



This form should be used for all taxonomic proposals. Please complete all those modules that are applicable (and then delete the unwanted sections). For guidance, see the notes written in blue and the separate document "Help with completing a taxonomic proposal"

Please try to keep related proposals within a single document; you can copy the modules to create more than one genus within a new family, for example.

MODULE 1: **TITLE, AUTHORS, etc**

Code assigned:	2010.005.a-dV	(to be completed by ICTV officers)				
Short title: Create genus <i>Kappatorquevirus</i> in the family <i>Anelloviridae</i> (e.g. 6 new species in the genus <i>Zetavirus</i>)						
Modules attached (modules 1 and 9 are required)	1 <input checked="" type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	
	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input checked="" type="checkbox"/>		

Author(s) with e-mail address(es) of the proposer:

Philippe Biagini on behalf of the Anelloviridae-Circoviridae Study Group philippe.biagini@efs.sante.fr / pbiagini-ets-ap@gulliver.fr

List the ICTV study group(s) that have seen this proposal:

A list of study groups and contacts is provided at http://www.ictvonline.org/subcommittees.asp . If in doubt, contact the appropriate subcommittee chair (fungal, invertebrate, plant, prokaryote or vertebrate viruses)	Anelloviridae-Circoviridae Study Group
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ICTV-EC or Study Group comments and response of the proposer:

Date first submitted to ICTV:

Date of this revision (if different to above):

13 July 2010

Next revision – This proposal originally concerned the creation of new species *Torque teno sus virus 3* in new genus *Kappatorquevirus*. However, the later proposal 2011.002V wanted to change of this name to *Torque teno sus virus 2*, to be more in line with field nomenclature. The same proposal also wanted to change the accepted species *Torque teno sus virus 2* (genus *Iotatorquevirus*) to *Torque teno sus virus 1b*, again to be more in line with field nomenclature. This situation would have resulted in the deletion of *Torque teno sus virus 2* from genus *Iotatorquevirus* and the creation of a different species of the same name in genus *Kappatorquevirus*. Therefore, the current proposal has been altered so that *Torque teno sus virus 3* instead becomes *Torque teno sus virus k2*. As a result, *Torque teno sus virus 2* will exist in neither genus.

20 October 2011

MODULE 2: **NEW SPECIES**

creating and naming one or more new species.

If more than one, they should be a group of related species belonging to the same genus. All new species must be placed in a higher taxon. This is usually a genus although it is also permissible for species to be “unassigned” within a subfamily or family. Wherever possible, provide sequence accession number(s) for one isolate of each new species proposed.

Code	<i>2010.005.aV</i>	(assigned by ICTV officers)
To create 1 new species within:		
Genus:	<i>Kappatorquevirus (new)</i>	Fill in all that apply. • If the higher taxon has yet to be created (in a later module, below) write “ (new) ” after its proposed name. • If no genus is specified, enter “ unassigned ” in the genus box.
Subfamily:		
Family:	<i>Anelloviridae</i>	
Order:		
And name the new species:		
<i>Torque teno sus virus k2</i>		AY823991

Reasons to justify the creation and assignment of the new species:
The current criterion demarcating species in the genus is: ORF1 nucleotide sequence divergence >35%. The isolate listed above meets the species demarcation criteria.
Further material in support of this proposal is presented in the Appendix, Module 9.

MODULE 3: NEW GENUS

creating a new genus

Ideally, a genus should be placed within a higher taxon.

Code	2010.005.bV	(assigned by ICTV officers)
To create a new genus within:		
Subfamily:		Fill in all that apply. • If the higher taxon has yet to be created (in a later module, below) write “(new)” after its proposed name. • If no family is specified, enter “unassigned” in the family box
Family:	<i>Anelloviridae</i>	
Order:		

naming a new genus

Code	2010.005.cV	(assigned by ICTV officers)
To name the new genus: <i>Kappatorquevirus</i>		

Assigning the type species and other species to a new genus

Code	2010.005.dV	(assigned by ICTV officers)
To designate the following as the type species of the new genus		
<i>Torque teno sus virus k2</i>		Every genus must have a type species. This should be a well characterized species although not necessarily the first to be discovered
The new genus will also contain any other new species created and assigned to it (Module 2) and any that are being moved from elsewhere (Module 7b). Please enter here the TOTAL number of species (including the type species) that the genus will contain:		
<i>1</i>		

Reasons to justify the creation of a new genus:

Additional material in support of this proposal are presented in the Appendix, Module 9

The family *Anelloviridae* comprises a large and growing number of viruses that share a similar genome organization but are extremely variable in sequence. This prompts the creation of new genera (and species). The current criteria demarcating genera in the family is: ORF1 nucleotide sequence divergence >56%. The isolate listed above meets the genus demarcation criteria.

