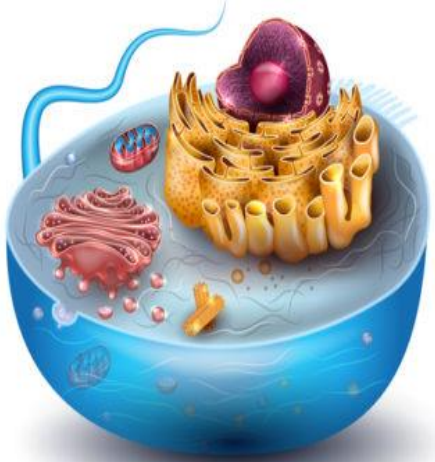
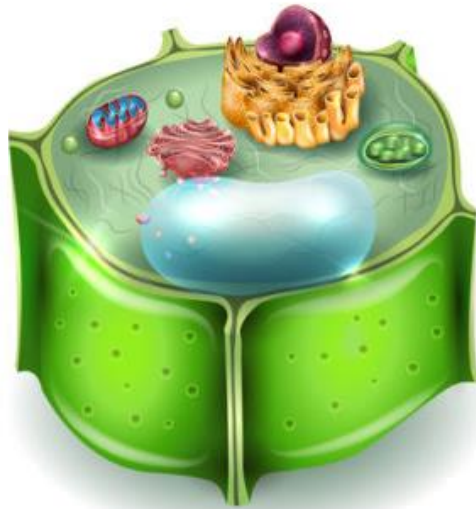


ANIMAL CELL



PLANT CELL



معمل التركيب الدقيق

للكائنات الحية

“ 222 MIC ”

