

**Part 1:** **TITLE, AUTHORS, APPROVALS, etc**

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| **Code assigned:** | ***2023.023D*** |  |
| **Short title:** Establishing the order *Jormunvirales*, one new family (*Draupnirviridae*) and associated genera and species in the class *Arfiviricetes* (phylum *Cressdnaviricota*) | | |
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**List the ICTV Study Group(s) that have seen this proposal**

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**ICTV Study Group comments and response of proposer**

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**ICTV Study Group votes on proposal**

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| **Study Group** | **Number of members** | | |
| **Votes support** | **Votes against** | **No vote** |
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**Authority to use the name of a living person**

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| **Is any taxon name used here derived from that of a living person (Y/N)** | N |

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| --- | --- | --- |
| **Taxon name** | **Person from whom the name is derived** | **Permission attached (Y/N)** |
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**Submission dates**

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| Date first submitted to SC Chair | 14 July 2023 |
| Date of this revision (if different to above) | 5 Oct 2023 |

**ICTV-EC comments and response of the proposer**

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| The proposal was deemed acceptable in the form presented at the EC meeting. However, in the meantime, an article has been published [13] where a group of viruses considered in the current TaxoProp was suggested to be classified into a new family, *Draupnirviridae*. To avoid confusion in the literature, we renamed the originally proposed family *Jormunviridae* to *Draupnirviridae*. To maintain the link to Norse mythology in both family and order names, we also replaced the order name *Squillovirales* with *Jormunvirales*. No changes to the classification scheme itself were made. |

**Part 2:** **NON-TAXONOMIC PROPOSAL**

**Text of proposal**

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**Part 3:** **TAXONOMIC PROPOSAL**

**Name of accompanying Excel module**

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| 2023.023D.N.v2. Squillovirales\_1no\_1nf\_42ng\_67nsp.xlsx |

**Abstract**

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| We propose to establish the order *Jormunvirales* in the class *Arfiviricetes* (phylum *Cressdnaviricota*), including one new family, *Draupnirviridae*,with 42 genera and 67 species. |

