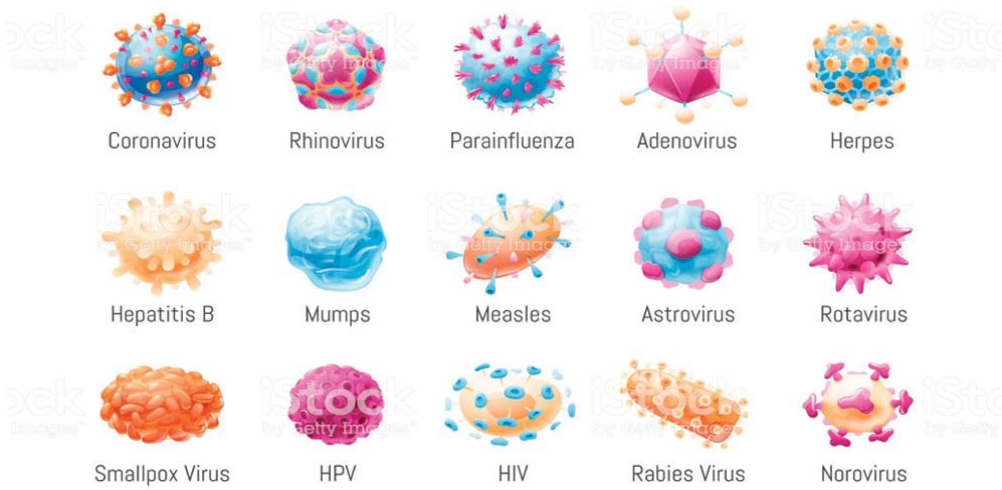
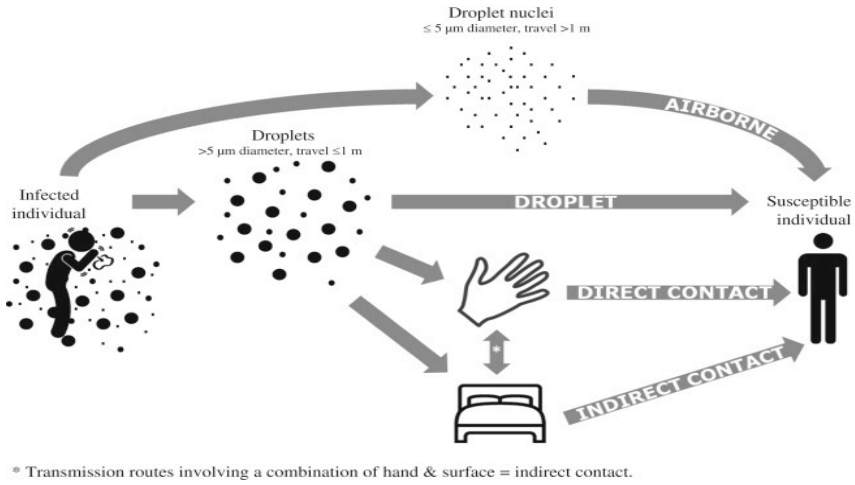
Viral and Fungal Diseases

Viral diseases

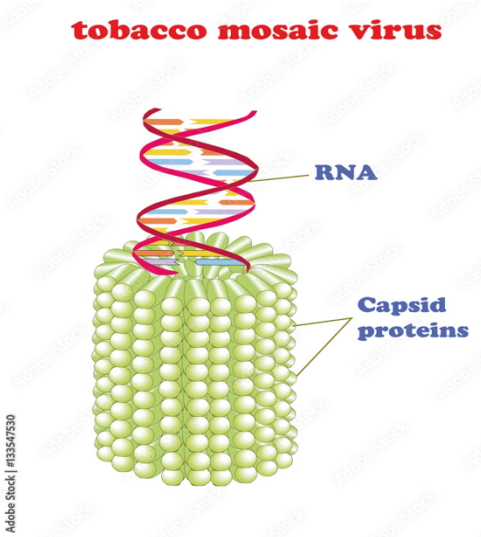
- **Viruses** are not alive because they do not complete all of the seven life processes: Movement, Respiration, Sensitivity, Nutrition, Excretion, Reproduction and Growth.
- **Structure:** They are made of a relatively short length of genetic material DNA which is surrounded by a protein coat.
- **Life Cycle:** The life cycle of a virus is the same as other pathogens. They can often survive outside a host for long periods of time. They do not divide and reproduce, but replicate their DNA and protein coats. These are then assembled into new virus particles and causing infection.
- **Example**: Ebola virus, Corona virus etc.
- **Treatment :** Viral infections cannot be treated by antibiotic





