

Virology

Viral structure & classification

* Characteristics of viruses:

① Smallest organism.

10 - 250 nm < 2000 - 3000 nm < 10 - 30 μm
virus Bacteria Human cell

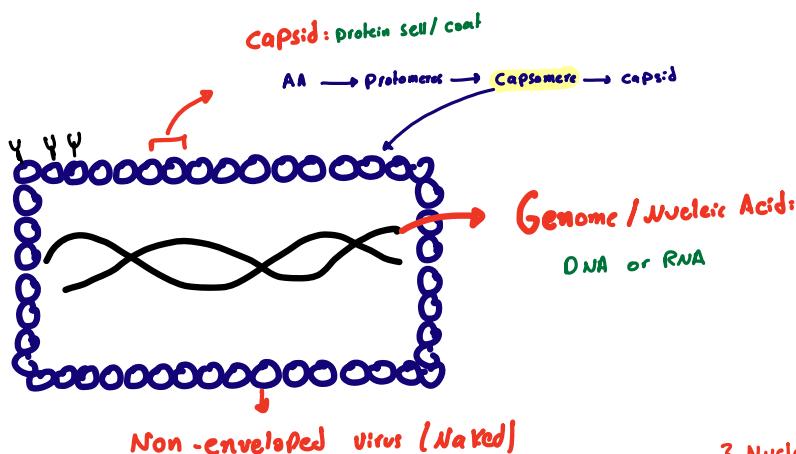
∴ Human cells 100 - 1000 times larger
so, we need Electron microscope to see it.

② Obligate Intra cellular:

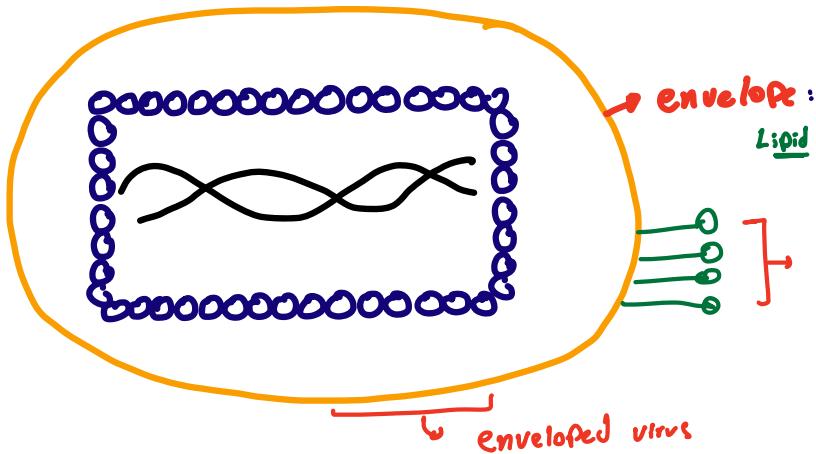
③ Genetic material :

Can be DNA or RNA.

* Structure of viruses



Pew types of capsomer? Maximum efficiency of viral Genome



3 Nucleotide (codon) → AA → protein
4500 150 1
≈ 3000 900 6
IMU
↓
6000 Nucleotide

Lipid, protein, carbohydrate derived from Host cell.

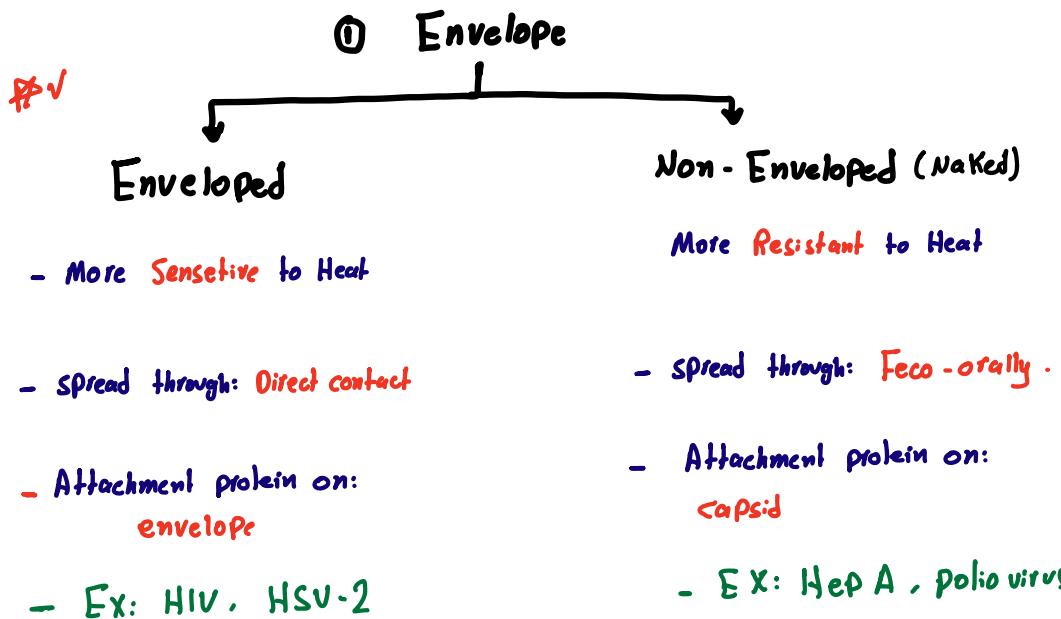
Spike projection (glycoprotein → Por Attachment)

