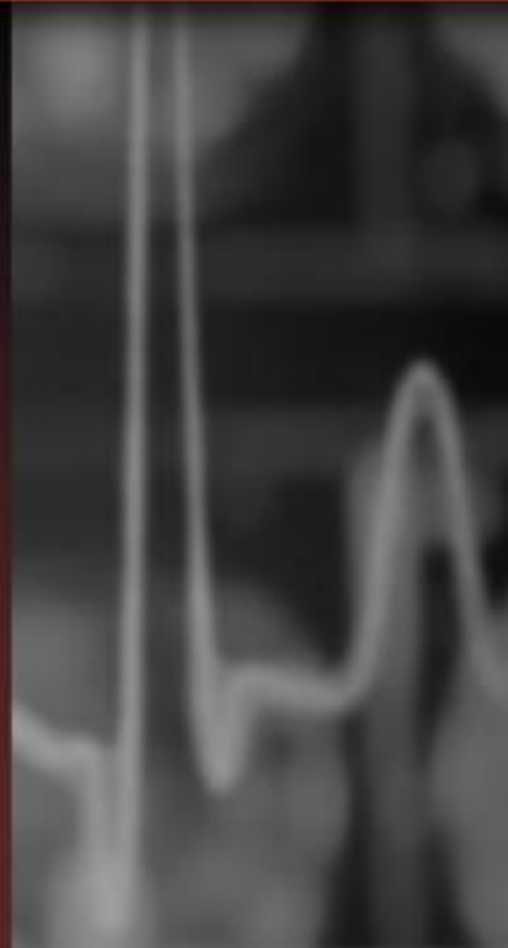


Introduction to Bacteria

The Good, the Bad and the Ugly...



What are bacteria?

- Unicellular (single-celled) organisms
- Prokaryotic (no nucleus)
- Microscopic (very small)
- Can be found on most materials and surfaces
 - Billions on and in your body right now



E. Coli O157:H7
can make you
very sick.



Streptococcus
can cause strep
throat.



This *bacteria* helps
you digest food.

What do they look like?

- Three basic shapes:

- Bacilli (rod-shaped)
- Cocci (round shaped)
- Spiral shaped



Bacilli

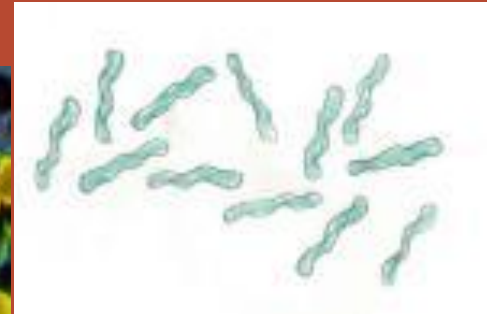


Cocci

- Some exist as single cells, others as cluster together

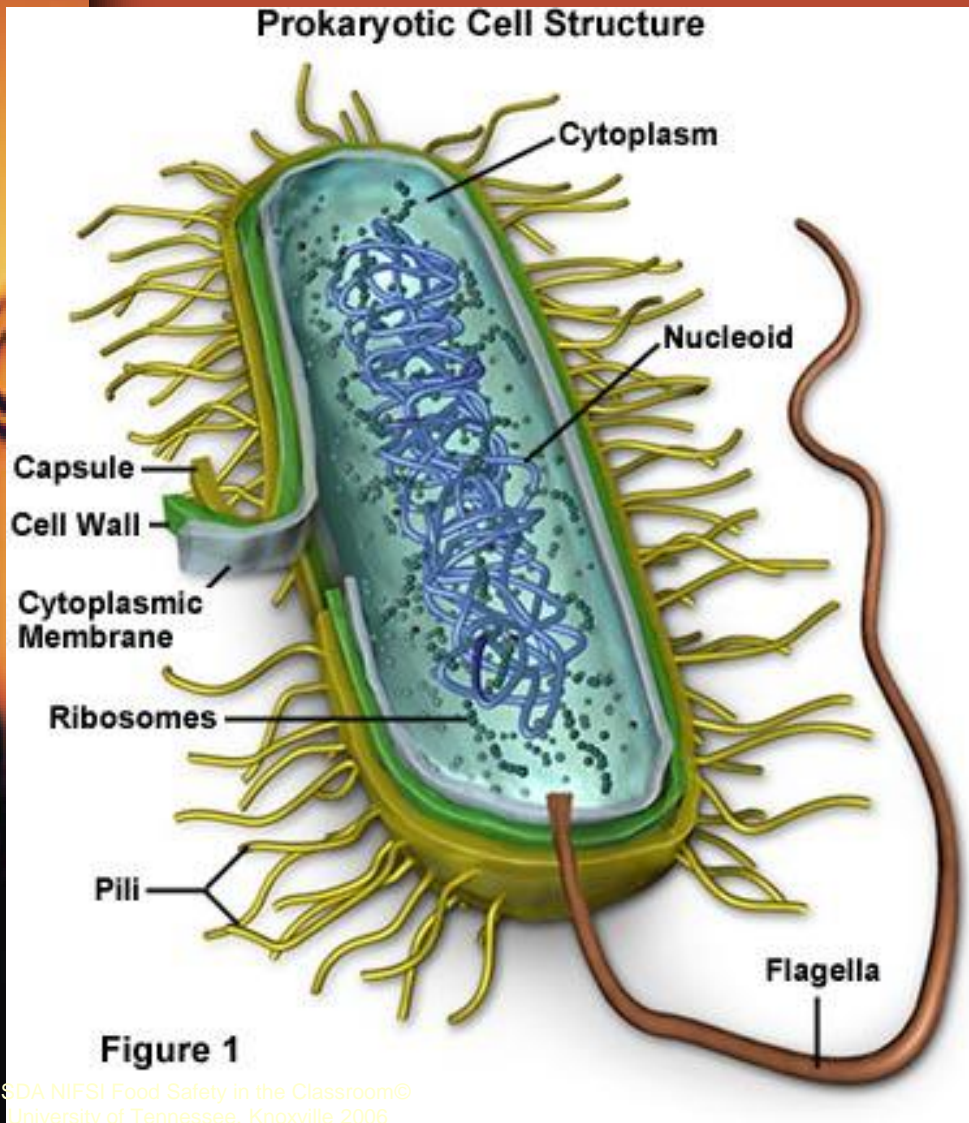


Cluster of cocci



Spiral

Bacteria are ALIVE!



- What does it mean to be alive?
 - They reproduce (make an exact copy of themselves in a process called binary fission)
 - They need to eat

How do bacteria eat?

- Some make their own food from sunlight—like plants
- Some are scavengers
 - Share the environment around them
 - Example: The bacteria in your stomach are now eating what you ate for breakfast
- Some are warriors (pathogens)
 - They attack other living things
 - Example: The bacteria on your face can attack skin causing infection and acne



Photosynthetic bacteria



Harmless bacteria on the stomach lining



E. Coli O157:H7 is a pathogen

What is a pathogen?

- Bacteria that make you sick
 - How do they make you sick?
 - They produce poisons (toxins) that result in fever, headache, vomiting, and diarrhea which destroy body tissues.



What are some common pathogens?

- Pathogenic *E. coli*

- Found in ground beef, contaminated fruits and vegetables



E. coli
O157:H7

- *Salmonella*

- Found in raw meats, poultry, eggs, sprouts, fruit and vegetables



Salmonella

- *Listeria*

- Found in deli foods, lunch meats, smoked fish and vegetables



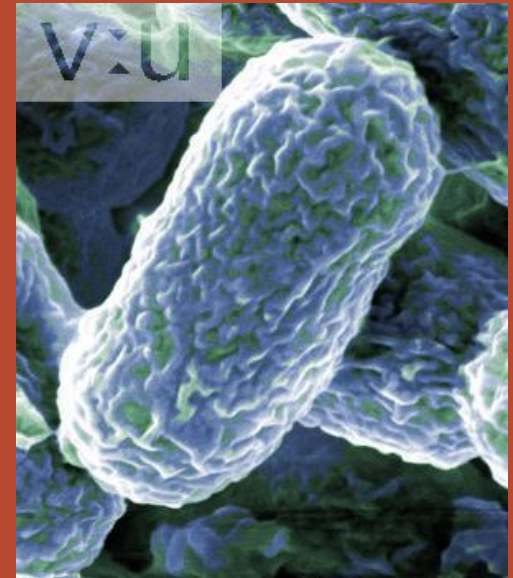
Listeria

Examples of Pathogens

Salmonella



E. coli O157:H7



Staphylococcus aureus



What shape are these bacteria?
Cocci, bacilli, or spiral?

