

222MBIO

LAB 1

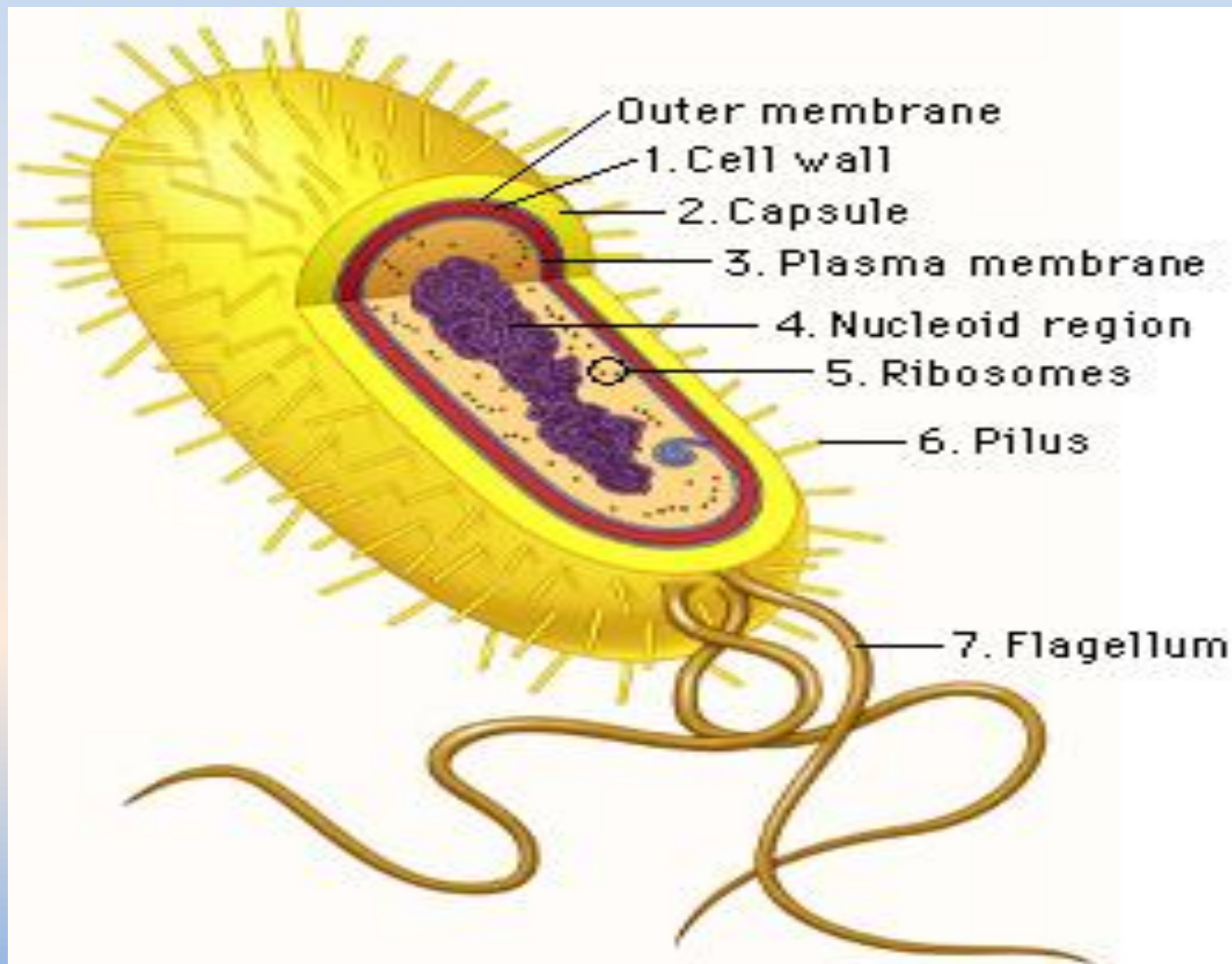
Prokaryotes and Eukaryotes

- Prokaryotes-

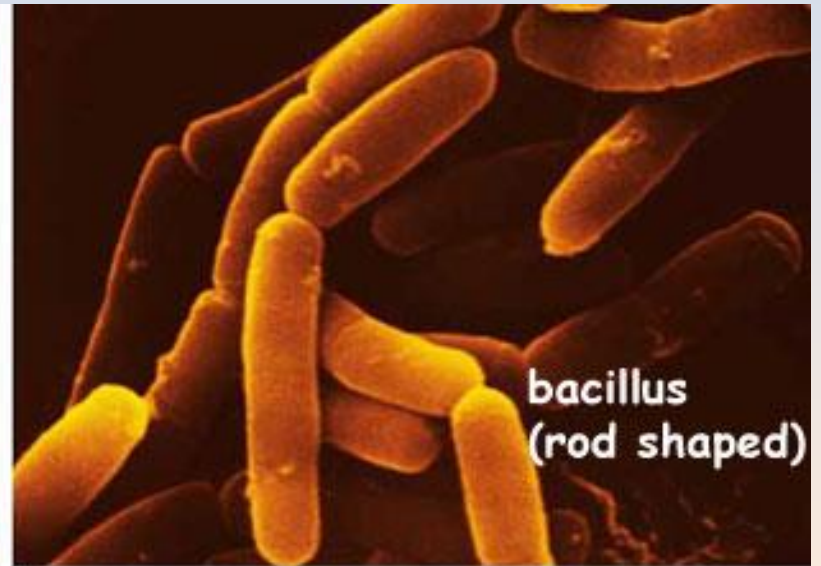
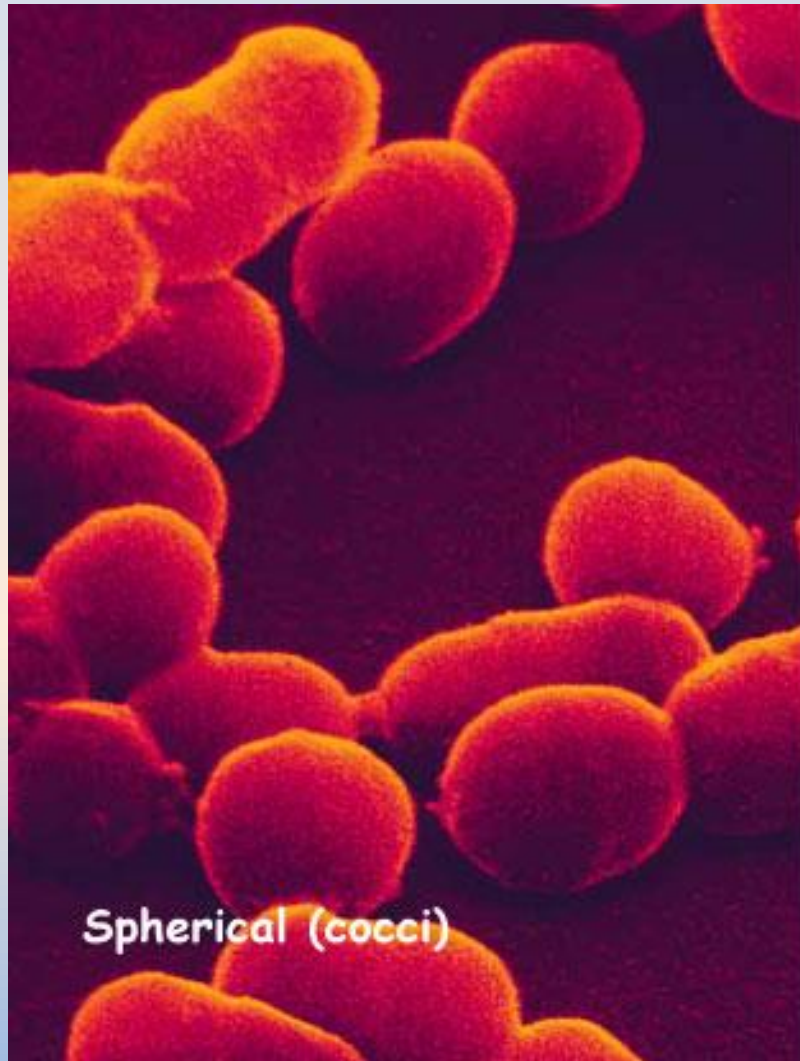
- ♦ **First cells present** for billions of years, were the only form of life on Earth.
- ♦ All **prokaryotic** organisms are **unicellular**.

- **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.



