



**International Committee on Taxonomy of Viruses**

# HOW YOU FIND INFORMATION ON VIRUS TAXONOMY?

WEBINAR  
MARCH 11, 2025

International Committee on Taxonomy of Viruses  
(ICTV)





## TODAY'S AGENDA

- Welcome (Elliot Lefkowitz, ICTV Data Secretary)
- The ICTV (Evelien Adriaenssens, ICTV Vice President)
- ICTV Resources (Lefkowitz)
- Web Site Tour (Steve Powell, Outreach Coordinator)
- Taxonomy browser (Powell)
- Visual browser (Logan Mims, Developer)
- Find the Species description (Don Dempsey, Developer)
- Using Find the Species (Eden Black, Student)
- Other resources (Lefkowitz)
- Questions
  - Use the webinar's Q&A feature



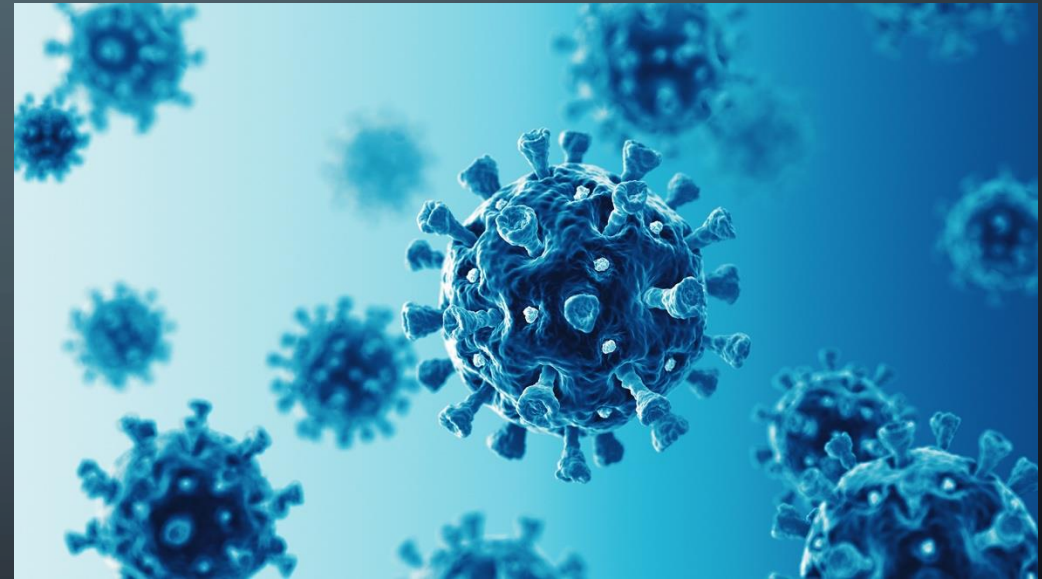
# WELCOME & INTRODUCTION

DR EVELIEN ADRIAENSSENS, VICE PRESIDENT

GROUP LEADER, QUADRAM INSTITUTE BIOSCIENCE, NORWICH

# WHAT ARE WE?

- International Committee on Taxonomy of Viruses
- charged by the International Union of Microbiological Societies
- task: developing, refining and maintaining virus taxonomy



# WHO ARE WE?

- Volunteers
- Executive Committee
  - President
  - Vice President
  - Business Secretary
  - Proposals Secretary
  - Data Secretary
  - Subcommittee Chairs
  - Elected members
- Study groups in subcommittees
- Life & national members



# WHY ARE WE HERE TODAY?

- Virus taxonomy is annually updated → always new taxa to learn about
- Megataxonomy has introduced higher ranks: realm → kingdom → phylum → class → order → family → genus → species
- All species names across subcommittees and realms have been changed to binomial format: “Genusname epithet”

