# Prokariotic cell structure

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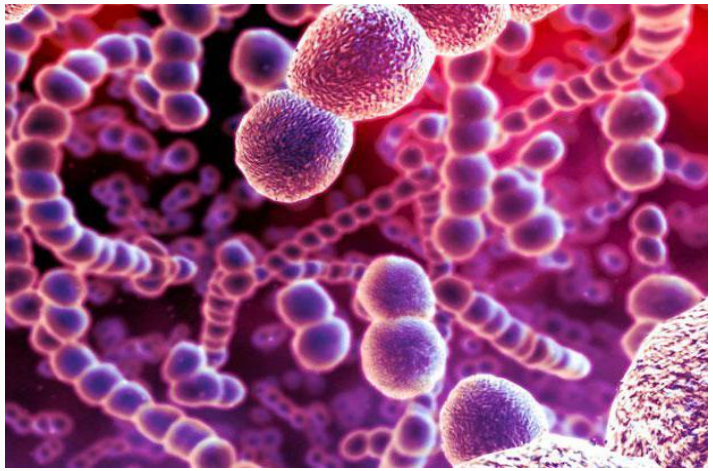
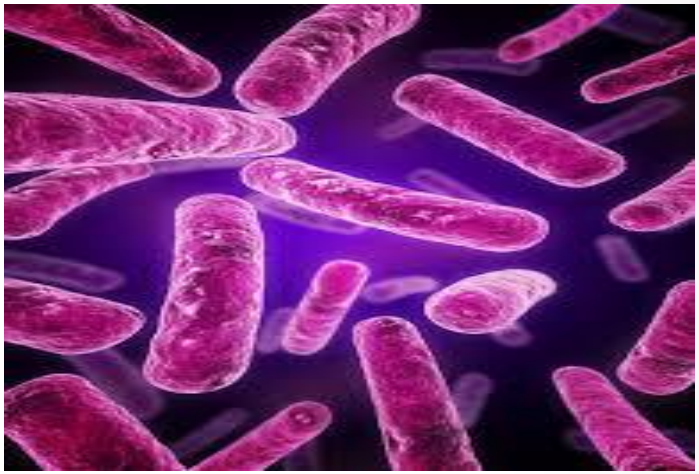
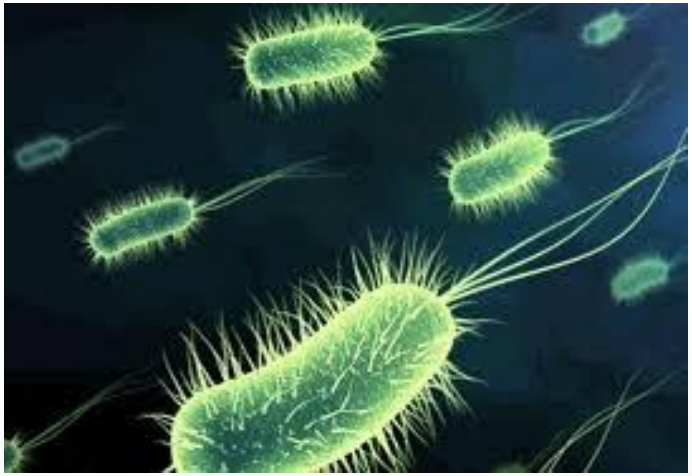
- A prokaryote is a single-celled organism that lacks a membrane-bound nucleus , mitochondria, or any other membrane-bound organelle.

