

Al- Mustaqbal university collage
Department of radiology
technologies
1.St stage
Lecture: 1

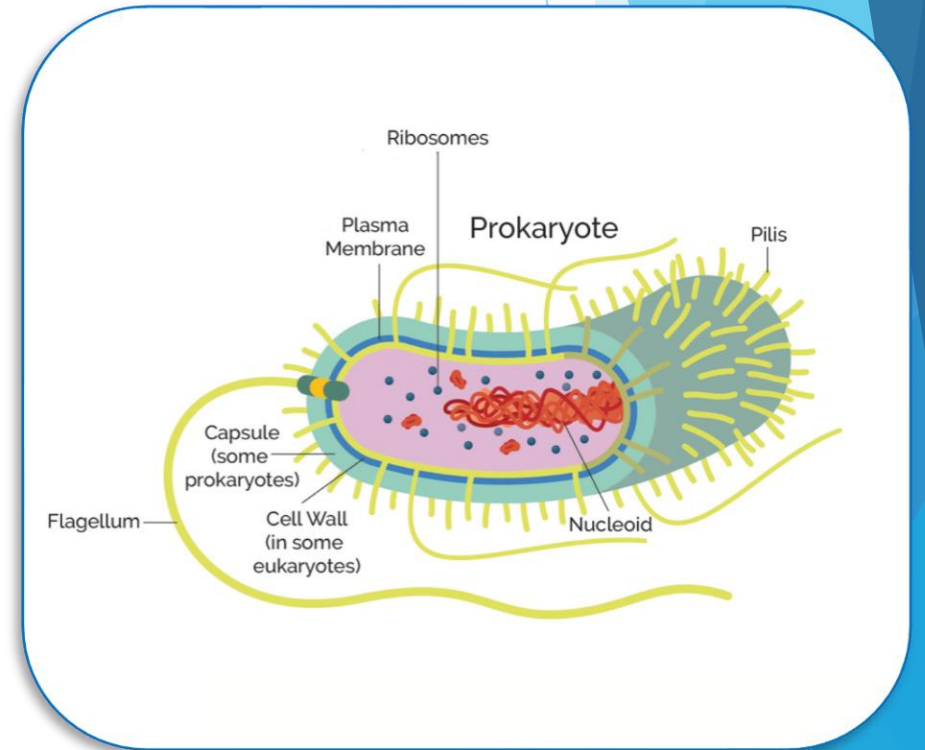


Prokaryotic and Eukaryotic cells

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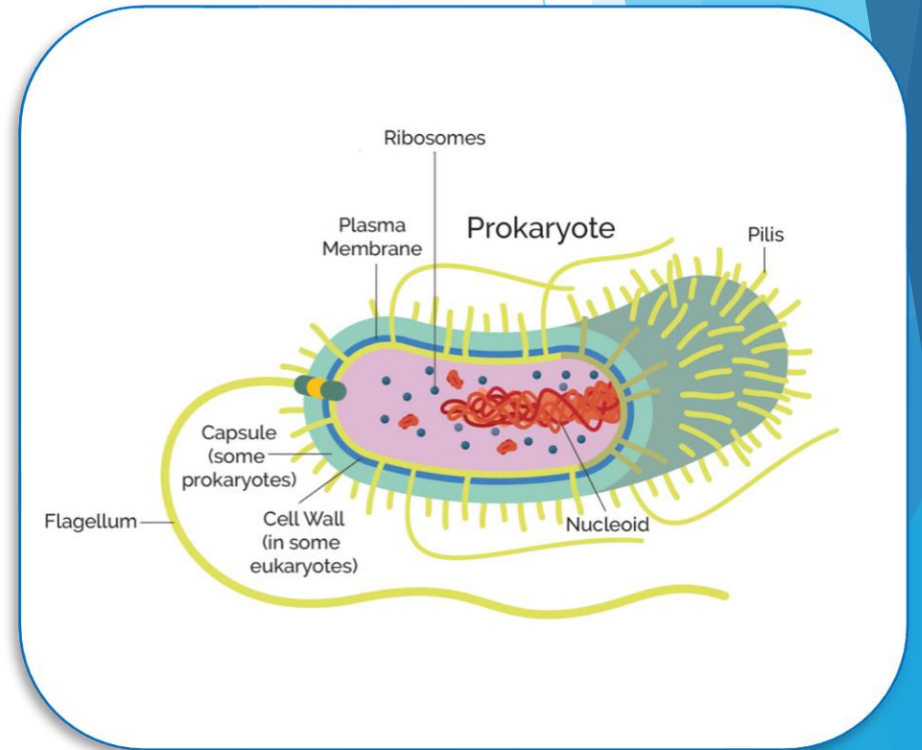
Prokaryote definition

- ▶ Prokaryotes are unicellular organisms that lack membrane-bound structures, the most noteworthy of which is the nucleus.
- ▶ Prokaryotic cells tend to be small, simple cells, measuring around 0.1-5 μm in diameter.



Prokaryote definition

- ▶ While prokaryotic cells do not have membrane-bound structures, they do have distinct cellular regions.
- ▶ In prokaryotic cells, DNA bundles together in a region called the nucleoid.



