

March 2020



Part 1: TITLE, AUTHORS, APPROVALS, etc.

Code assigned:	2020.005G
Short title: Expand, amend, and emend the International Code of Virus Classification and Nomenclature (ICVCN; “the Code”) and the Statutes to clearly define the remit of the ICTV	

Author(s) and email address(es)

Kuhn JH, Dolja VV, Krupovic M, Adriaenssens EM, Di Serio F, Dutilh BE, Flores R, Harrach B, Mushegian A, Owens B, Randles J, Rubino L, Sabanadzovic S, Simmonds P, Varsani A, Zerbini M, Koonin EV	kuhnjens@mail.nih.gov; doljav@oregonstate.edu; krupovic@pasteur.fr; Evelien.Adriaenssens@quadram.ac.uk; francesco.diserio@ips.cnr.it; bedutilh@gmail.com; rflores@ibmcp.upv.es; balazs.harrach@gmail.com; mushegian2@gmail.com; owensj301@hotmail.com; john.randles@adelaide.edu.au; luisa.rubino@cnr.it; SSabanadzovic@entomology.msstate.edu; peter.simmonds@ndm.ox.ac.uk; Arvind.Varsani@asu.edu; zerbini@ufv.br; koonin@ncbi.nlm.nih.gov
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Corresponding authors

Kuhn JH, Koonin EV

List the ICTV Study Group(s) that have seen this proposal

This TaxoProp was directly submitted to the ICTV President; F Di Serio, R Flores, B Owens, and J Randles weighed in on behalf of the ICTV <i>Avsunviroidae</i> and <i>Pospiviroidae</i> Study Group; the ICTV <i>Polydnaviridae</i> Study Group was contacted but no input was received by the time of initial proposal submission.

ICTV study group comments and response of proposer

None.

Submission dates

Date first submitted to ICTV President	July 31, 2020
Date of this revision (if different to above)	December 6, 2020

ICTV-EC comments and response of the proposer

The TaxoProp was well-received, with the invertebrate virus expert of the ICTV Executive Committee confirming that “polydnaviruses” have long been considered non-viral mobile genetic elements by many. No further comments were received by the ICTV <i>Polydnaviridae</i> Study Group until its term ended in October. The following revisions of the TaxoProp were requested by the EC:

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- the “peri-“ and “meta-“ prefixes used in the original proposal for partitioning the virosphere into subspheres were seen as potentially useful but there was consensus that they should not be codified; and
- in the sentence “Viruses *sensu stricto* are defined operationally by the ICTV as a type of MGEs that encode at least one protein that is a major component of the virion encasing the nucleic acid of the respective MGE and therefore the gene encoding the major virion protein itself; or MGEs that are evolutionary derivatives of such major virion protein-encoding entities”, “clear line of evolutionary descent” should be emphasized in context of “evolutionary derivatives”.

Additionally, the EC recognized that this proposal is a first step towards an improved ICTV scope definition and that future TaxoProps may be necessary to further refine the proposed ICVCN changes.

We therefore revised this TaxoProp as follows:

- we removed the “peri-“ and “meta-“ prefixes from the Code text proposal and rephrased paragraphs that contained them; and
- We changed the virus definition to “...or MGEs that are clearly demonstrable to be members of a line of evolutionary descent of such major virion protein-encoding entities”.

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Part 2: **NON-TAXONOMIC PROPOSAL**

In reviewing the ICVCN, we identified the following concern:

ICVCN Rule 1.2 states that the objectives of the ICTV are

“(i) to develop an internationally agreed taxonomy for viruses; (ii) to develop internationally agreed names for virus taxa; (iii) to communicate taxonomic decisions to the international community of virologists; (iv) to maintain an Index of agreed names of virus taxa.”

However, Rule 1.2 is not followed by a definition of what the ICTV considers to be “viruses” and hence the remit of the ICTV is unclear. We propose that the ICTV adopt an *operational* virus definition. Because the boundaries between different types of mobile genetic elements (MGEs) are fuzzy, we argue that any *operational* virus definition should capture most of the currently classified “viruses” to prevent major disruption of the field of virology without being so inclusive as to force the ICTV to immediately classify the large numbers of diverse MGEs currently not viewed as “viruses”.

We propose that the following operational definitions be inserted as new or extended Rules in the ICVCN’s “Scope of classification” section:

“The ICTV is responsible for the classification of members of the virosphere. Members of the virosphere include selfish genetic elements, which are replicons that are subject to selective pressures mostly independent of other replicons and hence have distinct evolutionary histories but depend on cellular hosts for energy and chemical building blocks. The relationship between selfish genetic elements and hosts spans the spectrum from mutualism to aggressive parasitism. Typically, MGEs are selfish genetic elements that move between hosts and/or change their integration sites in host genomes. MGEs are distributed among viruses *sensu stricto* and the remaining replicator space of the virosphere (virus-like entities, such as satellite nucleic acids and viroids, and virus-derived elements, such as viriforms).