➔ **How do you find information on your virus of interest?**





# VIRUS TAXONOMY: A COMMUNITY KNOWLEDGEBASE SUPPORTING VIRUS RESEARCH

Support is provided by the National Institute of Allergy and  
Infectious Diseases, U.S. National Institutes of Health, Award  
U24AI162625

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



## ICTV WEBSITE RESOURCES

- Taxonomy Browser
- Visual Taxonomy Browser
- Proposals
- Find the Species
- Taxon Name Etymology
- Virus Properties Table
- Virus Diagrams
- Report Chapters
- Help Videos
- Search Window



# WHAT'S IN A NAME?

Name	Poxvirus Example	Coronavirus Example	Who Creates?	Who Updates?
Disease	<ul style="list-style-type: none"><li>• Smallpox</li></ul>	<ul style="list-style-type: none"><li>• 2019-nCoV</li><li>• hCoV-19</li><li>• <b>COVID-19</b></li></ul>	WHO	WHO
Virus	<ul style="list-style-type: none"><li>• <b>variola virus</b></li></ul>	<ul style="list-style-type: none"><li>• <b>SARS-CoV-2</b></li></ul>	Discoverer	Scientific community
Species	<ul style="list-style-type: none"><li>• <i>Variola virus</i></li><li>• <b><i>Orthopoxvirus variola</i></b></li></ul>	<ul style="list-style-type: none"><li>• <i>Severe acute respiratory syndrome-related coronavirus</i></li><li>• <b><i>Betacoronavirus pandemicum</i></b></li></ul>	ICTV	ICTV



# FIND THE SPECIES

What is it and how does it work?



# The Problem: So many names!

## Example: Human immunodeficiency virus 1

### Also known as...

- AF033819 (GenBank accession)
- AIDS virus (in-part)
- HIV (acronym, disease)
- HIV-1 (isolate abbreviation)
- human immunodeficiency virus infectious disease (disease name)
- **Lentivirus humimdef1** (current ICTV species name)
- LAV-1 (acronym)
- NC\_001802 (RefSeq accession)

...and thousands of names for groups, strains, types, sub-types, and recombinant forms



