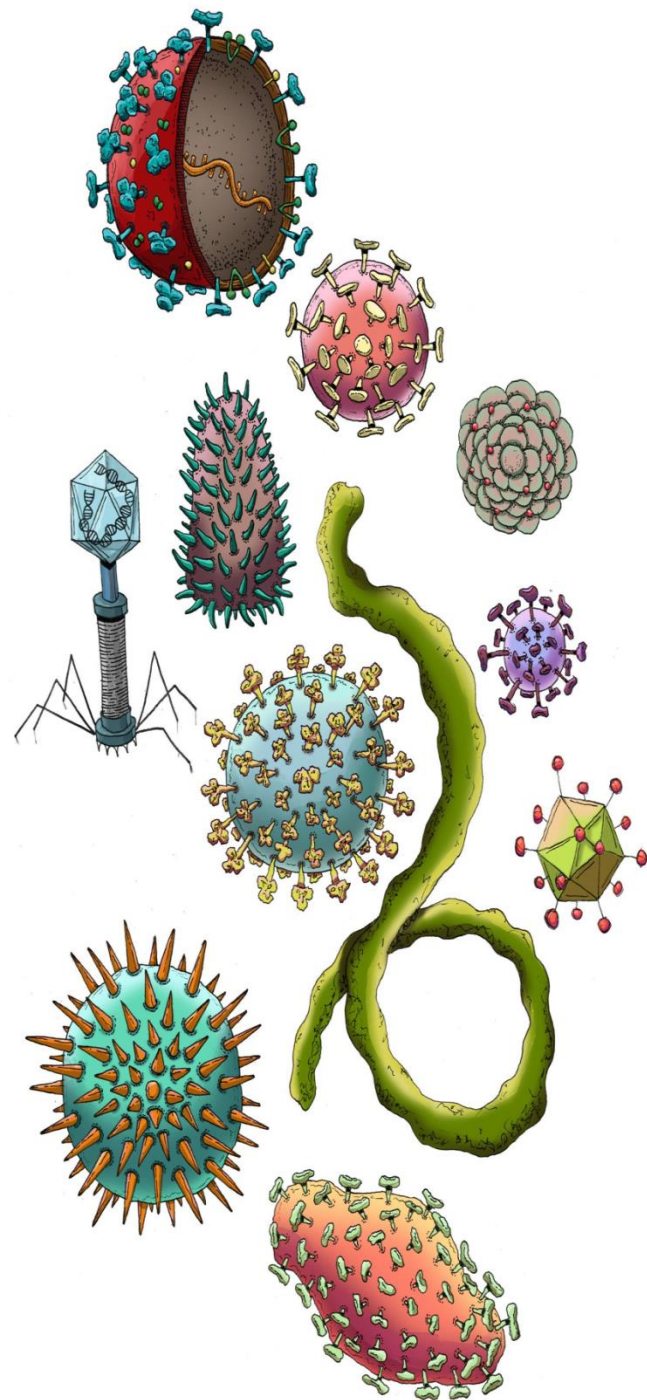


Classification of Animal viruses



Animal Virus Taxonomy

The most important criteria for classification are

- i. virion structure,**
- ii. genome of the virus &**
- iii. mode of replication.**

The order of presentation of virus taxa follows the convention adopted in the 6th report of ICTV, is based on four criteria:

- 1.the nature of the viral genome,
- 2.the strandedness of the viral genome ,
- 3.the facility for reverse transcription and
- 4.the polarity of virus genome.

System of Virus Taxonomy

The Universal System of Virus Taxonomy

Orthography: ("spelling conventions")

The present universal system of virus taxonomy is useful and usable.

It is set arbitrarily at hierarchical levels of :

Order (ends with suffix-*virales*)

Family (-*viridae*)

Subfamily (-*virinae*)

Genus (-*virus*)

Species

Virus Taxonomy

Order: *Virales* e.g., *Mononegavirales*

Families have the suffix **viridae**

e.g., Poxviridae , Herpesviridae

Genera have the suffix **virus**.

Within the Picornaviridae there are 5 genera:

enterovirus (alimentary tract) **species** e.g. poliovirus 1, 2, 3

cardiovirus (neurotropic) species e.g. mengovirus

rhinovirus (nasopharyngeal region) species e.g. Rhinovirus 1a

apthovirus (cloven footed animals) species e.g. FMDV-C

hepatovirus (liver) species e.g. Hepatitis A virus

VIRUS CLASSIFICATION

1 . Viruses

1.1 **DNA viruses**

2.1.1 Group I - dsDNA viruses (double stranded DNA)

2.1.2 Group II - ssDNA viruses (single stranded DNA)

1.2 **RNA viruses**

2.2.1 Group III - dsRNA viruses (double stranded RNA)

2.2.2 Group IV - (+)ssRNA viruses (positive single stranded RNA or mRNA like)

2.2.3 Group V - (-)ssRNA viruses (negative single-stranded RNA)

1.3 **DNA and RNA Reverse Transcribing viruses**

2.3.1 Group VI - ssRNA-RT viruses (single stranded RNA)

2.3.2 Group VII - dsDNA-RT viruses (double stranded DNA)

2. Subviral agents

2.1 Viroids

2.2 Satellites

2.3 Prions

Classification by genome type

DNA viruses

Group I - dsDNA viruses (double stranded DNA)

Order Caudovirales (tailed bacteriophages).

