



INTERNATIONAL COMMITTEE ON TAXONOMY OF VIRUSES (ICTV) WEBINAR I

What we do and how you can access the product of our work

March 21, 2024

Feedback: info@ictv.global



TODAY'S AGENDA

- Welcome (Elliot Lefkowitz)
- What is the ICTV? (Murilo Zerbini)
- Virus taxonomy (Lefkowitz, Stuart Siddell)
- The ICTV Report (Donald Smith)
- The ICTV Web site (Steve Powell)
- Tools to browse the taxonomy (Don Dempsey, Curtis Hendrickson)
- Future plans
- Questions
 - Use the webinar's Q&A feature



SPEAKERS

- Murilo Zerbini, PhD, ICTV President
 - Universidade Federal de Viçosa, Brazil
- Elliot Lefkowitz, PhD, ICTV Data Secretary
 - University of Alabama at Birmingham (UAB), USA
- Stuart Siddell, PhD, Past ICTV Vice President
 - University of Bristol, UK
- Donald Smith, PhD, Managing Editor, ICTV Reports
 - University of Oxford / University of Edinburgh, UK
- UAB Team
 - Steve Powell, PhD, Outreach Coordinator
 - Don Dempsey, MS, Software Developer
 - Curtis Hendrickson, BS, Bioinformatician
 - Logan Mims, BA, Programmer/Analyst



VIRUS TAXONOMY: A COMMUNITY KNOWLEDGEBASE SUPPORTING VIRUS RESEARCH

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08/03/2021 – 05/31/2026



ICTV VIRUS KNOWLEDGEBASE AIMS

- **Infrastructure**
 - Provide a stable, responsive, scalable information technology platform
- **Information**
 - Enrich the virus taxonomy by expanding the available information on virus properties
- **Tools**
 - Develop and deploy analytical tools that support the creation, expansion, and management of virus taxonomy
- **Accessibility**
 - Provide flexible, interoperable access to taxonomic data
- **Outreach and Training**
 - Establish programs that introduce these resources to current and potential users and provide training in their use



TAXONOMY =
CLASSIFICATION + NOMENCLATURE



WELCOME TO THE ICTV

What is the
International Committee on Taxonomy
of Viruses



1966: International Congress of Microbiology, Moscow, USSR

- International Committee on Nomenclature of Viruses (ICNV)
- 1973: International Committee on **Taxonomy** of Viruses (ICTV)



Taxonomy lies in the uneasy interface between biology and logic. The processing of information follows somewhat different rules in these two systems and the role of taxonomy is to reconcile them as tidily as possible.

F. Fenner





The ICTV has the following objectives:

1. To develop an **internationally agreed** taxonomy for viruses
2. To **establish** internationally agreed **names** for virus **taxa**
3. To **communicate the decisions** reached concerning the classification and nomenclature of viruses to virologists by holding meetings and publishing reports
4. To maintain an official **index** of agreed **names** of virus **taxa**



- In animal, plant, fungal and prokaryote taxonomies, the corresponding committees deal exclusively with nomenclature; classification is agreed upon based on the published literature
- In virus taxonomy, the ICTV is responsible for both classification and nomenclature

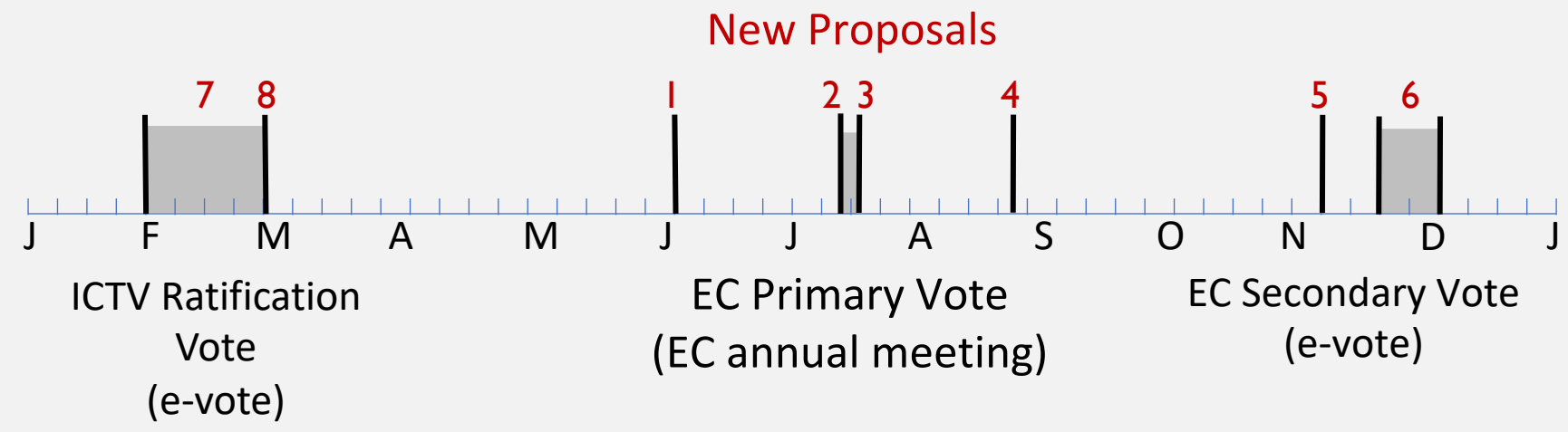


Executive Committee	23 virologists from 15 countries
Animal DNA Viruses and Retroviruses Subcommittee	18 Study Groups
Animal dsRNA and ssRNA- Viruses Subcommittee	22 Study Groups
Animal ssRNA+ Viruses Subcommittee	15 Study Groups
Archaeal Viruses Subcommittee	11 Study Groups
Bacterial Viruses Subcommittee	18 Study Groups
Fungal and Protist Viruses Subcommittee	12 Study Groups
Plant Viruses Subcommittee	22 Study Groups
Life Members	11 virologists from 6 countries
National Representatives	42 virologists from national virology societies

55 th meeting (Jena, 2023)	203 proposals approved (all species renamed)
52 nd -54 th meetings (online, 2020-2022)	696 proposals approved (binomial nomenclature)
51 st meeting (Berlin, 2019)	206 proposals approved (megataxonomy)



The ICTV decision-making process



Changes to virus taxonomy and the ICTV Statutes ratified by the International Committee on Taxonomy of Viruses (2023)

Francisco Murilo Zerbini¹ · Stuart G. Siddell² · Elliot J. Lefkowitz³ · Arcady R. Mushegian⁴ · Evelien M. Adriaenssens⁵ · Poliane Alfenas-Zerbini⁶ · Donald M. Dempsey³ · Bas E. Dutilh^{7,8} · María Laura García⁹ · R. Curtis Hendrickson³ · Sandra Junglen¹⁰ · Mart Krupovic¹¹ · Jens H. Kuhn¹² · Amy J. Lambert¹³ · Małgorzata Łobocka¹⁴ · Hanna M. Oksanen¹⁵ · David L. Robertson¹⁶ · Luisa Rubino¹⁷ · Sead Sabanadzovic¹⁸ · Peter Simmonds¹⁹ · Donald B. Smith¹⁹ · Nobuhiro Suzuki²⁰ · Koenraad Van Doorslaer²¹ · Anne-Mieke Vandamme^{22,23} · Arvind Varsani²⁴



Abolishment of morphology-based taxa and change to binomial species names: 2022 taxonomy update of the ICTV bacterial viruses subcommittee

Dann Turner¹ · Andrey N. Shkoporov² · Cédric Lood³ · Andrew D. Millard⁴ · Bas E. Dutilh^{5,6} · Poliane Alfenas-Zerbini⁷ · Leonardo J. van Zyl⁸ · Ramy K. Aziz^{9,10} · Hanna M. Oksanen¹¹ · Minna M. Poranen¹¹ · Andrew M. Kropinski¹² · Jakub Barylski¹³ · J Rodney Brister¹⁴ · Nina Chanisvili¹⁵ · Rob A. Edwards¹⁶ · François Enault¹⁷ · Annika Gillis¹⁸ · Petar Knezevic¹⁹ · Mart Krupovic²⁰ · Ipek Kurtböke²¹ · Alla Kushkina^{22,23} · Rob Lavigne³ · Susan Lehman²⁴ · Małgorzata Łobocka²⁵ · Cristina Moraru²⁶ · Andrea Moreno Switt²⁷ · Vera Morozova²⁸ · Jesca Nakavuma²⁹ · Alejandro Reyes Muñoz³⁰ · Jānis Rūmnieks³¹ · BL Sarkar³² · Matthew B. Sullivan³³ · Jumpei Uchiyama³⁴ · Johannes Wittmann³⁵ · Tong Yigang³⁶ · Evelien M. Adriaenssens³⁷

