Template for Taxonomic Proposal to the ICTV Executive Committee
Creating Tentative Species in an existing genus

Code[†] 2005.118I.04 To designate the following unassigned species in the family:

Dicistroviridae

Kashmir bee virus
Solenopsis invicta virus-1

[†] Assigned by ICTV officers
° leave blank if inappropriate or in the case of an unassigned genus

Author(s) with email address(es) of the Taxonomic Proposal

Dicistroviridae Study Group:
Peter Christian (pchristian@nibsc.ac.uk); Nobuhiko Nakashima (nakaji@affrc.go.jp)
Karyn Johnson (karynj@uq.edu.au); Eric Carstens carstens@post.queensu.ca
Frank van der Wilk Frank.van.der.Wilk@rivm.nl; Jack Johnson jackj@scripps.edu
Les Domier: l-domier@uiuc.edu; Paul Scotti PScotti@hortresearch.co.nz

Old Taxonomic Order

Order	-
Family	***Dicistroviridae***
Genus	***Cripavirus***
Type Species	***Cricket paralysis virus***
Species in the Genus	***Aphid lethal paralysis virus***
	Black queen cell virus
	Drosophila C virus
	Himetobi P virus
	Plautia stali intestine virus
	Rhopalosiphum padi virus
	Triatoma virus
Unassigned Species in the family	***Acute bee paralysis virus***
	Taura syndrome virus

New Taxonomic Order

Order	-
Family	***Dicistroviridae***
Genus	***Cripavirus***
Type Species	***Cricket paralysis virus*** **(**
Species in the Genus	***Aphid lethal paralysis virus***
	Aphid lethal paralysis virus (ALPV)
	Black queen cell virus
	Black queen cell virus (BQCV)
	Drosophila C virus
	Drosophila C virus (DCV)
	Himetobi P virus
	Himetobi P virus (HiPV)
	Plautia stali intestine virus
	Plautia stali intestine virus (PSIV)
	Rhopalosiphum padi virus
	Rhopalosiphon padi virus (RhPV)
	Triatoma virus
	Triatoma virus (TrV)

Unassigned Species in the Family	***Acute bee paralysis virus***
	Acute bee paralysis virus (ABPV)
	Kashmir bee virus
	Kashmir bee virus (KBV)
	Solenopsis invicta virus-1
	Solenopsis invicta virus-1 (SINV-1)
	Taura syndrome virus
	Taura syndrome virus (TSV)

Species demarcation criteria in the genus

The list of species demarcation criteria is:

- Natural host range: species can be differentiated on the basis of their natural host range and their relative ability to replicate in a range of cultured insect cells.
- Serology: all species are serologically distinct.
- Sequence identity between the CPs of isolates and strains of a species is above 90%.

Argumentation to justify the designation of new tentative species in the genus

The full genomic sequences of Kashmir bee virus (KBV) (de Miranda *et al*., 2004) and a new virus from the Red fire ant, *Solenopsis invicta* , (*Solenopsis invicta* virus-1; SINV-1) (Valles *et al.*, 2004) have recently been published. Published analyses of the genomes of both viruses show them to have organizations that would place them within the *Dicistroviridae*.
Phenetic analysis support this placement in the *Dicistroviridae* and show that both viruses cluster with the *Acute bee paralysis virus*. In some instances *Taura syndrome virus* is part of this cluster – but depending on the sequences used this is not always the case.
Previously, *Acute bee paralysis virus* and *Taura syndrome virus* were listed as tentative species in the genus *Cripavirus* because, 1) they seemed to quite distantly related to other members of the genus (Appendix 1) but, more importantly, 2) they have a quite different secondary structure in the intergenic region (IGR) internal ribosome entry site (IRES) (Appendix 2). On the basis of the structure of the IGR IRES (Appendix 2) and the relationship of these two new viruses with existing viruses (Appendix 1) it is recommended that these viruses be assigned as tentative species in the genus *Cripavirus* in the family *Dicistroviridae*.

