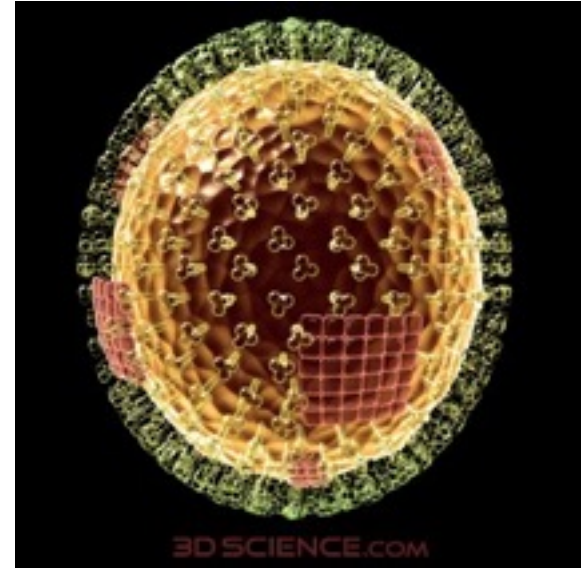




# Viruses



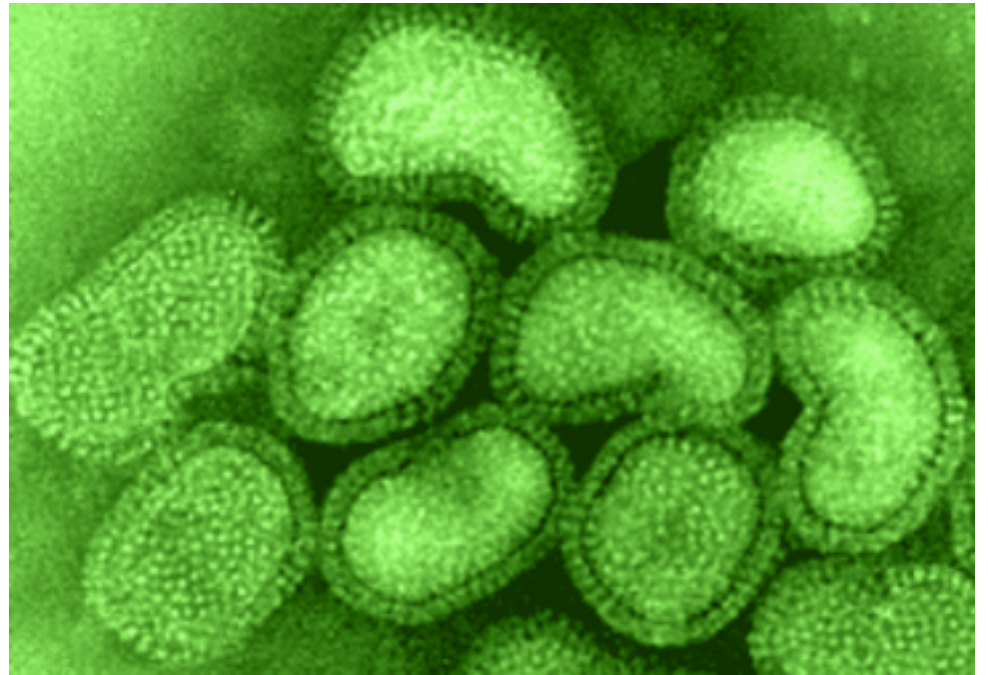
Living or Non Living?

# *What are the characteristics of living cells?*

- *obtain & ingest food*
- *get rid of wastes*
- *grow*
- *respond to changes in environment*
- *reproduce*