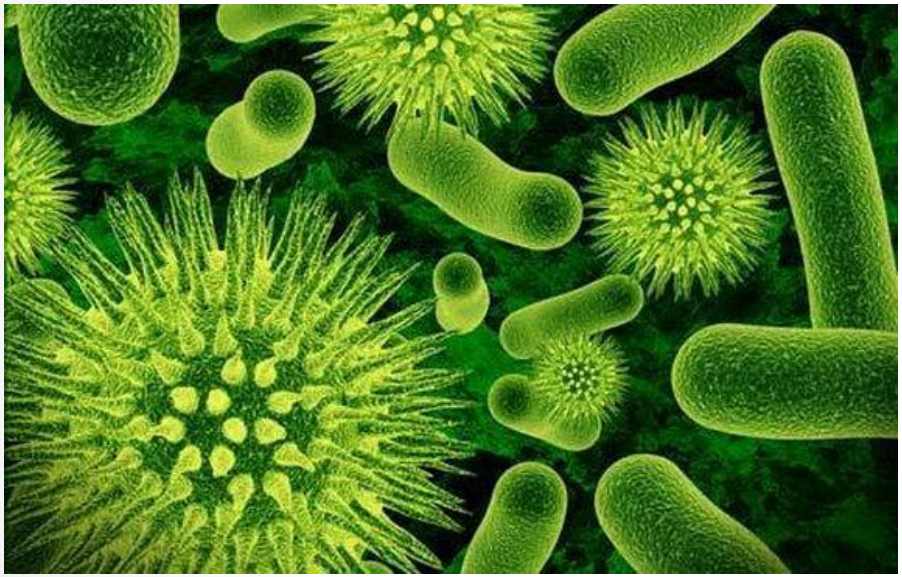


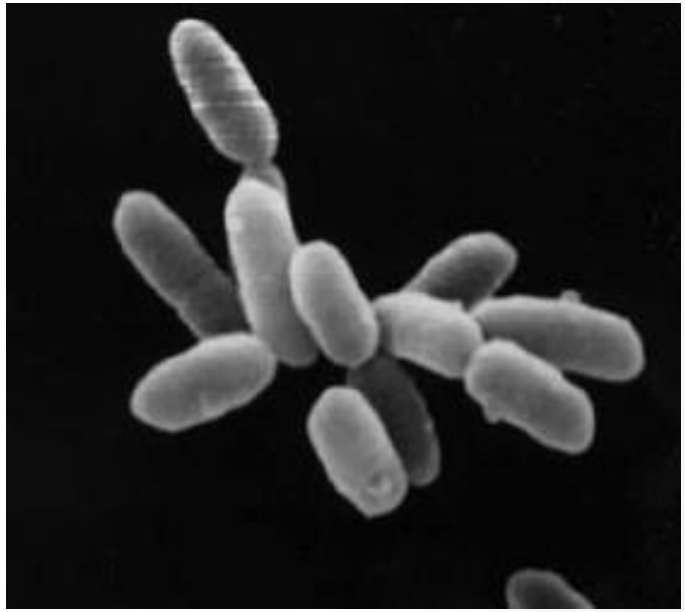




There are two major kinds of prokaryotes:

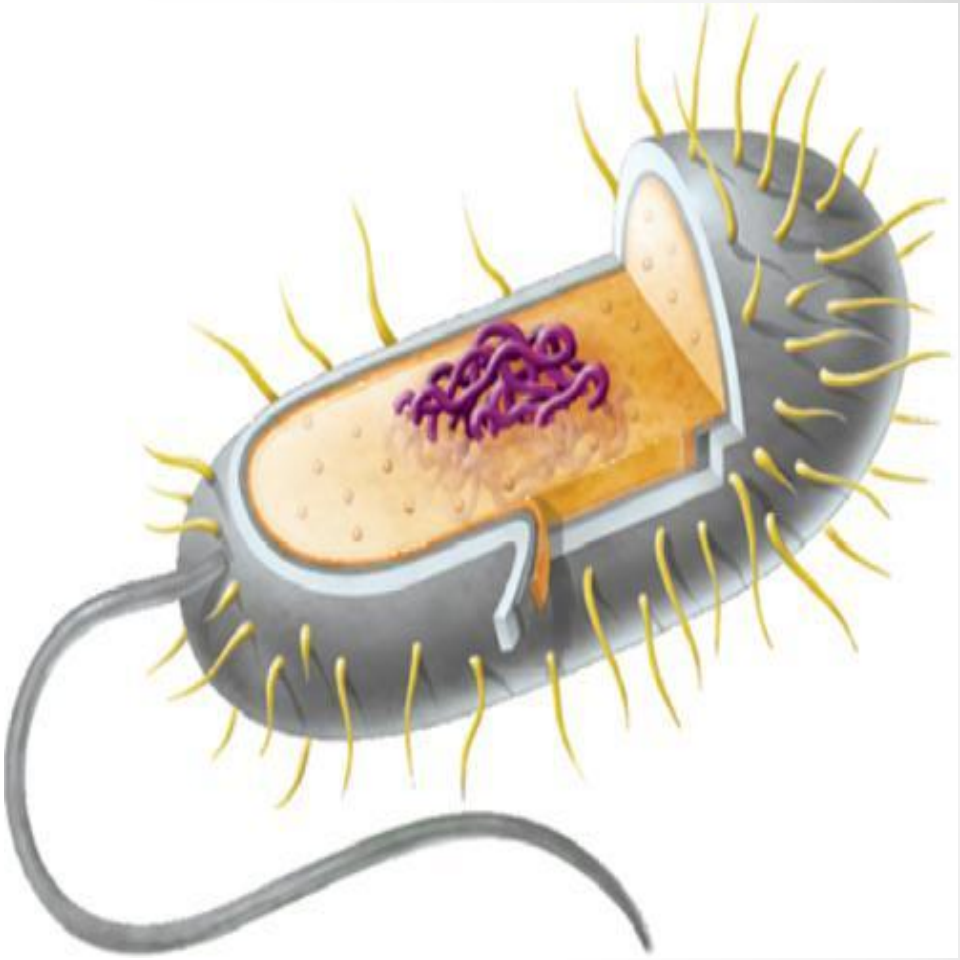
- Bacteria
- Archaea (single-celled organisms)