List of created Unassigned species in the Family

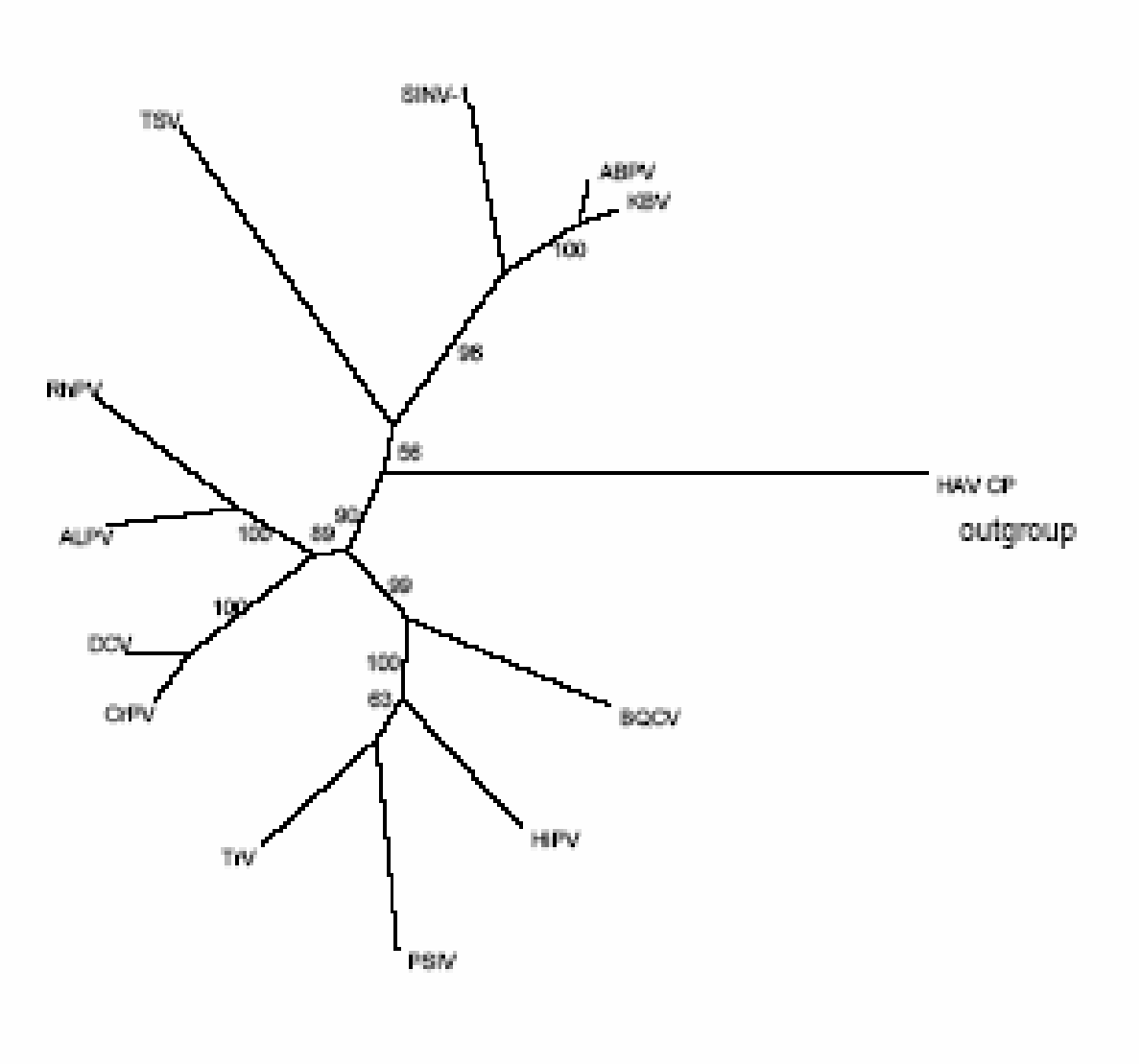
Kashmir bee virus
Solenopsis invicta virus-1

References

de Miranda J.R., Drebot M., Tyler S., Shen M., Cameron C.E., Stoltz D.B. and Camazine S.M. (2004) Complete nucleotide sequence of Kashmir bee virus and comparison with acute bee paralysis virus. J. Gen. Virol. **85**, 2263-2270.