Naryaviridae, *Nenyaviridae*, and *Vilyaviridae*: three new families of single-stranded DNA viruses in the phylum *Cressdnaviricota*

Mart Krupovic¹ · Arvind Varsani^{2,3}



OPEN

The new scope of virus taxonomy: partitioning the virosphere into 15 hierarchical ranks

International Committee on Taxonomy of Viruses Executive Committee*

Virus taxonomy and the role of the International Committee on Taxonomy of Viruses (ICTV)

Stuart G. Siddell^{1*,†}, Donald B. Smith^{2†}, Evelien Adriaenssens³, Poliane Alfenas-Zerbini⁴, Bas E. Dutilh^{5,6}, Maria Laura Garcia⁷, Sandra Junglen⁸, Mart Krupovic⁹, Jens H. Kuhn¹⁰, Amy J. Lambert¹¹, Elliot J. Lefkowitz¹², Małgorzata Łobocka¹³, Arcady R. Mushegian¹⁴, Hanna M. Oksanen¹⁵, David L. Robertson¹⁶, Luisa Rubino¹⁷, Sead Sabanadzovic¹⁸, Peter Simmonds², Nobuhiro Suzuki¹⁹, Koenraad Van Doorslaer²⁰, Anne-Mieke Vandamme²¹, Arvind Varsani²² and F. Murilo Zerbini²³

PLOS BIOLOGY

CONSENSUS VIEW

Four principles to establish a universal virus taxonomy

Peter Simmonds^{1*}, Evelien M. Adriaenssens^{2*}, F. Murilo Zerbini^{3*}, Nicola G. A. Abrescia^{4,5}, Pakorn Aiewsakun⁶, Poliane Alfenas-Zerbini⁷, Yiming Bao^{8,9}, Jakub Barylski¹⁰, Christian Drosten^{11,12}, Siobain Duffy¹³, W. Paul Duprex¹⁴, Bas E. Dutilh^{15,16}, Santiago F. Elena^{17,18}, María Laura García¹⁹, Sandra Junglen^{11,12}, Aris Katzourakis²⁰, Eugene V. Koonin²¹, Mart Krupovic²², Jens H. Kuhn²³, Amy J. Lambert²⁴, Elliot J. Lefkowitz²⁵, Małgorzata Łobocka²⁶, Cédric Lood²⁷, Jennifer Mahony²⁸, Jan P. Meier-Kolthoff²⁹, Arcady R. Mushegian³⁰, Hanna M. Oksanen³¹, Minna M. Poranen³¹, Alejandro Reyes-Muñoz³², David L. Robertson³³, Simon Roux³⁴, Luisa Rubino³⁵, Sead Sabanadzovic³⁶, Stuart Siddell³⁷, Tim Skern³⁸, Donald B. Smith¹, Matthew B. Sullivan³⁹, Nobuhiro Suzuki⁴⁰, Dann Turner⁴¹, Koenraad Van Doorslaer⁴², Anne-Mieke Vandamme^{43,44}, Arvind Varsani⁴⁵, Nikos Vasilakis⁴⁶



- About the ICTV >
- Membership >
- Study Groups Lists
- Study Group Members
- Recent Updates

- Charge to the ICTV
- Statutes**
- Code
- Organization

Statutes of the International Committee on Taxonomy of Viruses (ICTV)

March 2023

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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The International Code of Virus Classification and Nomenclature (ICVCN)

March 2021

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

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.

1.2

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



Support



Thank you





PRODUCING THE TAXONOMY

Who?

How?

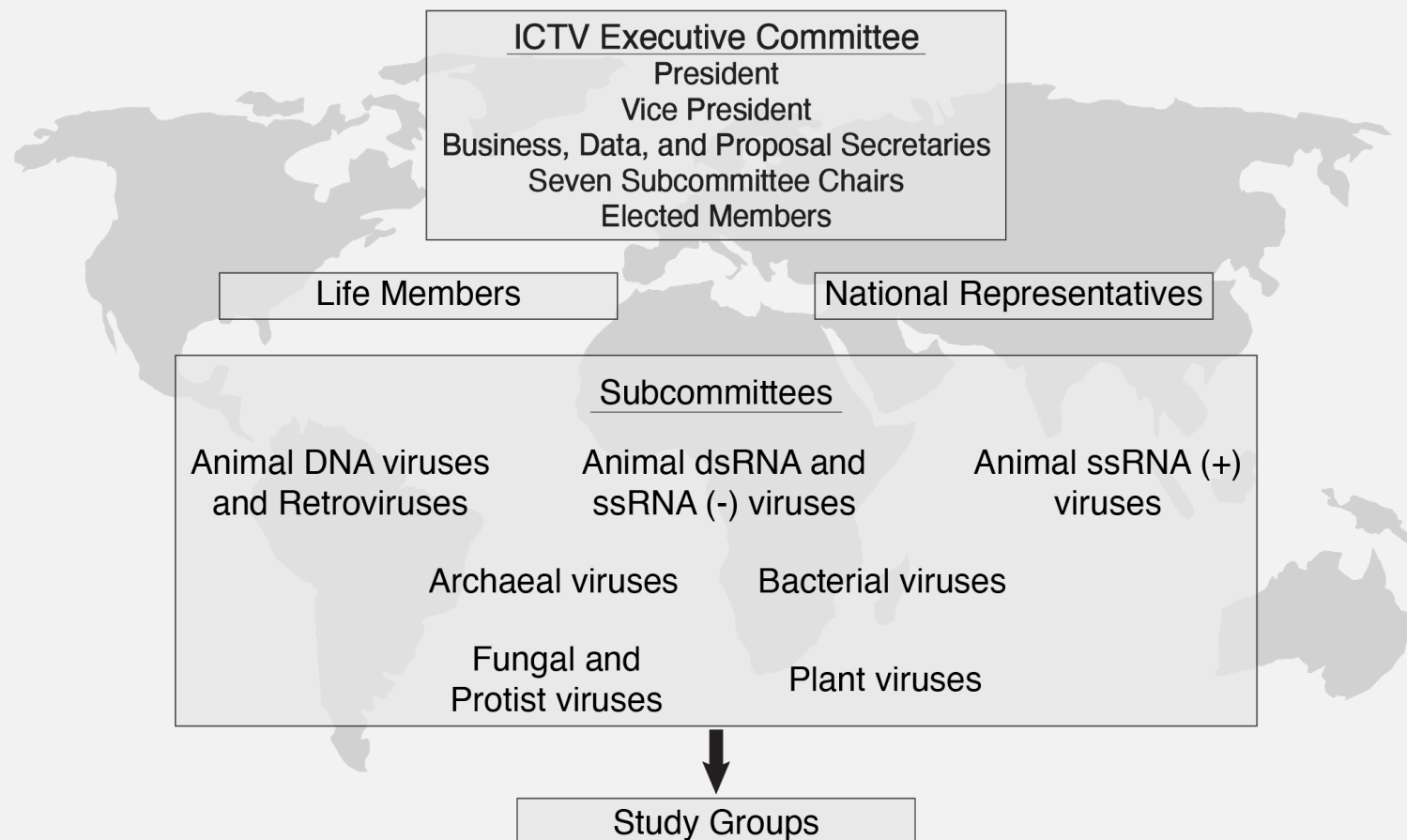


WHO CREATES VIRUS TAXA?