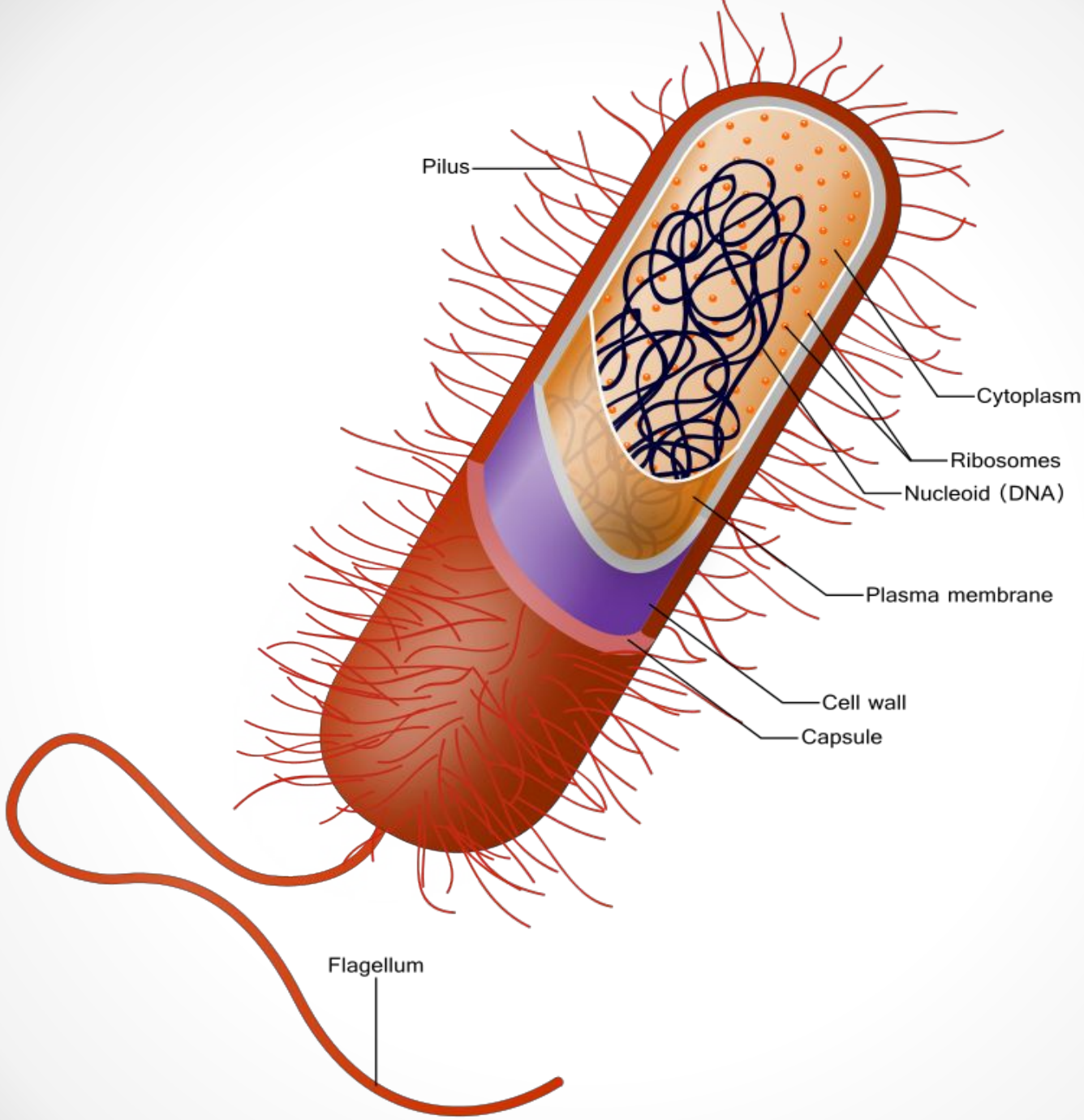




- Besides bacteria, the cyanobacteria are a major group of prokaryotes.

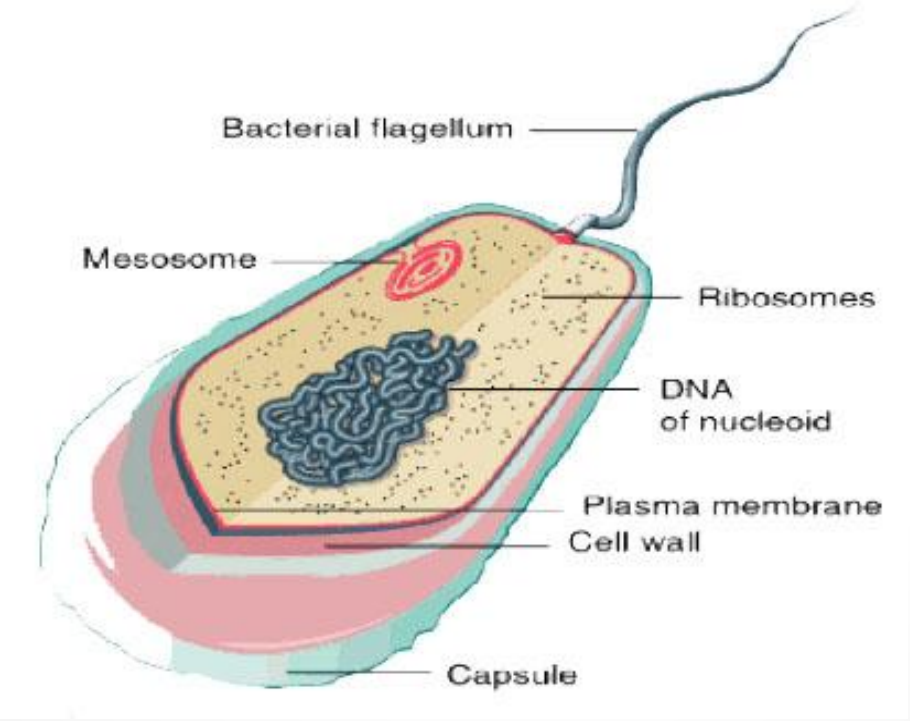
- In the prokaryotes all the intracellular water-soluble components (proteins, DNA and metabolites) are located together in the cytoplasm enclosed by the cell membrane.
- There are a few organelles or none of them. None of them has a membrane shell. Inner membranes are rare; processes of respiration or photosynthesis take place on them.