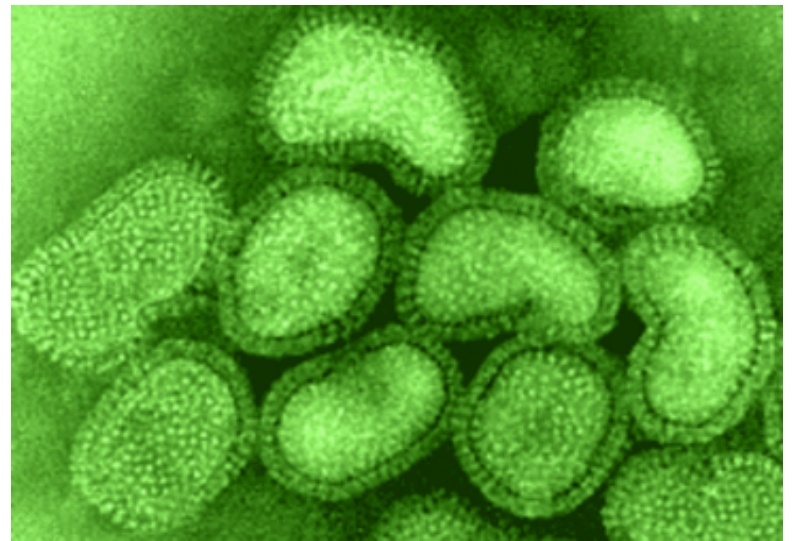
# Viruses

- viruses are not part of the 6 kingdoms since ---> non-living



# Viruses

- viruses are not part of the 6 kingdoms since ----> non-living
- outside of cells, virus = lifeless chemical (no metabolic activity)



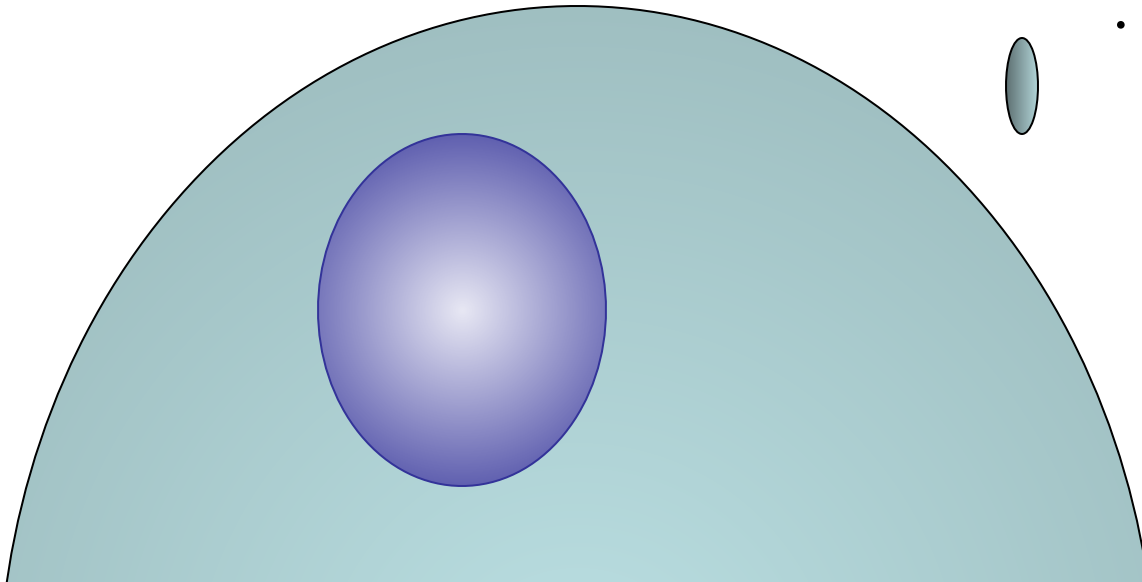
# Viruses

- viruses are not part of the 6 kingdoms since ----> non-living
- outside of cells, virus = lifeless chemical (no metabolic activity)
- inside cells viruses are reproduced using the cells machinery

