



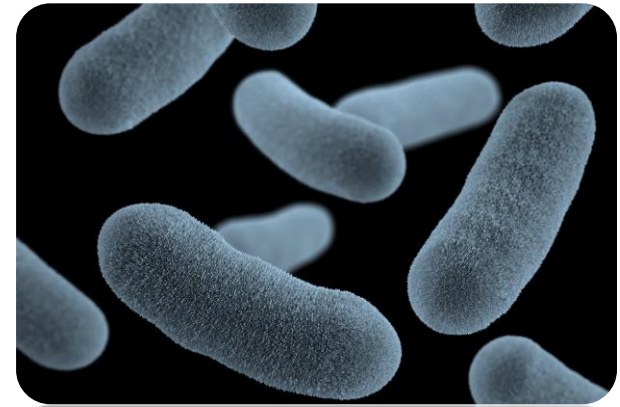
Lab 1

MBI 222

Prokaryotes and Eukaryotes

Prokaryotes

- First cells present for billions of years,
- were the only form of life on the earth.
- All prokaryotic organisms are unicellular.



eukaryotes

Characteristics Of Prokaryotes

1. Prokaryotes are the simplest type of cell.
2. Oldest type of cell appeared about four billion years ago.
3. Prokaryotes are the largest group of organisms
4. Prokaryotes unicellular organisms that are found in all environments.
5. Prokaryotes do not have a nuclear membrane .
6. Their circular shaped genetic material dispersed throughout cytoplasm.
7. Prokaryotes do not have membrane-bound organelles .
8. Prokaryotes have a simple internal structure.
9. Prokaryotes are smaller in size when compared to Eukaryotes.

SHAPES OF BACTERIA

Cocci



Staphylococci
(*Staphylococcus aureus*)

Rods

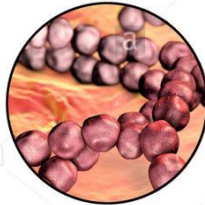


Bacilli
(*Mycobacterium tuberculosis*)

Spiral



Vibrio
(*Vibrio cholerae*)



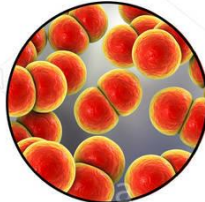
Streptococci
(*Streptococcus pyogenes*)



Streptobacilli
(*Bacillus anthracis*)



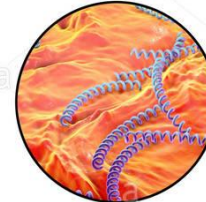
Spirilla
(*Helicobacter pylori*)



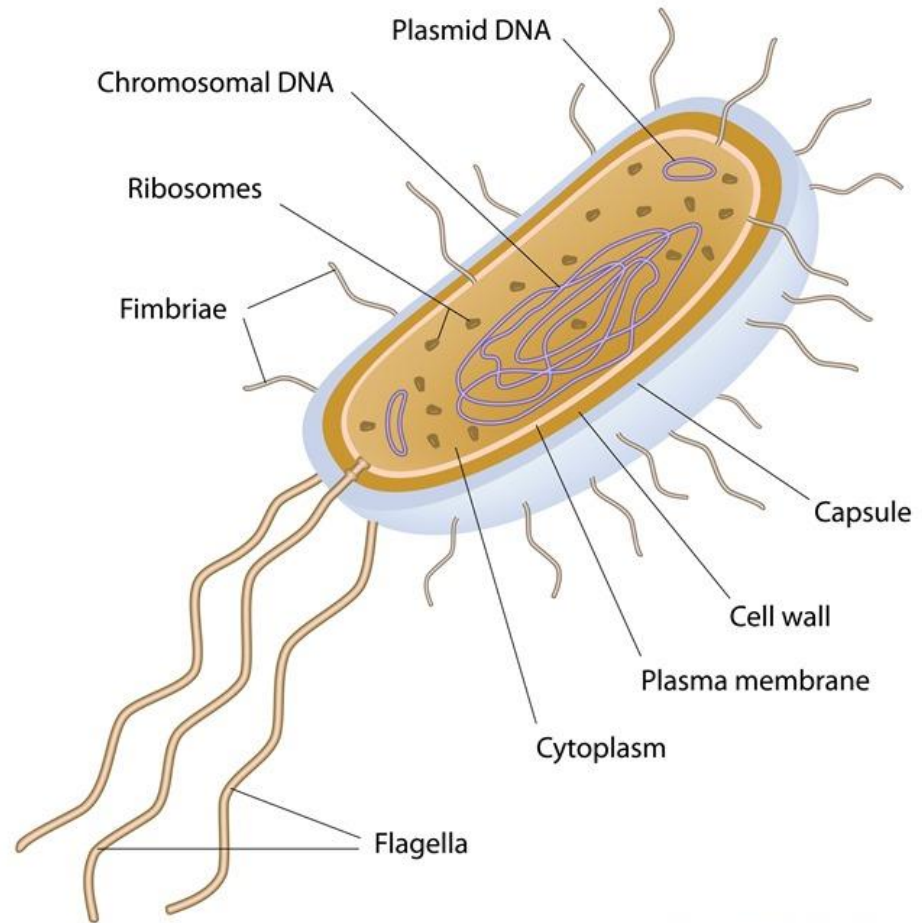
Diplococci
(*Neisseria gonorrhoeae*)



