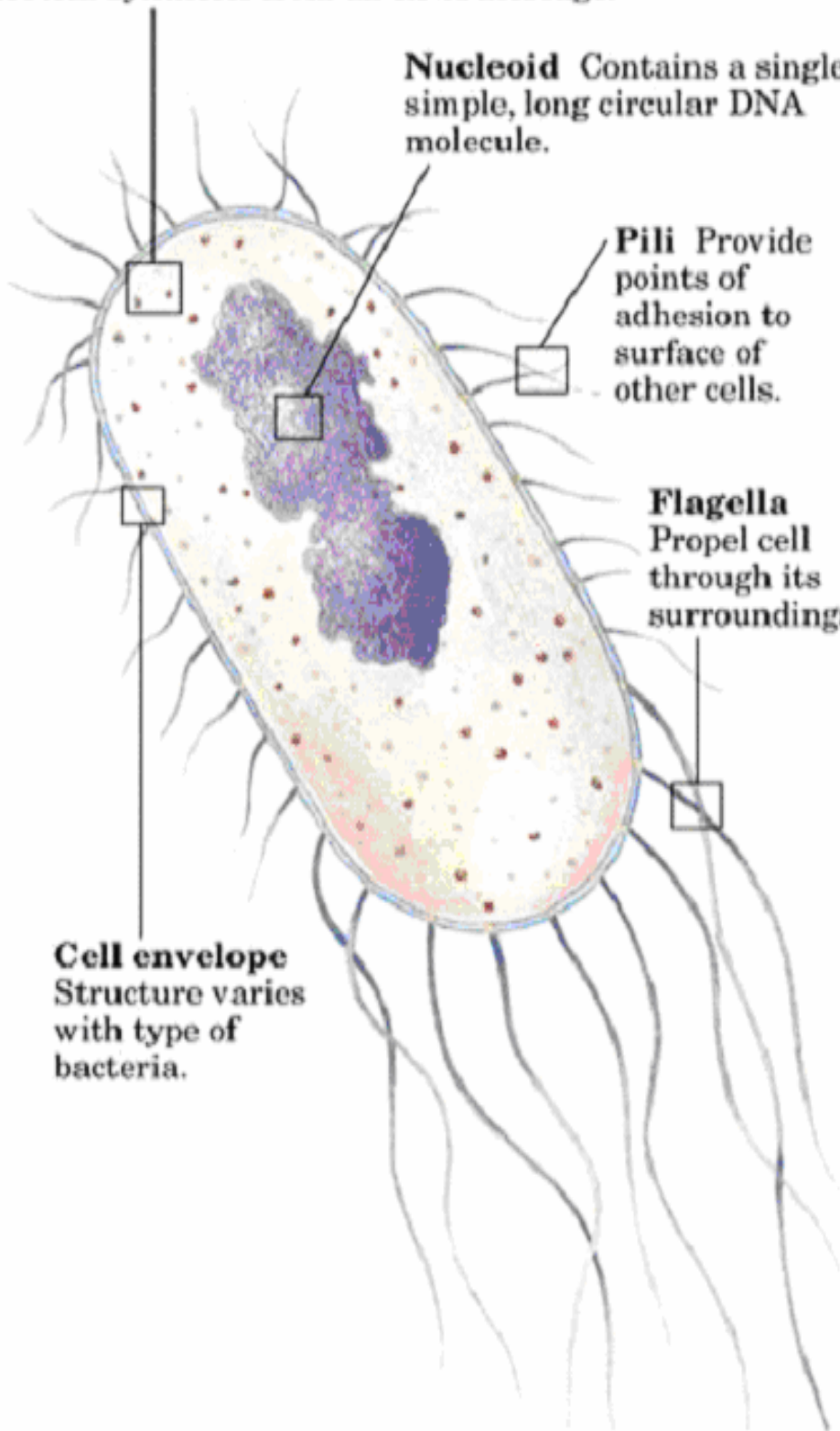
Ribosomes Bacterial ribosomes are smaller than eukaryotic ribosomes, but serve the same function—protein synthesis from an RNA message.

Nucleoid Contains a single, simple, long circular DNA molecule.