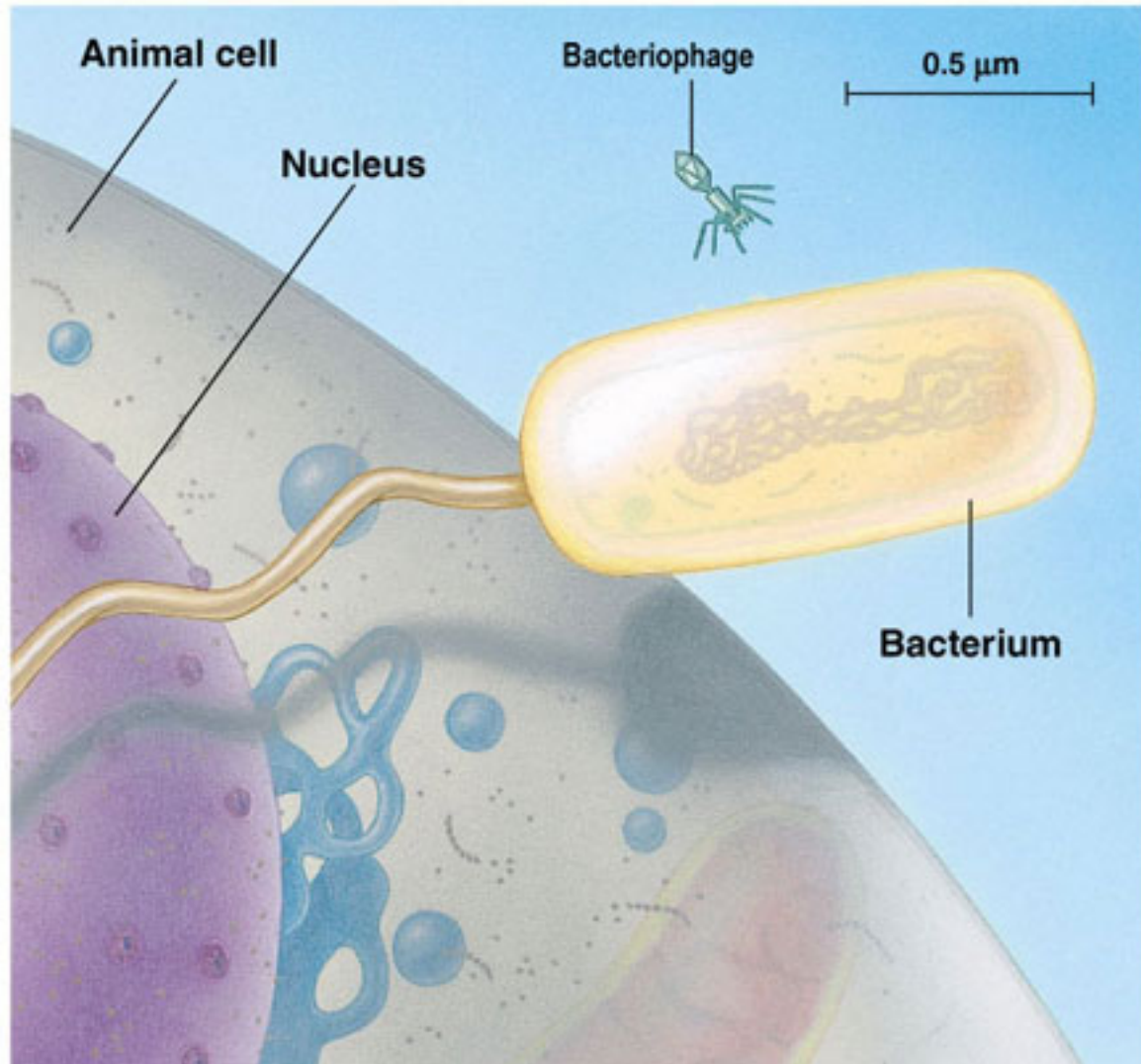
# Viruses

1934- electron microscope allowed people to view viruses

- very small (5000 flu viruses on head of a pin)