Shapes of Prokaryotes

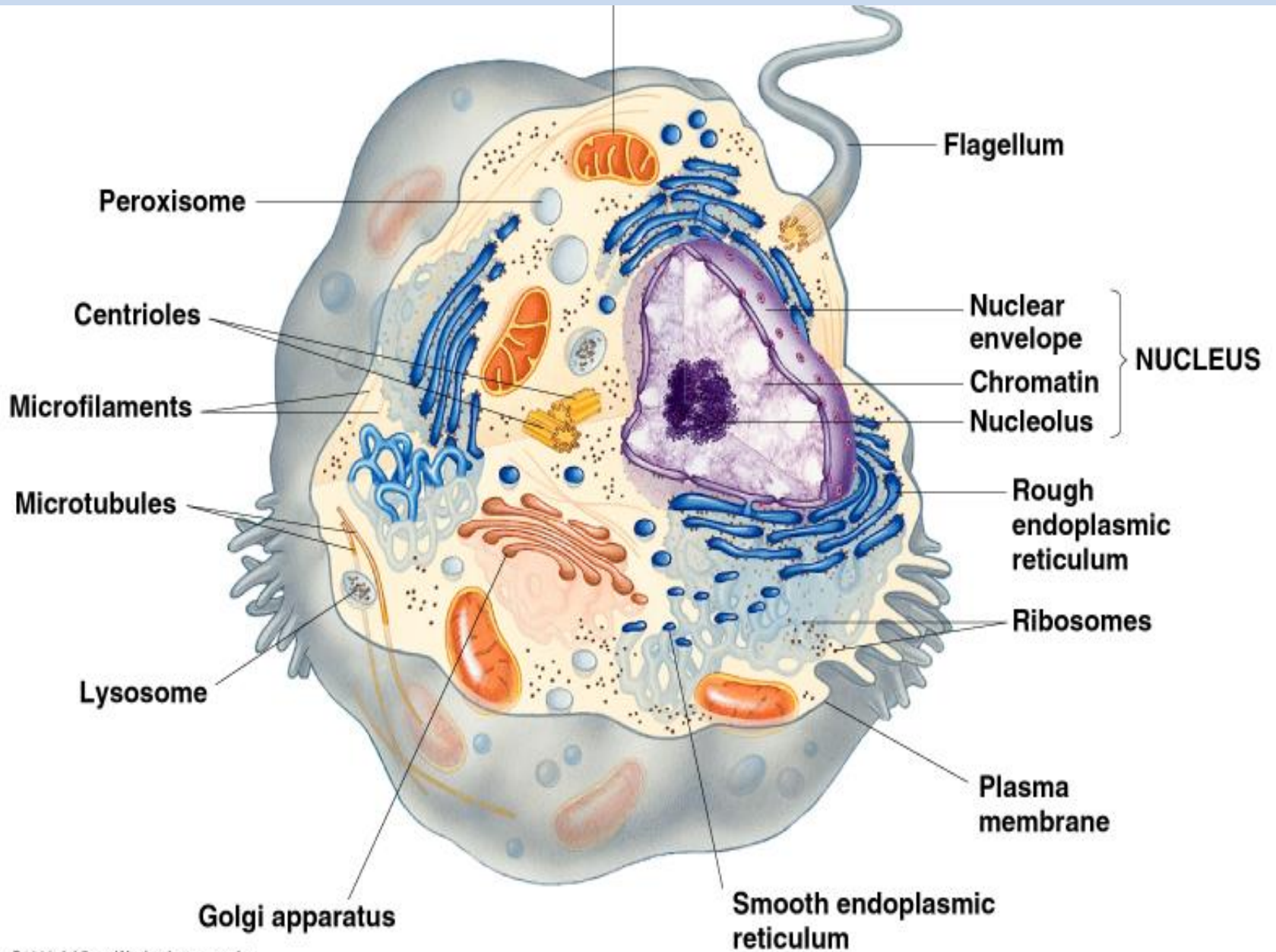


- **Eukaryotic**

- ♦ **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 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.