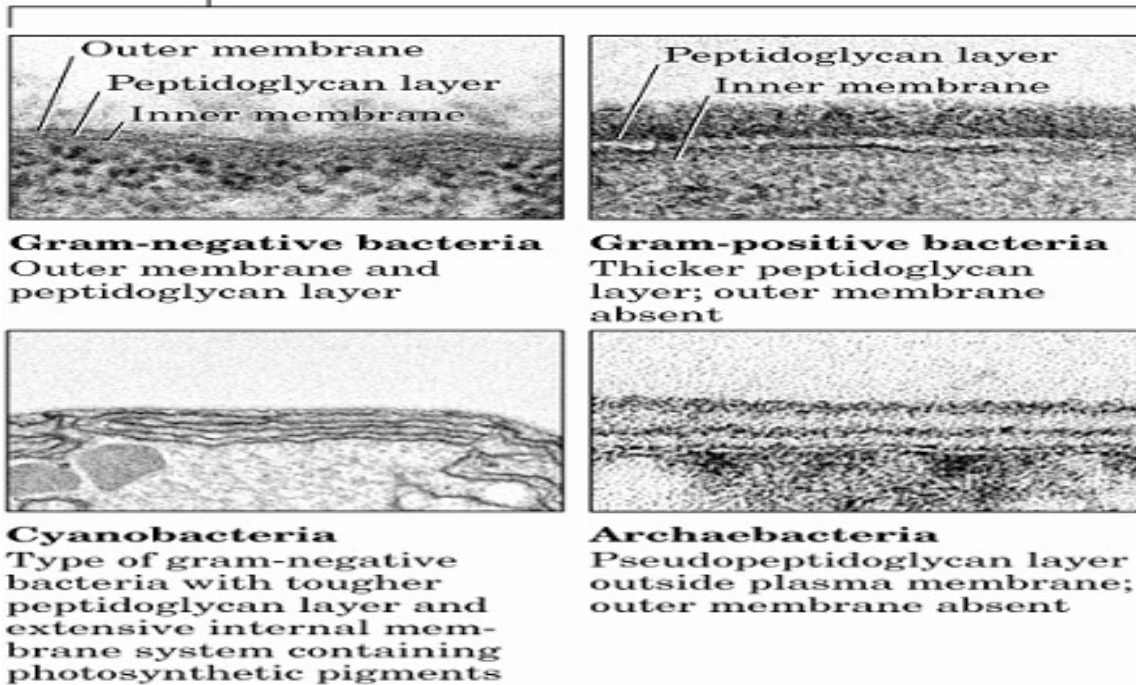
Pili Provide points of adhesion to surface of other cells.

Flagella Propel cell through its surroundings.

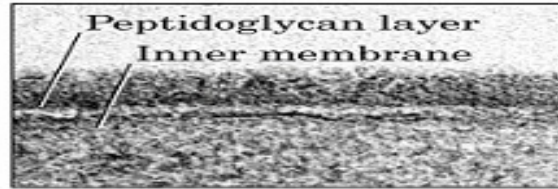
Cell envelope
Structure varies with type of bacteria.



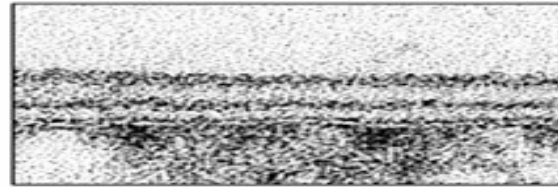
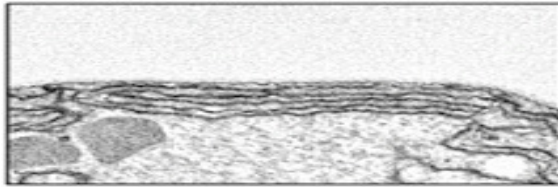
Cell envelope
Structure varies
with type of
bacteria.