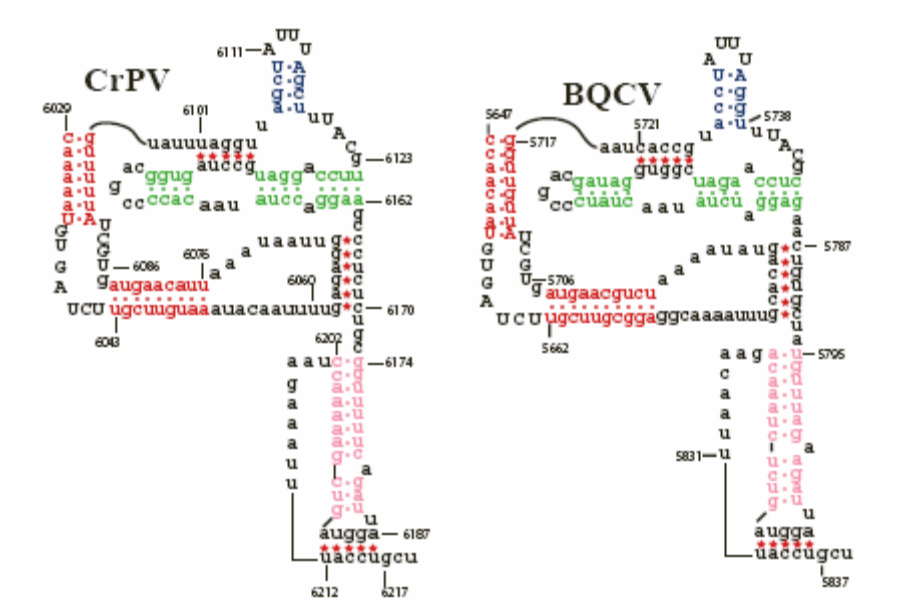
Valles S.M., Strong C.A., Dang P.M., Hunter W.B., Pereira R.M., Oi D.H., Shapiro A.M. Williams D.F. (2004). A picorna-like virus from the red imported fire ant, *Solenopsis invicta*: initial discovery, genome sequence, and characterization, Virology, **328**, 151-157.

Annexes:

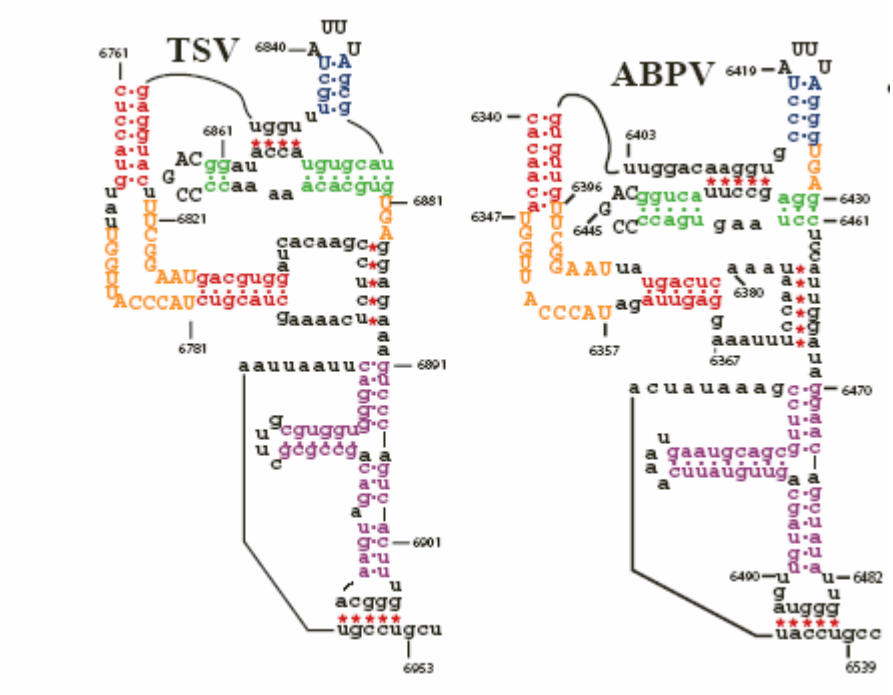


Appendix 1. Neighbour joining tree constructed from an alignment of the structural protein encoding ORF (ORF 2) of the dicistroviruses. The tree was rooted using the Hepatitis A coat protein-encoding region as an outgroup.

Appendix 2:



Type 1 Structure of the IGR IRES. Cricket paralysis virus (CrPV), Black queen cell virus (BQCV), Drosophila C virus (DCV), Aphid lethal paralysis virus (ALPV), Rhopalosiphum padi virus (RhPV), Plautia stali intestine virus (PSIV), Triatoma virus (TrV) and Himetobi P virus all share this structure.



Type 2 Structure of the IGR IRES. A similar structure is shared by Taura syndrome virus (TSV), Acute bee paralysis virus (ABPV), Kashmir bee virus (KBV) and Solenopsis invicta virus-1 (SINV-1).