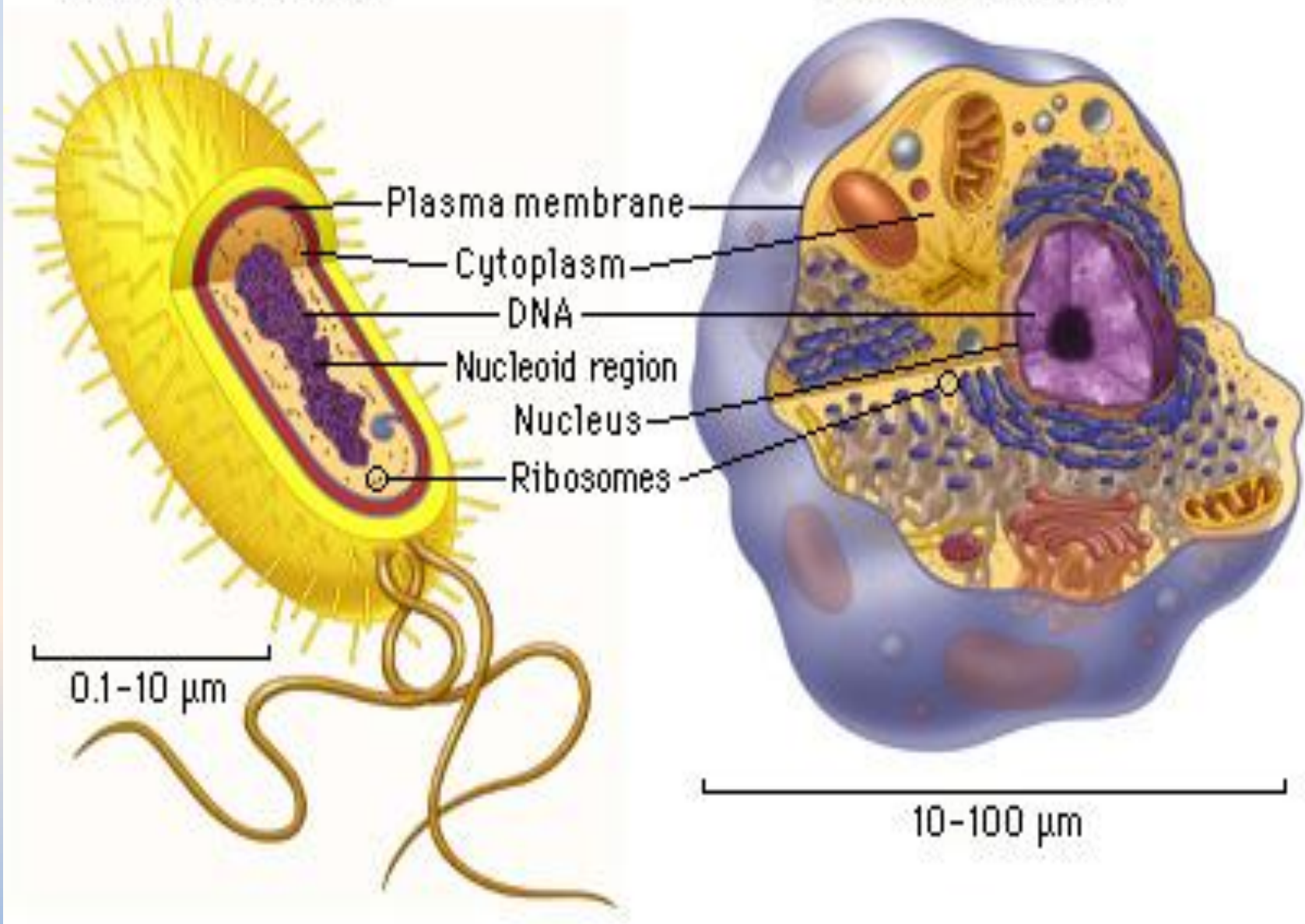


- **Similarities;**

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

Prokaryotic cell

Eukaryotic cell



Differences;

Prokaryotes

Ribosomes are the only organelles

- ♦ **Genetic material floats in the cytoplasm (DNA and RNA)**
- ♦ **Appeared 4 billion years ago**
- ♦ **Circular DNA**
- ♦ **Unicellular**
- ♦ **Cells are smaller in size**
- ♦ **Has larger number of organisms**
- ♦ **Organelles lack a membrane.**

Eukaryotes

- ♦ **Multiple organelles including ribosomes(eg,mitochondria,Golgi apparatus,RER,SERetc)**
- ♦ **Membrane covered Genetic material**
- ♦ **Appeared 1 billion years ago**
- ♦ **Linear DNA**
- ♦ **May be multicellular or unicellular**
- ♦ **Cells are larger in size**
- ♦ **Has smaller number of organisms**
- **Organelles covered by a membrane**