

DISCOVERY OF VIRUSES

- **Martinus Beijerinck (1897)**
 - ✓ showed that causative agent of tobacco mosaic disease was still infectious after filtration
 - ✓ referred to as filterable agent which coined from the latin name "virus" meaning poison
- **Frederick Twort (1915)**
 - ✓ first to isolate viruses that infect bacteria (bacteriophages or phages)
- **Wendell Stanley (1935)** crystallized sap from sick tobacco plants
 - ✓ He discovered viruses were made of nucleic acid and protein

GENERAL STRUCTURE AND FUNCTION OF VIRUSES

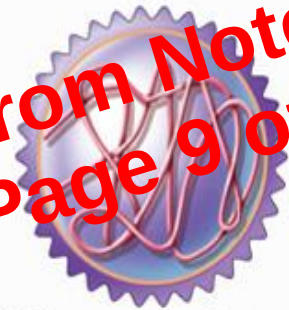
1. They are generally smaller than bacteria, and this can pass through bacteriological filter. A Virion size range is ~10-400 nm
2. Viruses are acellular, non-cytoplasmic infectious agents. They lack cellular organelles, such as mitochondria and ribosomes
3. All viruses are obligate parasites and can multiply only within the living host cells and are highly resistant to antimicrobial agents and extremes of physical conditions.
4. Viruses do not multiply in chemically defined media.

THE SIZE AND MORPHOLOGY OF SELECTED VIRUSES

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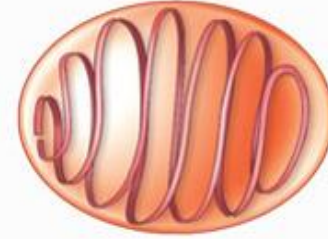
(a) Vaccinia virus



(b) Paramyxovirus (mumps)



(c) Herpesvirus



(d) Orf virus



(e) Rhabdovirus



(f) T-even coliphage



(g) Flexuous-tailed phage



(h) Adenovirus



(i) Influenza virus



(j) Polyomavirus



(k) Picornavirus



(l) ϕ X174 phage



(m) Tubulovirus

1 μ m

RNA VIRUSES



TOGAVIRIDAE
FLAVIVIRIDAE



BUNYAVIRIDAE



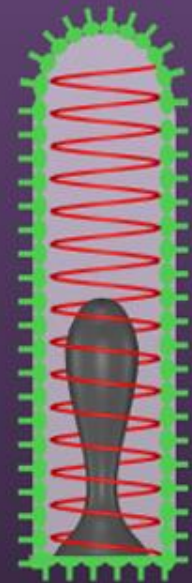
PICORNAVIRIDAE



REOVIRIDAE



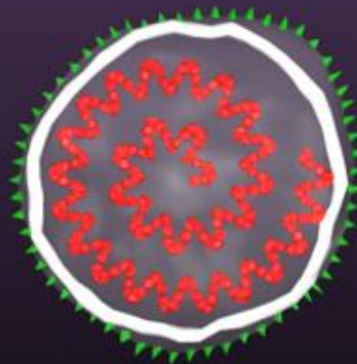
ARENAVIRIDAE



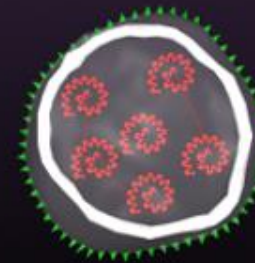
RHABDOVIRIDAE



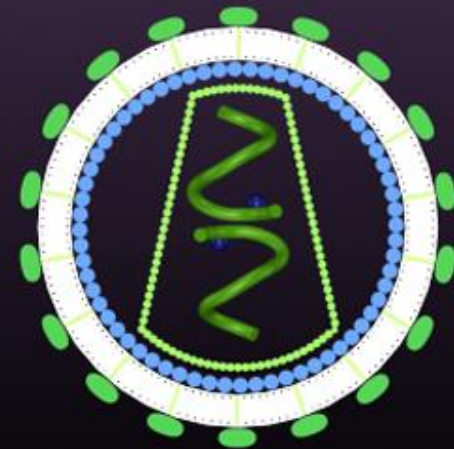
CORONAVIRIDAE



PARAMYXOVIRIDAE



ORTHOMYXOVIRIDAE



RETROVIRIDAE

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