**Text of proposal**

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| |  | | --- | | We propose to establish the order *Jormunvirales,* including one new family, *Draupnirviridae*,comprising 42 genera and 67 species to classify 102 viral sequences that are part of a group of viruses informally referred to as CRESSV3 in the phylum *Cressdnaviricota* [1-4].  The order name *Jormunvirales* is derived from **Jourmun**dgander (Norse mytology) - the enemy of the thunder god Thor was also called World Serpent, because its body coiled around the whole Earth (Midgard).  The family name *Draupnirviridae* was proposed by Dr. Cormac M Kinsella and Dr. Lia van der Hoek (University of Amsterdam) in a recent publication [13] and is derived from the ring *Draupnir* of Norse mythology, said to have multiplied itself every ninth night. It alludes to both the circular viral genome and genome replication.  **Genus and species demarcation**  We undertook comparative genomics and phylogenetic analyses of the Rep proteins of members of this group to determine their relationships. Genera were delineated based on phylogenetic analyses coupled with pairwise identities and also the genome organization relative to the *rep* open reading frame (Figures 2 - 3).  For species demarcation, we used a 78% pairwise nucleotide genome-wide sequence identity which is similar to that used for other cressdnaviruses [5-7].  **Genera**  Etymology of genus names (derived from gladiator names)   1. *Atroxivirus: Atrox meaning savage and bloody or cruel* 2. *Audacivirus: Audacia meaning boldness or courage* 3. *Audaxivirus: Audaxi meaning daring* 4. *Bellicinaivirus: Bellicina meaning female warrior* 5. *Citataivirus: Citata meaning an agile warrior* 6. *Ferullusivirus: Ferullus meaning as strong as iron* 7. *Incitativirus: Incitata meaning fast-moving, aroused or passionate* 8. *Malificivirus: Malificia meaning evil* 9. *Potensivirus: Potens meaning powerful, to confer potency* 10. *Rapidusivirus: Rapidus meaning swift and fierce* 11. *Citiorivirus: Citior meaning with a lot of speed* 12. *Asperivirus: Asper meaning hope answered* 13. *Fervidivirus: Fervida meaning boiling hot* 14. *Durusivirus: Durus meaning hard or fast* 15. *Nocentianivirus: Nocentianus meaning determined killer or fierce warrior* 16. *Nervillivirus: Nervilla meaning tough and small* 17. *Mordaxivirus: Mordax meaning biting or snappish* 18. *Periculosovirus: Periculosa meaning dangerous* 19. *Properatisvirus: Properatus meaning to hasten* 20. *Strenuaivirus: Strenua means Goddess of the new year, well-being and purification* 21. *Tetricillivirus: Tetricilla meaning a harsh and cruel woman* 22. *Robaratusivirus: Robaratus meaning one with strength* 23. *Torentivirus: Torentius meaning a treacherous river* 24. *Valentivirus: Valentia meaning a powerful female* 25. *Funestivirus: Funestus meaning calamitous , deadly or, fatal* 26. *Citaivirus: Cita meaning a woman with agility* 27. *Armipotenivirus: Armipotens (English origin) meaning powerful* 28. *Validivirus: Validus meaning strong and powerful* 29. *Roburiusivirus: Roburius meaning one with strength and fury* 30. *Vegetinivirus: Vegetinus meaning powerful one* 31. *Pollentivirus: Pollentius meaning one who has power* 32. *Vegetivirus: Vegetus meaning power or strength* 33. *Vehemenivirus: Vehemens (origin) meaning emphatic, vigorous or lively* 34. *Velocianivirus: Velocianus meaning rapid or fast* 35. *Veloxivirus: Velox meaning swift* 36. *Incitatusivirus: Incitatus meaning swift* 37. *Violenivirus: Violens meaning destructive action* 38. *Belligerivirus: Belliger meaning bringer of war* 39. *Viratusivirus: Viratus meaning strong or virility* 40. *Virilianivirus: Virilianus meaning manly or energetic* 41. *Volantivirus: Volantius meaning flying* 42. *Strenuusivirus: Strenuus meaning vigorous*   