# Viruses

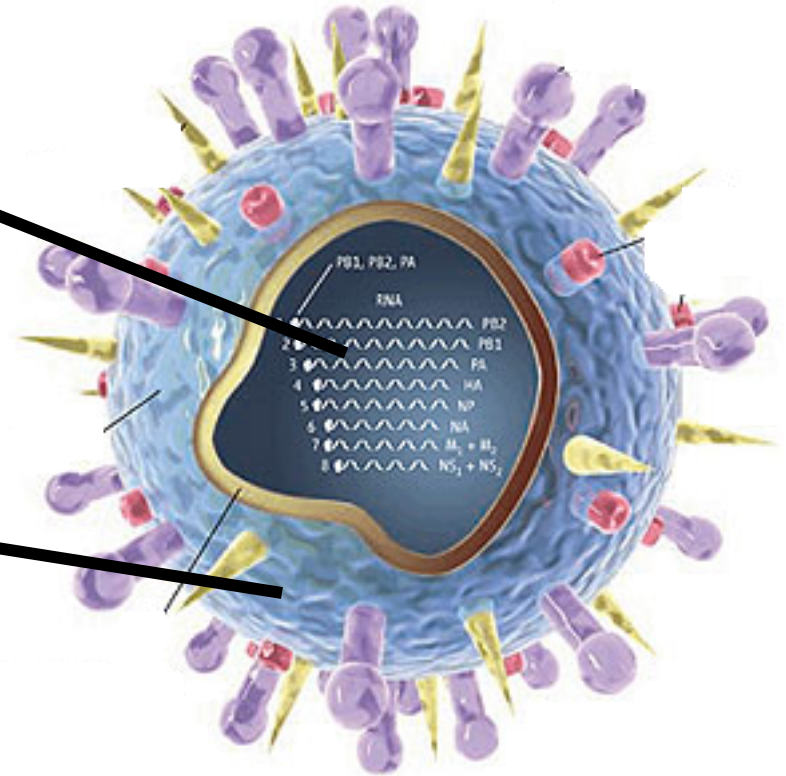


# Virus Structure

simple structure:

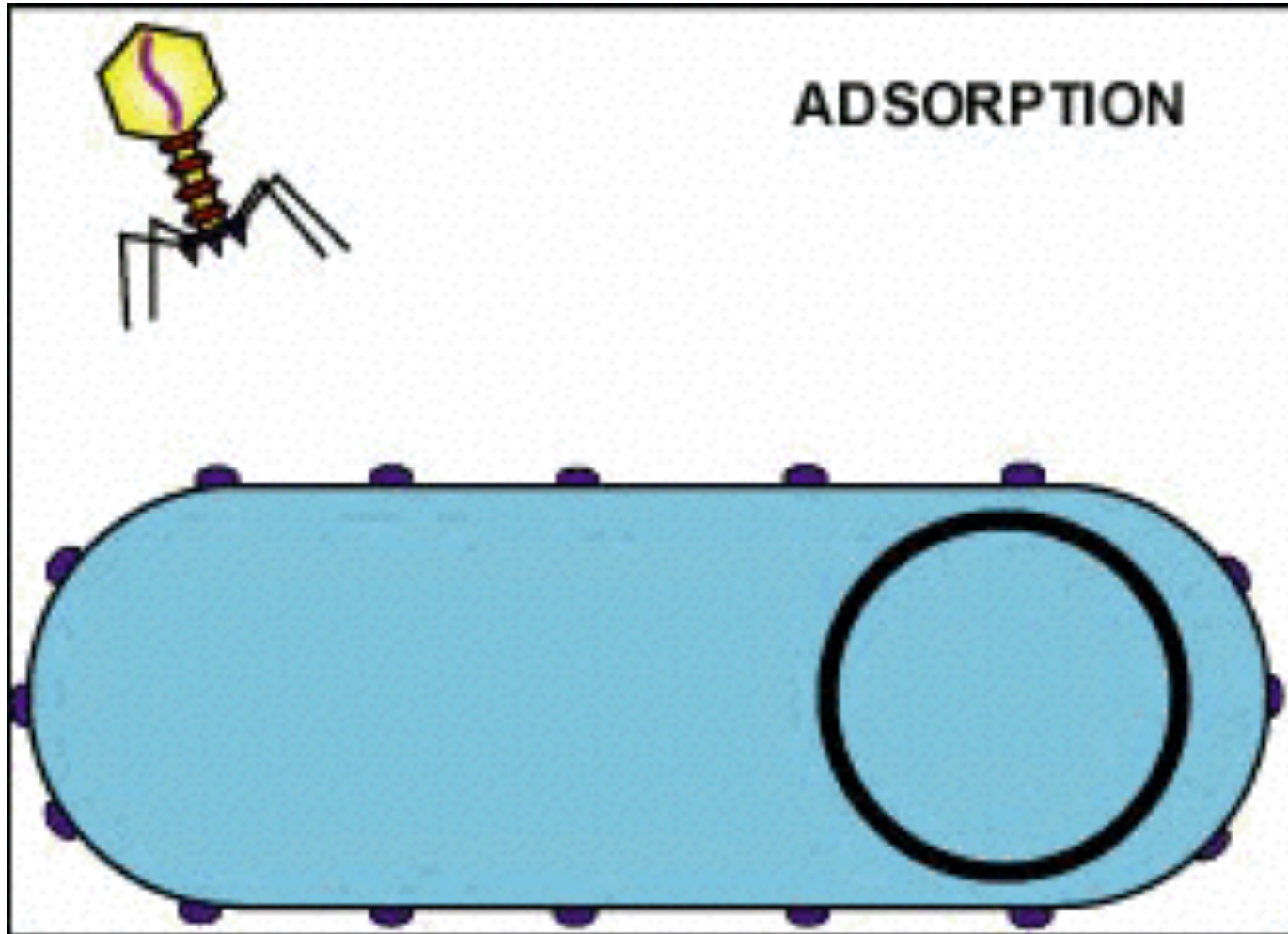
- inner core of **genetic material**  
(RNA or DNA)

