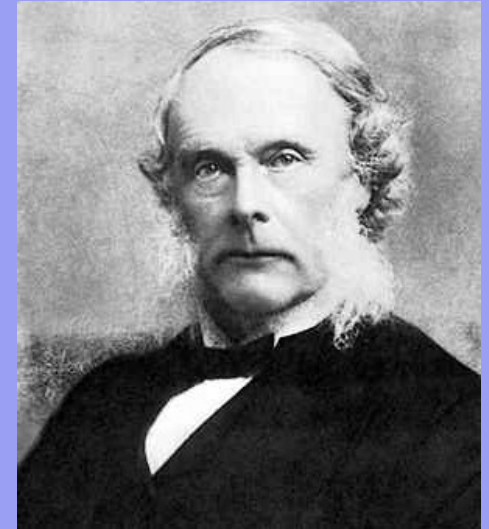


- Immune System

3.1 The Immune System

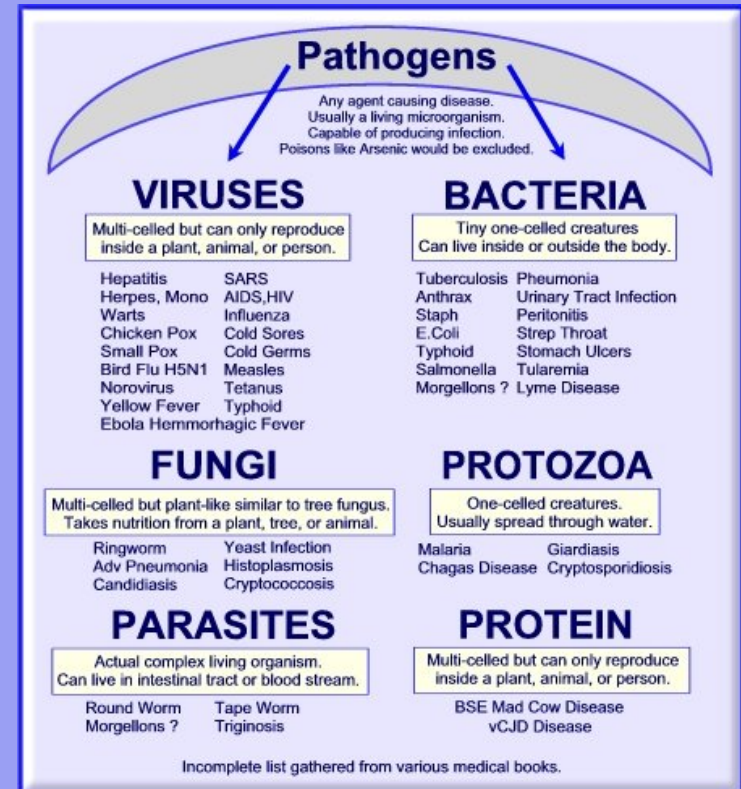
- **Joseph Lister**
 - ◆ 150 years ago, if a patient survived a surgery they had a 50% chance of survival
 - ◆ No one knew why
 - Lister came up with a hypothesis
 - If medical equipment is sterilized, the death rate will decrease.



See pages 100 - 101

What is a disease?

- A disease is any change, other than injury that disrupts the normal functioning of the body
 - ♦ Some are produced by agents such as
 - Bacteria
 - Viruses
 - Fungi
 - ♦ Others are caused by materials in the environment
 - Cigarette smoke
 - UV rays
 - ♦ Some are inherited
 - Hemophilia



Pathogens

- Pathogens are disease causing agents
 - ♦ “sickness makers”
- Any disease caused by a pathogen is known as an infectious disease
- The immune system attacks and destroys these disease causing invaders