Etymology of species epithets – derived from host names, source and institutions names that generated the sequence data.   1. *Aedvexis: Aedes vexans - latinized by 'is'* 2. *Anlentse: Saanich Inlet - latinized by 'ense'* 3. *Antaflavis: Pantala flavescens - latinized by 'is'* 4. *Arilasis: Arizona virus Lake water sample - latinized by 'is'* 5. *Aristcris: Arizona State University crucivirus - latinized by 'is'* 6. *Austris: Austrovenus - latinized by 'is'* 7. *Bacesis: bat feces- latinized by 'is'* 8. *Baguanis: bat guano - latinized by 'is'* 9. *Cotis: cow tissue* 10. *Crordgris: Procordulia grayi - latinized by 'is'* 11. *Crutis: crucian tissue* 12. *Curcianense: crucivirus France - latinized by 'ense'* 13. *Cylocis: Cygnus olor fecal material -latinized by 'is'* 14. *Diadonense: Dianchi and Donghu Lake - latinized by 'ense'* 15. *Erthyycolis: Erythemis simplicicollis* 16. *Flovetense: Florida State University wastewater - latinized by 'ense'* 17. *Flowis: Florida wastewater - latinized by 'is'* 18. *Frelianis: Freshwater lake (Dianchi) sample- latinized by 'is'* 19. *Grunawis: Gruidae anal swab - latinized by 'is'* 20. *Lancristus: Lanius cristatus - latinized by 'is'* 21. *Lanversius: Portland State University crucivirus* 22. *Lasamoense: Lake Sarah mollusc latinized by 'ense'* 23. *Lasarense: Lake Sarah latinized by 'ense'* 24. *Lastavis: Portland State University crucivirus - latinized by 'is'* 25. *Loriverwastis: Florida State University wastewater - latinized by 'is'* 26. *Mimentis: Mollusca sediment - latinized by 'is'* 27. *Minfulis: Miniopterus fuliginosus - latinized by 'is'* 28. *Minifulis: Miniopterus fuliginosus - latinized by 'is'* 29. *Molmolis: Molossus molossus - latinized by 'is* 30. *Motavenis: Marmota flaviventris - latinized by 'is'* 31. *Myomainis: Myotis myotis brain - latinized by 'is'* 32. *Nemenis: New Zealand sediment- latinized by 'is'* 33. *Nobatis: bat guano - latinized by 'is'* 34. *Orancis: Oregon France crucivirus - latinized by 'is'* 35. *Orstucis: Portland State University cruci - latinized by 'is'* 36. *Pachylongis: Pachydiplax longipennis - latinized by 'is'* 37. *Phonalis: Phoenicopteridae anal swab - latinized by 'is'* 38. *Pinazonis: Pinal County, Arizona airborne particulate matter - latinized by 'is'* 39. *Pleritis: Plecotus auritus -latinized by 'is'* 40. *Porcris: Portland State University crucivirus - latinized by 'is'* 41. *Portlucense: Portland State University crucivirus - latinized by 'ense'* 42. *Potacris: Portland State University crucivirus - latinized by 'is'* 43. *Raptis: red snapper tissue* 44. *Recresis: red-crowned crane feces - latinized by 'is'* 45. *Reperis: red snapper tissue* 46. *Reperis: red snapper tissue* 47. *Resnapis: red snapper tissue* 48. *Rhisidis: Rhinolophus hipposideros - latinized by 'is'* 49. *Ridensis: Tadarida brasiliensis* 50. *Sabatis: USA seabass tissue* 51. *Saidatense: USA: Florida wastewater - latinized by 'ense'* 52. *Sanlemaris: Saanich Inlet uncultured marine virus -latinized by 'is'* 53. *Saquitis: USA mosquito - latinized by 'is'* 54. *Satuanis: USA bat guano - latinized by 'is'* 55. *Seabatis: sea bass tissue* 56. *Semberis: sea cucumber tissue* 57. *Sitoranense: University of South Florida Manatee Spring - latinized by 'ense'* 58. *Stregense: Strait of Georgia - latinized by 'ense'* 59. *Tanscopis: Tangara episcopus -latinized by 'is'* 60. *Ubatis: USA seabass tissue* 61. *Uhadis: USA haddock tissue* 62. *Umantense: USA Manatee springs -latinized by 'ense'* 63. *Umaspis: USA Manatee Spring- latinized by 'is'* 64. *Westrobis: New Zealand Austrovenus stutchburyi -latinized by 'is'* 65. *Yotargis: Myotis emarginatus - latinized by 'is'* 66. *Zocris: Arizona State University crucivirus - latinized by 'is'* 67. *Zuncris: Arizona State University crucivirus - latinized by 'is'* | |