Coccobacilli
(*Yersinia pestis*)



Spirochaetes
(*Treponema pallidum*)



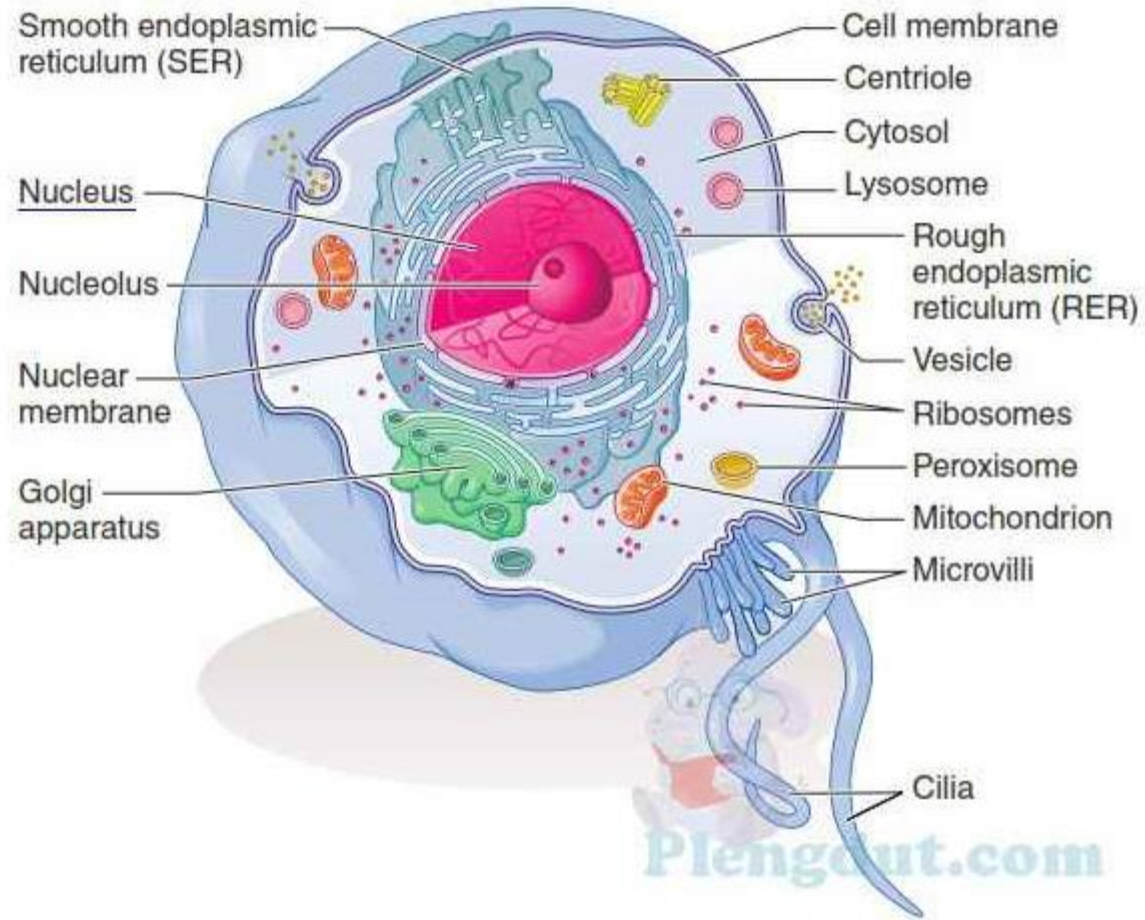
Eukaryotes

- Eukaryotic cells appeared on earth long after prokaryotic cells but they are much more advanced.
- Eukaryotic organisms unlike prokaryotic can be unicellular or multicellular.

Eukaryotes

Characteristics Of Eukaryotes

1. Eukaryotic cells appeared approximately one billion years ago
2. Eukaryotes are generally more advanced than prokaryotes
3. Nuclear membrane surrounds linear genetic material (DNA)
4. Unlike prokaryotes, eukaryotes have several different parts.
5. Eukaryote's organelles have coverings known as membranes.
6. Eukaryotes have a complex internal structure.
7. Eukaryotes are larger than prokaryotes in size.



Prokaryotes and Eukaryotes

Similarities

- Both types of cells have cell membranes (outer covering of the cell)
- Both types of cells have ribosome's
- Both types of cells have DNA
- Both types of cells have a liquid environment known as the cytoplasm
- Both have basic metabolism, like photosynthesis and reproduction

Prokaryotes	Eukaryotes
Genetic material floats in the cytoplasm (DNA and RNA)	Membrane covered Genetic material
Circular DNA	Linear DNA
Unicellular	May be multicellular or unicellular
Cells are smaller in size	Cells are larger in size
Has larger number of organisms	Has smaller number of organisms
Organelles lack a membrane	Organelles covered by a membrane

References

1. <https://news.illinois.edu/view/6367/544766>
2. https://fac.ksu.edu.sa/sites/default/files/362mic_lab1.pdf