Comment: The virosphere and its potential subdivisions reflect conceptual sequence spaces with fuzzy boundaries that are not necessarily evolutionarily defined.”

“Viruses *sensu stricto* are defined operationally by the ICTV as a type of MGEs that encode at least one protein that is a major component of the virion encasing the nucleic acid of the respective MGE and therefore the gene encoding the major virion protein itself; or MGEs that are clearly demonstrable to be members of a line of evolutionary descent of such major virion protein-encoding entities. Any monophyletic group of MGEs that originates from a virion protein-encoding ancestor should be classified as a group of viruses.

Comment: Long terminal repeat retrotransposons, phages, polintons, satellite viruses, and virophages, as well as capsid-less descendants of RNA viruses, such as agents currently classified in the families *Botourmiaviridae*, *Mitoviridae*, or *Namaviridae*, are considered to be viruses *sensu stricto* in classification and nomenclature.”

This definition will have an overall minimal impact on the current scope of ICTV classification because most of the established taxa of viruses fit the definition and can be maintained. However, this definition excludes satellite nucleic acids and viroids (already considered, although not explicitly so in the ICVCN, as non-viruses), the taxon *Polydnaviridae*, non-long-terminal repeat retrotransposons, and various other MGEs, such as plasmids and gene transfer agents (GTAs).

The ICTV already classifies satellite nucleic acids and viroids and, via specific taxon suffixes, recognizes both groups of MGEs as distinct from viruses. Thus, the classification of these MGEs appears to be outside of the ICTV remit. Alternatively, the ICTV appears to consider satellite RNAs and viroids to be viruses, in which case they should be classified as such. Due to the fundamental difference between satellite nucleic acids/viroids and what are considered *bona fide* viruses, we propose that the separation of viruses and other MGE, such as satellite

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nucleic acids/viroids, be upheld—and consequently the amendment of the ICVCN and Statutes accordingly.

We propose that satellite nucleic acids and viroids be considered part of the “virosphere” but not part of “viruses”, as they do not match the proposed virus definition. For *operational* (and not necessarily phylogenetic or evolutionary) purposes we therefore propose the use of the following two new terms for subdomains of the virosphere *sensu lato*:

- i) “orthovirosphere”: the part of the virosphere represented by MGEs considered to be “viruses” per the new operational definition; and
- ii) “perivirosphere”: the part of the virosphere represented by MGEs that functionally resemble viruses but do not fulfill the operational definition of viruses (e.g., satellite nucleic acids, viroids, prokaryotic gene transfer agents [GTAs], and MGEs currently classified in taxon *Polydnaviridae*).

Consequently, we propose the changing of ICVCN Rule 1.2 and the respective section in the statutes to expand rules currently applied to “viruses” and “virus taxa” to all members of the virosphere, and to extend that change to the remainder of the ICVCN.

We also propose the expansion of the ICVCN by adding operational definitions of the already ICVCN-included satellite nucleic acids and viroids and the new groups of viriforms:

“Viroids are defined operationally by the ICTV as a type of MGEs that are uncoated, small, circular, single-stranded RNAs that do not encode proteins and do not depend on viruses for transmission, and that replicate autonomously through an RNA-RNA rolling-circle mechanism mediated by host enzymes and, in some cases, by cis-acting hammerhead ribozymes; or MGEs that are derived from a viroid in the course of evolution. Any monophyletic group of MGEs that originates from a viroid ancestor should be classified as a group of viroids.”

“Satellite nucleic acids are defined operationally by the ICTV as a type of non-viroid MGEs, which are dependent on viruses for replication and transmission; or MGEs that are derived from such entities in the course of evolution. Any monophyletic group of MGEs that originates from a satellite nucleic acid ancestor should be classified as a group of satellite nucleic acids.”

“Viriforms are defined operationally by the ICTV as a type of virus-derived MGEs that have been exapted by their organismal (cellular) hosts to fulfill functions important for the host life cycle; or MGEs that are derived from such entities in the course of evolution. Any monophyletic group of MGEs that originates from a viriform ancestor should be classified as a group of viriforms.

Comment: Gene transfer agents (GTAs) and the MGEs previously classified in the family *Polydnaviridae* are considered to be viriforms in classification and nomenclature.”

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APPENDIX 1: Proposed Changes to the ICVCN

ICTV Code

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The International Code of Virus Classification and Nomenclature (ICVCN)

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1. Statutory Basis for the International Committee on Taxonomy of Viruses (ICTV)

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1.1

The International Committee on Taxonomy of Viruses (ICTV) is a committee of the Virology Division of the International Union of Microbiological Societies. ICTV activities are governed by Statutes agreed with the Virology Division.

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1.2

The Statutes define the objectives of the ICTV. These are:

(i) to develop an internationally agreed taxonomy for viruses and other mobile genetic elements (MGEs) that are part of the virosphere (hereafter termed: "viruses"); (ii) to develop internationally agreed names for virus taxa; (iii) to communicate taxonomic decisions to the international community of virologists; (iv) to maintain an Index of agreed names of virus taxa.