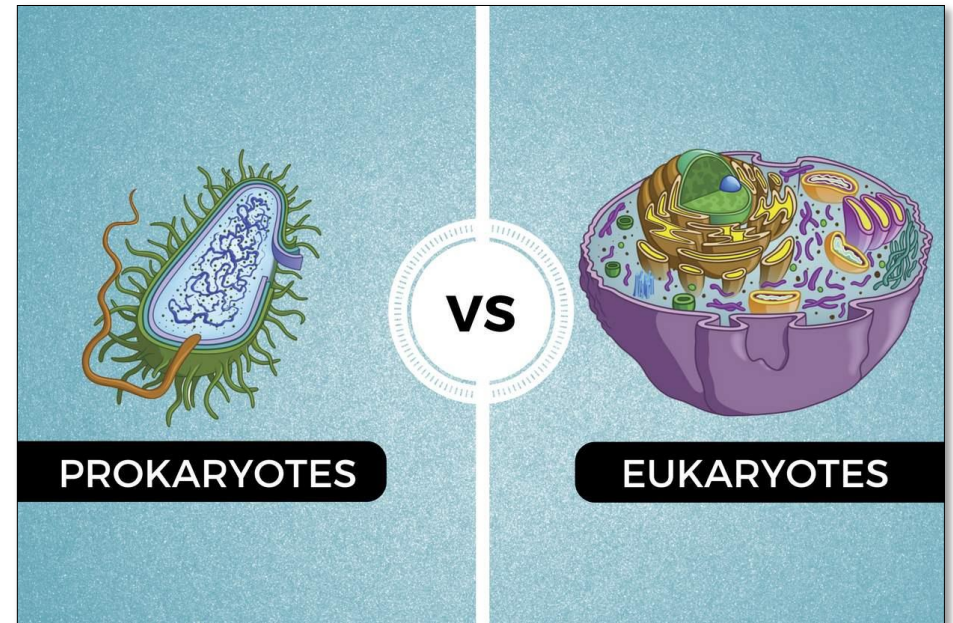
المعمل الأول

نورة الكبيسي

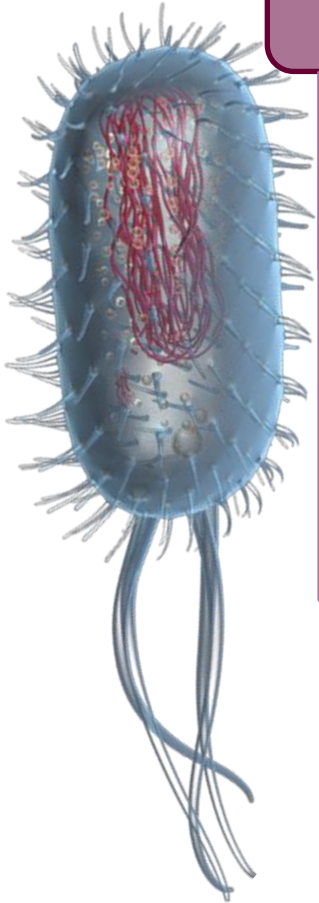
Nalkubaisi@ksu.edu.sa

2021

PROKARYOTES and EUKARYOTES



Prokaryotes

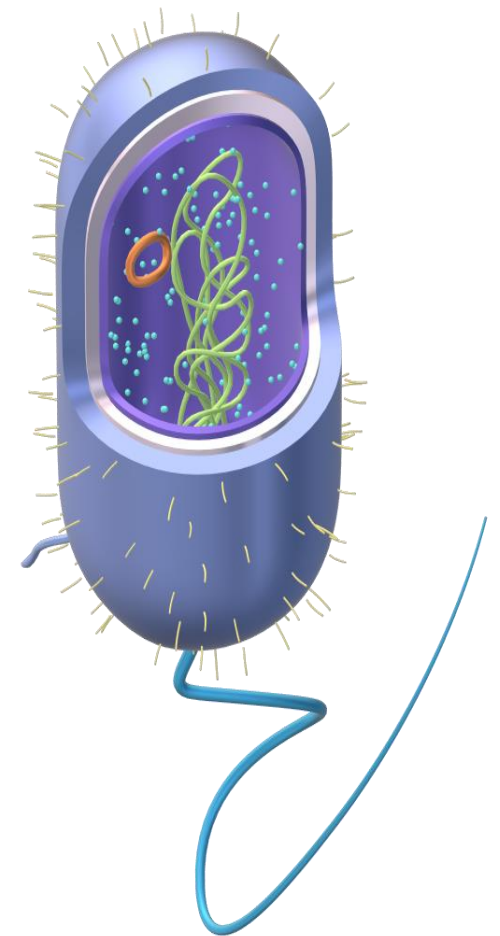


First Cells Present for billions of years, were the only form of life on Earth.