Pilus
Cytoplasm
Ribosomes
Nucleoid (DNA)
Plasma membrane
Cell wall
Capsule
Flagellum

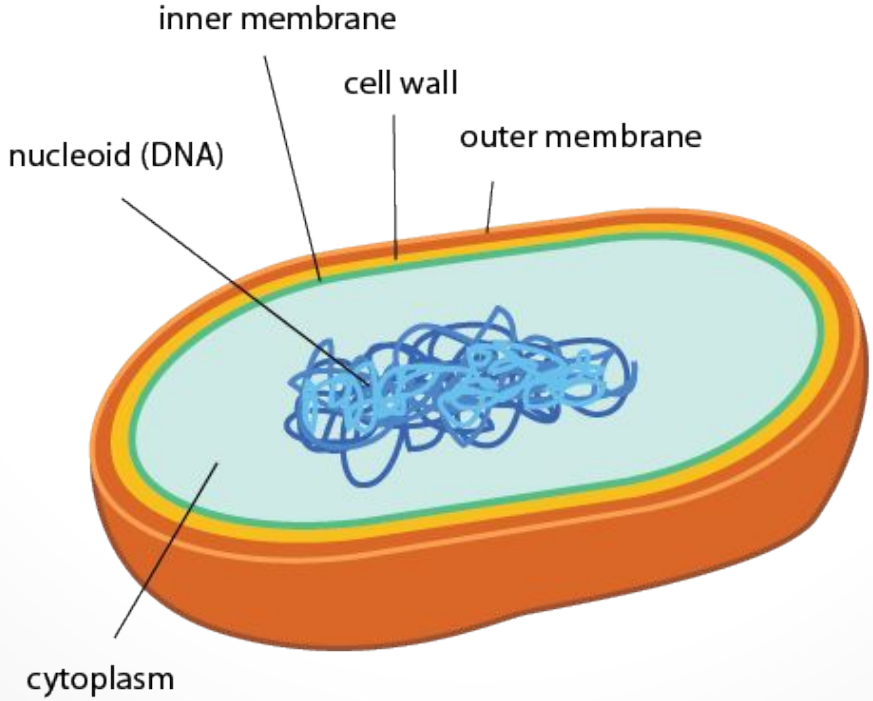
# Prokaryotic Plasma Membrane

- As in all cells, the plasma membrane in prokaryotic cells is responsible for controlling what gets into and out of the cell. A series of proteins stuck in the membrane also aid prokaryotic cells in communicating with the surrounding environment.
- Also plasma membrane form a protrusion in the cytoplasm, called mesosome. They perform the function of the creation of ATP - the energy-rich compound.



