

Germ Theory – What Causes Contagious Disease?

Scientist's Name	Experiments, Observations, and/or Investigations	Conclusions and/or Contributions
Louis Pasteur (1822 – 1895)	① swan-neck flask experiment ② invented man-made vaccines ③ invented pasteurization	① disproved spontaneous generation ② prevent/reduce spread of disease ③ sanitize food (reduce food poisoning)
Robert Koch (1843 – 1910)	① collected a sample from a sick animal and injected it into a healthy animal, making it sick.	① definitively proved that diseases are caused by specific pathogens ("germs")

RECALL: What is Cell Theory? All living things are made of cells and come from pre-existing cells (NO "spontaneous generation")

Define infectious disease: any disease which can spread from one organism to another

According to Germ Theory, what causes infectious diseases? Pathogens ("germs")

- Examples of pathogens:
1. viruses
 2. fungi
 3. bacteria
 4. protists

S? What are some examples of infectious disease? Chlamydia, gonorrhea, ebola, shingles/chicken pox, flu, syphilis,

S? What are some examples of diseases that are NOT infectious? hemorrhoids, most cancers, sickle cell, arthritis

Why does Germ Theory help us?

1. helps us know how to treat diseases
2. helps us know how to sanitize (surgery, food, H₂O, hands)
3. helps us prevent disease outbreaks (sanitation + vaccines)

How do vaccinations work? expose the immune system to a harmless version of a pathogen, so immune system can practice fighting it (building up immunity)

S? Examples of vaccines: flu shot, small pox, measles

S? How is Germ Theory related to Cell Theory? diseases have an explainable source—don't appear out of thin air

(chx broth flasks?)