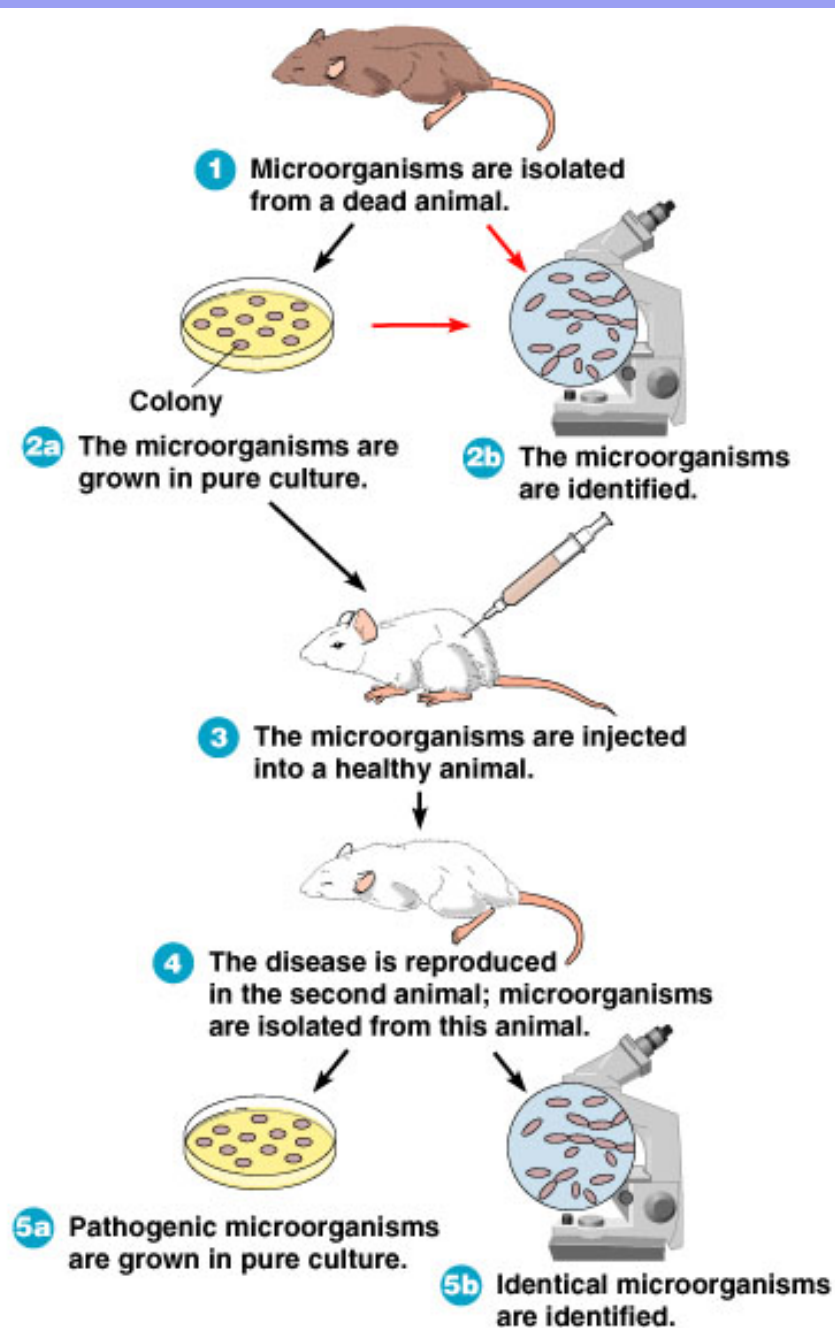
Germ Theory of Disease

- Put forth by Chemist Louis Pasteur and Bacteriologist Robert Koch
 - ♦ The idea that infectious diseases are caused by microorganisms or germs