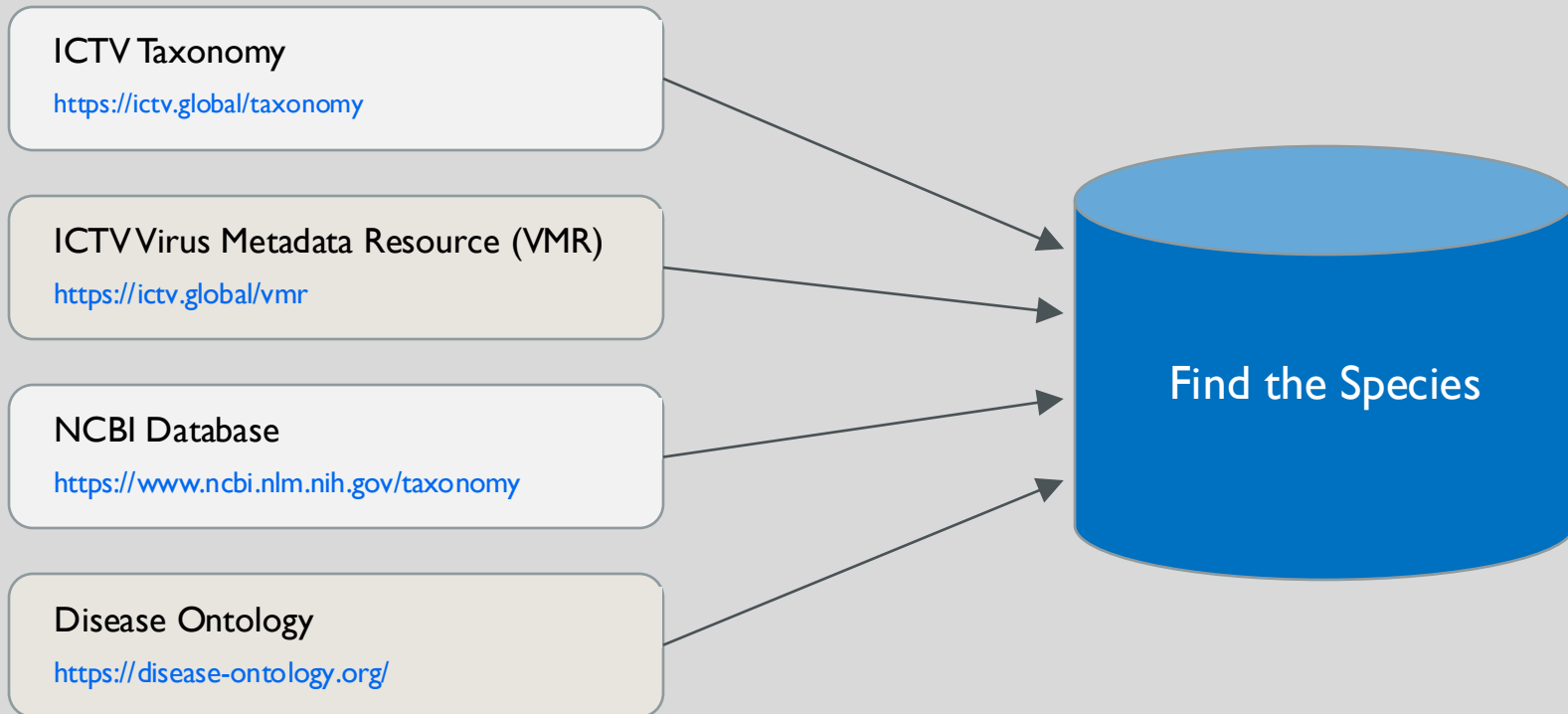
## The Solution: Find the Species

What does it do?

- Search multiple name databases for names or partial names.
- Return matching taxa from the current ICTV Taxonomy, if possible.
- Otherwise, return abolished ICTV taxa or NCBI Taxonomy matches.



## Name Databases







# How to access “Find the Species”

The screenshot shows the ICTV website's navigation bar. The 'Taxonomy' menu is open, displaying the following options:

- Taxonomy browser
- Visual Taxonomy Browser
- Find the Species** (highlighted)
- Release History
- Master Species Lists
- Virus Metadata Resource
- Taxon Name Etymology
- Proposals >
- Proposal Template Files

The background of the website includes the text 'International Committee on', 'Register for the ICTV Webinar on', and 'Official Taxonomy'. There is also a 'LIVE WEBINAR' badge and a globe graphic with a stylized 'M' on the right side.



# Example search: Poliovirus

## Search:

Exact match

Hits to current ICTV taxa (2)

Hits to abolished ICTV taxa (0)

Hits with no ICTV results (2)

## Hits to current ICTV taxa (MSL 40): 2

#1 Family: *Picornaviridae* > Subfamily: *Caphthovirinae* > Genus: *Cardiovirus*

Species: [Cardiovirus theileri](#)  
Exemplar virus: *cardiovirus B1* ([X56019](#))

### Database matches: 5

Matching name	Source (name type)	Superseded taxon name
<i>Murine poliovirus</i>	ICTV: MSL 13 (taxon name)	
<i>Murine poliovirus</i>	NCBI (equivalent name)	<i>Cardiovirus B</i>
<i>Murine poliovirus</i> (STRAIN BEAN 8386)	NCBI (equivalent name)	<i>Cardiovirus B</i>
<i>Murine poliovirus</i> (STRAIN DA)	NCBI (equivalent name)	<i>Cardiovirus B</i>

Search result

Matches



## Search Result

#1 Family: *Picornaviridae* › Subfamily: *Caphthovirinae* › Genus: *Cardiovirus*



Species: [\*Cardiovirus theileri\*](#)