**Supporting evidence**

**Table 1:** Summary of the viruses classified in the new order *Jormunvirales* and family *Draupnirviridae.*

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| **Genus** | **Species** | **Accession #** | **Virus** | **Year** | **Country** | **Host /source** | **Isolate** |
| *Robaratusivirus* | *Robaratusivirus reperis* | MH616644 | Circoviridae sp. ctbc359 | 2017 | USA | red snapper tissue | tbc359 |
| *Robaratusivirus* | *Robaratusivirus semberis* | KX246262 | Uncultured virus PcaCV4 | 2015 | USA | *Parastichopus californicus* | PcaCV4 |
| *Funestivirus* | *Funestivirus seabatis* | MH649188 | CRESS virus sp. ctbb692 | 2017 | USA | seabass tissue | ctbb692 |
| *Funestivirus* | *Funestivirus anlentse* | JX904581 | Uncultured marine virus SI03931 |  | Canada | Saanich Inlet, British Columbia, Canada | SI03931 |
| *Violenivirus* | *Violenivirus cotis* | MH617295 | Circoviridae sp. ctbe120 | 2017 | USA | *Bos taurus* | ctbe120 |
| *Violenivirus* | *Violenivirus raptis* | MH617708 | Circoviridae sp. ctcb567 | 2017 | USA | red snapper tissue | ctcb567 |
| *Atroxivirus* | *Atroxivirus austris* | KM874300 | Avon-Heathcote Estuary associated circular virus 4 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-4-NZ-3049C3-2012 |
| *Atroxivirus* | *Atroxivirus austris* | KM874299 | Avon-Heathcote Estuary associated circular virus 4 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-4-NZ-3049C2-2012 |
| *Atroxivirus* | *Atroxivirus austris* | KM874298 | Avon-Heathcote Estuary associated circular virus 4 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-4-NZ-3049C1-2012 |
| *Strenuusivirus* | *Strenuusivirus lasamoense* | MH648972 | CRESS virus sp. ctee590 | 2017 | USA | seabass tissue | ctee590 |
| *Strenuusivirus* | *Strenuusivirus lasamoense* | KM874308 | Avon-Heathcote Estuary associated circular virus 6 | 2012 | New Zealand | i | AHEaCV-6-NZ-4645GA-2012 |
| *Strenuusivirus* | *Strenuusivirus lasamoense* | KM874306 | Avon-Heathcote Estuary associated circular virus 6 | 2012 | New Zealand | benthic sediment | AHEaCV-6-NZ-2974SG-2012 |
| *Strenuusivirus* | *Strenuusivirus lasamoense* | KM874305 | Avon-Heathcote Estuary associated circular virus 6 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-6-NZ-3103C3-2012 |
| *Strenuusivirus* | *Strenuusivirus lasamoense* | KM874304 | Avon-Heathcote Estuary associated circular virus 6 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-6-NZ-3103C1-2012 |
| *Strenuusivirus* | *Strenuusivirus lasamoense* | KM874307 | Avon-Heathcote Estuary associated circular virus 6 | 2012 | New Zealand | *Paphies subtriangulata* | AHEaCV-6-NZ-2194TU-2012 |
| *Strenuusivirus* | *Strenuusivirus resnapis* | MH617406 | Circoviridae sp. ctce509 | 2017 | USA | red snapper tissue | ctce509 |
| *Asperivirus* | *Asperivirus lasarense* | KP153423 | Lake Sarah-associated circular virus-16 | 2013 | New Zealand | *Potamopyrgus antipodarum* | LSaCV-16-LSGA-2013 |
| *Asperivirus* | *Asperivirus lasarense* | KP153421 | Lake Sarah-associated circular virus-16 | 2013 | New Zealand | water | LSaCV-16-LSWA-2013 |
| *Asperivirus* | *Asperivirus lasarense* | KP153420 | Lake Sarah-associated circular virus-16 | 2013 | New Zealand | *Echyridella menziesii* | LSaCV-16-LSMU-122865-13 |
| *Asperivirus* | *Asperivirus lasarense* | KP153422 | Lake Sarah-associated circular virus-16 | 2013 | New Zealand | *Chironomus zealandicus* | LSaCV-16-LSWO-2013 |
| *Asperivirus* | *Asperivirus nemenis* | KP153408 | Lake Sarah-associated circular virus-10 | 2013 | New Zealand | sediment | LSaCV-10-LSSO-2013 |
| *Citaivirus* | *Citaivirus phonalis* | MT138056 | CRESS virus sp. zftfla02cir6 | 2016 | China | Avian | zftfla02cir6 |
| *Citaivirus* | *Citaivirus phonalis* | MN928937 | CRESS virus sp. fla06cir2 | 2018 | China | Phoenicopteridae | fla06cir2 |
| *Citaivirus* | *Citaivirus phonalis* | MN928936 | CRESS virus sp. fla05cir2 | 2018 | China | Phoenicopteridae | fla05cir2 |