- outer protective coat  
**capsid** made of proteins  
(determines shape)





# Lytic Cycle of a Virus



# Lytic Cycle of a Virus

## 1. Attachment & entrance

- virus recognizes host
- whole virus or only its DNA or RNA enters

## 2. Synthesis

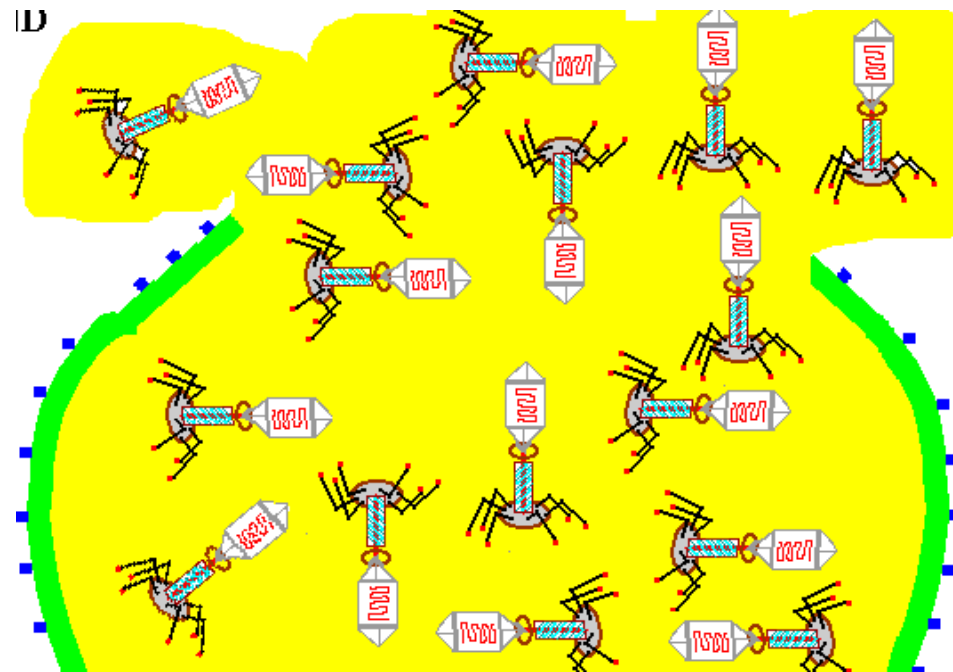
- host makes virus parts

## 3. Assembly

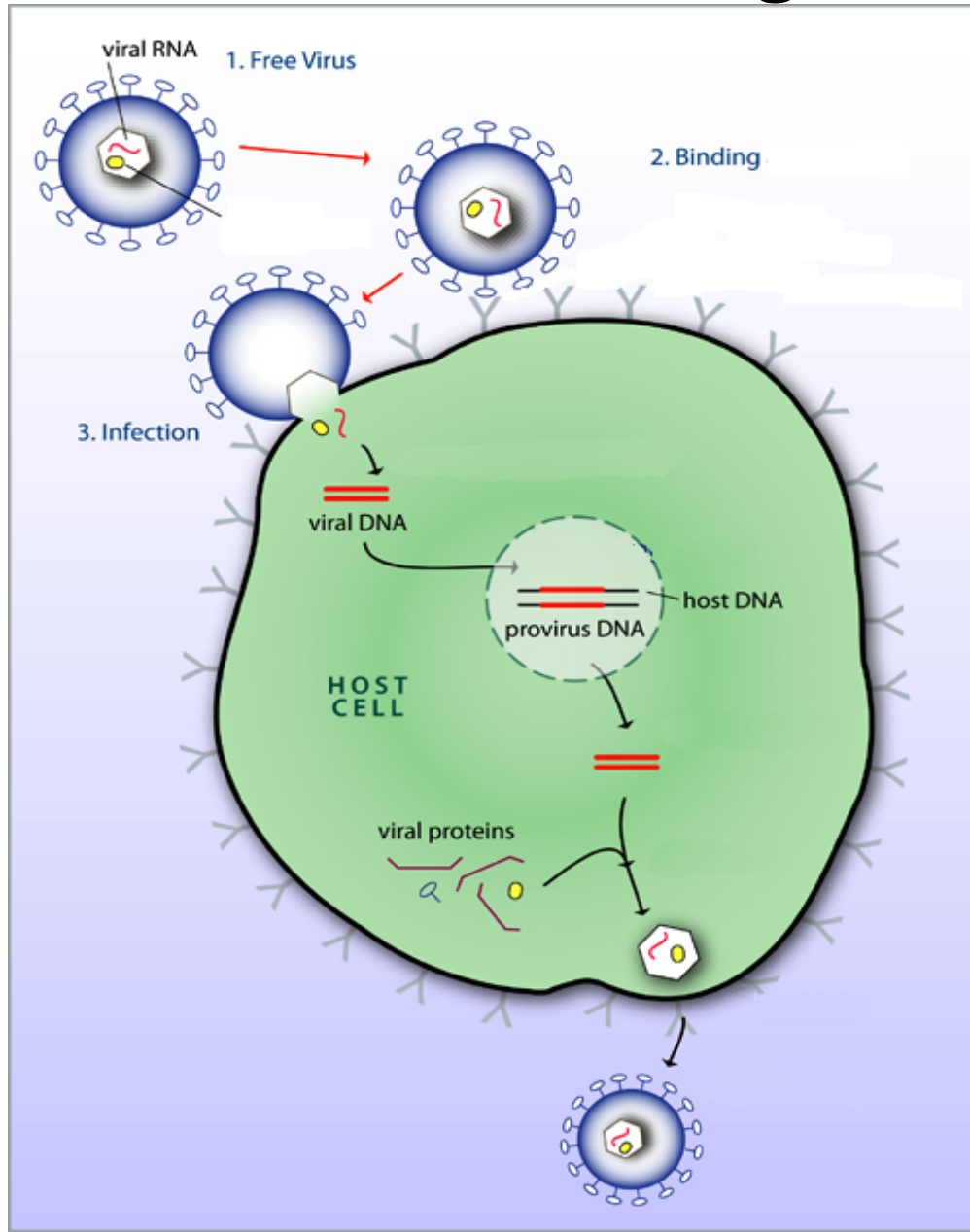
- host puts together virus

## 4. Release

- host cells dies as virus leaves cell



# *B. Provirus Cycle:*



## ***B. Provirus cycle:***

- some viruses can enter a 'dormant' stage (months, years)
- >viruses remain in host DNA until... something tells the virus to replicate

*eg: Herpes simplex virus*

- *cold sores present when in lytic cycle*
- *cold sores may be absent for years when in provirus stage*

# Viral Diversity

- viruses are specific to host cells (bacteria, animal, plant)
- not all are pathogenic (cause disease)

