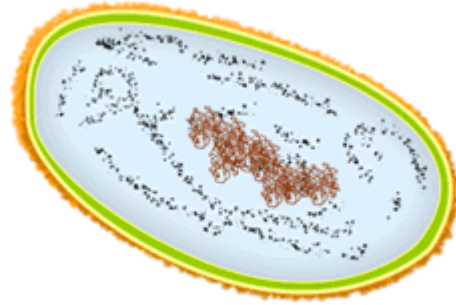


Objectives of This Lesson

After completing this lesson, you will be able to:

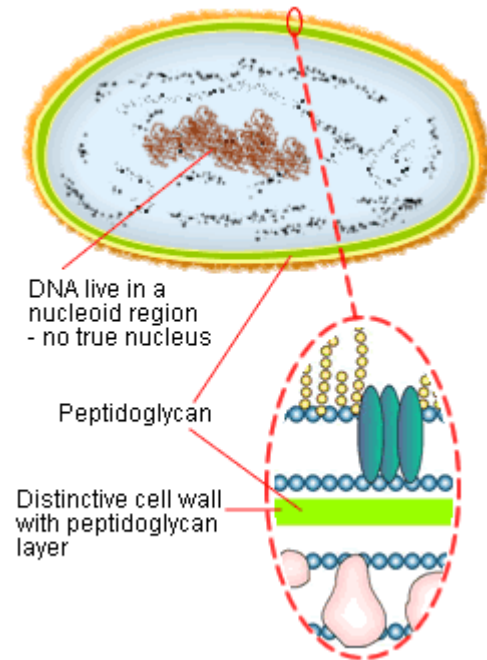
- Describe the general characteristics of prokaryotes
- List the microorganism group or groups that are classified as prokaryotes
- Differentiate between Bacteria and Archaea and describe their impact as pathogens



Characteristics of a Prokaryote

Prokaryotes have the following characteristics:

- No true nucleus - instead of a nucleus, they have a nucleoid region to organize DNA
- Distinct cell walls that contain a peptidoglycan layer (some exceptions)
- No organelles with internal membranes
- Single-celled organisms
- Cells are smaller
- Simpler structure



Bacteria and Archaea

Bacteria and Archaea

There are two types of microorganism groups that are classified as prokaryotes:

- Bacteria
- Archaea

Bacteria and Archaea: Key Differences

Below are the key differences between bacteria and archaea:

- Ribosomal RNA is different
- Archaea's cell walls lack peptidoglycan, which bacteria cell walls have
- Unlike bacteria, Archaea have membranes that contain lipids with branched hydrocarbons (isoprenes) rather than fatty acids.
- Archaea may have more in common with eukaryotes than with bacteria. Their ribosomes behave more like eukaryotic ribosomes than bacterial ribosomes when exposed to inhibiting agents.

Prokaryotes and Public Health

Achaean microorganisms live only in extreme conditions. In public health, we are only concerned with bacteria.

Question 1 of 3

Bacteria are the only group of prokaryotes.

- A. True
- B. False

Submit Answer

Question 2 of 3

Between Bacteria and Archaea, the only prokaryotes that are of concern to public health are bacteria.

- A. True
- B. False

Submit Answer

Question 3 of 3

Which of the following is **NOT** a characteristic of prokaryotic organisms?

- A. Smaller than Eukaryotes
- B. Lack internal membranous organelles
- C. Lack a true nucleus
- D. Distinct cell walls that lack a peptidoglycan layer

Submit Answer