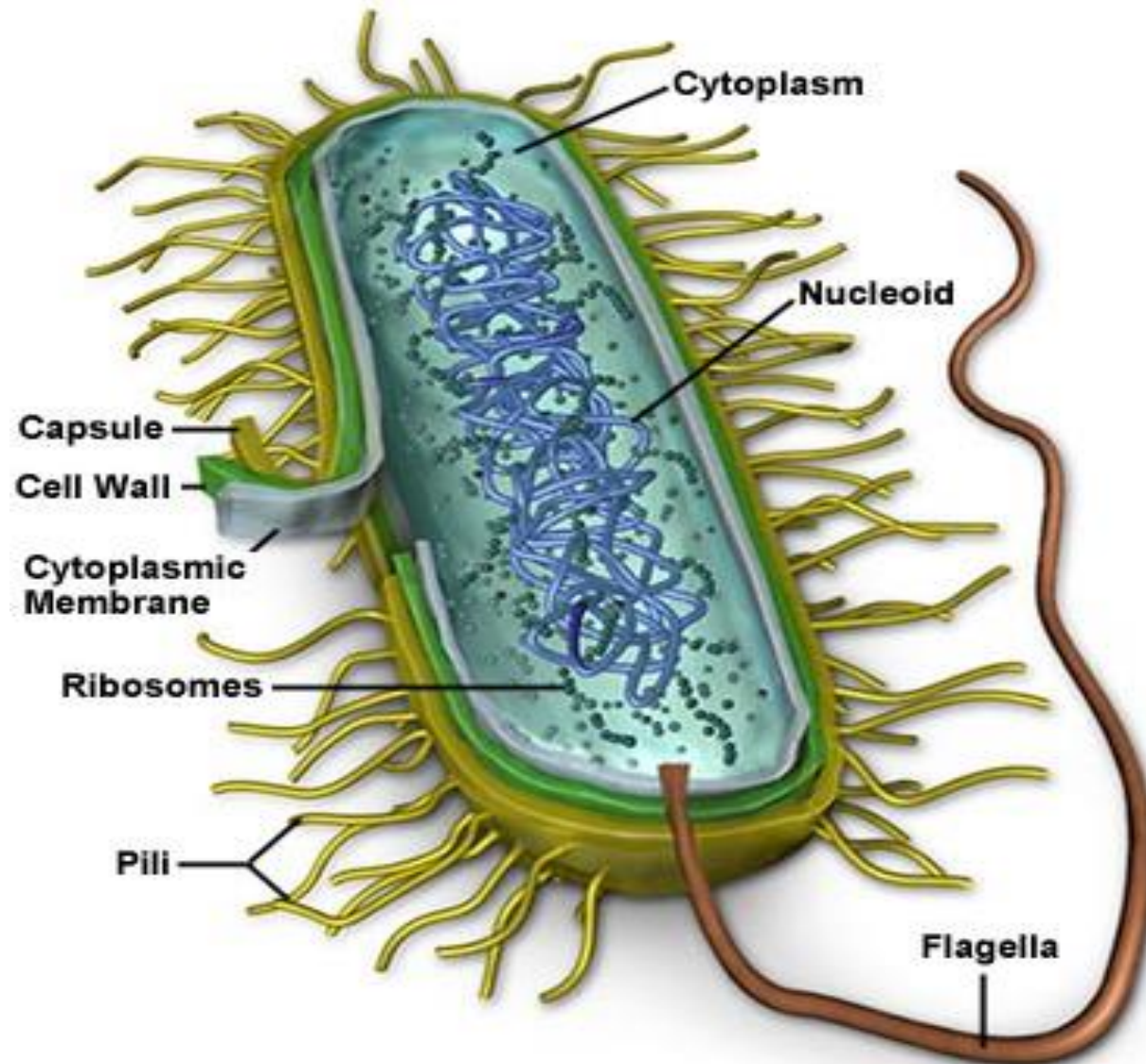
All **Prokaryotic** organisms are **Unicellular**.

Characteristics of Prokaryotes

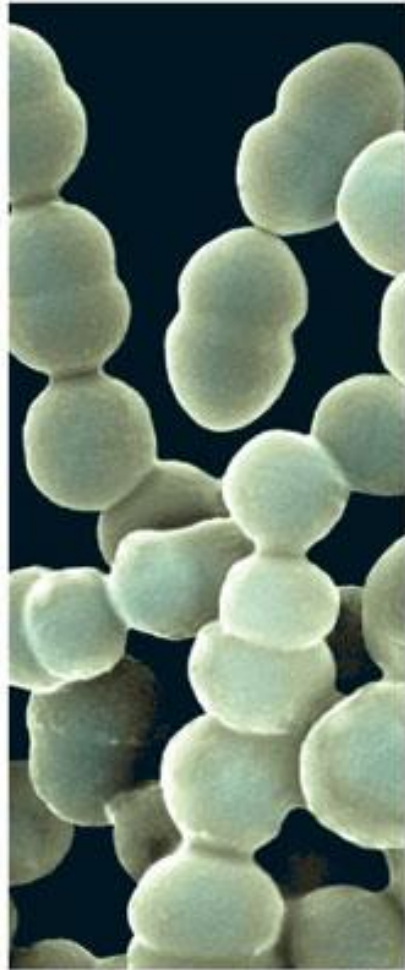
- 1- Prokaryotes are the **simplest** type of cell.
- 2- **Oldest type of cell appeared about four billion years ago.**
- 3- Prokaryotes are the **largest** group of organisms.
- 4- Prokaryotes **unicellular** organisms that are found in all environments.
- 5- Prokaryotes do not have a **nuclear membrane** .
- 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.