| *Citaivirus* | *Citaivirus phonalis* | MN928935 | CRESS virus sp. fla04cir1 | 2018 | China | Phoenicopteridae | fla04cir1 |
| *Rapidusivirus* | *Rapidusivirus mimentis* | KM874318 | Avon-Heathcote Estuary associated circular virus 9 | 2012 | New Zealand | benthic sediment | AHEaCV-9-NZ-3131SG-2012 |
| *Rapidusivirus* | *Rapidusivirus mimentis* | KM874317 | Avon-Heathcote Estuary associated circular virus 9 | 2012 | New Zealand | *Amphibola crenata* | AHEaCV-9-NZ-4424GA-2012 |
| *Rapidusivirus* | *Rapidusivirus mimentis* | KM874316 | Avon-Heathcote Estuary associated circular virus 9 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-9-NZ-3171C3-2012 |
| *Rapidusivirus* | *Rapidusivirus mimentis* | KM874315 | Avon-Heathcote Estuary associated circular virus 9 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-9-NZ-3171C1-2012 |
| *Veloxivirus* | *Veloxivirus ubatis* | MH649090 | CRESS virus sp. ctfb748 | 2017 | USA | seabass tissue | ctfb748 |
| *Citataivirus* | *Citataivirus uhadis* | MH617523 | CRESS virus sp. ctbj245 | 2017 | USA | haddock tissue | ctbj245 |
| *Citataivirus* | *Citataivirus sanlemaris* | JX904407 | Uncultured marine virus SI00078 |  | Canada | Saanich Inlet, British Columbia, Canada | SI00078 |
| *Roburiusivirus* | *Roburiusivirus westrobis* | KM874294 | Avon-Heathcote Estuary associated circular virus 2 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-2-NZ-3024C3-2012 |
| *Roburiusivirus* | *Roburiusivirus westrobis* | KM874293 | Avon-Heathcote Estuary associated circular virus 2 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-2-NZ-3024C2-2012 |
| *Roburiusivirus* | *Roburiusivirus westrobis* | KM874292 | Avon-Heathcote Estuary associated circular virus 2 | 2012 | New Zealand | *Austrovenus stutchburyi* | AHEaCV-2-NZ-3024C1-2012 |
| *Properatisvirus* | *Properatisvirus sabatis* | MH617385 | Circoviridae sp. ctcb18 | 2017 | USA | seabass tissue | ctcb18 |
| *Properatisvirus* | *Properatisvirus sabatis* | JX904076 | Uncultured marine virus SOG00164 |  | Canada | Strait of Georgia, British Columbia, Canada | SOG00164 |
| *Properatisvirus* | *Properatisvirus stregense* | JX904075 | Uncultured marine virus SOG00160 |  | Canada | Strait of Georgia, British Columbia, Canada | SOG00160 |
| *Properatisvirus* | *Properatisvirus stregense* | JX904139 | Uncultured marine virus SOG03994 |  | Canada | Strait of Georgia, British Columbia, Canada | SOG03994 |
| *Fervidivirus* | *Fervidivirus umantense* | MW202677 | CRESS virus sp. ctaE5783 | 2019 | USA | Manatee Spring | ctaE5783 |
| *Velocianivirus* | *Velocianivirus diadonense* | KT149410 | Circovirus-like genome DHCV-4 | 2010 | China | Freshwater lake (Donghu) sample (< 0.5 m) | DHCV-4 |
| *Velocianivirus* | *Velocianivirus diadonense* | KT149409 | Circovirus-like genome DHCV-3 | 2010 | China | Freshwater lake (Donghu) sample (< 0.5 m) | DHCV-3 |
| *Torentivirus* | *Torentivirus curcianense* | MT478552 | Crucivirus sp. Crucivirus-136 001794\_virusbaton | 2013 | France | water | Crucivirus-136 001794\_virusbaton |
| *Torentivirus* | *Torentivirus orstucis* | MT478527 | Crucivirus sp. Crucivirus-217 001577\_virusbaton | 2013 | France | water | Crucivirus-217 001577\_virusbaton |
| *Torentivirus* | *Torentivirus crutis* | MK012508 | CRESS virus sp. ctef39 | 2017 | USA | crucian tissue | ctef39 |
| *Torentivirus* | *Torentivirus potacris* | MT478520 | Crucivirus sp. Crucivirus-231 001539\_virusbaton | 2013 | France | water | Crucivirus-231 001539\_virusbaton |
| *Torentivirus* | *Torentivirus aristcris* | MT263594 | Crucivirus-295 BS\_189 | 2012 | New Zealand | water | BS\_189 |
| *Torentivirus* | *Torentivirus lanversius* | MT478518 | Crucivirus sp. Crucivirus-235 001534\_virusbaton | 2013 | France | water | Crucivirus-235 001534\_virusbaton |
| *Torentivirus* | *Torentivirus zocris* | MT263533 | Crucivirus-184 CHIVOP3\_758 | 2015 | Brazil | plant | CHIVOP3\_758 |