Gram-negative bacteria
Outer membrane and
peptidoglycan layer



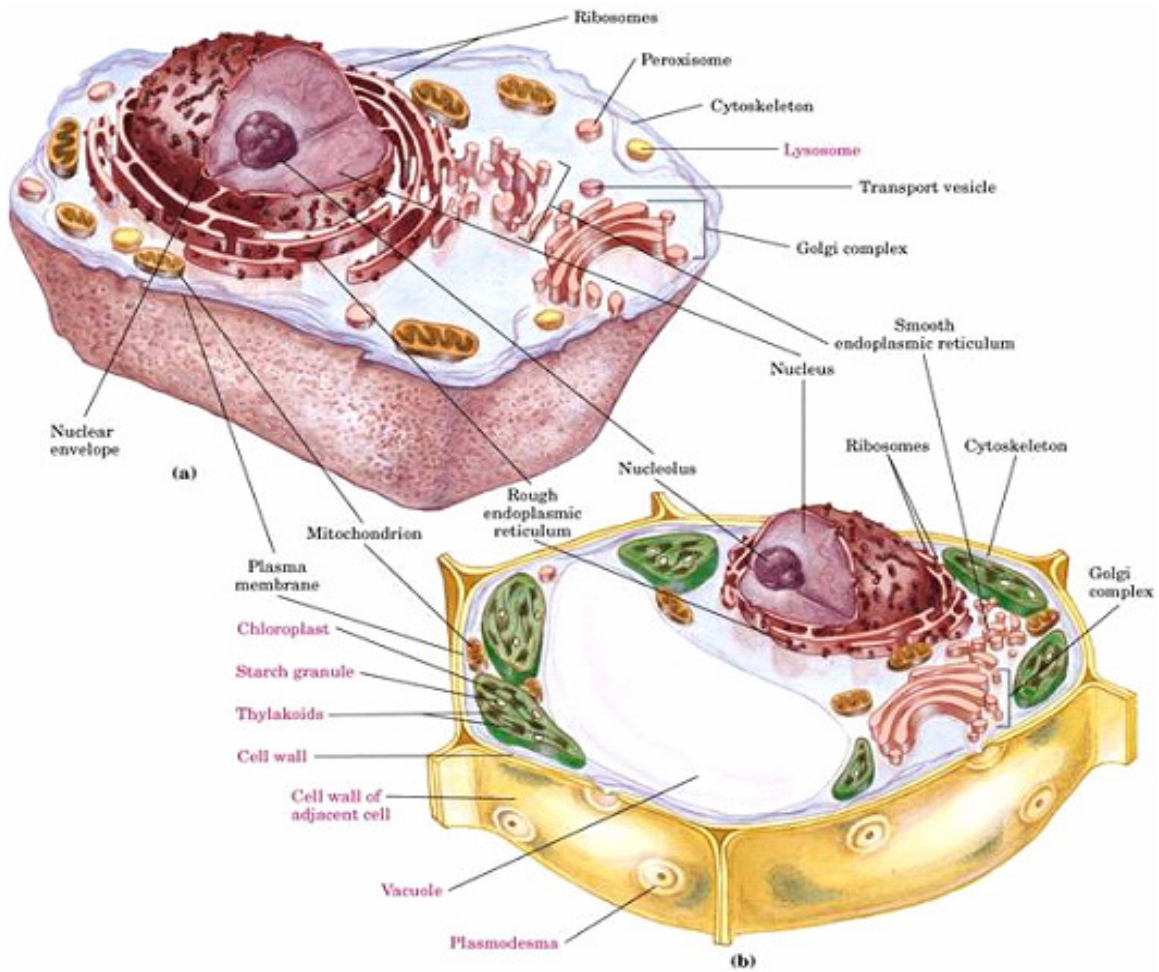
Gram-positive bacteria
Thicker peptidoglycan
layer; outer membrane
absent



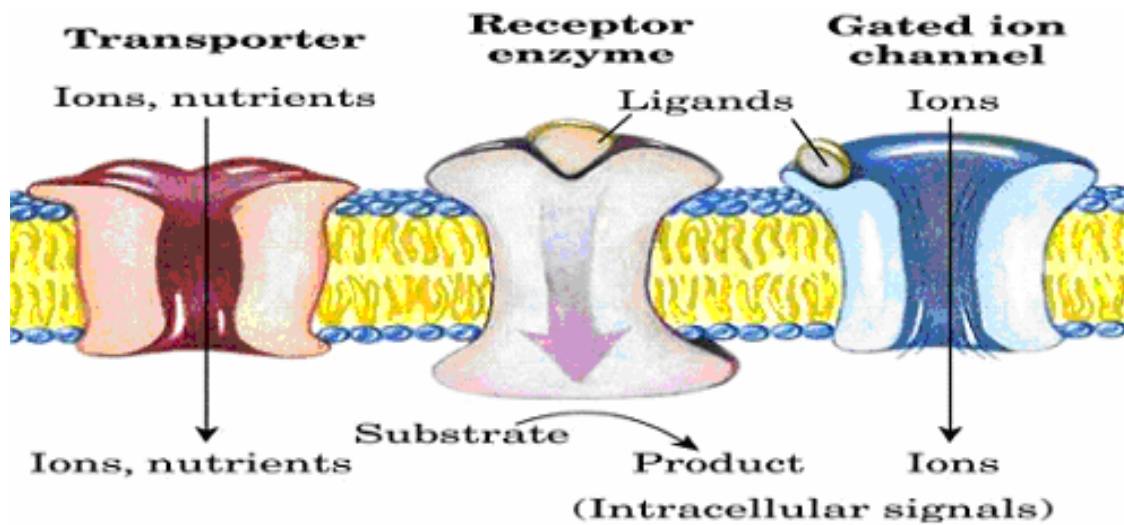
Comparison of Prokaryotic and Eukaryotic Cells