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Comment: The Index is currently maintained online as the Master Species List, accessible at

<http://ictv.global/msl>

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1.3

The Statutes also state that classification and nomenclature will be subject to Rules set out in an International Code.

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Comment: Ratified taxonomic changes will be published in Virology Division News Section in Archives of Virology, and in subsequent ICTV Reports.

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2. Principles of Nomenclature

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2.1

The essential principles of virus nomenclature are:

(i) to aim for stability; (ii) to avoid or reject the use of names which might cause error or confusion; (iii) to avoid the unnecessary creation of names.

2.2

Nomenclature of virus taxa is independent of other biological nomenclatures. Virus taxon nomenclature is recognized as an exception in the proposed International Code of Bionomenclature (BioCode).

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2.3

The primary purpose of naming a taxon is to supply a means of referring to the taxon, rather than to indicate the characters or history of the taxon.

Comment: Taxon names are labels and do not need to be changed in case new data seemingly contradict a historical name.

2.4

The name of a taxon has no official status until it has been approved by the ICTV.

Comment: See section 3.7.

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3. Rules of Classification and Nomenclature

I - General Rules

The universal scheme

3.1

Virus classification and **taxon** nomenclature shall be international and shall be universally applied to all **classifiable members of the virosphere**.

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3.2

The universal virus classification system shall employ the hierarchical levels of realm, subrealm, kingdom, subkingdom, phylum, subphylum, class, subclass, order, suborder, family, subfamily, genus, subgenus and species.

Comment: It is not obligatory to use all levels of the taxonomic hierarchy. The primary classification is of viruses **and other MGEs** into species that are assigned to genera. When justified, it is customary to assign lower-level taxa within the applicable higher-**rank** taxa.

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An example of the classification of a positive-sense RNA virus is: **gill-associated virus (GAV)**; species *Gill-associated virus*; subgenus *Tipravirus*; genus *Okavirus*; subfamily *Okanivirinae*; family *Roniviridae*; suborder **Ronidovirineae**; order *Nidovirales*; class *Pisoniviricetes*; phylum *Pisuviricota*; kingdom *Orthornavirae*; realm *Riboviria*.

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Scope of the classification

3.3

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The ICTV is responsible for the classification of members of the virosphere. Members of the virosphere include selfish genetic elements, which are replicons that are subject to selective pressures mostly independent of other replicons and hence have distinct evolutionary histories but depend on cellular hosts for energy and chemical building blocks. The relationship between selfish genetic elements and hosts spans the spectrum from mutualism to aggressive parasitism. Typically, MGEs are selfish genetic elements that move between hosts and/or change their integration sites in host genomes. MGEs are distributed among viruses *sensu stricto* and the remaining replicator space of the virosphere (virus-like entities, such as satellite nucleic acids and viroids, and virus-derived elements, such as viriforms).

Comment: The virosphere and its potential subdivisions reflect conceptual sequence spaces with fuzzy boundaries that are not necessarily evolutionarily defined.

3.3.1

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Viruses *sensu stricto* are defined operationally by the ICTV as a type of MGEs that encode at least one protein that is a major component of the virion encasing the nucleic acid of the respective MGE and therefore the gene encoding the major virion protein itself; or MGEs that are clearly demonstrable to be members of a line of evolutionary descent of such major virion protein-encoding entities. Any monophyletic group of MGEs that originates from a virion protein-encoding ancestor should be classified as a group of viruses.

Comment: Long terminal repeat retrotransposons, phages, polintons, satellite viruses, and virophages, as well as capsid-less descendants of RNA viruses, such as agents currently classified in the families *Botourmiaviridae*, *Mitoviridae*, or *Narnaviridae*, are considered to be viruses *sensu stricto* in classification and nomenclature.

3.3.2

Viroids are defined operationally by the ICTV as a type of MGEs that are uncoated, small, circular, single-stranded RNAs that do not encode proteins and do not depend on viruses for transmission, and that replicate autonomously through an RNA-RNA rolling-circle mechanism mediated by host enzymes and, in some cases, by cis-acting hammerhead ribozymes; or MGEs that are derived from a viroid in the course of evolution. Any monophyletic group of MGEs that originates from a viroid ancestor should be classified as a group of viroids.

3.3.3

Satellite nucleic acids are defined operationally by the ICTV as a type of non-viroid MGEs, which are dependent on viruses for replication and transmission; or MGEs that are derived from such entities in the course of evolution. Any monophyletic group of MGEs that originates from a satellite nucleic acid ancestor should be classified as a group of satellite nucleic acids.

3.3.4

Viriforms are defined operationally by the ICTV as a type of virus-derived MGEs that have been exapted by their organismal (cellular) hosts to fulfill functions important for the host life cycle; or MGEs that are derived from such entities in the course of evolution. Any monophyletic group of MGEs that originates from a viriform ancestor should be classified as a group of viriforms.