| *Torentivirus* | *Torentivirus* | MT181527 | Marmot associated feces circular DNA molecule 4 | 2018 | USA | *Marmota flaviventris* | MAR3\_3\_1358 |
| *Malificivirus* | *Malificivirus porcris* | MT478521 | Crucivirus sp. Crucivirus-230 001540\_virusbaton | 2013 | France | water | Crucivirus-230 001540\_virusbaton |
| *Incitatusivirus* | *Incitatusivirus orancis* | MT478515 | Crucivirus sp. Crucivirus-256 001509\_virusbaton | 2013 | France | water | Crucivirus-256 001509\_virusbaton |
| *Volantivirus* | *Volantivirus lastavis* | MT478550 | Crucivirus sp. Crucivirus-138 001787\_virusbaton | 2013 | France | water | Crucivirus-138 001787\_virusbaton |
| *Volantivirus* | *Volantivirus zuncris* | MT263655 | Crucivirus-523 GP1\_93596 | 2014 | New Zealand | water | GP1\_93596 |
| *Armipotenivirus* | *Armipotenivirus tanscopis* | MF804498 | Circoviridae TaCV2 | 2012 | Ecuador | *Tangara episcopus* | TaCV2 |
| *Pollentivirus* | *Pollentivirus pleritis* | KJ641729 | bat circovirus BtPa-CV-3/NX2013 | 2013 | China | *Plecotus auritus* | BtPa-CV-3/NX2013 |
| *Ferullusivirus* | *Ferullusivirus cylocis* | MW588080 | mute swan feces associated circular virus 6 | 2016 | United Kingdom | *Cygnus olor* | Abbotsbury/A/2016 |
| *Ferullusivirus* | *Ferullusivirus minfulis* | KJ641722 | bat circovirus BtMf-CV/HeN2013 | 2013 | China | *Miniopterus fuliginosus* | BtMf-CV/HeN2013 |
| *Ferullusivirus* | *Ferullusivirus baguanis* | HM228875 | Circoviridae TM-6c | 2008 | USA | bat | TM-6c |
| *Valentivirus* | *Valentivirus ridensis* | OL704835 | Tadarida brasiliensis associated circovirus 1 MAVG-10 | 2017 | Argentina | *Tadarida brasiliensis* | MAVG-10 |
| *Valentivirus* | *Valentivirus ridensis* | OL704834 | Tadarida brasiliensis associated circovirus 1 MAVG-09 | 2017 | Argentina | *Tadarida brasiliensis* | MAVG-09 |
| *Valentivirus* | *Valentivirus ridensis* | MH188040 | Culex circovirus-like virus CCirVL/Butte | 2016 | USA | *Culex sp.* | CCirVL/Butte |
| *Valentivirus* | *Valentivirus saquitis* | MH188041 | Culex circovirus-like virus CCirVL/Shasta | 2016 | USA | *Culex sp.* | CCirVL/Shasta |
| *Valentivirus* | *Valentivirus aedvexis* | KM972726 | mosquito circovirus B51 | 2013 | Germany | *Aedes vexans* | B51 |
| *Valentivirus* | *Valentivirus aedvexis* | KM972725 | mosquito circovirus B19 | 2013 | Germany | *Aedes vexans* | B19 |
| *Valentivirus* | *Valentivirus rhisidis* | MT815981 | bat associated circovirus BatACV/Rh1/Switzerland/2019 | 2019 | Switzerland: Grisons | *Rhinolophus hipposideros* | BatACV/Rh1/Switzerland/2019 |
| *Valentivirus* | *Valentivirus rhisidis* | KY302864 | Circovirus sp. EP38/Hun/2013 | 2013 | Hungary | *Myotis alcathoe* | EP38/Hun/2013 |
| *Valentivirus* | *Valentivirus rhisidis* | HQ335042 | Uncultured circovirus SDWAP I |  | USA: San Diego | mosquito | SDWAP I |
| *Vegetinivirus* | *Vegetinivirus nobatis* | MT734816 | bat associated circovirus BatCV/BB | 2020 | USA | bat | BatCV/BB |
| *Vegetinivirus* | *Vegetinivirus nobatis* | MT734815 | bat associated circovirus BatCV/RM | 2020 | USA | bat | BatCV/RM |
| *Vegetinivirus* | *Vegetinivirus nobatis* | MT734814 | bat associated circovirus BatCV/YB | 2020 | USA | bat | BatCV/YB |
| *Vegetinivirus* | *Vegetinivirus molmolis* | KM382272 | bat circovirus POA/2012/V | 2012 | Brazil | bat colony of *Molossus molossus* and *Tadarida brasiliensis* | POA/2012/V, |
| *Vegetinivirus* | *Vegetinivirus molmolis* | KM382271 | bat circovirus POA/2012/I | 2012 | Brazil | bat colony of *Molossus molossus* and *Tadarida brasiliensis* | POA/2012/I, |
| *Citiorivirus* | *Citiorivirus crordgris* | KF738883 | dragonfly larvae associated circular virus-9 | 2012 | New Zealand | *Procordulia grayi* | DflaCV-9\_NZ-PG10-LD |
| *Audaxivirus* | *Audaxivirus myomainis* | MT815980 | bat associated circovirus BatACV/Mm1/Switzerland/2019 | 2019 | Switzerland: Aargau | *Myotis myotis* | BatACV/Mm1/Switzerland/2019 |