Campylobacter jejuni



Are all bacteria pathogens?

- No, most are harmless
- Some are even helpful



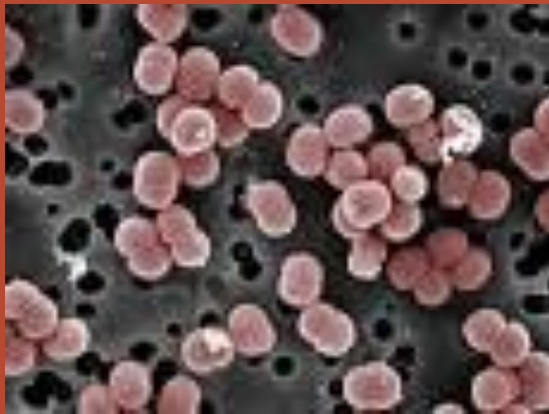
– Examples of helpful bacteria:

- *Lactobacillus*: makes cheese, yogurt, & buttermilk and produces vitamins in your intestine
- *Leuconostoc*: makes pickles & sauerkraut
- *Pediococcus*: makes pepperoni, salami, & summer sausage



A Closer Look – Helpful Bacteria

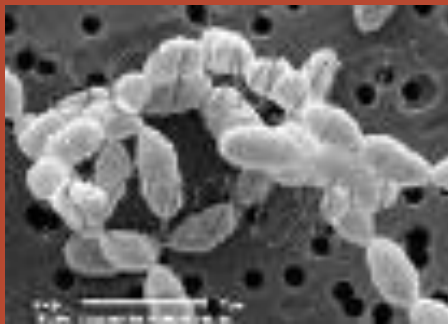
www.bioweb.usu.edu



Pediococcus - used in production of fermented meats



Lactobacillus casei – found in human intestines and mouth to improve digestion



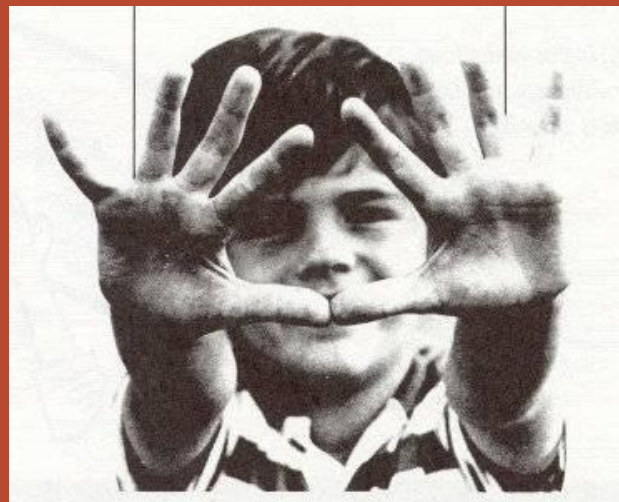
Leuconostoc cremoris – used in the production of buttermilk and sour cream



Lactobacillus bulgaricus – used in the production of yogurt

How can I avoid pathogens?

- Wash your hands often so you won't transfer bacteria to your mouth or food
 - Warm water with soap for 20 seconds, rub hard between fingers and nails



How can I avoid pathogens?

- Cook food thoroughly to kill any pathogens that may be in your food
- Store food properly to limit pathogen growth
 - Cold temperatures (40°F)



Review

- **Bacteria are living organisms**
- **Most are harmless**
- **A few are pathogens that make you sick**
- **You can reduce the risk of getting sick by washing your hands and handling food properly.**