Comment: Gene transfer agents (GTAs) and the MGEs previously classified in the family *Polydnaviridae* are considered to be viriforms in classification and nomenclature.

3.4

The ICTV is not responsible for classification and nomenclature of virus taxa below the rank of species. The classification and naming of serotypes, genotypes, strains, variants and isolates of virus species is the responsibility of acknowledged international specialist groups.

Comment: A variety of subspecific grouping may be identified within the members of a single virus species. These may be described as viruses with alternative names (e.g. blackeye cowpea mosaic virus and peanut stripe virus, which are both classified in the species *Bean common mosaic virus*, genus *Potyvirus*, family *Potyviridae*), or as serotypes, genotypes, clades, strains, variants, isolates, etc. Naming of such entities is not the responsibility of the ICTV but of international specialty groups. It is the responsibility of ICTV Study Groups to consider how these entities may best be classified into species.

3.5

Artificially created and laboratory hybrid MGEs will not be given taxonomic consideration. Their classification will be the responsibility of acknowledged international specialist groups.

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Limitations

3.6

Taxa will be established only when representative member MGEs are sufficiently well characterized and described in the published literature so as to allow them to be identified unambiguously and the taxon to be distinguished from other similar taxa.

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3.7

Names will only be accepted if they are linked to taxa at the hierarchical levels described in Rule 3.2 and which have been approved by the ICTV.

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II - Rules about naming Taxa

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Status of Names

3.8

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Names proposed for taxa are "valid names" if they conform to the Rules set out in the Code and they pertain to established taxa. Valid names are "accepted names" if they are recorded as approved International Names in the most recent ICTV Report or have subsequently become "accepted names" by an ICTV vote of approval for a taxonomic proposal.

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Comment: A valid taxon name is one that has been published, one that is associated with descriptive material, and one that conforms to the Rules in the Code. Accepted names will be kept in an "Index" by the ICTV.

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3.9

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Existing names of taxa shall be retained whenever feasible.

Comment: A stable nomenclature is one of the principal aims of taxonomy and therefore changes to names that have been accepted will only be considered if the accepted name conflicts with the Rules or if a change is necessary to remove ambiguities or confusion.

3.10

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The Rule of priority in naming taxa shall not be observed.

Comment: The earlier of candidate names for a taxon may be chosen as a convenience to virologists, but the Rule ensures that it is not possible to invalidate a name in current use by claiming priority for an older name that has been superseded.

3.11

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A person's name may be used when devising a name for new taxon. If the person is alive at the time of the proposal, the person's written consent for use of his/her/their name must be provided together with the official taxonomic proposal. Whether the use of a person's name for taxon naming is appropriate will be judged by the responsible ICTV Study Group, the respective ICTV Subcommittee, and the ICTV Executive Committee and approved or disapproved following

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established taxonomic proposal procedures. Furthermore, a) An individual may not propose his/her/their own name as the basis for any new taxon name; and, b) A taxon may not be named wholly or in part after any current member of an ICTV Study Group or Committee.

3.12

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Names for taxa shall be easy to use and easy to remember. Euphonious names are preferred.

Comment: In general, short names are desirable and the number of syllables should be kept to a minimum.

3.13

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Ligatures, diacritical marks, punctuation marks (excluding hyphens), subscripts, superscripts, oblique bars and non-Latin letters (i.e. those not included in the ISO basic Latin alphabet) may not be used in taxon names. Numbers and hyphens are allowed but hyphens should not be used when attaching numbers or letters to the end of a series of species names and should never be used in names of genera, subfamilies, families or orders.

Comment: The Rule is intended to make text unambiguous and easy to sort electronically; its application should often make names more pronounceable, in agreement with Rule 3.11.

3.14

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New names shall not duplicate approved names. New names shall be chosen such that they are not closely similar to names that are in use currently or have been in use in the recent past.

Comment: The name selected for a new taxon should not sound indistinguishable from the name of another taxon at any rank or from any taxon. For example, the existence of the genus *Iridovirus* means that forms of new name such as "irodovirus" or "iridivirus" are discouraged as they are too easily confused with an approved name. Confusion can also be between species and genus names as both end in "-virus". Thus, for example, a genus typified by the imaginary species *Omega virus* should not be named *Omegavirus because* species and genus would then be too readily confused.

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3.15

Sigla may be accepted as names of taxa, provided that they are meaningful to virologists in the field, normally as represented by study groups.

Comment: Sigla are names comprising letters and/or letter combinations taken from words in a compound term. The name of the genus *Comovirus* has the sigla stem "Co-" from cowpea and "-mo-" from mosaic; the name of the family *Reoviridae* has the sigla stem "R" from "Respiratory," "e" from "enteric" and "o" from "orphan".

Decision making

3.16

In the event of more than one candidate name being proposed, the relevant Subcommittee will make a recommendation to the Executive Committee of the ICTV, which will then decide among the candidates as to which to recommend to ICTV for acceptance.