Prokaryotes Cell Structure



Shapes of Prokaryotes



Spherical (cocci)



Rod-shaped (bacilli)

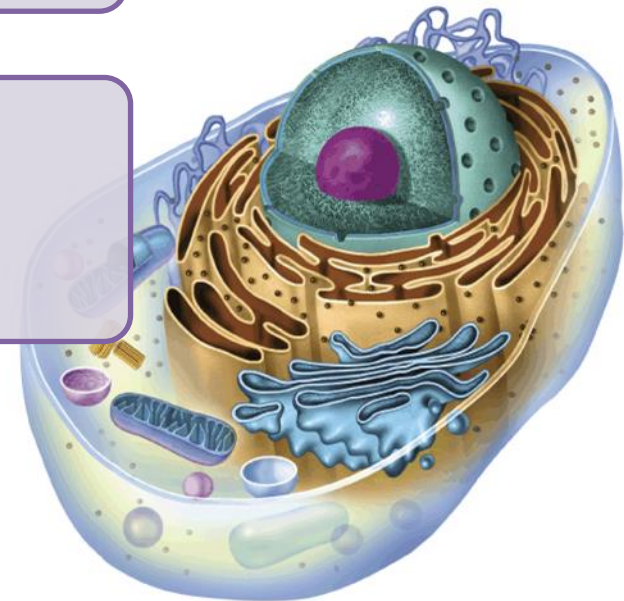


Spiral

Eukaryotic

Eukaryotic Cells appeared on earth long after Prokaryotic Cells but they are much more **advanced**.

Eukaryotic organisms **unlike** Prokaryotic can be **Unicellular** or **Multicellular**.



Characteristics of Eukaryotic

1- Eukaryotic cells appeared approximately one billion years ago.

2- Eukaryotes are generally more advanced than prokaryotes.

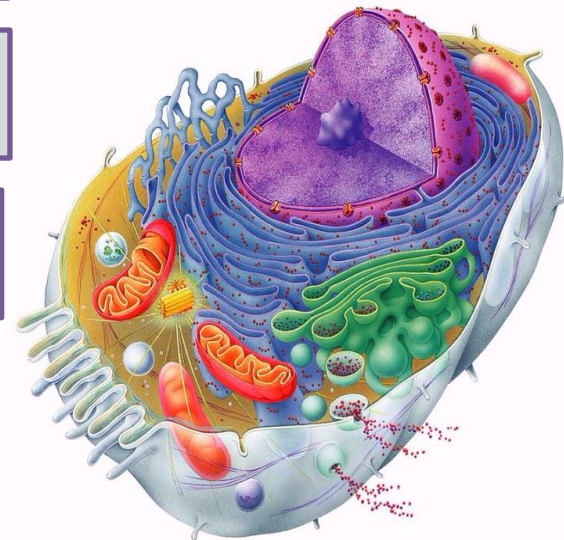
3- Nuclear membrane surrounds linear genetic material (DNA).

4- Unlike prokaryotes, eukaryotes have several different parts.