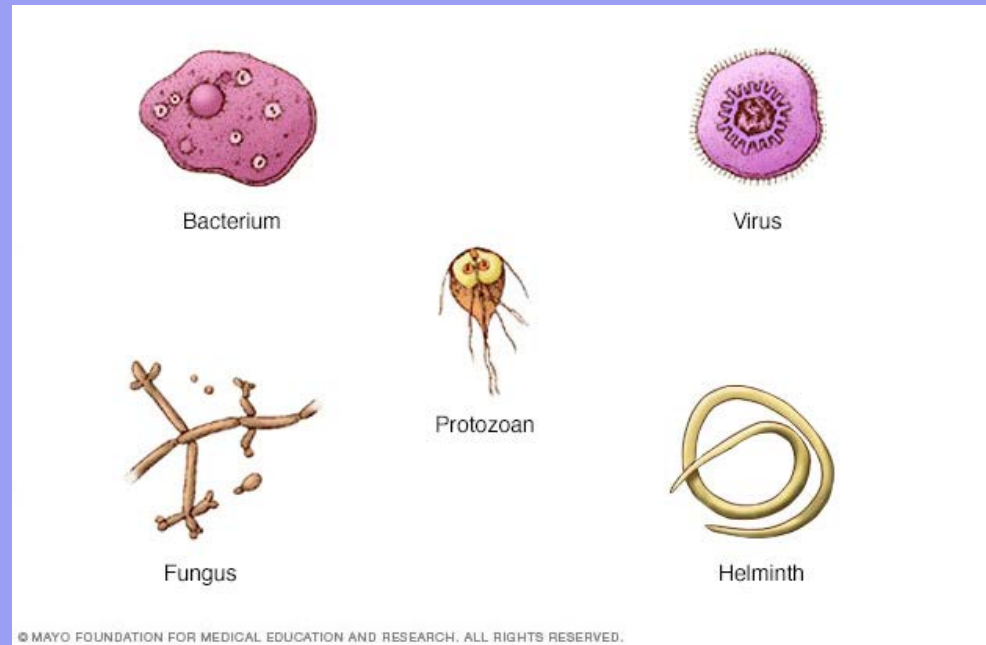
Koch's Postulates

- Series of rules developed by Koch used to identify the microorganism that causes a specific disease
 1. The pathogen must be found in the body of a sick organism and not in a healthy one
 2. The pathogen must be isolated and grown in the laboratory in a pure culture
 3. When the cultured pathogens are placed in a new host, they should cause the same disease that infected the original host
 4. The injected pathogen should be isolated from the second host and should be identical to the original pathogen.



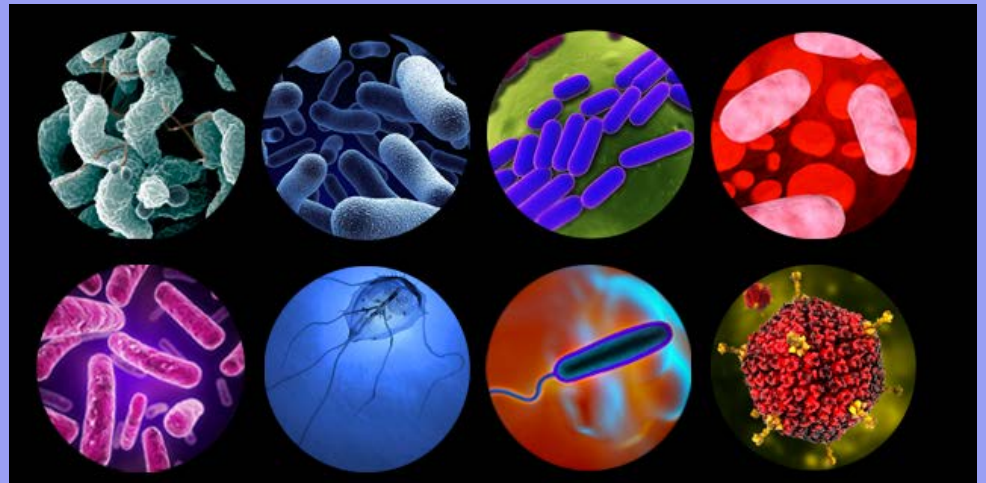
Why are Koch's Postulates important?

- If we know what pathogen causes the disease, it is the first step in preventing or curing the ailments they produce



