

PROKARYOTES: ARCHAEBACTERIA AND EUBACTERIA

Characteristics of Bacteria

Prokaryotic:

-
-
-
-

Representative Cell

Identifying Prokaryotes

Prokaryotes can be identified by their _____, _____ and _____.

Bacterium Shapes and Groupings

Unicellular or single-celled but may live in groups	
Cell Shapes and Groupings:	
SHAPES	GROUPINGS
Coccus (cocci) or _____ <i>Diagram:</i> _____	mono - _____ <i>Diagram:</i> _____ diplo - _____ <i>Diagram:</i> _____
Bacillus (bacilli) or _____ <i>Diagram:</i> _____	strepto - _____ <i>Diagram:</i> _____
Spirillus (spirilli) or _____ <i>Diagram:</i> _____	staphylo - _____ <i>Diagram:</i> _____
Example: streptobacilli	
Example: staphylococci	

Bacterium Cell Walls
Gram + and Gram -

Some bacterial cell walls **can't absorb** the Gram stain. These bacteria are said to be Gram _____.

If they **can** pick up the stain, the bacteria have a thick outer peptidoglycan layer in their cell walls and are said to be Gram _____.

Why would this information be helpful to a doctor treating a patient with a bacterial infection?

Movement	Diagram
Flagellum (plural is flagella) - _____ structure that _____ around to move the bacterium	
Cilia - _____ - _____ projections surrounding the cell that help it to _____	
Non-motile – sticky _____ - _____ structures that keep the bacterium from moving.	

Bacterial Respiration and Metabolism

Other Terms Used to Classify Bacteria	
Aerobic	
Anaerobic	
Obligate aerobes	
Obligate anaerobes	
Facultative anaerobes	
Autotrophs <i>Example:</i>	
Heterotrophs <i>Example:</i>	
Chemotrophs <i>Example:</i>	
Chemotrophs/ Methanogens	
Halophiles	
Extreme Thermophiles	
Psychrophiles	

Bacterial Reproduction (3 types)

(1) Bacteria reproduce asexually by _____.

This is the **main** method of reproduction.

1) nuclear material doubles

2) cell divides in half

3) new daughter cells separate

(2) Bacteria also reproduce sexually by **CONJUGATION**

- 2 bacteria form a connecting tubule between themselves and exchange DNA

1) _____ 2) _____ 3) _____

(3) Spore formation:

Note: Define **Transformation**

KINGDOM ARCHAEABACTERIA or ARCHAEA

- prokaryotic
- cell wall present but Gram staining not used for their classification
- often live in extreme environments—lakes, hot springs, animal guts
- **do not** cause disease
- Anaerobic **methanogens**—release all of the methane gas (flatulence, bottom of marshes and swamps)
- **chemotrophs, halophiles, thermophiles**

KINGDOM EUBACTERIA or BACTERIA

- prokaryotic
- cell wall may be present (contains peptidoglycan—allows Gram stain to penetrate) Gram + (eg. *Streptococcus*, *Staphylococcus*, *Clostridium*, *Enterococcus*)
- cell wall may be diminished or absent and instead covered in lipids fats - Gram - (eg., cyanobacteria, *Helicobacter*, *E.coli*, *Salmonella*)
- live nearly everywhere
- can cause disease