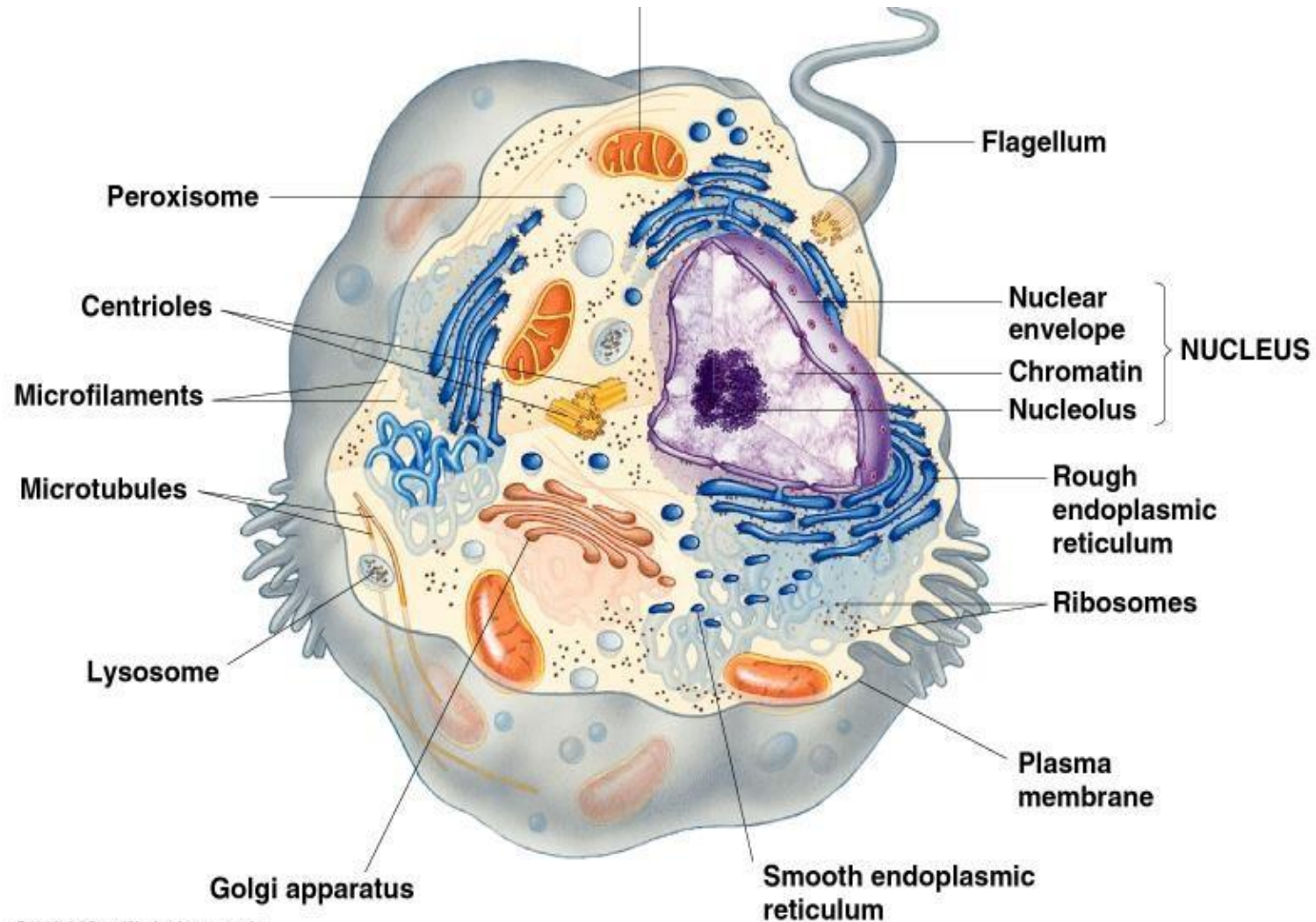
5- Eukaryote's organelles have coverings known as membranes.

6- Eukaryotes have a complex internal structure.

7- Eukaryotes are larger than prokaryotes in size.



Eukaryotic Cell Structure



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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**.

