TABLE 5.4. Examples of major differentiating features among bacteria, archaea, and eukaryotes

Feature	Bacteria	Archaea	Eukarya Nucleus/Cytoplasm
Chromosome structure	Usually circular	Usually circular	Usually linear
Operons	Present	Present	Absent
mRNA introns	Absent	Absent	Present
Membrane-bound nucleus	Absent[a]	Absent	Present
Membrane lipids	Ester-linked, unbranched hydrocarbons	Ether-linked, sometimes branched hydrocarbons	Ester-linked, unbranched hydrocarbons
Initiator tRNA	Formyl-methionine	Methionine	Methionine
Plasmids	Common	Occasional	Rare
tRNA introns	Rare	Present	Present
Ribosome size based on sedimentation	70S	70S	80S
Capping and poly(A) tailing of mRNA	Absent	Absent	Present
Methanogenesis	Absent	Present	Absent
N_2 fixation	Present	Present	Absent
Reduction of S_0 to H_2S	Present	Present	Absent
Sensitivity to chloramphenicol, streptomycin, kanamycin	Yes	No	No
Chlorophyll-based photosynthesis	Present	Absent	Present (organellar)
RNA polymerase type	I	II	I, II, III

Based in part on Zillig W. 1991. *Curr. Opin. Genet. Dev.* **1:** 544–551.
[a]A nucleus-like structure has been found in one group of bacteria.
mRNA, messenger RNA; tRNA, transfer RNA.