Exemplar virus: *cardiovirus B I* ([X56019](#))



# Search Result

#1 Family: *Picornaviridae* › Subfamily: *Caphthovirinae* › Genus: *Cardiovirus*



Species: [Cardiovirus theileri](#)

Exemplar virus: *cardiovirus B I* ([X56019](#))



Display / hide matches



# Search Result

Result number



#1 Family: *Picornaviridae* › Subfamily: *Caphthovirinae* › Genus: *Cardiovirus*



Species: [\*Cardiovirus theileri\*](#)

Exemplar virus: *cardiovirus B I* ([X56019](#))



# Search Result

Lineage



#1 Family: *Picornaviridae* › Subfamily: *Caphthovirinae* › Genus: *Cardiovirus*



Species: [Cardiovirus theileri](#)

Exemplar virus: *cardiovirus B I* ([X56019](#))



# Search Result

#1 Family: *Picornaviridae* › Subfamily: *Caphthovirinae* › Genus: *Cardiovirus*



Species: [Cardiovirus theileri](#)

Exemplar virus: *cardiovirus B1* ([X56019](#))

Taxonomic rank





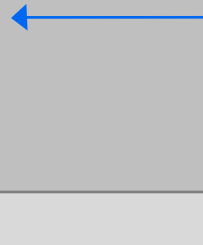
## Search Result

#1 Family: *Picornaviridae* › Subfamily: *Caphthovirinae* › Genus: *Cardiovirus*



Species: [Cardiovirus theileri](#)

Exemplar virus: cardiovirus B I ([X56019](#))



Species name (linked to taxon details/history)



# Search Result

#1 Family: *Picornaviridae* › Subfamily: *Caphthovirinae* › Genus: *Cardiovirus*



Species: [\*Cardiovirus theileri\*](#)

Exemplar virus: *cardiovirus* B I ([X56019](#))



Exemplar virus name



## Search Result

#1 Family: *Picornaviridae* › Subfamily: *Caphthovirinae* › Genus: *Cardiovirus*



Species: [Cardiovirus theileri](#)

Exemplar virus: *cardiovirus* B I ([X56019](#))



GenBank link to exemplar virus



# Example search: Poliovirus

## Search:

Exact match

Hits to current ICTV taxa (2)

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Hits with no ICTV results (2)

## Hits to current ICTV taxa (MSL 40): 2

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### Database matches: 5

Matching name	Source (name type)	Superseded taxon name
<a href="#">MURINE poliovirus</a>	ICTV: MSL 13 (taxon name)	
<a href="#">MURINE poliovirus</a>	NCBI (equivalent name)	<i>Cardiovirus B</i>
<a href="#">MURINE poliovirus (STRAIN BEAN 8386)</a>	NCBI (equivalent name)	<i>Cardiovirus B</i>
<a href="#">MURINE poliovirus (STRAIN DA)</a>	NCBI (equivalent name)	<i>Cardiovirus B</i>

Search result

Matches



## Search Result: Matches

Explanation of an example match

Matching name	Source (name type)	Superseded taxon name
Murine poliovirus (STRAIN BEAN 8386)	NCBI (equivalent name)	<i>Cardiovirus B</i>

Matching text





## Search Result: Matches

Explanation of an example match

Matching name	Source (name type)	Superseded taxon name
Murine poliovirus (STRAIN BEAN 8386)	NCBI (equivalent name)	<i>Cardiovirus B</i>

Taxonomy database

A blue arrow pointing upwards from the text "Taxonomy database" to the "Source (name type)" cell of the table above.