1- Tobacco mosaic virus

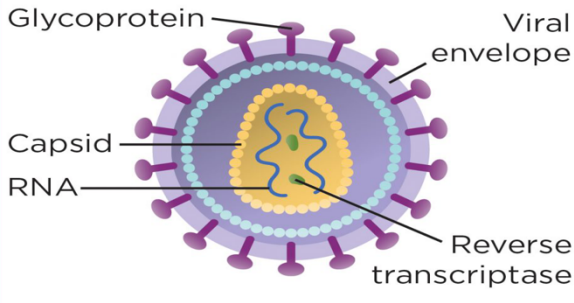
- The **tobacco mosaic virus** infects tobacco and lots of other closely related species, such as tomatoes and peppers.
- **Transmission**: It is transmitted by contact between plants, either naturally or through the hands of farmers.
- **Infectious parts:** It infects the chloroplasts of plant leaves and changes their color from green to yellow or white in a mosaic pattern. It can also make leaves crinkle or curl up.
- **How infection reduce the plant growth :** This reduces the plant's ability to photosynthesis and grow properly, which reduces the crop yield for farmers.
- **Treatment:** There is no cure therefore farmers must try to reduce the infection to their crops or attempt to reduce the spread of the virus.

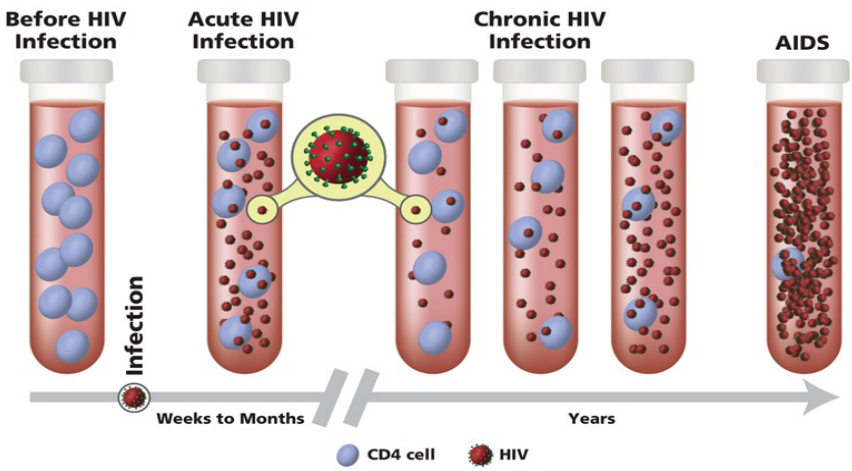


2- HIV/AIDS

- **HIV stands** for human immunodeficiency virus.
- **Transmission**: This infection is transmitted by body fluids, often during unprotected sex, but also through cuts and injecting drugs using shared needles. Immediately after infection, people often suffer mild flu-like symptoms.
- **AIDS stands** for acquired immune deficiency syndrome.
- **How AIDS effect the body:** Months after the infection of the HIV virus, it becomes active and starts to attack the patient's immune system. HIV at this point has become AIDS.
- **Treatment:** There is no cure for HIV /AIDS although many scientists are trying to find one. Currently, infected people are given antiviral drugs, which can slow the development of AIDS.