- Anyone
- Virus discoverers
- ICTV Study groups
- ICTV Subcommittee Chairs



International Committee on Taxonomy of Viruses Organizational Chart





CREATING THE TAXONOMY: HOW



PROPOSAL PROCESS

Prepare proposal

Submit to Subcommittee Chair

Review by Study Group

Review by Executive Committee

Ratification by ICTV Membership



PROPOSAL TEMPLATES

- Proposed taxonomic actions
 - Excel document
- Evidence supporting the proposed taxonomy
 - Word document

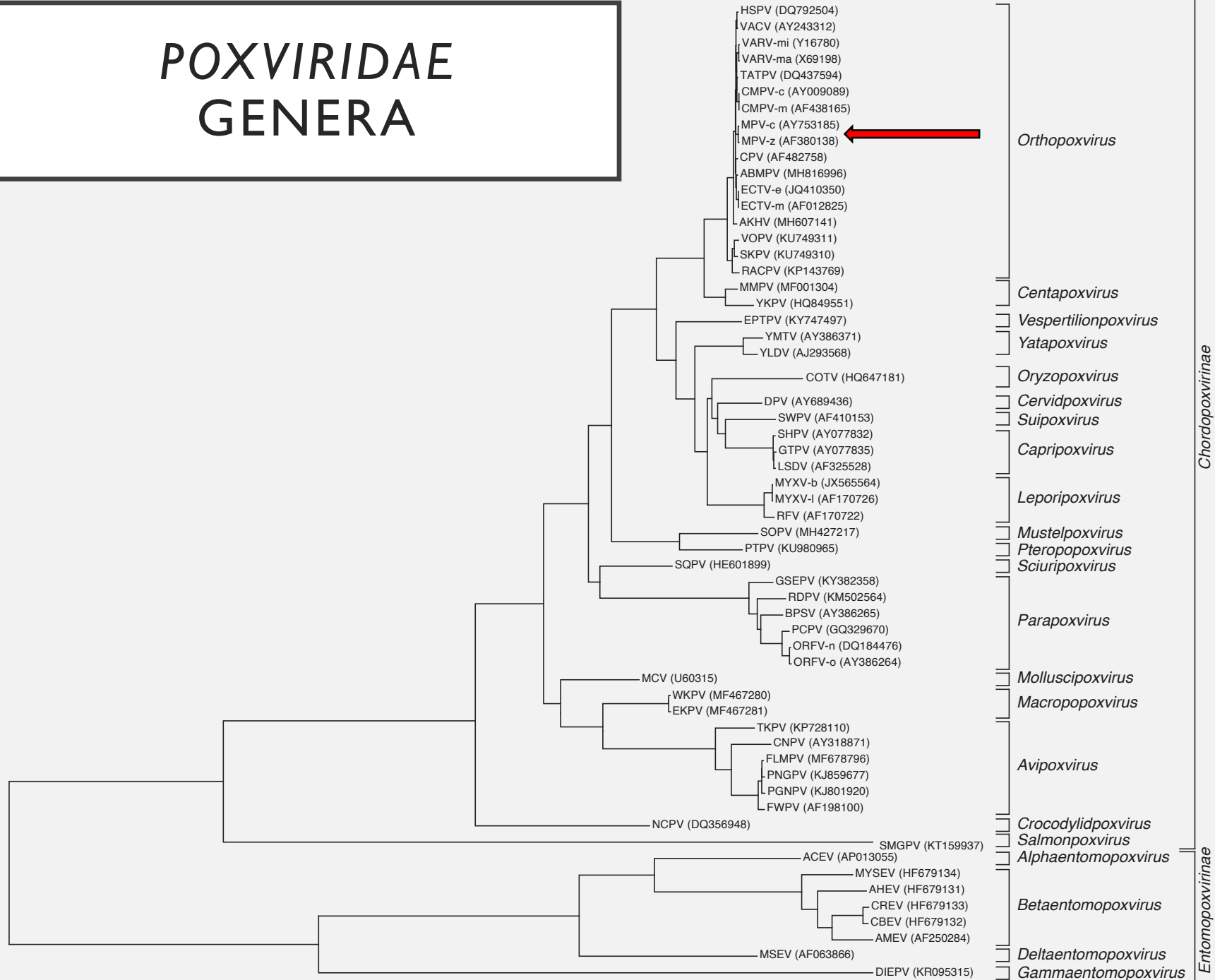


DEMARCATIION CRITERIA *POXVIRIDAE*: SUBFAMILY: GENERA: SPECIES

- Phenotypic
 - Natural host range (Subfamily)
 - Growth characteristics and host range in cell culture
 - Morphology of pocks; Plaque characteristics
 - Disease characteristics.
 - Morbidity, mortality, etc.
 - Serological criteria
 - Plaque neutralization tests, cross-protection in animals
- Genotypic
 - Gene content
 - Genome organization
 - Amino acid sequence identity of commonly shared genes.
 - hemagglutinin or A-type inclusion protein
 - Nucleotide sequence identity, conserved, core region of orthopoxvirus genomes
 - Different species <96% - 98%
 - Isolate >98%
 - Phylogenetic analysis



POXVIRIDAE GENERA





MASTER SPECIES LIST

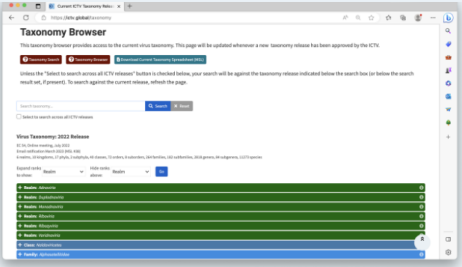
The definitive source of the virus taxonomy