Origin of the new genus name:

Genera in the family *Anelloviridae* are listed as: *Alphatorquevirus*, *Betatorquevirus*, *Gammatorquevirus*, ... according to the Greek alphabet.
Sus relates to the animal species in which the virus was identified (domestic pig).

Reasons to justify the choice of type species:

First species in the genus.

Species demarcation criteria in the new genus:

If there will be more than one species in the new genus, list the criteria being used for species demarcation and explain how the proposed members meet these criteria.

MODULE 9: **APPENDIX**: supporting material

additional material in support of this proposal

References:

Biagini, P., Todd, D., Bendinelli, M., Hino, S., Mankertz, A., Mishiro, S., Niel, C., Okamoto, H., Raidal, S., Ritchie, B.W & Teo, G.C. (2005). Anellovirus. In: Virus Taxonomy, VIIIth Report of the International Committee for the Taxonomy of Viruses (C.M. Fauquet, M.A. Mayo, J. Maniloff, U. Desselberger, and L.A. Ball, eds), 335-341. Elsevier/Academic Press, London.

Biagini, P. (2009). Classification of TTV and related viruses (anelloviruses). *Curr Top Microbiol Immunol* 331, 21-33.

Huang, Y.W., Ni, Y.Y., Dryman, B.A. & Meng, X.J. (2010). Multiple infection of porcine Torque teno virus in a single pig and characterization of the full-length genomic sequences of four U.S. prototype PTTV strains: implication for genotyping of PTTV. *Virology* 396, 289-297.

Niel, C., Diniz-Mendes, L. & Devalle, S. (2005). Rolling-circle amplification of Torque teno virus (TTV) complete genomes from human and swine sera and identification of a novel swine TTV genogroup. *J Gen Virol* 86,1343-1347.

Okamoto, H. (2009). TT viruses in animals. *Curr Top Microbiol Immunol* 331, 35-52.

Okamoto, H., Takahashi, M., Nishizawa, T., Tawara, A., Fukai, K., Muramatsu, U., Naito, Y. & Yoshikawa, A. (2002). Genomic characterization of TT viruses (TTVs) in pigs, cats and dogs and their relatedness with species-specific TTVs in primates and tupaia. *J Gen Virol* 83, 1291-1297.

Annex:

Include as much information as necessary to support the proposal, including diagrams comparing the old and new taxonomic orders. The use of Figures and Tables is strongly recommended but direct pasting of content from publications will require permission from the copyright holder together with appropriate acknowledgement as this proposal will be placed on a public web site. For phylogenetic analysis, try to provide a tree where branch length is related to genetic distance.

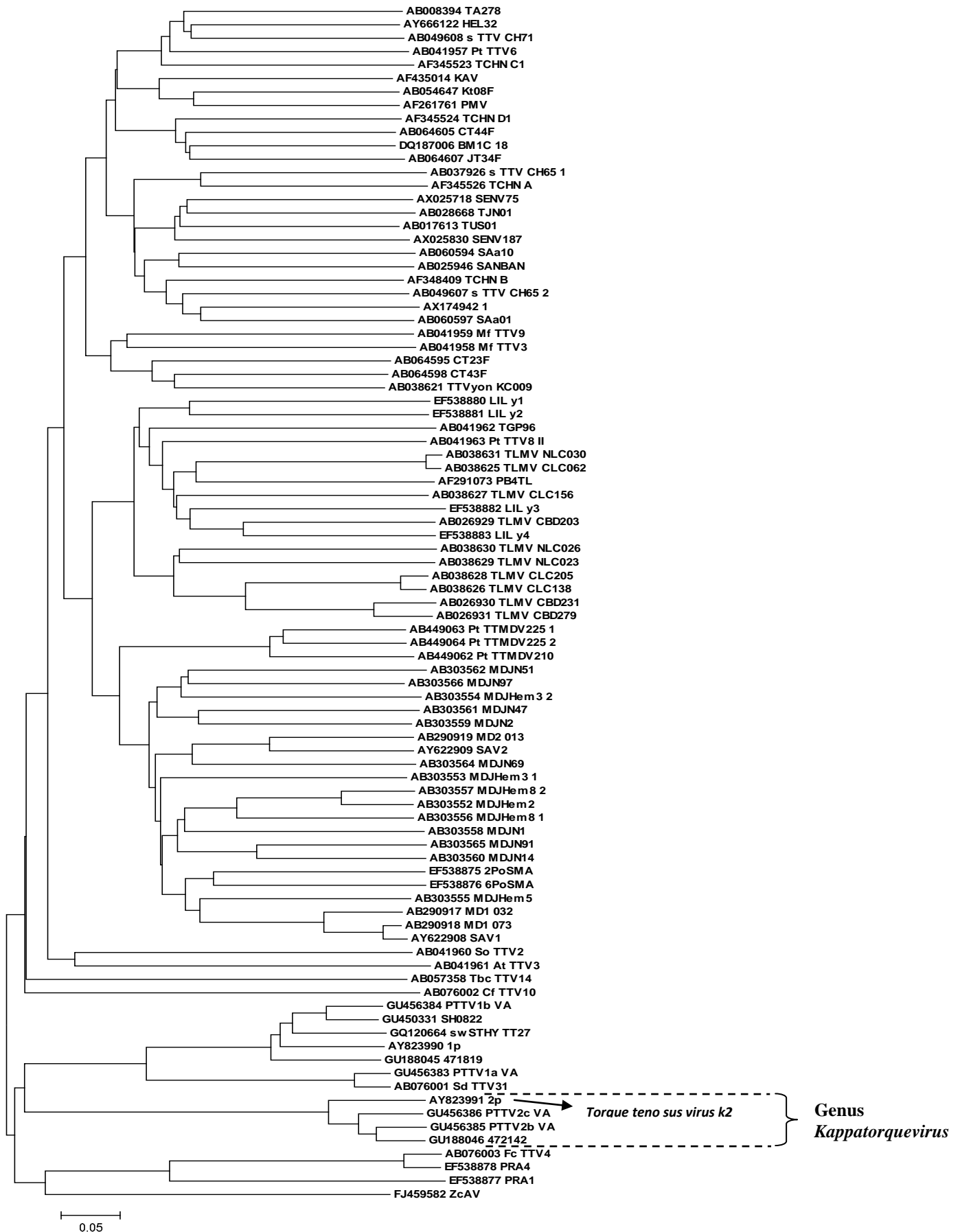
Host: Domestic pig.