Comment: When there is more than one candidate name for the same taxon, the choice of name to be approved will usually be based on the recommendations of a particular Study Group working on behalf of the ICTV. The Study Group will be expected to consult widely, so as to ensure the acceptability of names, subject to the Rules in the Code. The policy of the ICTV is that, as far as is possible, decisions on questions of taxonomy and nomenclature should reflect the majority view of the appropriate virologic constituency.

3.17

New names shall be selected such that they, or parts of them, do not convey a meaning for the taxon which would either (1) seem to exclude *MGEs that* lack the character described by the name but which are members of the taxon being named, or (2) seem to exclude *MGEs that* are as yet undescribed but which might belong to the taxon being named, or (3) appear to include within the taxon *MGEs that* are members of different taxa.

3.18

New names shall be chosen with due regard to national and/or local sensitivities. When names are universally used by virologists in published work, these or derivatives shall be the preferred basis for creating names, irrespective of national origin.

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All relevant ICTV Subcommittees and Study Groups will be consulted prior to a decision being taken on any taxonomic proposal submitted to the Executive Committee of the ICTV.

Comment: Proposals concerning a family containing genera whose member viruses infect diverse types of host (e.g. plants and vertebrates, fungi and plants, and so on) must be considered by the Subcommittees responsible for viruses of each host type (i.e. Plant viruses, Vertebrate viruses, and so on). For example, taxonomic proposals concerned with the family *Partitiviridae* would be considered by the Fungal Virus Subcommittee and one of its Study Groups but because some genera in the family contain viruses of plants, proposals affecting the family would also be considered by the Plant Virus Subcommittee.

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III - Rules about Species

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Definition of an MGE species

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Species shall be created in accordance with the following definition:

"A species is the lowest taxonomic level in the hierarchy approved by the ICTV. A species is a monophyletic group of MGEs whose properties can be distinguished from those of other species by multiple criteria."

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Comment: The criteria by which different species within a genus are distinguished shall be established by the appropriate Study Group. These criteria may include, but are not limited to, natural and experimental host range, cell and tissue tropism, pathogenicity, vector specificity, antigenicity, and the degree of relatedness of their genomes or genes. The criteria used should be published in the relevant section of the ICTV Report and reviewed periodically by the appropriate Study Group.

Construction of a name

3.21

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A species name shall consist of as few words as practicable but be distinct from names of other taxa. Species names shall not consist only of a host name and the word "virus".

Comment: Species names normally comprise more than one word (e.g. *Bunyamwera orthobunyavirus*).

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3.22

A species name must provide an appropriately unambiguous identification of the species.

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Comment: Species names should be distinctive. They should not be in a form that could be easily confused with the names of other taxa.

IV - Rules about Ranks other than Species

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3.23

Every individual MGE is a physical entity and treated as belonging to a number of taxa of hierarchical ranks, some of which may remain undefined.

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V - Rules about Viruses

3.24

Other than species, the ranks currently in use in virus taxonomy, from most to least diverse, are realm, subrealm, kingdom, subkingdom, phylum, subphylum, class, subclass, order, suborder, family, subfamily, genus and subgenus. The names for these ranks shall be single words ending with the suffixes “-viria”, “-vira”, “-vira^e”, “-virites”, “-viricota”, “-viricotina”, “-viricetes”, “-viricetidae”, “-virales”, “-virineae”, “-viridae”, “-virinae”, “-virus” and “-virus”, respectively.

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Comment: No ranks other than those specified in Rule 3.23 are currently approved by ICTV.

3.25

The classification of a virus at the species and genus ranks is mandatory. Classification may also encompass any further number of taxa at higher hierarchical ranks

3.26

Approval of a new virus genus must be accompanied by the approval of a type species.

V - Rules about **Virus-like Mobile Genetic Elements**

3.27

Rules concerned with the classification of viruses shall also apply to the classification of **virus-like MGEs**.

3.27.1

The formal endings for taxon names of satellite nucleic acids are the suffixes "-*satellitina*" for realms, "-*satellita*" for subrealms, "-*satellitiae*" for kingdoms, "-*satellitites*" for subkingdoms, "-*satellitica*" for phyla, "-*satellitica*" for subphyla, "-*satellitices*" for classes, "-*satelliticeida*" for subclasses, "-*satellitales*" for orders, "-*satellitinae*" for suborders, "-*satellitidae*" for families, "-*satellitinae*" for subfamilies, and "-*satellite*" for genera and subgenera.

Comment: For example, the species *Ageratum yellow vein betasatellite* is included in the genus *Betasatellite* of the family *Tolecosatellitidae*.

3.27.2

The formal endings for taxon names of viroids are the suffixes "-*viroidia*" for realms, "-*viroida*" for subrealms, "-*viroidiae*" for kingdoms, "-*viroidites*" for subkingdoms, "-*viroidicota*" for phyla, "-*viroidicotina*" for subphyla, "-*viroidices*" for classes, "-*viroidiceida*" for subclasses, "-*viroidales*" for orders, "-*viroidinae*" for suborders, "-*viroidae*" for families, "-*viroidinae*" for subfamilies, and "-*viroid*" for genera and subgenera.