NOVA

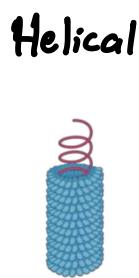
By: Mahmoud Melhem

* Virus classification:

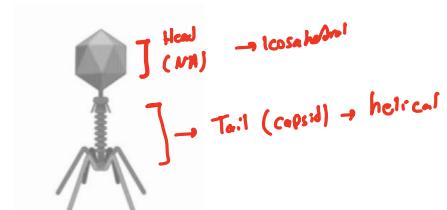
Based on: ① Envelope ② Capsid shape ③ Type of Nucleic Acid.



② Capsid shape:

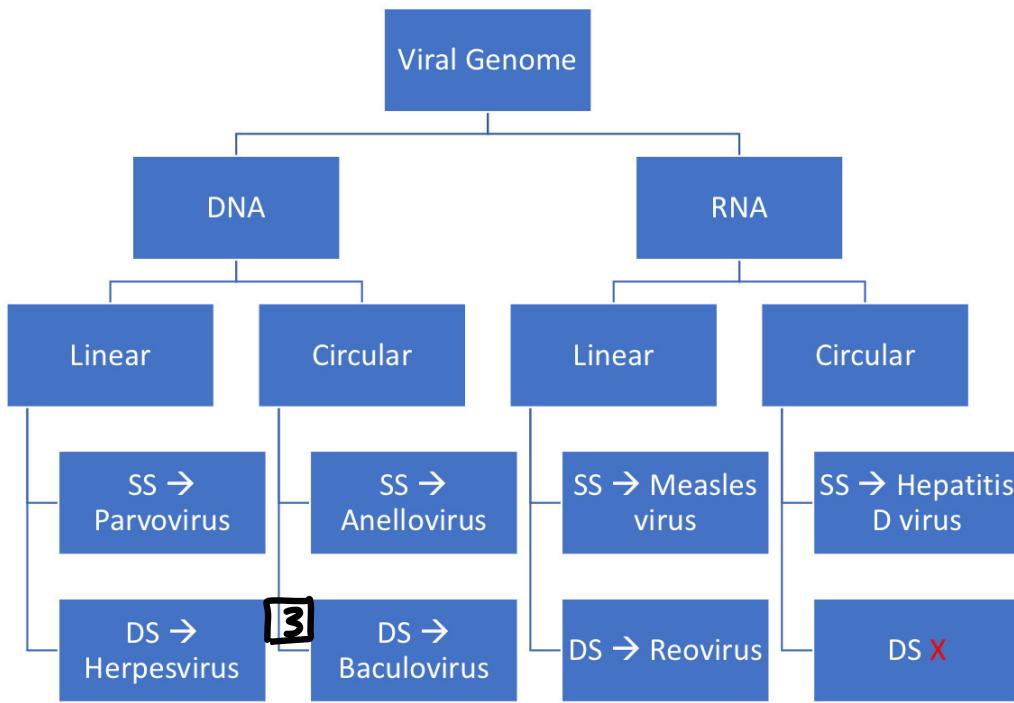


Complex



- * Combination of Both Helical & Icosahedral
- * Head & tail shape
- Ex: Bacteriophage.

NOVA



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* There is No DS RNA Circular viruses

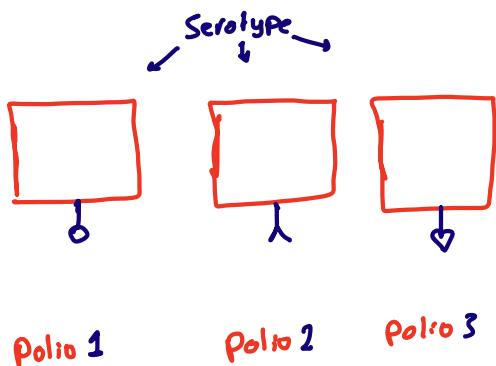
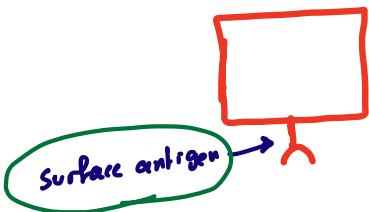
- RNA viruses Have more mutations than DNA viruses.

DNA → RNA → Protein
RNA → Protein

- Influenza virus Genome is Segmental.

* Serotypes:

* Subdivision of a virus with unique antigen.



Vaccine should include All Serotypes.