biodx

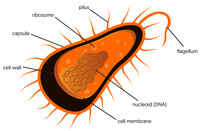
relentlessly enabling a better world

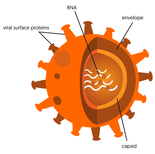
do you know the difference between a bacteria and a virus?

bacteria & other living things

VS

viruses (virions)





size & environment

Single celled microorganism that thrives in many different environments. Some varieties live in extremes of cold or heat

Bacteria can survive on surfaces for up to several months

Up to 100x smaller than bacteria and require living hosts, such as people, plants or animals to multiply, otherwise they don't survive

Covid-19 may persist on surfaces as follows:

- plastic: 72 hours
- stainless steel: 48 hours
- copper: 4 hrs
- cardboard: 8 hours

See: https://www.nejm.org/doi/full/10.1056/NEJMc2004973

structure

Made of cells (microscopic, single-celled organisms)

A package of genetic material (RNA or DNA). The outer layer is a protective shell called a capsid; some viruses also have a viral envelope, a second layer that helps virions attach to host cells

metabolism

Has a metabolism

No metabolism

energy

Use energy

No cell respiration

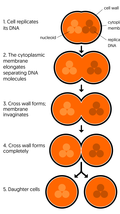
growth

Grow / develop

No growth or development

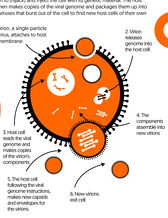
reproduction

reproduce independently



need a living host cell to replicate

Attach to (hijack) and inject the cell with its genetic material. The host cell then makes copies of the viral genome and packages them up into new viruses that burst out of the cell to find new host cells of their own



motion

Respond to stimuli

Inert (inactive)

examples

examples of diseases from bacteria include:

- TB
- Pneumonia
- Streptococcus
- Pneumococcus
- Tetanus

Foodborne illnesses can be caused by bacteria such as:

- Shigella
- Campylobacter
- Typhoid
- Salmonella

examples of diseases from viruses include:

- Covid-19,
- Influenza (the flu)
- Polio
- HIV (which can lead to AIDS
- Hepatitis
- Meningitis (there is also bacterial meningitis)
- Pneumonia (there is also bacterial pneumonia)
- Human papillomavirus (HPV)
- Herpes
- Rotavirus
- Chicken pox
- Severe acute respiratory syndrome (SARS)

symptoms

common ailments include:

- Strep throat
- Whooping cough
- Urinary tract infection
- Sinus infection
- Middle-ear infection

Bronchitis, chest cold in otherwise healthy adults

- Diarrhea
- Vomiting

common ailments include:

- Flu
- Common cold
- Sore throat (non strep)
- Sinus infection
- Middle ear infection
- Bronchitis
- Diarrhea
- Vomiting
- Fever
- Muscle ache
- Coughing or sneezing
- Headache
- Runny or stuffy nose
- Fatigue

prevention & treatment

Vaccines help the body's immune system to recognize and fight bacteria, and protect us from the diseases they cause

Antibiotics are commonly used for treatment

Vaccines help the body's immune system to recognize and fight viruses, and protect us from the diseases they cause

Symptomatic treatment while immune system fights off the virus. Some viral infections can be treated with antivirals

destruction

Can be killed using appropriate disinfectants or biocides, like vitrodx®, microdx™, indusdx® and agridx®

Can be destroyed by denaturing (rupturing) the virus protein envelope/ membrane with a disinfectant or biocide, like vitrodx®, microdx™, indusdx® and agridx®

The disinfectant binds with the negative charges, denaturing the cell membrane. If the envelope gets damaged, the virus becomes inactivated