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	Realm	Subrealm	Kingdom	Subkingdom	Phylum	Subphylum	Class	Subclass	Order	Suborder	Family	Subfamily	Genus	Subgenus	Species	Genome Composition	Last Change	MSL of Last Change	Proposal for Last Change
2	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Alphalipothrixvirus		Alphalipothrixvirus SBFV2	dsDNA	Moved,		36 2020.186B.R.Adnaviria.zip
3	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Alphalipothrixvirus		Alphalipothrixvirus SFV1	dsDNA	Moved,Removed at		36 2020.001G.R.Abolish_type_species.pdf
4	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 3	dsDNA	Moved,		36 2020.186B.R.Adnaviria.zip
5	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 6	dsDNA	Moved,		36 2020.186B.R.Adnaviria.zip
6	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 7	dsDNA	Moved,		36 2020.186B.R.Adnaviria.zip
7	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 8	dsDNA	Moved,		36 2020.186B.R.Adnaviria.zip
8	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 9	dsDNA	Moved,		36 2020.186B.R.Adnaviria.zip
9	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Sulfolobus islandicus filamentous virus	dsDNA	Moved,Removed at		36 2020.001G.R.Abolish_type_species.pdf
10	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Deltalipothrixvirus		Acidianus filamentous virus 2	dsDNA	Moved,Removed at		36 2020.001G.R.Abolish_type_species.pdf
11	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Deltalipothrixvirus		Deltalipothrixvirus SBFV3	dsDNA	Moved,		36 2020.186B.R.Adnaviria.zip
12	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Azorudivirus		Azorudivirus SRV	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
13	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirudivirus		Hoswirudivirus ARV2	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
14	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirudivirus		Hoswirudivirus ARV3	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
15	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirudivirus		Hoswirudivirus MRV1	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
16	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirudivirus		Hoswirudivirus SSRV1	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
17	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV1	dsDNA	Renamed,Moved,		36 2020.141B.R.Rudiviridae.zip
18	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV2	dsDNA	Renamed,Moved,R		36 2020.141B.R.Rudiviridae.zip;2020.001G.R.Abolish_type_species.pdf
19	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV3	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
20	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Itarudivirus		Itarudivirus ARV1	dsDNA	Renamed,Moved,		36 2020.141B.R.Rudiviridae.zip
21	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Japanudivirus		Japanudivirus SBRV1	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
22	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Mexiudivirus		Mexiudivirus SMRV1	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
23	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV4	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
24	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV5	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
25	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV8	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
26	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV9	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
27	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV10	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
28	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV11	dsDNA	New,		36 2020.141B.R.Rudiviridae.zip
29	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Ungulaviridae		Captovirus		Captovirus AFV1	dsDNA	Renamed,Moved,		37 2021.003A.R.Ungulaviridae.zip
30	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Maximovirales		Ahmunviridae		Yumkaaxvirus		Yumkaaxvirus pescaderoense	dsDNA	New,		38 2022.001A.Nakonavirales_Maximovirales_Coyopavirales_3no.zip
31	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Alphatristromavirus		Alphatristromavirus PFV1	dsDNA	Renamed,Moved,R		36 2020.186B.R.Tristromaviridae.zip;2020.001G.R.Abolish_type_species.pdf
32	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Alphatristromavirus		Alphatristromavirus PFV2	dsDNA	New,		36 2020.186B.R.Tristromaviridae.zip
33	Adnaviria		Zilligvirae		Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Betatristromavirus		Betatristromavirus TTV1	dsDNA	Renamed,Moved,		36 2020.186B.R.Tristromaviridae.zip
34	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Batravirus		Batravirus ranidallo1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
35	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Batravirus		Batravirus ranidallo2	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
36	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Batravirus		Batravirus ranidallo3	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
37	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Cyivirus		Cyivirus anguillidallo1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
38	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Cyivirus		Cyivirus cyprinidallo1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
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40	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Cyivirus		Cyivirus cyprinidallo3	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
41	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Ictavirus		Ictavirus acipenseridallo2	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
42	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Ictavirus		Ictavirus ictaluridallo1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
43	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Ictavirus		Ictavirus ictaluridallo2	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
44	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Salmovirus		Salmovirus salmonidallo1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
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47	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Malacoherpesviridae		Aurivirus		Aurivirus hailotidmalaco1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
48	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Malacoherpesviridae		Ostreavirus		Ostreavirus ostreidmalaco1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
49	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Iltovirus		Iltovirus cacatuidalalpha2	dsDNA	New,		38 2022.002D.Herpesvirales_9nsp.zip
50	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Iltovirus		Iltovirus gallidalpha1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
51	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Iltovirus		Iltovirus psittacidalalpha1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
52	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Iltovirus		Iltovirus psittacidalalpha5	dsDNA	New,		38 2022.002D.Herpesvirales_9nsp.zip
53	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Mardivirus		Mardivirus anatididalpha1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
54	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Mardivirus		Mardivirus columbididalpha1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
55	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Mardivirus		Mardivirus gallidalpha2	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
56	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Mardivirus		Mardivirus gallidalpha3	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
57	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Mardivirus		Mardivirus meleagrididalpha1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
58	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Mardivirus		Mardivirus sphenicidalpha1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
59	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Scutavirus		Scutavirus chelonidalpha5	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
60	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Scutavirus		Scutavirus testudinalpha3	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
61	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Simplexvirus		Simplexvirus atelinalpha1	dsDNA	Renamed,		38 2022.001D.Herpesvirales_1renfam_4rengen_124rensp_6absp.zip
62	Duplodnaviria		Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Orthoherpesviridae	Alphaherpesvirinae	Simplexvirus		Simple				



NOMENCLATURE ETYMOLOGY

What's in a name?



ICTV Taxonomy Browser

Search and browse the virus taxonomy



Master Species List

MSL: Spreadsheet of all current species



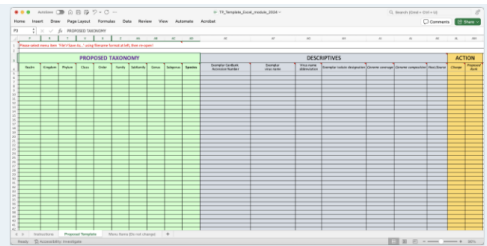
Virus Metadata Resource

VMR: Virus exemplars for every species

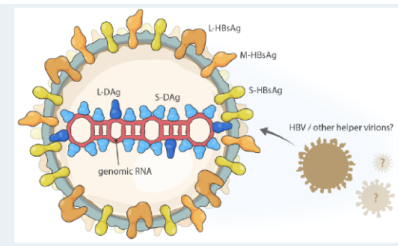
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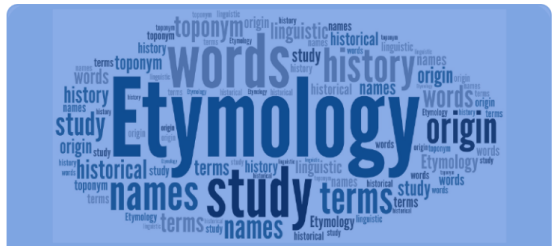
LIVE Webinar on Virus Taxonomy
ICTV Webinar: March 21, 2024 10:00 AM - 12:00 noon CDT.
[Register here.](#)
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New proposal templates
[Templates](#) for preparing 2024 taxonomic proposals are now available.
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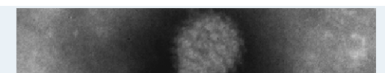


New ICTV Report Chapter
New Report chapter for the (-) sense RNA virus family, *Kolmioviridae*.
[Read more](#) →



Etymology of Taxon Names
Were you ever curious about the origins of taxon names?
Find out on our [Etymology](#) page
[Read more](#) →

Open "https://ictv.global/news/etymology" in a new tab



Etymology

Etymology of Taxon Names

The information below provides a list containing descriptions of the origins of ICTV taxon names starting at the rank of realm and going down to the rank of family. This information is derived from the proposals that were submitted when each taxon was created. Links to these proposals, links to ICTV report chapters, and links to publications (through PMIDs) are provided when available.

We thank Stuart Siddell for compiling this list of name origins. Etymological information for taxa below the rank of family, can be found in the relevant [ICTV Online \(10th\) Report](#) chapters. If you have any comments or corrections, please contact us by sending an email to info@ictv.global.

Please select the virus realm containing your taxa of interest:

Realm

- Any -
- Adnaviria
- Duplodnaviria
- Monodnaviria
- Riboviria
- Ribozviria
- Varidnaviria
- Unassigned

ITEMS PER PAGE

Realm: Adnaviria

Taxon: *Adnaviria*; **Rank:** realm; **Proposal:** [2020.186B.R.Adnaviria](#); ; **ICTV Report:** ; **Reference:** from A-form DNA characteristic of viruses in this realm; the suffix *-viria* for realm taxa

Taxon: *Zilligvirae*; **Rank:** kingdom; **Proposal:** [2020.186B.R.Adnaviria](#); ; **ICTV Report:** ; **Reference:** to honour Wolfram Zillig, a pioneer of research on hyperthermophilic archaeal viruses; the suffix *-virae* for kingdom taxa

Taxon: *Taleaviricota*; **Rank:** phylum; **Proposal:** [2020.186B.R.Adnaviria](#); ; **ICTV Report:** ; **Reference:**

Please select the virus realm containing your taxa of interest:

Realm

- Any -
- Adnaviria
- Duplodnaviria
- Monodnaviria
- Riboviria
- Ribozviria
- Varidnaviria
- Unassigned

ITEMS PER PAGE

50

Apply

Realm: Riboviria

Taxon: *Riboviria*; **Rank:** realm; **Proposal:** 2017.006G.A.v1.Riboviria; ; **ICTV Report:** ; **Reference:** from ribo, for ribonucleic acid, referring to the genome of viruses in the realm; the suffix -viria for realm taxa

Taxon: *Orthornavirae*; **Rank:** kingdom; **Proposal:** 2019.006G.A.v1.Riboviria; ; **ICTV Report:** ; **Reference:** from the Greek ὀρθός (*orthós*) meaning "straight" or "true" and RNA for ribonucleic acid; the suffix -virae for kingdom taxa

Taxon: *Duplornaviricota*; **Rank:** phylum; **Proposal:** 2019.006G.A.v1.Riboviria; ; **ICTV Report:** ; **Reference:** from the Italian duplo meaning "double", a reference to viruses in this phylum having double-stranded genomes, and RNA for ribonucleic acid; the suffix -viricota for phylum taxa

Taxon: *Chrymotiviricetes*; **Rank:** class; **Proposal:** 2019.006G.A.v1.Riboviria; ; **ICTV Report:** ; **Reference:** a portmanteau of Chrysoviriidae, Megabirnaviridae, and Totiviridae, three virus families included in the taxon; the suffix -viricetes for class taxa