Comment: For example, the species *Potato spindle tuber viroid* is included in the genus *Pospiviroid* of the family *Pospiviroidae*.

Paraviral mobile genetic elements: viriforms

3.27.3

The formal endings for taxon names of viriforms are the suffixes "-*viriformoidia*" for realms, "-*viriformoida*" for subrealms, "-*viriformiae*" for kingdoms, "-*viriformites*" for subkingdoms, "-*viriformicota*" for phyla, "-*viriformicotina*" for subphyla, "-*viriformices*" for classes,

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- Comment: For example, the species *Potato spindle tuber viroid* is classified in the genus *Pospiviroid*, and the family *Pospiviroidae*.
- 3.28
- The formal endings for taxa
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"-viriformicetidea" for subclasses, *"-viriformales"* for orders, *"-viriformineae"* for suborders, *"-viriformae"* for families, *"-viriforminae"* for subfamilies, and *"-viriform"* for genera and subgenera.

VI - Rules for Orthography

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In formal taxonomic usage, the accepted names of virus, viroid and satellite realms, subrealms, kingdoms, subkingdoms, phyla, subphyla, classes, subclasses, orders, suborders, families, subfamilies, genera and subgenera are printed in italics and the first letters of the names are capitalized.

Comment: See Rule 3.7 for the definition of an "accepted" name.

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Species names are printed in italics and have the first letter of the first word capitalized. Other words are not capitalized unless they are proper nouns, or parts of proper nouns.

Comment: The species names *Tobacco mosaic virus* and *Murray Valley encephalitis virus* are in the correct form and typographical style. Examples of incorrect **species name** forms are *Ustilago maydis virus H* (not italicized), *Murray valley encephalitis virus* (Valley is a proper noun) or tobacco mosaic virus (not capitalized or italicized).

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When taxon names are used informally, italics and capital initial letters are not needed. This applies at all taxonomic levels; examples are: (1) "the tobacco mosaic virus polymerase", when describing the properties of the polymerase in members of the species *Tobacco mosaic virus*, and (2) "three pestiviruses" to describe viruses that are members of the genus *Pestivirus*.

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APPENDIX 2: Proposed changes to the Statutes

The Statutes of the ICTV

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Complete ICTV Statutes (April 2020)

Article 1

Official name

1.1 The official name is the International Committee on Taxonomy of Viruses (ICTV).

Article 2

Status

2.1 The ICTV is a Committee of the Virology Division of the International Union of ~~Microbiological~~ Societies (IUMS).

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Article 3

Objectives

The objectives of the ICTV shall be for public benefit and in particular to advance knowledge and education in ~~virus~~ taxonomy. They are:

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3.1 to develop an internationally agreed taxonomy for viruses, ~~and related mobile genetic elements (hereafter termed: "viruses")~~;

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3.2 to establish internationally agreed names for virus taxa;

3.3 to communicate the decisions reached concerning the classification of viruses and nomenclature of virus taxa to virologists by holding meetings and publishing reports; and

3.4 to maintain an official index of approved names for virus taxa.

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Article 4

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Membership

4.1 The membership of the ICTV shall be:

1. Executive Committee Members;
2. National Members;
3. Life Members; and
4. Members of the Virus Subcommittees of the Executive Committee.

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4.2 The Executive Committee shall have 23 Members representing the diversity of virologists in expertise, geography and demography. Membership shall be:

1. Officers, namely President, Vice-President and Secretaries;
2. Virus Subcommittee Chairs; and
3. Elected Members.

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Virus Subcommittee Chairs shall be given remits to ensure that viruses, of all host and genome types are included.

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4.3 The procedures for filling positions on the ICTV, the Executive Committee and the Virus Subcommittees shall be as follows.

1. Recommendations for Officers and Elected Members may be made by any virologist to the Nominations Subcommittee of the Executive Committee no earlier than 180 days and no later than 60 days before the ICTV Plenary Meeting. The Nominations Subcommittee shall comprise the President (Chair), Vice-President, Secretaries and Virus Subcommittee Chairs, and shall require a quorum consisting of the President or Vice-President and 6 other Members. All recommendations shall be accompanied by a brief biographical sketch and an indication that the person is willing to stand for election. The Nominations Subcommittee shall agree on a list of nominees from among those recommended and may also add its own nominees. This list shall be published on the ICTV web site. The results of a ballot of the full ICTV membership organized by the Officers, which may include run-off elections, shall be published on the ICTV web site no later than 1 week before the same Plenary Meeting.

