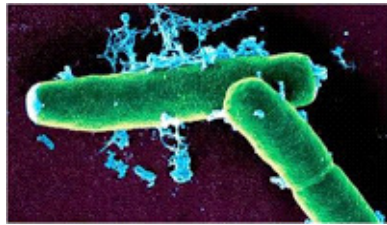
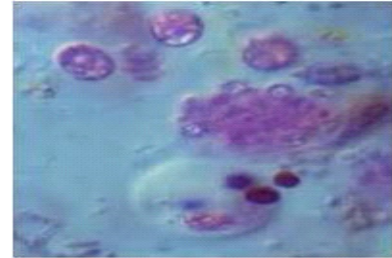


## Comparison between Eubacteria and Archaeobacteria



Eubacteria



Archaeobacteria: Purple Sulphur Bacteria

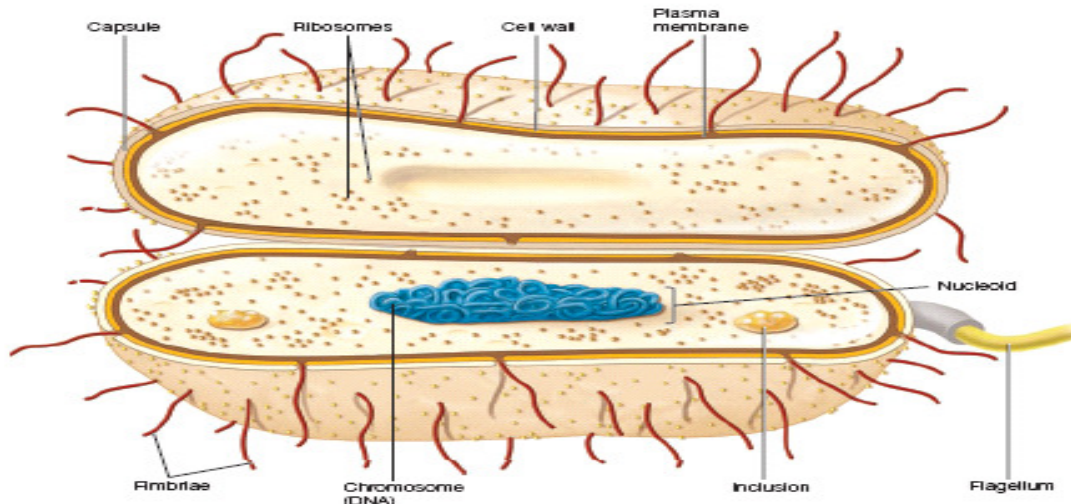
Monerans can be classified into three major groups: the [eubacteria](#) (True bacteria), cyanobacteria (blue green algae) and archaeobacteria (ancient bacteria). The eubacteria are the commonly encountered bacteria in soil, water and living in or on larger organisms, and include the Gram positive and Gram negative bacteria.

The [archaeobacteria](#) grow in unusual environments such as salt brines, hot springs and in the ocean depths. They are a group of most primitive prokaryotes which are believed to have evolved immediately after the evolution of the first life. They are of three types:- methanogens, Halophiles and thermoacidophilies.

### Difference Between: Eubacteria and Archaeobacteria

No	Character	Eubacteria	Archaeobacteria
1.	Habitat	Present every where	Mostly inhabit in extreme environmental conditions.
2	Cell wall	Peptidoglycan with muramic acid.	Variety of types, no muramic acid.
3	Membrane lipids	Ester linked, straight - chained fatty acids are present containing L- glycerol phosphate.	Ether linked branched aliphatic chains are present containing D- glycerol phosphate.
5	DNA Dependent RNA polymerase	Simple subunit pattern	Complex subunit pattern similar to eukaryotic enzyme
6	tRNA	Thymine present in most tRNAs N- formylmethionine (f met) carried by initiator tRNA	No thymine in T $\psi$ C arm of tRNA methionine (met) carried by initiator tRNA
7	Intron	Introns are absent	Introns are present

## Similarities Between Eubacteria and Archaeobacteria



[Bacteria](#) are of two groups eubacteria and [archaeobacteria](#). The [eubacteria](#) are commonly found in soil, water and living in or on larger organisms include the [gram positive](#) and the [gram negative](#) and the cyanobacteria. Archae bacteria are a group of ancient bacteria. They are supposed to be originated just after the origin of life on earth.

### Archaeobacteria: Cell structure

The basic cell structure is same except capsules are rare in *Archae*.

Genetic material is found free in the cytoplasm similar to that Eubacteria.

Common Bacterial and Archaeobacterial Structures and their Functions

Structure	Function
<a href="#">Plasma membrane</a>	Selectively permeable barrier, mechanical boundary of cell, nutrient and waste transport, location of many metabolic processes (respiration, photosynthesis), detection of environmental cues for chemotaxis.
Periplasmic space	In Gram negative bacteria, contains hydrolytic enzymes and binding proteins for nutrient processing and uptake; in gram positive bacteria and archaeal cells, may be smaller or absent.
<a href="#">Cell wall</a>	Provides shape and protection from osmotic stress
<a href="#">Ribosomes</a>	Protein Synthesis
Nucleoid	Localization of genetic material (DNA)
Gas vacuole	Buoyancy for floating in aquatic environments
<a href="#">Flagella</a>	Swimming motility.
Endospore	Survival under harsh environmental conditions; only observed in Bacteria.
Capsules and slime layers	Resistance to phagocytosis, adherence to surfaces; rare in the <i>Archae</i> .
Fimbriae and pili	Attachment to surfaces, <a href="#">bacterial conjugation</a> and <a href="#">transformation</a> , twitching and gliding motility.

Archebacterial overall structure is similar to Eubacteria, but differs chemically.