Taxon: *Ghabrivirales*; **Rank:** order; **Proposal:** 2019.006G.A.v1.Riboviria; ; **ICTV Report:** ; **Reference:** in honour of Said Ghabrial, a pioneer in the study of the viruses in this order; the suffix -virales for order taxa

Taxon: *Alternaviridae*; **Rank:** family; **Proposal:** 2022.001F.Alternaviridae_newfam; ; **ICTV Report:** ; **Reference:** from Alternaria alternata, the name of the original fungal host, and RNA for ribonucleic acid, referring to the type of nucleic acid comprising the genome of viruses in the family; the suffix -viridae for family taxa

Taxon: *Chrysoviriidae*; **Rank:** family; **Proposal:** Ratification 2002a; ; **ICTV Report:** *Chrysoviriidae*; **Reference:** PMID: 5191625 from the Greek chrysós meaning "gold", derived from the specific epithet of *Penicillium chrysogenum*, the fungal host of Penicillium chrysogenum virus, a member of the virus family; the suffix -viridae for family taxa





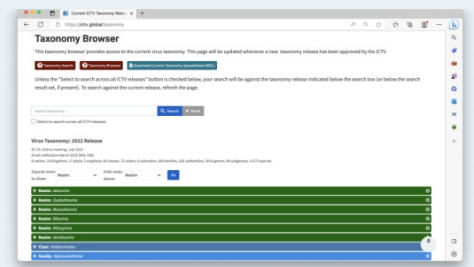
VIRUS METADATA RESOURCE

VMR



International Committee on Taxonomy of Viruses: ICTV

Official Taxonomic Resources



ICTV Taxonomy Browser

Search and browse the virus taxonomy



Master Species List

MSL: Spreadsheet of all current species



Virus Metadata Resource

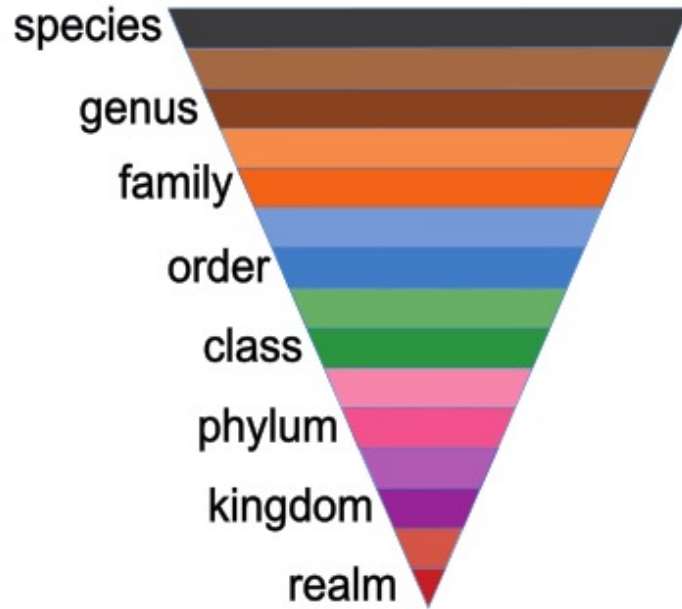
VMR: Virus exemplars for every species

News

The human brain

TAXA

(with binomial names
and
demarcation criteria)



The real world

VIRUSES

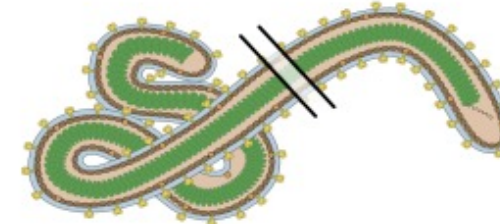
(with common names
and
properties)



African swine fever virus



measles virus



Ebola virus



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A1 fx Sort

Table with columns: Sort, Isolate Sort, Realm, Sub realm, Kingdom, Sub kingdom, Phylum, Sub phylum, Class, Sub class, Order, Sub order, Family, Sub family, Genus, Sub genus, Species, Exemplar or additional isolate, Virus name(s), Virus name abbreviation(s), Virus isolate designation, Virus GENBANK accession, Virus REFSEQ accession, Genome coverage, Genome composition, Host source.

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Comments, Share

Sort	Isolate Sort	Realm	Sub realm	Kingdom	Sub kingdom	Phylum	Sub phylum	Class	Sub class	Order	Sub order	Family	Sub family	Genus	Sub genus	Species	Exemplar or additional isolate	Virus
1																		
2	1	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Alphalipothrixvirus		Alphalipothrixvirus SBFV2	E	Sulfobales Beppu filamentou
3	2	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Alphalipothrixvirus		Alphalipothrixvirus SBFV1	E	Suffolobus filamentous virus 1
4	3	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 3	E	Acidianus filamentous virus 3
5	4	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 6	E	Acidianus filamentous virus 6
6	5	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 7	E	Acidianus filamentous virus 7
7	6	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 8	E	Acidianus filamentous virus 8
8	7	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 9	E	Acidianus filamentous virus 9
9	8	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Suffolobus islandicus filamentous virus	E	Suffolobus islandicus filamentous
10	9	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Deltalipothrixvirus		Acidianus filamentous virus 2	E	Acidianus filamentous virus 2
11	10	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Deltalipothrixvirus		Deltalipothrixvirus SBFV3	E	Sulfobales Beppu filamentou
12	11	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Azorudivirus		Azorudivirus SRV	E	Stygiolobus rod-shaped virus
13	12	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirutivirus		Hoswirutivirus ARV2	E	Acidianus rod-shaped virus 2
14	13	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirutivirus		Hoswirutivirus ARV3	E	Acidianus rod-shaped virus 3
15	14	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirutivirus		Hoswirutivirus MRV1	E	Metallosphaera rod-shaped vi
16	15	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirutivirus		Hoswirutivirus SSRV1	E	Saccharolobus solfataricus rod
17	16	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV1	E	Suffolobus islandicus rod-shape
18	17	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV2	E	Suffolobus islandicus rod-shape
19	18	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV3	E	Suffolobus islandicus rod-shape
20	19	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Itarudivirus		Itarudivirus ARV1	E	Acidianus rod-shaped virus 1
21	20	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Japarudivirus		Japarudivirus SBRV1	E	Sulfobales Beppu rod-shape
22	21	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Mexirudivirus		Mexirudivirus SMRV1	E	Sulfobales Mexican rod-shape
23	22	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV10	E	Suffolobus islandicus rod-shape
24	23	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV11	E	Suffolobus islandicus rod-shape
25	24	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV4	E	Suffolobus islandicus rod-shape
26	25	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV5	E	Suffolobus islandicus rod-shape
27	26	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV8	E	Suffolobus islandicus rod-shape
28	27	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV9	E	Suffolobus islandicus rod-shape
29	28	1		Zilligvirae		Taleaviricota		Tokiviricetes		Ligamenvirales		Ungulaviridae		Captovirus		Captovirus AFV1	E	Acidianus filamentous virus 1
30	29	1		Zilligvirae		Taleaviricota		Tokiviricetes		Maximovirales		Ahmunviridae		Yumkaoxvirus		Yumkaoxvirus pescaderoense	E	Methanophagales virus PBV3C
31	30	1		Zilligvirae		Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Alphatristromavirus		Alphatristromavirus PFV1	E	Pyrobaculum filamentous virus
32	31	1		Zilligvirae		Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Alphatristromavirus		Alphatristromavirus PFV2	E	Pyrobaculum filamentous virus
33	32	1		Zilligvirae		Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Betatristromavirus		Betatristromavirus TTV1	E	Thermoproteus tenax virus 1
34	33	1	Duplodnaviria	Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Batravirus		Batravirus ranidallo1	E	Lucké tumor herpesvirus; ranic
35	34	1	Duplodnaviria	Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Batravirus		Batravirus ranidallo2	E	frog virus 4; ranid herpesvirus
36	35	1	Duplodnaviria	Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Batravirus		Batravirus ranidallo3	E	ranid herpesvirus 3
37	36	1	Duplodnaviria	Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Cyivirus		Cyivirus anguillidallo1	E	Japanese eel herpesvirus; ang
38	37	1	Duplodnaviria	Heunggongvirae		Peploviricota		Herviviricetes		Herpesvirales		Alloherpesviridae		Cyivirus		Cyivirus cyprinidallo1	E	carp pox herpesvirus; cyprinid