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2. President and Vice-President shall be elected by a vote of the full ICTV membership. They shall be elected for a term of 3 years and may not serve for more than 2 consecutive terms.
3. Three Secretaries shall be elected by a vote of the full ICTV membership. They shall be elected for a term of 6 years and may be re-elected.
4. Elected Members shall be elected by a vote of the full ICTV membership. They shall be elected for a term of 3 years and may not serve for more than 2 consecutive terms.
5. Virus Subcommittee Chairs shall be elected by a vote of the Executive Committee, normally at a meeting preceding the Plenary Meeting. Nominations shall be made to the President and shall be accompanied by an indication that the person is willing to stand for election. Virus Subcommittee Chairs shall be elected for 3 years and may not serve for more than 2 consecutive terms.
6. The total number of Elected Members and Virus Subcommittee Chairs shall be 18, with the number in each category determined by the Executive Committee.
7. No person shall serve on the Executive Committee for more than 4 consecutive complete terms, other than as Officers subject to the limitations set out in Articles 4.3.2 and 4.3.3.
8. The Executive Committee shall fill positions that are vacant because of resignation, inability to serve or a failure in the normal channels of appointment. Such an interim appointment shall end at the following Plenary Meeting, and time served shall not count towards term limits.
9. National Members shall be nominated by Member Societies of the Virology Division of the IUMS. Societies belonging to the IUMS are considered to be Member Societies of the Division if they have Members actively interested in virology. Whenever practicable, each country shall be represented by at least one National Member, and no country shall be represented by more than five National Members. Nominations of virologists as National Members shall not require approval by the ICTV. However, it is the responsibility of a Member Society to inform one of the Secretaries in writing of the selection of their National Member before the Plenary Meeting. National Members shall be appointed for a term of 3 years following the Plenary Meeting. There is no limit to the number of terms that a National Member may serve, but their appointment should be formally reviewed by the appointing National Society every 3 years.
10. Life Members shall be nominated by the Executive Committee, normally in recognition of outstanding services to virus taxonomy. Currently serving Executive Committee Members and virologists within 6 months of their retirement from the Executive Committee shall not be eligible for election. Life Members shall be elected by a vote of the full ICTV membership.

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11. Virologists shall be appointed to Virus Subcommittees by the Virus Subcommittee Chairs and shall not require further approval. These shall include *ex officio* all Study Group Chairs (see Article 4.5).

4.4 The Finance Subcommittee of the Executive Committee shall consist of the Officers and the Treasurer and shall be chaired by the President. The President shall replace any Officer who cannot serve for good reason by another Executive Committee Member. The Treasurer shall be an Executive Committee Member appointed by the Finance Subcommittee to administer any funds that may be allocated to the ICTV by the Virology Division of the IUMS or other sources.

4.5 Virus Subcommittee Chairs shall form Study Groups to examine the classification of particular groups of viruses and the nomenclature of taxa by appointing Study Group Chairs, who shall be Virus Subcommittee Members. Each Study Group Chair shall appoint Study Group Members. Study Group Members, other than those who are Study Group Chairs or ICTV Members in other capacities, shall not be ICTV Members, but their names shall be published on the ICTV web site to recognize their valuable contribution to virus taxonomy. Study Group Chairs and other Study Group Members shall usually be appointed immediately after the Plenary Meeting and shall serve until the following Plenary Meeting, which is normally a period of 3 years. Except for unusual circumstances, the term of office of Study Group Chairs shall be limited to 2 consecutive periods of 3 years.

Article 5

Meetings

5.1 Plenary Meetings of the full ICTV membership shall be held in conjunction with the International Congresses of Virology organized by the IUMS. Executive Committee Meetings shall be held in conjunction with the Congresses as well as at least once between Congresses.

Article 6

Taxonomic Proposals

6.1 Taxonomic proposals may be initiated by an individual ICTV Member, a [Virus](#) Study Group, or a Virus Subcommittee. In addition, any ~~scientist~~ may submit a

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taxonomic proposal or suggestion to the appropriate Virus Subcommittee Chair(s) following the procedures described below.

Proposals shall be sent to the appropriate Virus Subcommittee Chair for consideration by that Virus Subcommittee and the appropriate Study Group(s). Proposals shall also be sent for consideration to all Study Groups and Virus Subcommittees whose interests might be affected by the taxonomic or nomenclatural changes proposed. Taxonomic proposals approved by any Virus Subcommittee, usually in consultation with a Study Group, shall be submitted to the Executive Committee by the Virus Subcommittee Chair for approval. Proposals approved by the Executive Committee shall be published on the ICTV web site and presented for ratification to the full ICTV membership by a ballot organized by the Officers.

Article 7

Voting

7.1 Decisions of the full membership of the ICTV (see Article 4.1) shall be taken by a simple majority of those who are eligible to vote and are either present at a Plenary Meeting or reply to a ballot within 1 month of a proposal being circulated. A quorum shall consist of the President or Vice-President and 18 other Members. No Member may vote more than once on any particular proposal. In the event of a tied vote, the proposal shall not be approved.