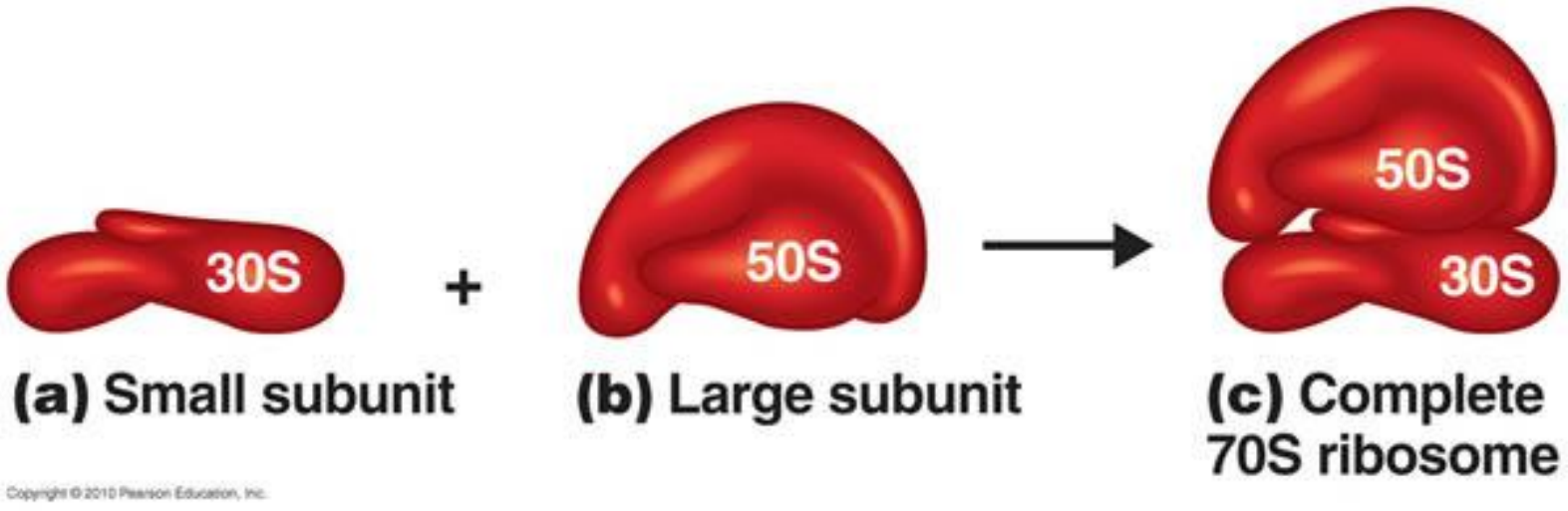
# Prokaryotic Cytoplasm

- The cytoplasm in prokaryotic cells is a gel-like, yet fluid, substance in which all of the other cellular components are suspended. It is very similar to the eukaryotic cytoplasm, except that it does not contain organelles.
- There are no cytoskeleton, cytoplasm movement, endo- and exocytosis.