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B2

	Realm	Sub realm	Kingdom	Sub kingdom	Phylum	Sub phylum	Class	Sub class	Order	Sub order	Family	Sub family	Genus	Sub genus	Species	Exemplar or additional isolate	Virus name(s)
1																	
2	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Alphalipothrixvirus		Alphalipothrixvirus SBFV2	E	Sulfolobales Beppu filamentous virus 2
3	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Alphalipothrixvirus		Alphalipothrixvirus SFV1	E	Sulfolobus filamentous virus 1
4	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 3	E	Acidianus filamentous virus 3
5	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 6	E	Acidianus filamentous virus 6
6	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 7	E	Acidianus filamentous virus 7
7	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 8	E	Acidianus filamentous virus 8
8	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Acidianus filamentous virus 9	E	Acidianus filamentous virus 9
9	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Betalipothrixvirus		Sulfolobus islandicus filamentous virus	E	Sulfolobus islandicus filamentous virus
10	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Deltalipothrixvirus		Acidianus filamentous virus 2	E	Acidianus filamentous virus 2
11	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Lipothrixviridae		Deltalipothrixvirus		Deltalipothrixvirus SBFV3	E	Sulfolobales Beppu filamentous virus 3
12	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Azorudivirus		Azorudivirus SRV	E	Stygiolobus rod-shaped virus
13	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirudivirus		Hoswirudivirus ARV2	E	Acidianus rod-shaped virus 2
14	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirudivirus		Hoswirudivirus ARV3	E	Acidianus rod-shaped virus 3
15	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirudivirus		Hoswirudivirus MRV1	E	Metallosphaera rod-shaped virus 1
16	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Hoswirudivirus		Hoswirudivirus SSRV1	E	Saccharolobus solfataricus rod-shaped virus 1
17	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV1	E	Sulfolobus islandicus rod-shaped virus 1
18	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV2	E	Sulfolobus islandicus rod-shaped virus 2
19	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Icerudivirus		Icerudivirus SIRV3	E	Sulfolobus islandicus rod-shaped virus 3
20	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Itarudivirus		Itarudivirus ARV1	E	Acidianus rod-shaped virus 1
21	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Japarudivirus		Japarudivirus SBRV1	E	Sulfolobales Beppu rod-shaped virus 1
22	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Mexirudivirus		Mexirudivirus SMRV1	E	Sulfolobales Mexican rod-shaped virus 1
23	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV10	E	Sulfolobus islandicus rod-shaped virus 10
24	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV11	E	Sulfolobus islandicus rod-shaped virus 11
25	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV4	E	Sulfolobus islandicus rod-shaped virus 4
26	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV5	E	Sulfolobus islandicus rod-shaped virus 5
27	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV8	E	Sulfolobus islandicus rod-shaped virus 8
28	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Rudiviridae		Usarudivirus		Usarudivirus SIRV9	E	Sulfolobus islandicus rod-shaped virus 9
29	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Ligamenvirales		Ungulaviridae		Captovirus		Captovirus AFV1	E	Acidianus filamentous virus 1
30	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Maximovirales		Ahmunviridae		Yumkaaxvirus		Yumkaaxvirus pescaderoense	E	Methanophagales virus PBV300
31	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Alphatristromavirus		Alphatristromavirus PFV1	E	Pyrobaculum filamentous virus 1
32	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Alphatristromavirus		Alphatristromavirus PFV2	E	Pyrobaculum filamentous virus 2
33	Adnaviria	Zilligvirae			Taleaviricota		Tokiviricetes		Primavirales		Tristromaviridae		Betatristromavirus		Betatristromavirus TTV1	E	Thermoproteus tenax virus 1

AutoSave ... VMR_MSL38_v2

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Add-ins: Add-ins, Analyse Data

Q7201 fx Saumarez Reef virus

	Realm	Sub realm	Kingdom	Sub kingdom	Phylum	Sub phylum	Class	Sub class	Order	Sub order	Family	Sub family	Genus	Sub genus	Species	Exemplar or additional isolate	Virus name(s)
7176	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus langatense	E	Langat virus
7177	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus louisense	E	St. Louis encephalitis virus
7178	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus loupingi	E	louping ill virus
7179	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus loupingi	A	louping ill virus-British subtype
7180	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus loupingi	A	louping ill virus-Irish subtype
7181	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus loupingi	A	louping ill virus-Spanish subtype
7182	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus loupingi	A	Turkish sheep encephalitis virus subtype
7183	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus loupingi	A	Greek goat encephalitis virus subtype
7184	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus meabanense	E	Meaban virus
7185	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus modocense	E	Modoc virus
7186	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus montanaense	E	Montana myotis leukoencephalitis virus
7187	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus murrayense	E	Murray Valley encephalitis virus
7188	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus murrayense	A	Alfury virus
7189	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus nilense	E	West Nile virus
7190	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus nilense	A	Kunjin virus
7191	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus ntayaense	E	Ntaya virus
7192	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus omskense	E	Omsk hemorrhagic fever virus
7193	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus peritaense	E	San Perlit virus
7194	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus phnompenhense	E	Phnom Penh bat virus
7195	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus phnompenhense	A	Batu Cave virus
7196	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus powassanense	E	Powassan virus
7197	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus powassanense	A	deer tick virus
7198	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus royalense	E	Royal Farm virus
7199	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus saboyaense	E	Saboya virus
7200	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus saboyaense	A	Potiskum virus
7201	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus saumarezense	E	Saumarez Reef virus
7202	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus sepikense	E	Sepik virus
7203	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus tembusu	E	Tembusu virus
7204	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus tyulenyense	E	Tyuleny virus
7205	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus ugandaense	E	Uganda S virus
7206	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus usutuense	E	Usutu virus
7207	Riboviria		Orthomavirae		Kitrinoviricota		Flasuviricetes		Amarillovirales		Flaviviridae		Orthoflavivirus		Orthoflavivirus vieiaense	F	Sal Vieia virus

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Add-ins: Add-ins, Analyse Data