7.2 Proposals for changes to taxonomy, nomenclature, the ICTV Code (see Article 8) or the ICTV Statutes shall be voted on in two stages: (1) the Executive Committee shall vote either at a meeting or by a ballot organized by the Officers on whether a proposal shall be presented to the ICTV for ratification as specified by Article 6.1, and (2) the full membership of the ICTV shall decide whether to ratify a proposal either at a Plenary Meeting or by a ballot organized by the Officers. Executive Committee decisions shall be made by a simple majority of Members voting. A quorum shall consist of the President or Vice-President, 1 Secretary and 9 other Executive Committee Members. Changes to the ICTV Statutes shall require the additional approval of the Virology Division of the IUMS (see Statute 11).

7.4 Matters of Executive Committee business not directly concerned with changes to taxonomy, nomenclature, the ICTV Code or the ICTV Statutes may be decided by

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consensus under the President's chairmanship. Any Executive Committee Member may call for a vote on such matters.

Article 8

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The International Code of Virus Classification and Nomenclature (ICVCN; the ICTV Code)

8.1 Classification and nomenclature of viruses shall be subject to rules formalised in the ICTV Code. The ICTV Code and substantive modifications to it are subject to the approval of Executive Committee and the full membership of the ICTV (see Article 7).

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Article 9

Duties of Executive Committee Members

9.1 The duties of the President shall be:

1. to preside at Executive Committee Meetings and Plenary Meetings;
2. with the Secretaries, to prepare the agendas for Executive Committee Meetings and Plenary Meetings;
3. to act as or appoint an editor-in-chief for the ICTV Report; and
4. to act as Virus Subcommittee Chair for proposals of a broad or general nature, or to delegate this duty within the Executive Committee.

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9.2 The duties of the Vice-President shall be:

1. to carry out the duties of the President in the absence of the President; and
2. to attend Executive Committee Meetings and Plenary Meetings.

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9.3 The duties of the Secretaries shall be:

1. to attend Executive Committee Meetings and Plenary Meetings;
2. with the President, to prepare the agendas for Executive Committee Meetings and Plenary Meetings;
3. to prepare minutes of Executive Committee Meetings and Plenary Meetings and ensure their timely publication on the ICTV web site;
4. to keep an up-to-date record of ICTV membership;

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5. to manage the submission and processing of taxonomic proposals; and
6. to maintain the ICTV web site and associated databases providing up-to-date information on taxonomy, activities and membership, and also the ICTV Report.

9.4 The duties of Virus Subcommittee Chairs shall be:

1. to attend Executive Committee Meetings;
2. to appoint Virus Subcommittee Members;
3. to appoint Study Group Chairs;
4. to organize the Virus Subcommittees and Study Groups to study taxonomic problems and bring forward proposals;
5. to present taxonomic proposals to the Executive Committee for voting;
6. to co-ordinate the preparation of updates of the ICTV Report; and
7. to ensure the presentation at the Plenary Meeting of taxonomic changes implemented since the preceding Plenary Meeting.

9.5 The duties of Elected Members shall be:

1. to contribute specialist input to Executive Committee discussions, in particular on subjects unfamiliar to Virus Subcommittee Chairs;
2. when appropriate, at the request of a Virus Subcommittee Chair and with the approval of the Executive Committee, to act as Virus Subcommittee Deputy Chair and assist the Virus Subcommittee Chair in reviewing taxonomic proposals and presenting them to the Executive Committee;
3. to promote ICTV activities in diverse forums; and
4. to take on *ad hoc* tasks as requested by the President.

Article 10

Publications

10.1 Changes to taxonomy, nomenclature, the ICTV Code or the ICTV Statutes shall be published in rapid short form, for example in Virology Division News, and as part of the ICTV Report.

10.2 Whenever feasible, taxonomic information shall be published in database form.

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10.3 No ICTV publication shall bear any indication of sponsorship by a commercial agency or institution connected in any way with a commercial company, unless approved by the Executive Committee on a case-by-case basis.

10.4 Publications shall bear the name of the ICTV only if all the material contained therein has been authorized, prepared or edited by the ICTV or an ICTV Committee or Virus Subcommittee.

10.5 Publications containing translations of ICTV-approved material may only bear the name of the ICTV if they have been approved by the Executive Committee.

Article 11

ICTV Statutes

11.1 The ICTV Statutes, and any subsequent changes to them, shall be approved by votes of the Executive Committee and the full ICTV membership (see Statute 7) and then approved by the Virology Division of the IUMS.

Article 12

Disposition of Funds

12.1 In the event of dissolution of the ICTV, any remaining funds shall be turned over to the Secretary-Treasurer of the Virology Division of the IUMS.

12.2 Any surplus assets or funds must be used for the charitable purposes set out under Article 3 or for purposes that are charitable within the context of Section 505 of the United Kingdom Income and Corporation Taxes Act 1988 (or statutory re-enactment thereof).

Article 13

Legal Seat

13.1 The ICTV shall have its legal seat where the office of the President is located.

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