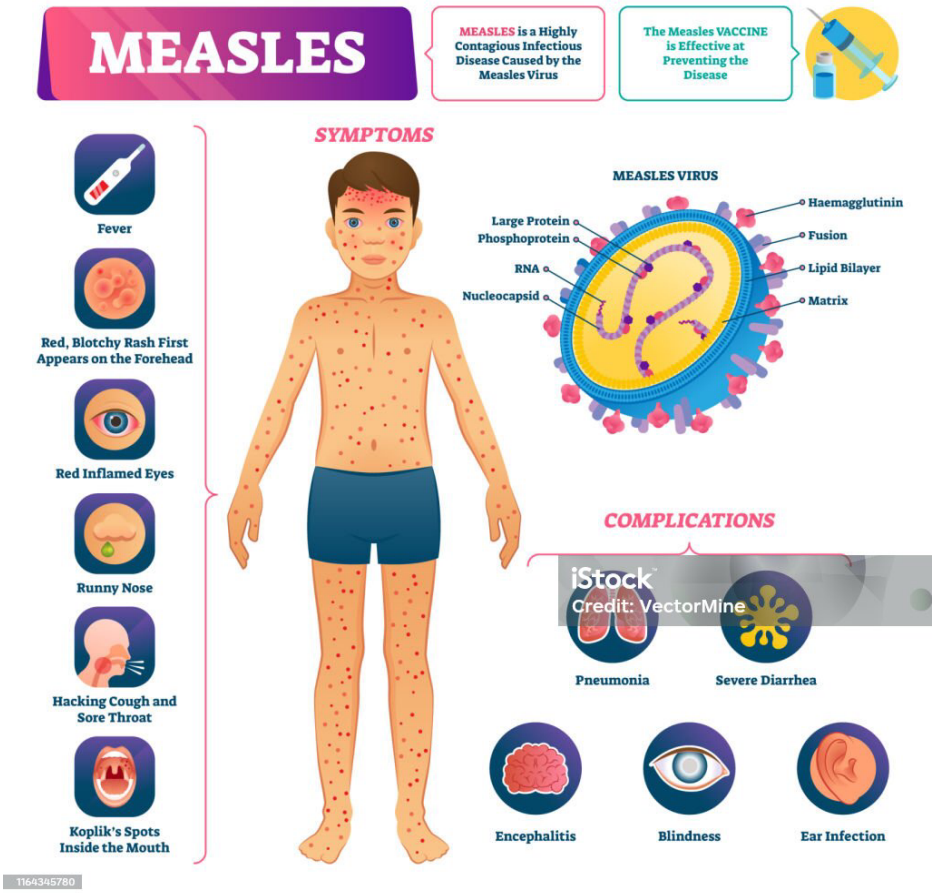
Fig 1. **HIV virus structure**





3- Measles

- **Measles** is a very infectious viral disease that is often caught by young children.
- **Transmission:** It is transmitted through the air in tiny droplets after an infected person sneezes.
- **Symptoms:** It causes a fever and skin rash. Infection can cause more serious effects like infertility in adults who did not catch the disease as children.
- **Vaccination:** Many children in developed countries are given vaccines against measles, but sadly this is not the case throughout the world.



Fungal diseases

- Not all fungi cause disease.
- **unicellular**: Yeast: Yeast is a single-celled fungus that is economically important because we use it to make some bread and beer.
- **Multicellular**: Mushrooms: Not all fungi are single-celled. Some such as mushrooms are multicellular and so much larger. These are still made of tiny cells like yeast, but have many more of them.
- **As Eukaryotic cell:** Fungal cells have a nucleus and so are eukaryotic.

1- Rose black spot

- Rose black spot is caused by a fungus which infects roses.
- It **infects** leaves and causes black or purple spots on the leaves. The rest of the leaves often turn yellow and can drop off the plant.
- **Effect on plants:** This reduces that plant's ability to photosynthesis and reduces growth.
- **Transmission:** It can be transmitted in air or water, as well as through direct contact by gardeners.
- **Treatment:** It is treatable using fungicides and by removing and destroying infected leaves.