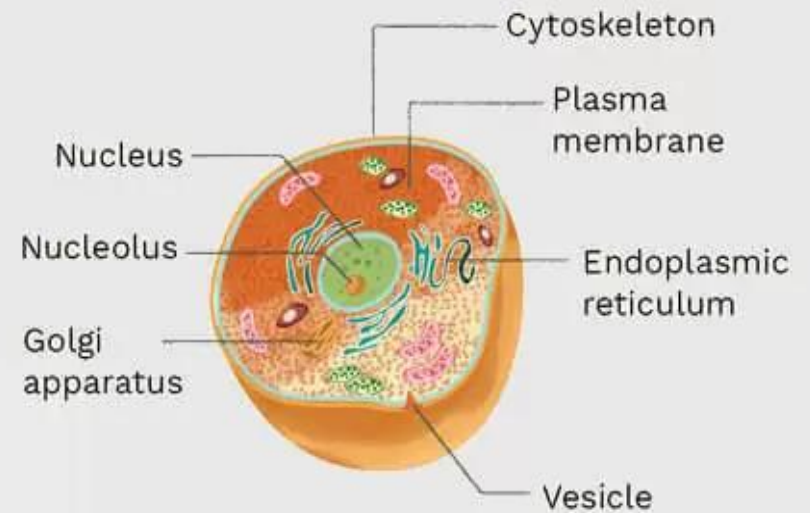
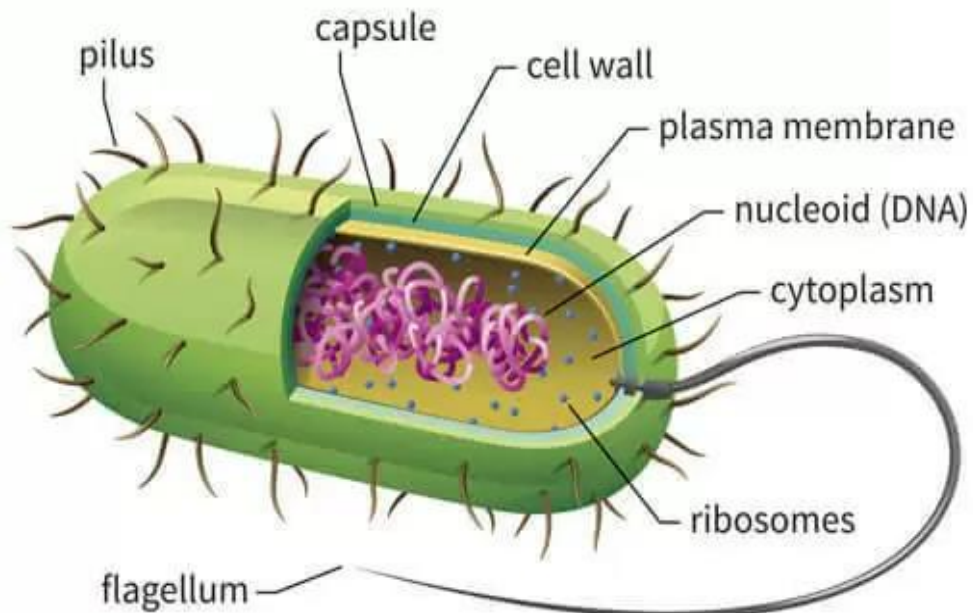
Both have basic metabolism, like **Photosynthesis** and **Reproduction**.



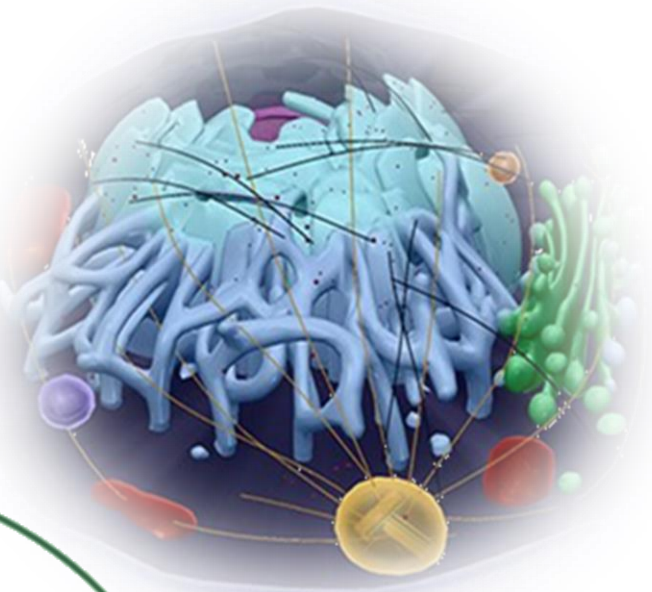
VS

Prokaryotic Cell

Eukaryotic Cell



Prokaryotic & Eukaryotic Cells



Prokaryotes

- No nucleus
- Small and simple
- No organelles
- Very abundant
- Unicellular
- All are bacteria

Both

- Have ribosomes
- Have DNA
- Have cytoplasm
- Have a cell membrane
- Some have flagella

Eukaryotes

- Have nucleus
- Have organelles
- Have a cytoskeleton
- Can be multicellular
- or unicellular
- Some have a cilia

نهاية المعمل الأول