| *Audaxivirus* | *Audaxivirus yotargis* | KY302869 | Circovirus sp. Bb1/Hun/2013 | 2013 | Hungary | *Myotis emarginatus* | Bb1/Hun/2013 |
| *Audaxivirus* | *Audaxivirus minifulis* | KJ641718 | bat circovirus BtMf-CV-1/GD2012 | 2012 | China | *Miniopterus fuliginosus* | BtMf-CV-1/GD2012 |
| *Audaxivirus* | *Audaxivirus bacesis* | JN857329 | Circoviridae batCV-SC703 | 2007 | China | bat feces | batCV-SC703 |
| *Periculosovirus* | *Periculosovirus satuanis* | MT734813 | bat associated circovirus BatCV/WD | 2020 | USA | bat | BatCV/WD |
| *Periculosovirus* | *Periculosovirus lancristus* | MT138071 | CRESS virus sp. thr095cir1nc | 2018 | China | avian | thr095cir1nc |
| *Periculosovirus* | *Periculosovirus lancristus* | MT138069 | CRESS virus sp. rtr167cir1 | 2018 | China | avian | rtr167cir1 |
| *Periculosovirus* | *Periculosovirus lancristus* | MN928934 | CRESS virus sp. brs113cir1 | 2018 | China | *Lanius cristatus* | brs113cir1 |
| *Periculosovirus* | *Periculosovirus lancristus* | MT138040 | CRESS virus sp. wpk049cir01 | 2018 | China | avian | wpk049cir01 |
| *Strenuaivirus* | *Strenuaivirus antaflavis* | JX185418 | dragonfly cyclicusvirus FL1-NZ37-2010 | 2010 | USA: St. Petersburg, Florida | *Pantala flavescens* | FL1-NZ37-2010 |
| *Vegetivirus* | *Vegetivirus portlucense* | MT478555 | Crucivirus sp. Crucivirus-130 001815\_virusbaton | 2013 | France | water | Crucivirus-130 001815\_virusbaton |
| *Vegetivirus* | *Vegetivirus loriverwastis* | KY487866 | Uncultured virus CG197 | 2016 | USA: Florida | wastewater | CG197 |
| *Vehemenivirus* | *Vehemenivirus recresis* | KY312555 | Circovirus sp. yc-16 | 2014 | China | *Grus japonensis* | yc-16 |
| *Nervillivirus* | *Nervillivirus flovetense* | KY487847 | Uncultured virus CG178 | 2016 | USA: Florida | wastewater | CG178 |
| *Nervillivirus* | *Nervillivirus flovetense* | KY487838 | Uncultured virus CG169 | 2016 | USA: Florida | wastewater | CG169 |
| *Virilianivirus* | *Virilianivirus pachylongis* | KM598405 | Odonata-associated circular virus-19 | 2012 | USA | *Pachydiplax longipennis* | OdasCV-19-US-1604SC1-12 |
| *Virilianivirus* | *Virilianivirus pachylongis* | KM598404 | Odonata-associated circular virus-19 | 2012 | USA | *Libellula quadrimaculata* | OdasCV-19-US-1594LM1-12 |
| *Nocentianivirus* | *Nocentianivirus saidatense* | KY487945 | Uncultured virus CG276 | 2016 | USA: Florida | wastewater | G276 |
| *Mordaxivirus* | *Mordaxivirus sitoranense* | MW202764 | CRESS virus sp. ctSa3636 | 2019 | USA | Manatee Spring | ctSa3636 |
| *Incitativirus* | *Incitativirus reperis* | MH616869 | CRESS virus sp. ctbd540 | 2017 | USA | red snapper tissue | ctbd540 |
| *Durusivirus* | *Durusivirus erthyycolis* | KM598406 | Odonata-associated circular virus-20 | 2012 | USA | *Erythemis simplicicollis* | OdasCV-20-US-718DFS-12 |
| *Audacivirus* | *Audacivirus pinazonis* | MW678988 | virus sp. D3\_88 | 2009 | USA: Pinal County, Arizona | airborne particulate matter | D3\_88 |
| *Bellicusivirus* | *Bellicusivirus grunawis* | MN928938 | CRESS virus sp. hftoti49cir2 | 2016 | China | Gruidae | hftoti49cir2 |
| *Belligerivirus* | *Belligerivirus frelianis* | KT149403 | circovirus-like genome DCCV-10 | 2010 | China | Freshwater lake (Dianchi) | DCCV-10 |
| *Tetricillivirus* | *Tetricillivirus motavenis* | MT181546 | marmot associated feces virus 6 | 2018 | USA | *Marmota flaviventris* | MAR1\_1\_1900 |
| *Validivirus* | *Validivirus umaspis* | MW202896 | CRESS virus sp. ctIfk793 | 2019 | USA | Manatee Spring | ctIfk793 |
| *Validivirus* | *Validivirus umaspis* | MW202735 | CRESS virus sp. ctVLj790 | 2019 | USA | Manatee Spring | ctVLj790 |
| *Viratusivirus* | *Viratusivirus arilasis* | MW697472 | MAG: Arizlama virus AZLM\_985 | 2012 | USA | Lake water sample | AZLM\_985 |
| *Potensivirus* | *Potensivirus flowis* | KY487854 | Uncultured virus CG185 | 2016 | USA: Florida | wastewater |  |