Characteristic	Prokaryotic cell	Eukaryotic cell
Size	Generally small (1–10 μm)	Generally large (5–100 μm)
Genome	DNA with nonhistone protein; genome in nucleoid, not surrounded by membrane	DNA complexed with histone and nonhistone proteins in chromosomes; chromosomes in nucleus with membranous envelope
Cell division	Fission or budding; no mitosis	Mitosis including mitotic spindle; centrioles in many species
Membrane-bounded organelles	Absent	Mitochondria, chloroplasts (in plants, some algae), endoplasmic reticulum, Golgi complexes, lysosomes (in animals), etc.
Nutrition	Absorption; some photosynthesis	Absorption, ingestion; photosynthesis in some species
Energy metabolism	No mitochondria; oxidative enzymes bound to plasma membrane; great variation in metabolic pattern	Oxidative enzymes packaged in mitochondria; more unified pattern of oxidative metabolism
Cytoskeleton	None	Complex, with microtubules, intermediate filaments, actin filaments
Intracellular movement	None	Cytoplasmic streaming, endocytosis, phagocytosis, mitosis, vesicle transport

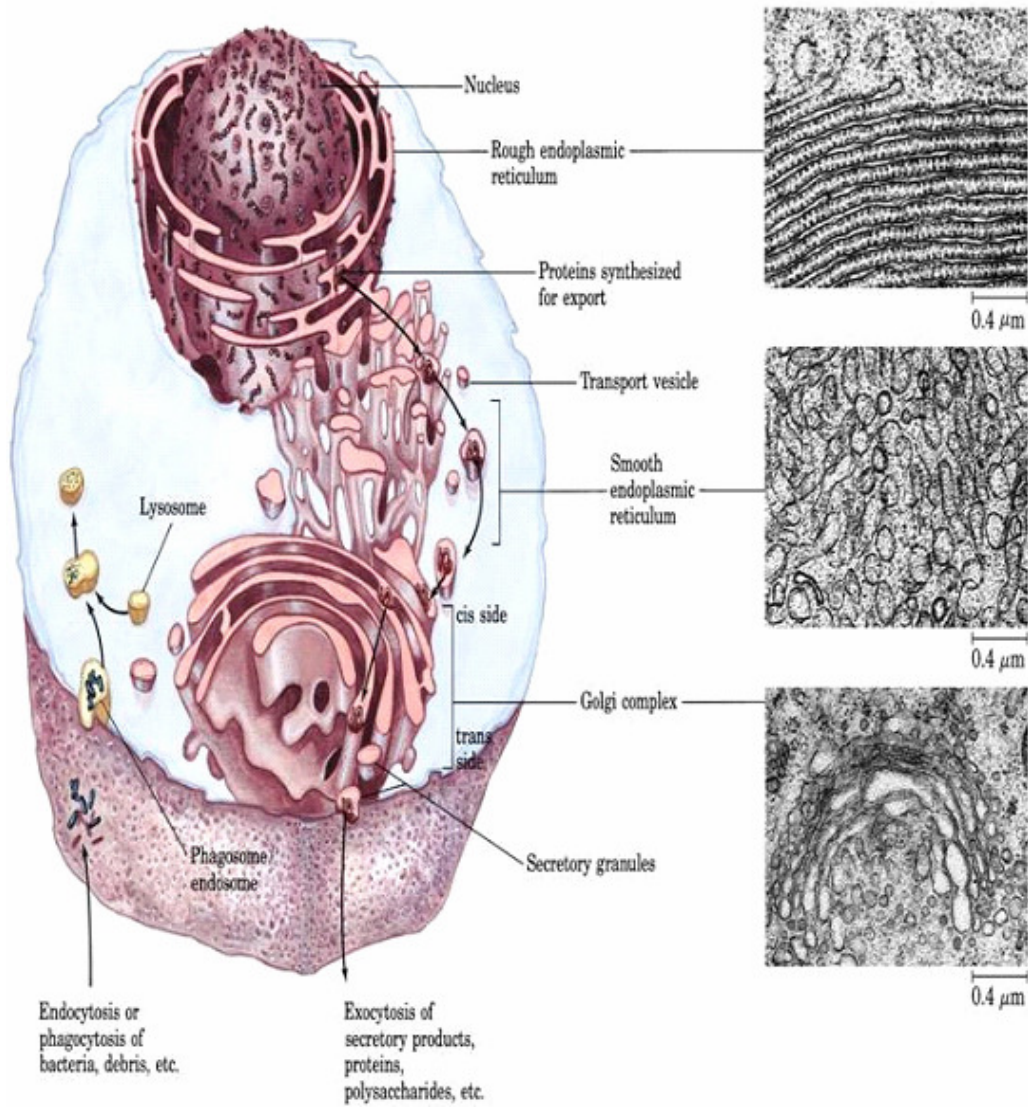
Animal vs Plant cells



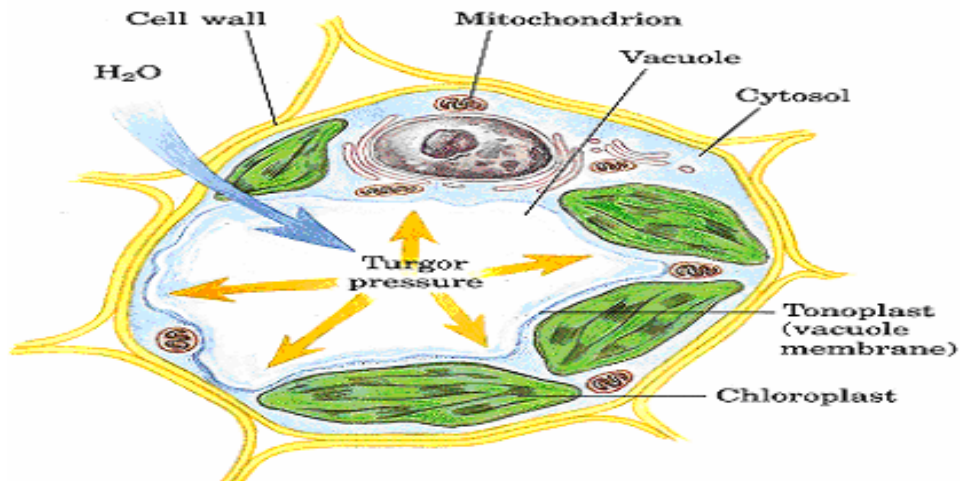
Proteins in the plasma membrane



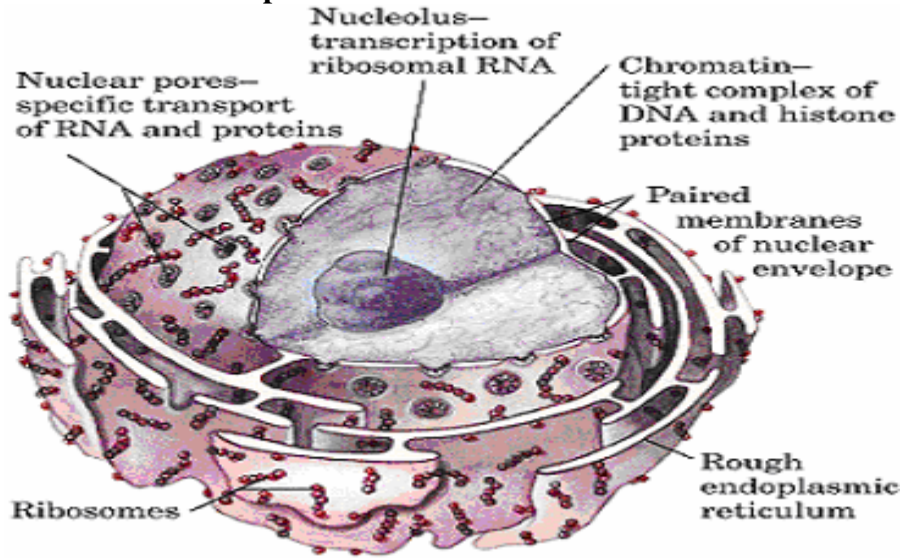
The endomembrane system



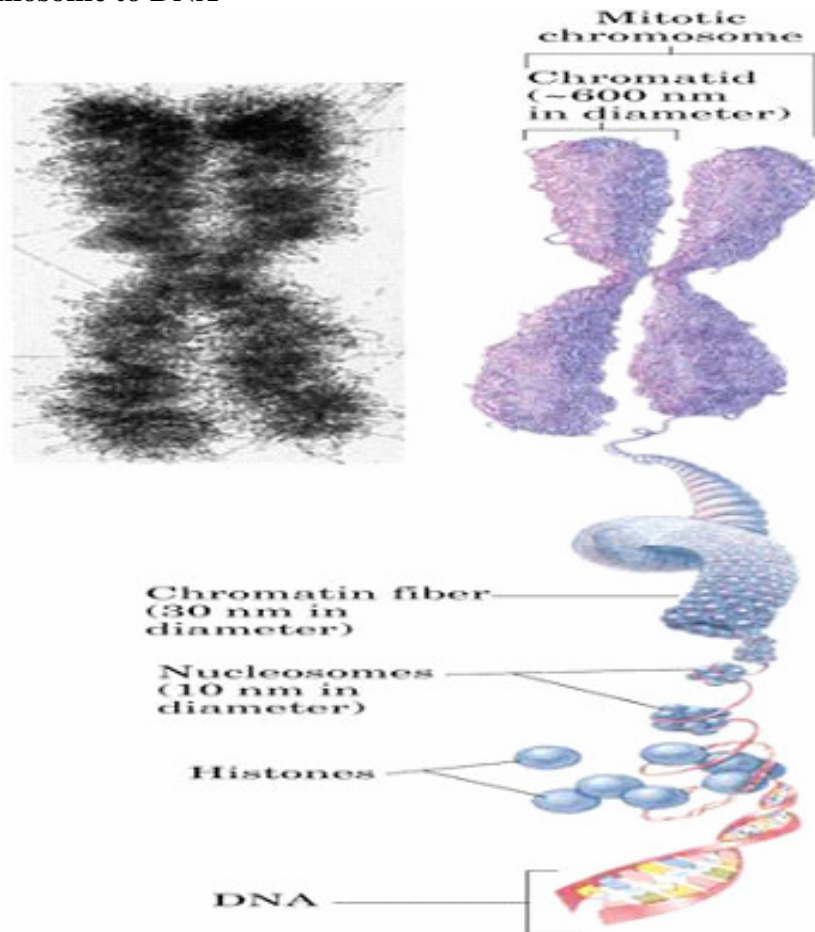
Vacuoles in plant cells



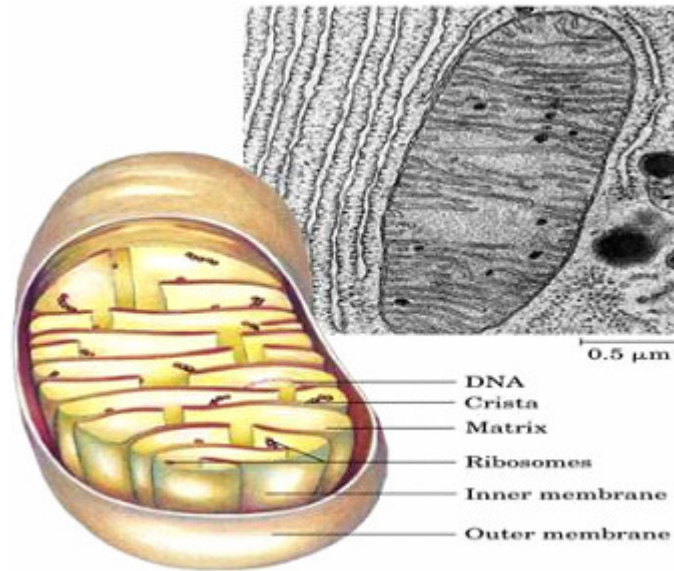
Nucleus and Nuclear Envelope