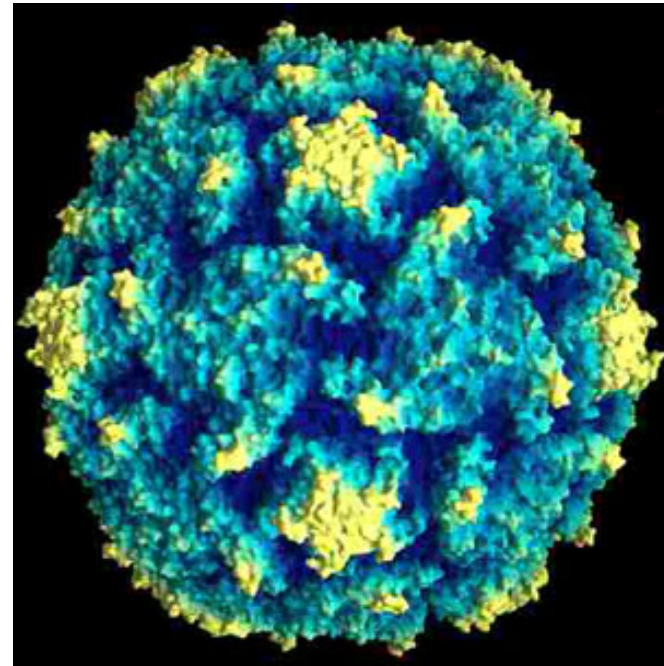
# Viruses & Human Health

- symptoms of disease caused by destruction of cells
- infections are difficult to treat

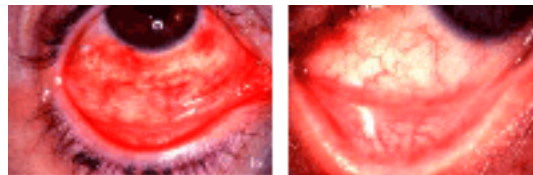
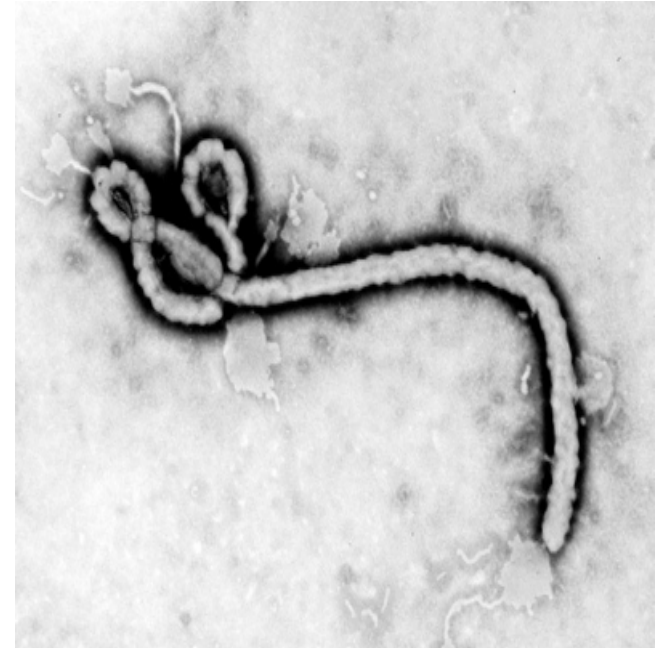
Why? ---> viruses are 'hidden' inside our cells!

- some can be prevented with vaccines  
(eg., polio, smallpox, hepatitis A+B)

# Examples-RNA Polio



# Examples-RNA Ebola



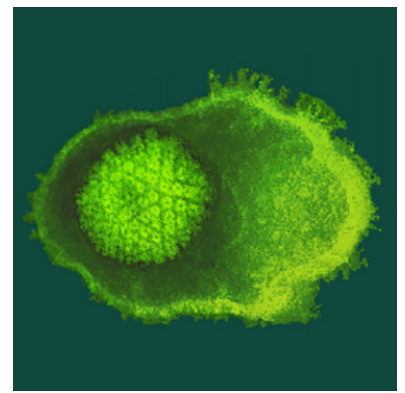
**This disease, called Hemorrhagic conjunctivitis of the eye, is an example of one of the Ebola Viruses.**



# Examples-RNA Infuenza



# Examples-DNA Shingles/Pox



Shingles

# Examples-DNA Herpes Simplex



# Examples-DNA Genital/Skin warts

