

Prokaryotes & Eukaryotes

Biology

The fundamental division of cellular life, and what separates them.

Prokaryotic

- No nucleus — DNA in the nucleoid
- No membrane-bound organelles
- Circular DNA, often plus plasmids
- 70S ribosomes
- 1–10 μm
- Bacteria and archaea

Eukaryotic

- True nucleus with a membrane
- Mitochondria, ER, Golgi, lysosomes
- Linear DNA on chromosomes
- 80S ribosomes
- 10–100 μm
- Animals, plants, fungi, protists

THE DIFFERENCE THAT MATTERS

Endosymbiotic theory: mitochondria and chloroplasts were once free-living prokaryotes, which is why they have their own 70S

Antibiotics that target 70S ribosomes kill bacteria without harming human 80S ribosomes. That difference is the drug target.