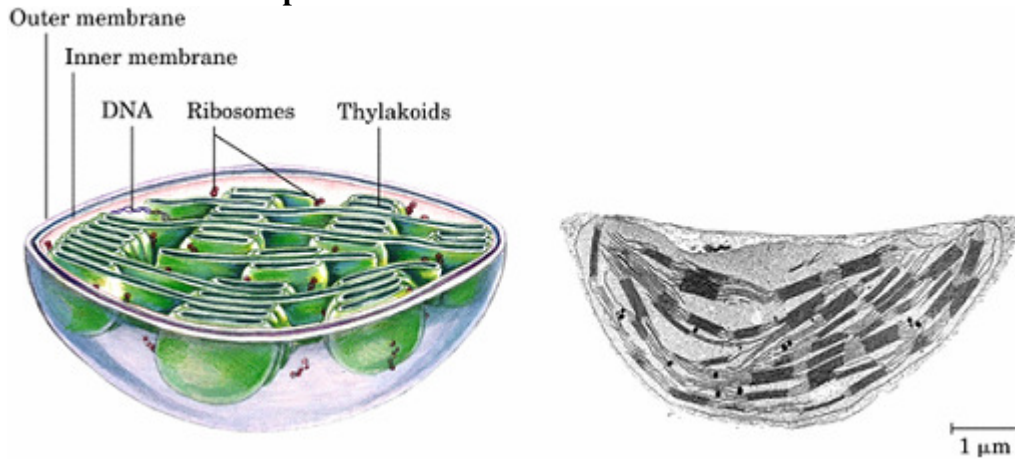
From Chromosome to DNA



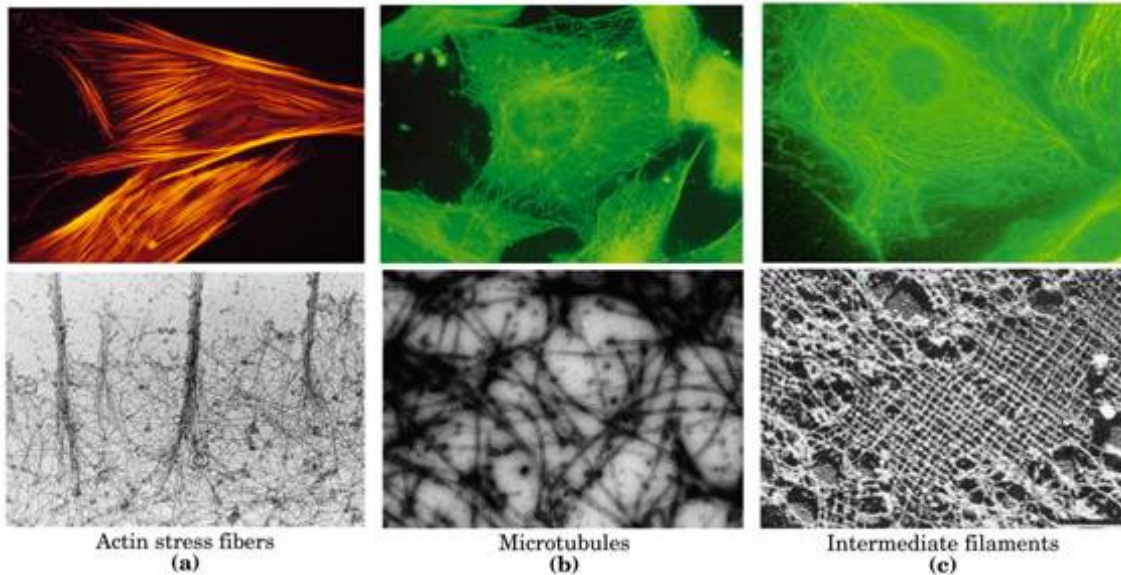
The structure of a mitochondria

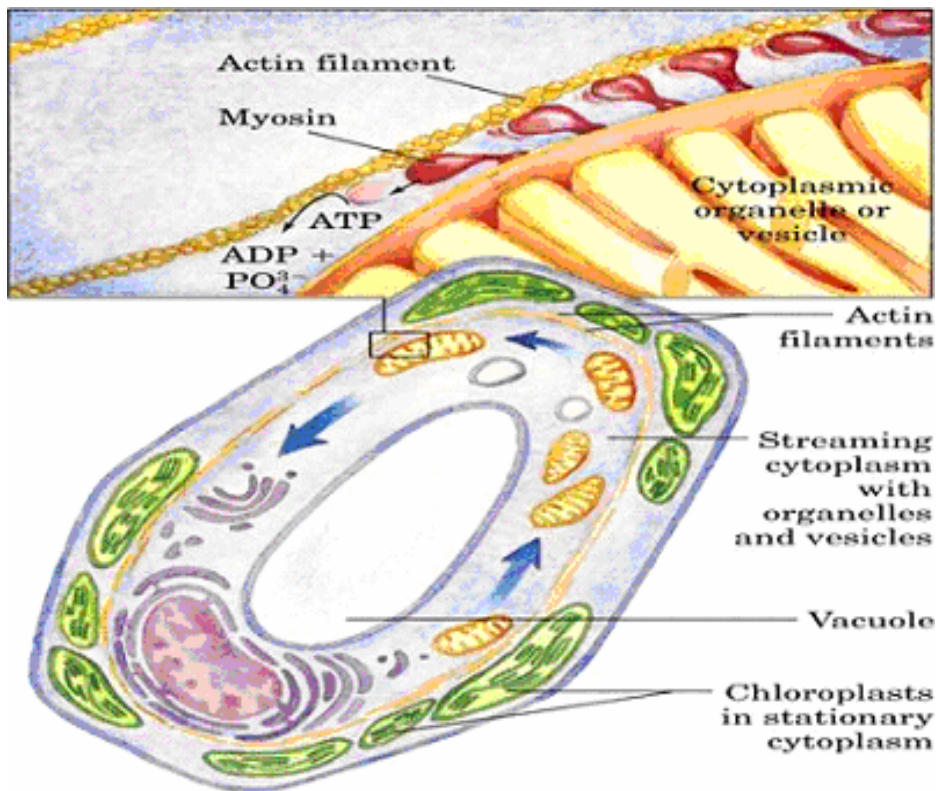
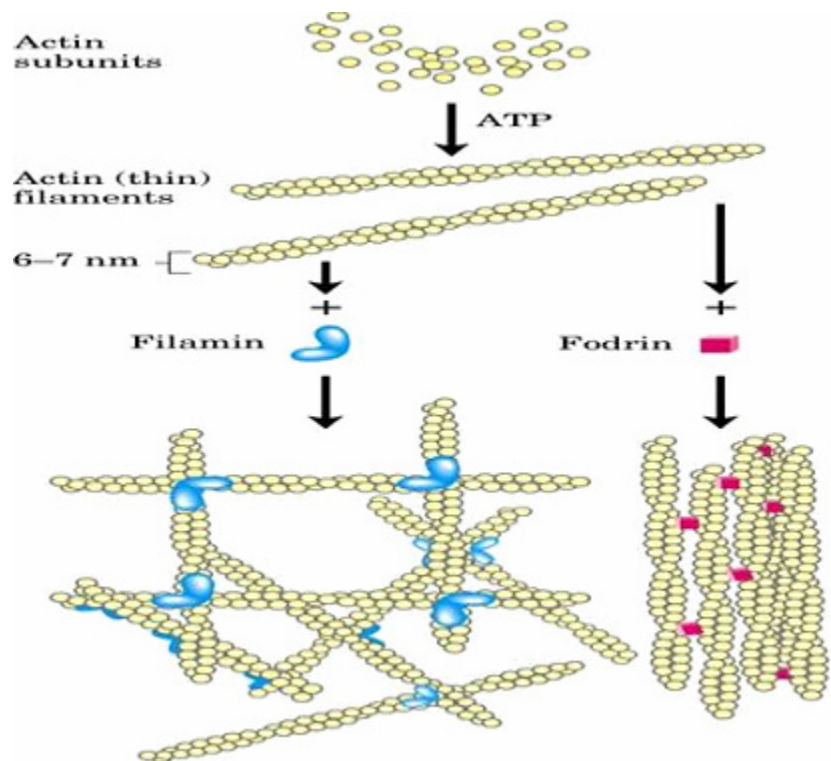


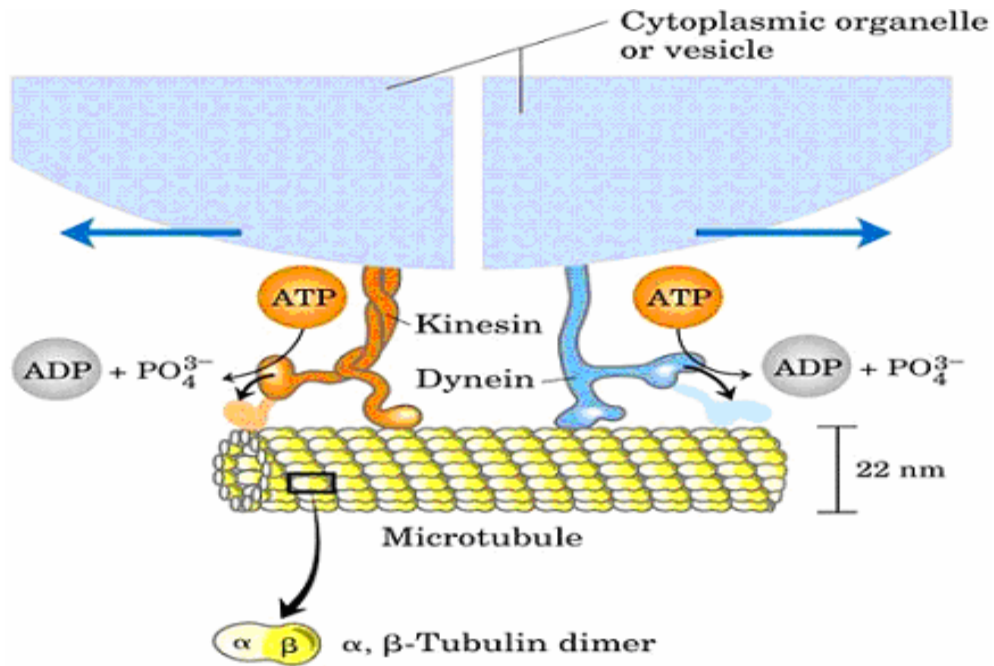
The structure of a chloroplast



The cytoskeleton







Cellular connections