- Family Myoviridae - e.g. Enterobacteria phage T4
- Family Podoviridae
- Family Siphoviridae - e.g. Enterobacteria phage λ

Unassigned

- Family Adenoviridae
- Family Asfiviridae
- Family Herpesviridae - e.g. Human herpesviruses
- Family Iridoviridae
- Family Papillomaviridae
- Family Polyomaviridae - e.g. Simian virus 40
- Family Poxviridae - e.g. Cowpox virus, Variola virus (smallpox)
- Unassigned genera
Mimivirus; type species: Acanthamoeba polyphaga mimivirus

Group II - ssDNA viruses (single stranded DNA)

Unassigned bacteriophages

- Family Inoviridae
- Family Microviridae

Unassigned viruses

- Family Circoviridae
- Family Parvoviridae - e.g. Parvovirus B19 (most depend on coinfection with adenoviruses for growth)
- Unassigned genera
Anellovirus; type species: Torque teno virus

RNA viruses

Group III - dsRNA viruses (double stranded RNA)

Family *Birnaviridae*

Family *Reoviridae* - e.g *Rotavirus*

Group IV - (+)ssRNA viruses (positive single stranded RNA or mRNA like)

Order Nidovirales ("Nested" Viruses)

- Family Arteriviridae
- Family Coronaviridae - e.g. Coronavirus

Unassigned

- Family Astroviridae
- Family Caliciviridae - e.g. Norwalk virus
- Family Flaviviridae - e.g. Yellow fever virus, West Nile virus,
Hepatitis C virus
- Family Picornaviridae - e.g. Poliovirus, Rhinovirus, Hepatitis A virus
- Family Togaviridae - e.g. Rubella virus

Group V - (-)ssRNA viruses (negative single-stranded RNA)

- Order Mononegavirales (non-segmented negative stranded viruses)
 - Family Bornaviridae - Borna disease virus
 - Family Filoviridae - Ebola viruses, Marburg virus
 - Family Paramyxoviridae - e.g. Measles virus, Mumps virus
 - Family Rhabdoviridae - e.g. Rabies virus
- Segmented negative stranded viruses
 - Family Arenaviridae
 - Family Bunyaviridae - e.g. Hantavirus
 - Family Orthomyxoviridae - Influenza viruses
 - Unassigned genera:
 - Genus Deltavirus; type species: Hepatitis delta virus

DNA and RNA Reverse Transcribing viruses

Group VI - ssRNA-RT viruses (single stranded RNA)

- Family Retroviridae - Retroviruses, e.g. HIV 1

Group VII - dsDNA-RT viruses (double stranded DNA)

- Family Hepadnaviridae - e.g. Hepatitis B virus

Subviral agents

The following agents are smaller than viruses but have some of their properties.

Viroids

- Family *Pospiviroidae*
 - Genus *Pospiviroid*; type species: *Potato spindle tuber viroid*
 - Genus *Hostuviroid*; type species: *Hop stunt viroid*
 - Genus *Cocadviroid*; type species: *Coconut cadang-cadang viroid*
 - Genus *Apscaviroid*; type species: *Apple scar skin viroid*
 - Genus *Coleviroid*; type species: *Coleus blumei viroid 1*
- Family *Avsunviroidae*
 - Genus *Avsunviroid*; type species: *Avocado sunblotch viroid*
 - Genus *Pelamoviroid*; type species: *Peach latent mosaic viroid*

Satellites

- Satellite viruses
 - Single-stranded RNA satellite viruses
 - Subgroup 1: *Chronic bee-paralysis satellite virus*
 - Subgroup 2: *Tobacco necrosis satellite virus*
- Satellite nucleic acids
 - Single-stranded satellite DNAs
 - Double-stranded satellite RNAs
 - Single-stranded satellite RNAs
 - Subgroup 1: Large satellite RNAs
 - Subgroup 2: Small linear satellite RNAs
 - Subgroup 3: Circular satellite RNAs

Prions

- Fungal prions
- Mammalian prions

TERMINOLOGY

Viroids: Smallest known nucleic acid containing infectious agents, consisting of a small circular RNA molecule only of 300-400 nucleotides in size.

Satellites: A Satellite is a subviral agent composed of nucleic acid that depends on the co-infection of a host cell with a helper or, master virus for their multiplication.

Prions: Short for **p**roteinaceous **i**nfectious particle (**-on** by analogy to virion) — is an infectious agent composed only of protein. Prions cause a number of diseases in a variety of mammals, including BSE / "mad cow disease" in cattle and CJD in humans.

Any Questions



THANKS