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**Figure 1:** Maximum likelihood phylogenetic tree inferred from Rep proteins of members of the phylum *Cressdnaviricota*. Related sequence groups are collapsed into triangles, the side lengths of which are proportional to the distances between the closest and farthest leaf nodes. The alignment was trimmed with TrimAL [8] with gap threshold of 0.2. The maximum likelihood phylogenetic tree was constructed using IQtree [9] with automatic selection of the best-fit substitution model for a given alignment, which was Q.pfam+F+R10. Numbers at the nodes represent aLRT branch supports. The scale bar represents the number of substitutions per site.

**A screen shot of a computer screen

Description automatically generated**

**Figure 2:** Maximum likelihood phylogenetic tree of the Rep sequences of the members of the*Draupnirviridae*family inferred with PhyML 3.0 [11] with rtREV+I+G+F model determined as the best substitution model using ProtTest 3 [12] and rooted with representative sequences of members of the family *Bacilladnaviridae*. The species belonging to the same genus are indicated with the same color. Numbers at the nodes represent aLRT branch supports. The cyan line shows a proposed demarcation of genera. The genome organization relative to the *rep* ORF is shown to the right of the phylogeny.

**A blue and white striped pattern

Description automatically generated**

**Figure 3:** A ‘two color’ pairwise identity matrix of members of the family *Draupnirviridae* with 78% species threshold *s* inferred using SDT v1.2 [12].

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