S67 E2490

	O	P	Q	R	S	T	U	V	W	X
	Species	Exemplar or additional isolate	Virus name(s)	Virus name abbreviation(s)	Virus isolate designation	Virus GENBANK accession	Virus REFSEQ accession	Genome coverage	Genome composition	Host source
46	<i>Salmovirus salmonidallo3</i>	E	epizootic epitheliotropic disease virus; salmonid herpesvirus 3	SalHV3	Wisconsin epidemic	EU349277	NC_043468	Partial genome	dsDNA	vertebrates
47	<i>Aurivirus haliotidmalaco1</i>	E	abalone herpesvirus; haliotid herpesvirus 1	AbHV1; HaHV1	Victoria/AUS/2009	JX453331	NC_018874	Complete genome	dsDNA	vertebrates
48	<i>Ostreavirus ostreidmalaco1</i>	E	oyster herpesvirus; ostreid herpesvirus 1	OHV; OsHV1		AY509253	NC_005881	Complete genome	dsDNA	vertebrates
49	<i>Iltovirus cacatuidalpha2</i>	E	cacatuid alphaherpesvirus 2	CcAHV2	CaHV2/Melbourne/2015	MK360902		Complete genome	dsDNA	vertebrates
50	<i>Iltovirus gallidalpha1</i>	E	gallid alphaherpesvirus 1; infectious laryngotracheitis virus	GaAHV1; ILTV	SA2	JN596962	NC_075683	Complete genome	dsDNA	vertebrates
51	<i>Iltovirus psittacidalpha1</i>	E	psittacid alphaherpesvirus 1; Pacheco's disease virus	PsAHV1; PDV	97-0001	AY372243	NC_005264	Complete genome	dsDNA	vertebrates
52	<i>Iltovirus psittacidalpha5</i>	E	psittacid alphaherpesvirus 5	PsAHV5	16-4047	MK955929	NC_077028	Complete genome	dsDNA	vertebrates
53	<i>Mardivirus anatidalpha1</i>	E	anatid alphaherpesvirus 1; duck enteritis virus	AnAHV1; DEV	2085	JF999965	NC_075687	Complete genome	dsDNA	vertebrates
54	<i>Mardivirus columbidalpha1</i>	E	columbid alphaherpesvirus 1; pigeon herpesvirus	CoAHV1; PHV	HLJ	KX589235	NC_034266	Complete genome	dsDNA	vertebrates
55	<i>Mardivirus gallidalpha2</i>	E	gallid alphaherpesvirus 2; Marek's disease virus	GaAHV2; MDV	Md5	AF243438	NC_002229	Complete genome	dsDNA	vertebrates
56	<i>Mardivirus gallidalpha3</i>	E	gallid alphaherpesvirus 3; gallid herpesvirus 3	GaAHV3	SB-1	HQ840738	NC_075702	Complete genome	dsDNA	vertebrates
57	<i>Mardivirus meleagridalpha1</i>	E	meleagrid alphaherpesvirus 1; turkey herpesvirus	MeAHV1; HVT	FC-126 (Burmenester)	AF291866	NC_002641	Complete genome	dsDNA	vertebrates
58	<i>Mardivirus spheniscidalpha1</i>	E	spheniscid alphaherpesvirus 1	SpAHV1	lib01004	LT608135	NC_033464	Complete genome	dsDNA	vertebrates
59	<i>Scutavirus chelonidalpha5</i>	E	chelonid alphaherpesvirus 5; fibropapilloma-associated turtle herpesvirus	ChAHV5; FPTHV	CH-651-6009	HQ878327	NC_075701	Partial genome	dsDNA	vertebrates
60	<i>Scutavirus testudinidalpha3</i>	E	testudinid alphaherpesvirus 3; testudinid herpesvirus 3	TeAHV3; TeHV3	1976	KM924292	NC_027916	Complete genome	dsDNA	vertebrates
61	<i>Simplexvirus atelinealpha1</i>	E	ateline alphaherpesvirus 1; herpesvirus ateles 1	AtAHV1; HVA1	Lennette	KY385637	NC_034446	Complete genome	dsDNA	vertebrates
62	<i>Simplexvirus bovinealpha2</i>	E	bovine alphaherpesvirus 2; bovine mammillitis virus	BoAHV2; BMV	C12 FZR	MT862163	NC_076512	Complete genome	dsDNA	vertebrates
63	<i>Simplexvirus cercopithecinealpha2</i>	E	cercopithecine alphaherpesvirus 2; simian agent 8	CeAHV2; SA8	B264	AY714813	NC_006560	Complete genome	dsDNA	vertebrates
64	<i>Simplexvirus humanalpha1</i>	E	human alphaherpesvirus 1; herpes simplex virus type 1	HuAHV1; HSV1	17	JN555585	NC_001806	Complete genome	dsDNA	vertebrates
65	<i>Simplexvirus humanalpha2</i>	E	human alphaherpesvirus 2; herpes simplex virus type 2	HuAHV2; HSV2	HG52	JN561323	NC_001798	Complete genome	dsDNA	vertebrates
66	<i>Simplexvirus leporidalpha4</i>	E	leporid alphaherpesvirus 4; leporid herpesvirus 4	LeAHV4; LHV4	LHV4012612	JQ596859	NC_029311	Complete genome	dsDNA	vertebrates
67	<i>Simplexvirus macacinealpha1</i>	E	macacine alphaherpesvirus 1; B-virus	McAHV1; BV	E2490	AF533768	NC_004812	Complete genome	dsDNA	vertebrates
68	<i>Simplexvirus macacinealpha2</i>	E	macacine alphaherpesvirus 2; lion-tailed macaque herpesvirus 1	McAHV2	8100812	KY628968	NC_076164	Complete genome	dsDNA	vertebrates
69	<i>Simplexvirus macacinealpha3</i>	E	macacine alphaherpesvirus 3; pig-tailed macaque herpesvirus 1	McAHV3	KQ	KY628970	NC_076165	Complete genome	dsDNA	vertebrates
70	<i>Simplexvirus macropodidalpha1</i>	E	macropodid alphaherpesvirus 1; Parma wallaby herpesvirus	MaAHV1	MaHV1.3076/08	KT594769	NC_029132	Complete genome	dsDNA	vertebrates
71	<i>Simplexvirus macropodidalpha2</i>	E	macropodid alphaherpesvirus 2; Dorcopsis wallaby herpesvirus	MaAHV2	V3077/08	MT900475		Complete genome	dsDNA	vertebrates
72	<i>Simplexvirus macropodidalpha4</i>	E	macropodid alphaherpesvirus 4	MaAHV4	V3116/09	MT900474		Complete genome	dsDNA	vertebrates
73	<i>Simplexvirus paninealpha3</i>	E	panine alphaherpesvirus 3; chimpanzee herpesvirus	PnAHV3; ChHV	105640	JQ360576	NC_023677	Complete genome	dsDNA	vertebrates
74	<i>Simplexvirus papiinealpha2</i>	E	papiine alphaherpesvirus 2; herpesvirus papio 2	PaAHV2; HPV2	X313	DQ149153	NC_007653	Complete genome	dsDNA	vertebrates
75	<i>Simplexvirus pteropodidalpha1</i>	E	pteropodid alphaherpesvirus 1; fruit bat alphaherpesvirus 1	PtHAV1; FBAHV1		AB825953	NC_024306	Complete genome	dsDNA	vertebrates
76	<i>Simplexvirus pteropodidalpha2</i>	E	pteropodid alphaherpesvirus 2; Pteropus lylei-associated alphaherpesvirus	PtAHV2; PLAHV		LC492974		Complete genome	dsDNA	vertebrates
77	<i>Simplexvirus saimiriinealpha1</i>	E	saimiriine alphaherpesvirus 1; herpesvirus saimiri 1	SaAHV1; HVS1	MV 5-4	HM625781	NC_014567	Complete genome	dsDNA	vertebrates
78	<i>Varicellovirus bovinealpha1</i>	E	bovine alphaherpesvirus 1; infectious bovine rhinotracheitis virus	BoAHV1; IBRV	Copper/NVSI challenge 97-11	U9898220		Complete genome	dsDNA	vertebrates



THANK YOU

“Any science is ordering,, and if systematics iis equivalent to ordering, then systematics is synonymous with science.”

George Simpson, (1902–1984), American paleontologist

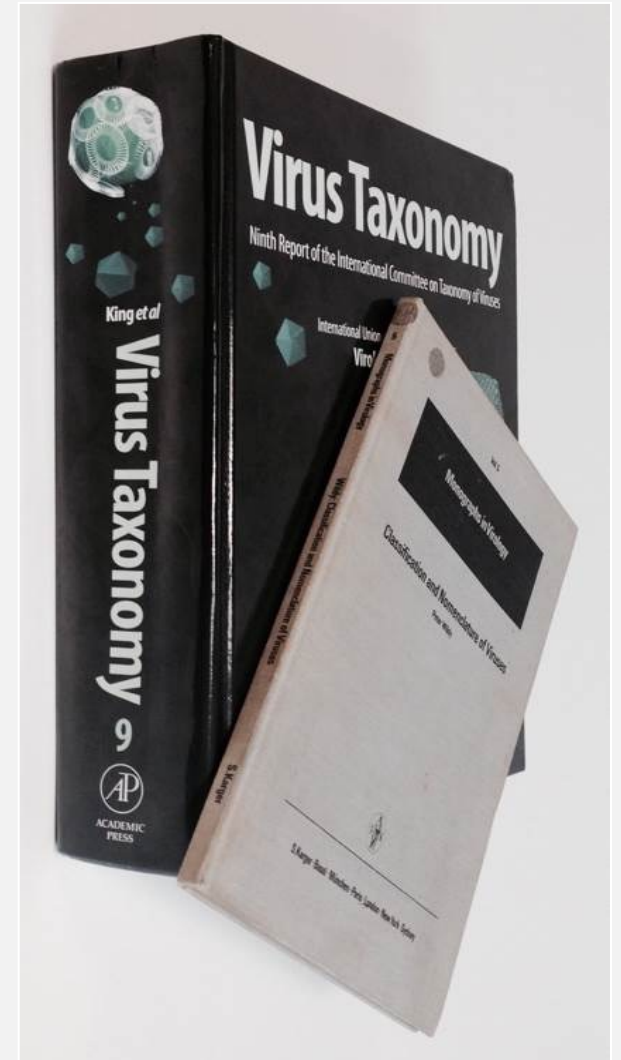


ICTV REPORT



HISTORY

- 1971 - First Report
- Updated every 3 to 5 years
- 2011 - Ninth Report (1327 pages)
 - pdf of Ninth Report on ICTV website
- Drawbacks of a printed format
 - Out of date when taxonomy changes
 - Cost
 - Limited availability
 - Intense workload for ICTV EC members