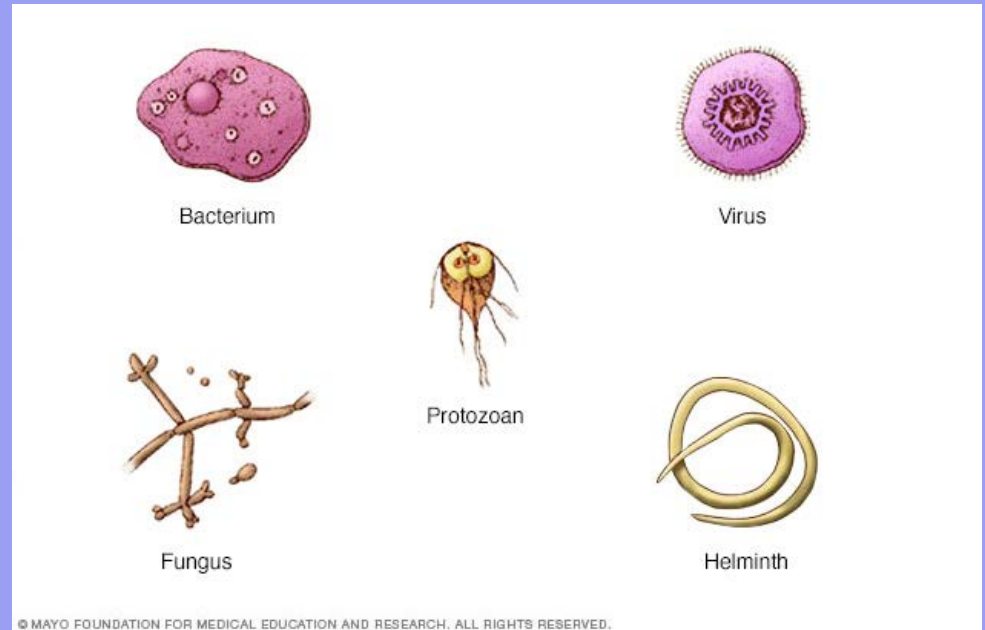
Agents of Disease

- For many pathogens the human body provides the perfect conditions for growth
 - ♦ Temperature, nutrients and a watery environment
- Many microorganism are present in the human body but are harmless or beneficial
- Some pathogens destroy cells as they grow, release toxins, disrupt body functions, drain nutrients or block the flow of blood



Agents Continued

- Agents that cause disease could be
 - ♦ Viruses
 - Common cold
 - ♦ Bacteria
 - Strep throat
 - ♦ Protists
 - Malaria
 - ♦ Worms
 - Tapeworms
 - ♦ Fungi
 - Athletes foot



- **Physical contact**

- ♦ Direct: shaking hands or sharing drink containers, sexual contact with an infected person
- ♦ Indirect: pathogens are carried through the air (cough/sneeze)

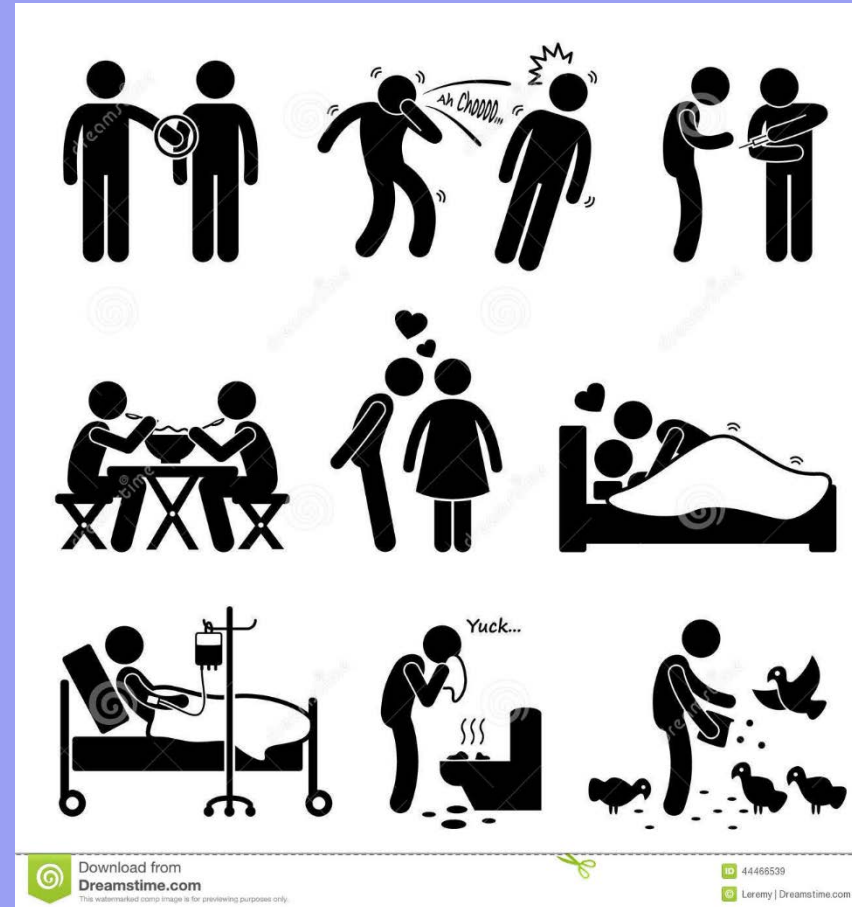
- **Contaminated water and food**

- ♦ Food poisoning
 - Eating uncooked meat, drinking contaminated water

- **Infected animals**

- ♦ Animals that carry pathogens from person to person are known as **VECTORS**
- ♦ Animal bites
 - Mosquito, ticks, racoons

How diseases are spread



Pass it on!

