

Archaea

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English: *Archea*
Latin: *Archea*



Structure

Archea are very similar to bacteria (in size, shape, absence of membrane bound organelles). Until 1990, they were considered an unusual group of bacteria and named archaeobacteria. They were given their own domain since they have gone through an independent evolution and have many differences in their biochemistry from other forms of life. Archaea reproduce asexually and divide by binary fission, fragmentation, or budding; in contrast to bacteria archaea do not form spores. Initially, archaea were seen as extremophiles that lived in harsh environments, such as hot springs and salt lakes, but they have since been isolated from various habitats including soils, oceans, and marshlands. One example are the methanogenic archaea that inhabit the gut of humans and ruminants, where they are present in vast numbers and aid in the digestion of food.

Function

Archaea are important in technology; methanogens are used to produce biogas and as part of sewage treatment, and enzymes from extremophile archaea that can resist high temperatures and organic solvents are exploited in biotechnology.

Genome

Archaea share certain features of their genome with both Eukaryotes and Prokaryotes. Firstly their DNA is double stranded and circular, which closely resembles that of Prokaryotes, however this DNA is associated with histones and organised into chromatin (a typical feature of Eukaryotic DNA). Archaea don't possess introns in their genes but the genes that are responsible for RNA, DNA and protein synthesis are all similar to those found in Eukaryotes. These diverse range of features show why archaea should be considered a separate domain of life from Eukaryotes or Prokaryotes.

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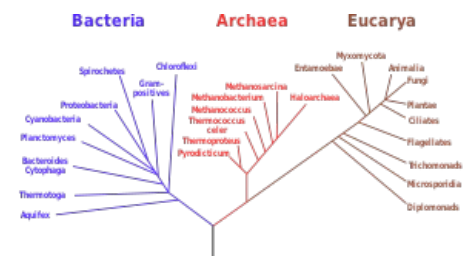
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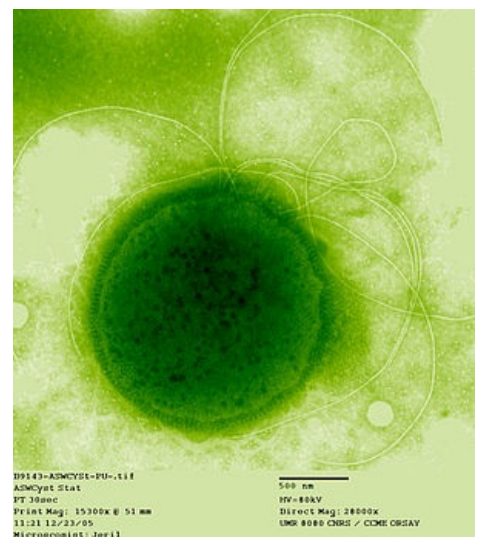
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Bibliography



The phylogenetic tree



Archea: *Thermococcus gammatolerans*

Further reading