9.3A: The International Committee on Taxonomy of Viruses

The International Committee on Taxonomy of Viruses (ICTV) establishes guidelines to maintain viral family uniformity.

Learning Objectives

• Describe the purpose and objectives of the International Committee on Taxonomy of Viruses

Key Points

• Only a small part of the total diversity of viruses has been studied. Analyses of samples from humans found that about 20% of the virus sequences recovered have not been seen before.

• A large majority of sequences of viral samples from the environment, such as from seawater and ocean sediments, are completely novel.

• The general taxonomic structure is as follows: Order (-virales); Family (-viridae); Subfamily (-virinae); Genus (-virus); Species (-virus).

Key Terms

• taxonomy: the academic discipline of defining groups of biological organisms on the basis of shared characteristics and giving names to those groups. Each group is given a rank and groups of a given rank can be aggregated to form a super group of higher rank and thus create a hierarchical classification.
The International Committee on Taxonomy of Viruses (ICTV) is a committee which authorizes and organizes the taxonomic classification of viruses. They have developed a universal taxonomic scheme for viruses and aim to describe all the viruses of living organisms. Members of the committee are considered to be world experts on viruses. The committee formed from and is governed by the Virology Division of the International Union of Microbiological Societies. Detailed work such as delimiting the boundaries of species within a family is typically done by study groups, which consist of experts in the families. The committee also operates an authoritative database (ICTVdB) containing taxonomic information for 1,950 virus species, as of 2005. It is open to the public and is searchable by several different means.

The official objectives of the ICTV are:

1. To develop an internationally agreed upon taxonomy for viruses.
2. To develop internationally agreed upon names for virus taxa, including species and subviral agents.
3. To communicate taxonomic decisions to all users of virus names, in particular the international community of virologists, by publications and via the Internet.
4. To maintain an index of virus names.
5. To maintain an ICTV database on the Internet, that records the data that characterize each named viral taxon, together with the common names of each taxon in all major languages.

Proposals for new names, name changes, and the establishment and taxonomic placement of taxa are handled by the Executive Committee of the ICTV in the form of proposals. All relevant ICTV subcommittees and study groups are consulted prior to a decision being made. The name of a taxon has no status until it has been approved by ICTV, and names will only be accepted if they are linked to approved hierarchical taxa. If no suitable name is proposed for a taxon, the taxon may be approved and the name be left undecided until the adoption of an acceptable international name, when one is proposed to and accepted by ICTV. Names must not convey a meaning for the taxon which would seem to either exclude viruses which are rightfully members of that taxa, exclude members which might one day belong to that taxa, or include viruses which are members of different taxa.