Prokaryotic cell features

Nucleoid: A central region of the cell that contains its DNA.

Ribosome: Ribosomes are responsible for protein synthesis.

Cell wall: The cell wall provides structure and protection from the outside environment. Most bacteria have a rigid cell wall made from carbohydrates and proteins called peptidoglycans.

Cell membrane: Every prokaryote has a cell membrane, also known as the plasma membrane, that separates the cell from the outside environment

Prokaryotic cell features

Capsule: Some bacteria have a layer of carbohydrates that surrounds the cell wall called the capsule. The capsule helps the bacterium attach to surfaces.

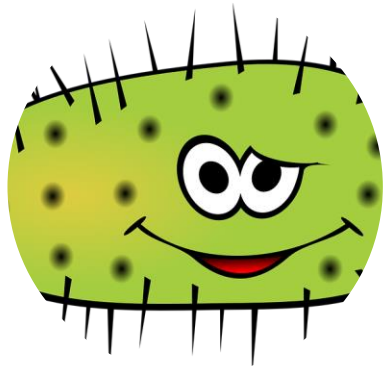
Fimbriae: Fimbriae are thin, hair-like structures that help with cellular attachment.

Pili: Pili are rod-shaped structures involved in multiple roles, including attachment and DNA transfer.

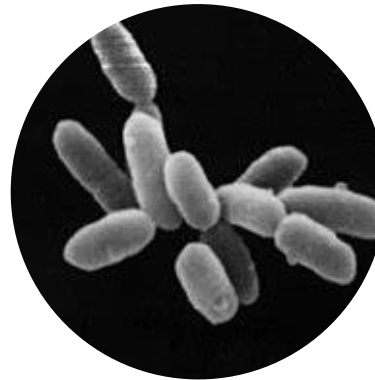
Flagella: Flagella are thin, tail-like structures that assist in movement.



Examples of prokaryotes



Bacteria



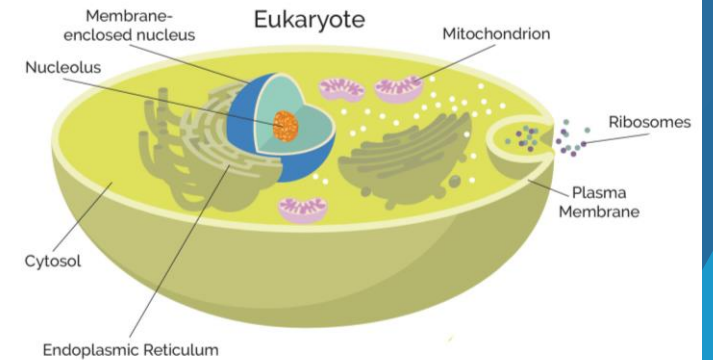
Archaea

Prokaryotic and mitochondria

- ▶ Prokaryotes do not have mitochondria.
- ▶ Mitochondria are only found in eukaryotic cells.
- ▶ This is also true of other membrane-bound structures like the nucleus and the Golgi apparatus .

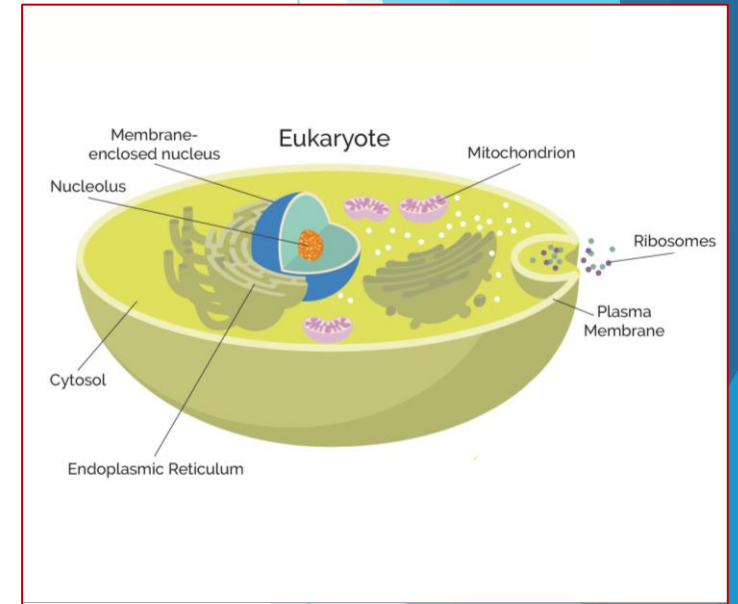
Eukaryote definition

- ▶ Eukaryotes are organisms whose cells have a nucleus and other organelles enclosed by a plasma membrane.
- ▶ Organelles are internal structures responsible for a variety of functions, such as energy production and protein synthesis.



Eukaryote definition

- ▶ Eukaryotic cells are large (around 10-100 μm) and complex.
- ▶ While most eukaryotes are multicellular organisms, there are some single-cell eukaryotes.



Examples of eukaryotes

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Animals

Plants

Fungi



Thank you