## Search Result: Matches

Explanation of an example match

Matching name	Source (name type)	Superseded taxon name
Murine poliovirus (STRAIN BEAN 8386)	NCBI (equivalent name)	<i>Cardiovirus B</i>

↑  
Name type





# Name Type

Name types (GenBank “name class”)

- Acronym (2,157)
- Authority (14)
- Common name (17)
- Disease (124)
- Equivalent name (28,614)
- GenBank accession (17,757)
- Includes (180)
- In-part (83)
- Isolate abbreviation (8,684)
- Isolate name (17,907)
- GenBank common name (48)
- RefSeq accession (11,582)
- Scientific name (260,010)
- Synonym (542)
- Taxon name (50,257)



## Search Result: Matches

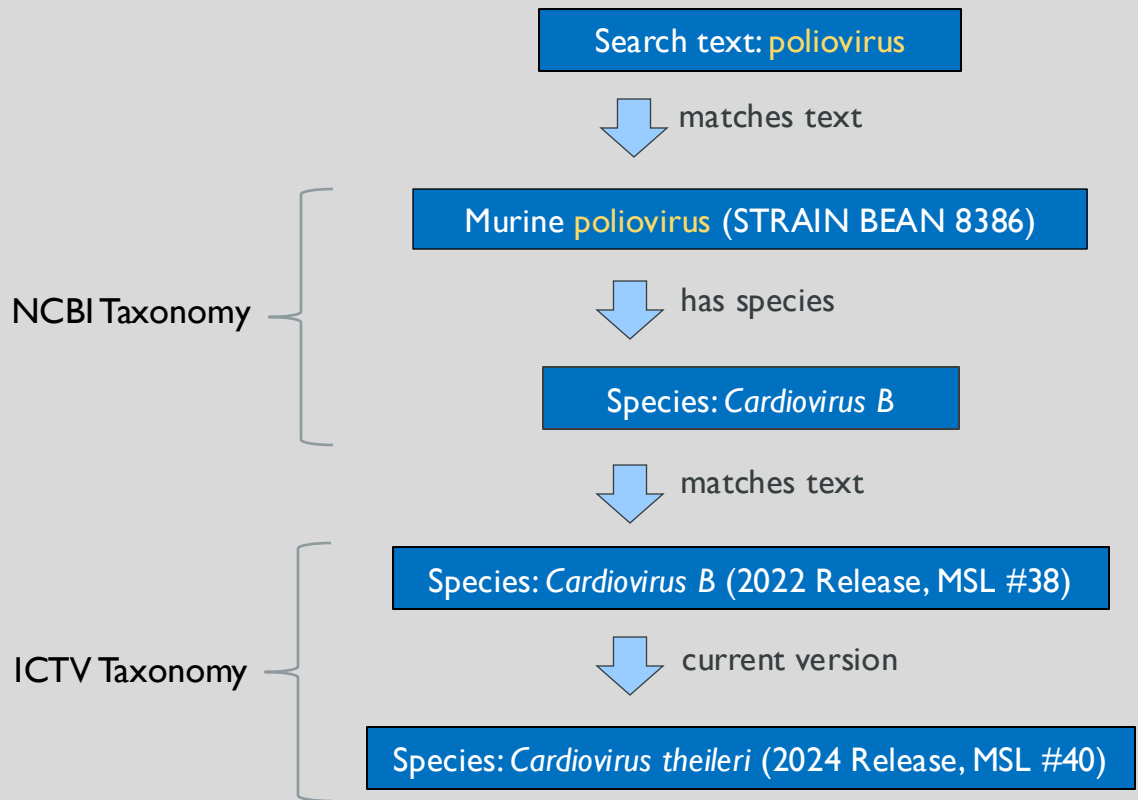
Explanation of an example match

Matching name	Source (name type)	Superseded taxon name
Murine poliovirus (STRAIN BEAN 8386)	NCBI (equivalent name)	<i>Cardiovirus B</i>

↑  
Superseded taxon name



# Superseded Taxon Name





## FUTURE RESOURCES

- Enhancements to existing tools
- Demarcation Criteria Database
- Find the Virus
- Application Programming Interface (API)
- User-driven suggestions



QUESTIONS?