ONLINE REPORT – FROM 2016

- On ICTV website
- Free to access
- Family level
- Updated on rolling basis
- Written by ICTV Study Groups
- Edited by ICTV EC members (Editor-in-chief: Evelien Adriaenssens)
- Currently covers 120 families

The screenshot shows a web browser window displaying the ICTV website. The address bar shows the URL ictv.global/report/chapter/adenoviridae/adenoviridae. The page title is "Family: Adenoviridae". The authors listed are Mária Benkő, Koki Aoki, Niklas Arnberg, Andrew J. Davison, Marcela Echavarría, Michael Hess, Morris S. Jones, Győző L. Kaján, Adriana E. Kajon, Suresh K. Mittal, Iva I. Podgorski, Carmen San Martín, Göran Wadell, Hidemi Watanabe and Balázs Harrach. The page includes a summary of the family and a table of characteristics.

Family: Adenoviridae

Mária Benkő, Koki Aoki, Niklas Arnberg, Andrew J. Davison, Marcela Echavarría, Michael Hess, Morris S. Jones, Győző L. Kaján, Adriana E. Kajon, Suresh K. Mittal, Iva I. Podgorski, Carmen San Martín, Göran Wadell, Hidemi Watanabe and Balázs Harrach*

The citation for this ICTV Report chapter is the summary published as Benkő *et al.*, (2022): [ICTV Virus Taxonomy Profile: Adenoviridae 2022](#), Journal of General Virology 103(3):001721

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Edited by: Arvind Varsani and Andrew J. Davison
Posted: November 2021

Summary

Adenoviridae is a family of viruses with non-enveloped, icosahedral virions containing linear dsDNA genomes of 25–48 kb (Table 1. *Adenoviridae*). Its members infect a variety of vertebrate hosts ranging from fish to humans and are allocated to six genera. Members of genus *Mastadenovirus* infect mammals, those of *Aviadenovirus* infect birds, *Ichtadenovirus* has a single fish adenovirus, and strains of genus *Testadenovirus* occur in turtles. Members of *Atadenovirus* occur in squamate reptiles, birds, ruminants, marsupials and tortoises, and those of *Siadenovirus* infect birds, frog and tortoise. The severity of infections ranges from subclinical to lethal. Adenoviruses are popular virus vectors, e.g. for vaccination against the coronavirus SARS-CoV-2.

Table 1. Adenoviridae. Characteristics of members of the family *Adenoviridae*

Characteristic	Description
Example	human adenovirus 5 (AC_000008), species <i>Human mastadenovirus C</i> , genus <i>Mastadenovirus</i>
Virion	Non-enveloped icosahedral capsids 90 nm in diameter



ICTV VIRUS TAXONOMY PROFILES

- Two page family summary
- Journal of General Virology
- Open access
- Acts as citation for the ICTV Report chapter
- Profile updated after major taxonomy changes

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GENERAL VIROLOGY



ICTV VIRUS TAXONOMY PROFILE

Benkő et al., *Journal of General Virology* 2022;103:001721

DOI 10.1099/jgv.0.001721



ICTV Virus Taxonomy Profile: *Adenoviridae* 2022

Mária Benkő¹, Koki Aoki², Niklas Arnberg³, Andrew J. Davison⁴, Marcela Echavarría⁵, Michael Hess⁶, Morris S. Jones⁷, Győző L. Kaján¹, Adriana E. Kajon⁸, Suresh K. Mittal⁹, Iva I. Podgorski¹⁰, Carmen San Martín¹¹, Göran Wadell³, Hidemi Watanabe², Balázs Harrach^{1,*} and ICTV Report Consortium

Abstract

The family *Adenoviridae* includes non-enveloped viruses with linear dsDNA genomes of 25–48 kb and medium-sized icosahedral capsids. Adenoviruses have been discovered in vertebrates from fish to humans. The family is divided into six genera, each of which is more common in certain animal groups. The outcome of infection may vary from subclinical to lethal disease. This is a summary of the ICTV Report on the family *Adenoviridae*, which is available at ictv.global/report/adenoviridae.

Table 1. Characteristics of members of the family *Adenoviridae*

Example:	human adenovirus 5 (AC_000008), species <i>Human mastadenovirus C</i> , genus <i>Mastadenovirus</i>
Virion	Non-enveloped icosahedral capsid 90 nm in diameter



THE ICTV WEB SITE: ACCESSING THE VIRUS TAXONOMY

Data, Tools, and Information



FUTURE PLANS



TRACKING NAME CHANGES

- Types of changes
 - **CREATE**
 - **RENAME** - taxon name changes
 - **MOVE** – any change to higher ranking taxa, including their renames
 - **ABOLISH**
 - **TYPE** - designated type species for a genus
 - **PROMOTE** – example conversion of a genus to a family
 - **DEMOTE**
 - **SPLIT** - create multiple from one
 - **MERGE** - combine multiple into one



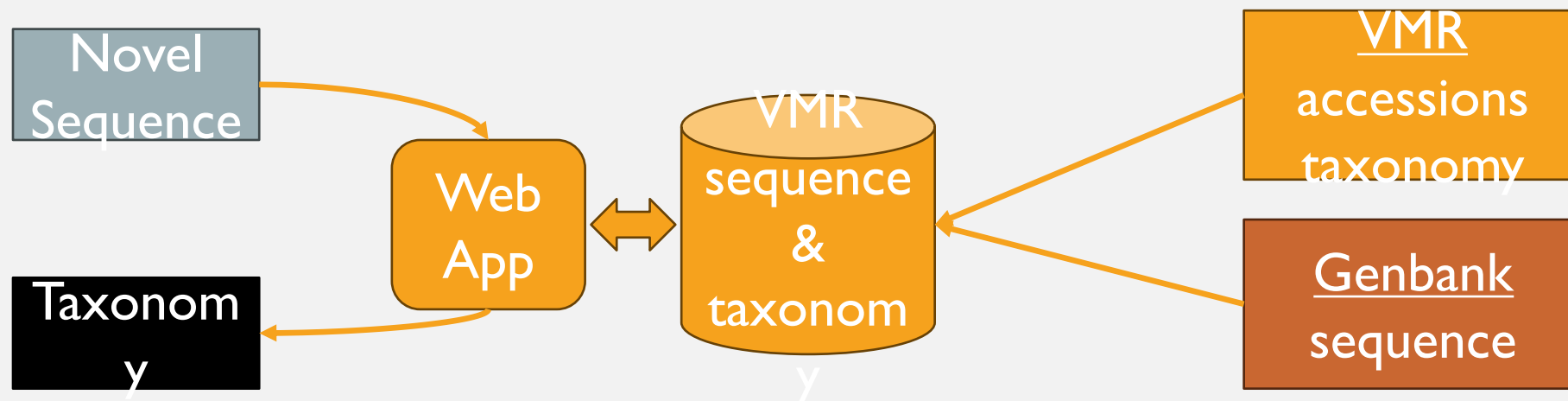
NEW RESOURCES

- Visual Taxonomy Browser enhancements (Don Dempsey)
- Virus name lookup (Don Dempsey)
- Application Programming Interface (API) (Don Dempsey)
- Virus sequence lookup (Curtis Hendrickson)



VIRUS SEQUENCE LOOKUP APP

- VMR (Viral Metadata Resource)
 - accession numbers assigned to correct taxonomy
- Genbank provides sequence for VMR entries
- Use homology of a novel sequence to lookup taxonomy
 - Only compare against the validated sequences from the VMR





QUESTIONS? TOPICS FOR FUTURE WEBINARS

Further help: info@ictv.global