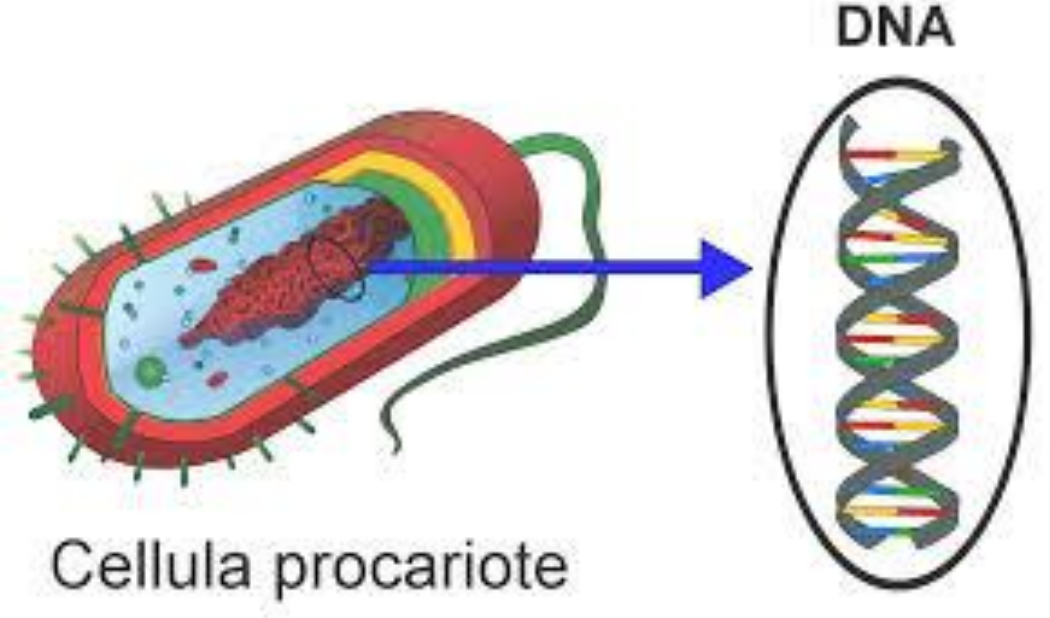
# Prokaryotic Ribosomes

- Prokaryotic ribosomes are smaller and have a slightly different shape and composition than those found in eukaryotic cells. Ribosomes are small, sensitive to antibiotics. No endoplasmic reticulum. Despite  differences, the function of the prokaryotic ribosome is virtually identical to the eukaryotic version. Just like in eukaryotic cells, prokaryotic ribosomes build proteins by translating messages sent from DNA.



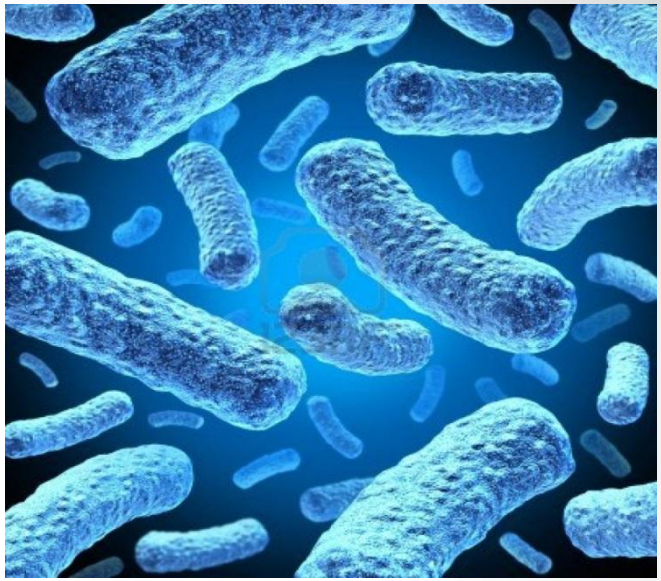
# Prokaryotic Genetic Material

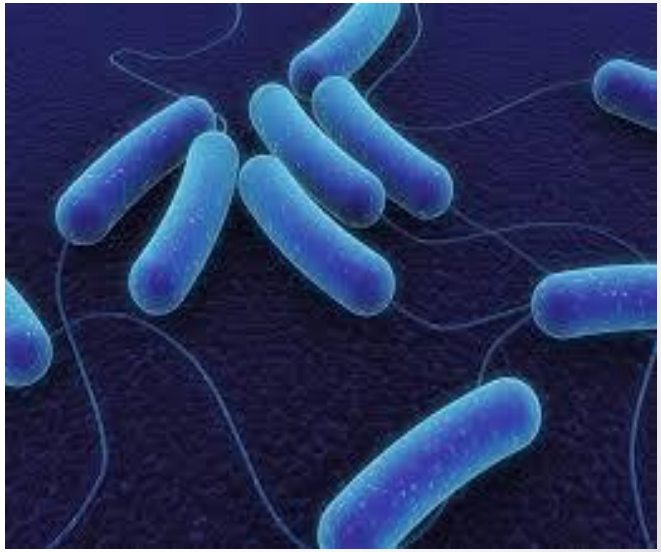
- All prokaryotic cells contain genetic material in the form of DNA and RNA. Because prokaryotic cells  do not have a nucleus, the single large circular strand of DNA containing most of the genes needed for cell growth, survival, and reproduction is found in the cytoplasm. The circular DNA is not bound with proteins and is not separated from the cytoplasm. It doesn`t have nucleus or nucleolus.
- Cell division goes in a simple cell division way, there`s no mitosis.



# Conclusion

- *There is no nuclear membrane*
- *There is no well-defined, limited membrane organelles and no nucleus and chromosomes*
- *Prokaryotic cells are surrounded by a cell wall composed primarily of carbohydrates and amino acids*
- *Move by flagella*
- *A huge variety and rapid growth*





*Thank you for your attention*