The new isolate which is considered here has been compared with the currently available full-length ORF1 nt sequences belonging to the family *Anelloviridae* (n=210).

Analysis of the distribution of pairwise comparisons (not shown) confirmed the current criteria demarcating species and genera in the family *Anelloviridae* (cut-off values for sequence divergence: species >35%, genera >56%). The corresponding phylogenetic tree (p-distance / Neighbor-joining method) (Figure 1) is shown; in order to improve its legibility, genus *Alphatorquevirus* is described by representative sequences only.

The isolate listed above meets the genus demarcation criteria.

Figure 1. Neighbor-joining phylogenetic tree built with ORF1-nt sequences.



ASSIGNMENT OF ACCESSION NUMBER TO TAXA (new proposal : in bold)

Alphatorquevirus

<i>Torque teno virus 1</i>	AB008394
<i>Torque teno virus 2</i>	AB049608
<i>Torque teno virus 3</i>	AY666122
<i>Torque teno virus 4</i>	AB041957
<i>Torque teno virus 5</i>	AF345523
<i>Torque teno virus 6</i>	AF435014
<i>Torque teno virus 7</i>	AF261761
<i>Torque teno virus 8</i>	AB054647
<i>Torque teno virus 9</i>	DQ187006
<i>Torque teno virus 10</i>	AB064607
<i>Torque teno virus 11</i>	AF345524
<i>Torque teno virus 12</i>	AB064605
<i>Torque teno virus 13</i>	AF345526
<i>Torque teno virus 14</i>	AB037926
<i>Torque teno virus 15</i>	AB028668
<i>Torque teno virus 16</i>	AB017613
<i>Torque teno virus 17</i>	AX025830
<i>Torque teno virus 18</i>	AX025718
<i>Torque teno virus 19</i>	AB025946
<i>Torque teno virus 20</i>	AB060594
<i>Torque teno virus 21</i>	AF348409
<i>Torque teno virus 22</i>	AX174942
<i>Torque teno virus 23</i>	AB049607
<i>Torque teno virus 24</i>	AB060597
<i>Torque teno virus 25</i>	AB041959
<i>Torque teno virus 26</i>	AB041958
<i>Torque teno virus 27</i>	AB064595
<i>Torque teno virus 28</i>	AB064598
<i>Torque teno virus 29</i>	AB038621

Betatorquevirus

<i>Torque teno mini virus 1</i>	AB026931
<i>Torque teno mini virus 2</i>	AB038629
<i>Torque teno mini virus 3</i>	AB038630
<i>Torque teno mini virus 4</i>	AB041963
<i>Torque teno mini virus 5</i>	AB041962
<i>Torque teno mini virus 6</i>	AB026929
<i>Torque teno mini virus 7</i>	AB038627
<i>Torque teno mini virus 8</i>	AF291073
<i>Torque teno mini virus 9</i>	AB038631
<i>Torque teno mini virus 10</i>	EF538880
<i>Torque teno mini virus 11</i>	EF538881
<i>Torque teno mini virus 12</i>	EF538882

Gammatorquevirus

<i>Torque teno midi virus 1</i>	AB290918
<i>Torque teno midi virus 2</i>	AB290919

<i>Torque teno midi virus 3</i>	EF538875
<i>Torque teno midi virus 4</i>	EF538876
<i>Torque teno midi virus 5</i>	AB303552
<i>Torque teno midi virus 6</i>	AB303553
<i>Torque teno midi virus 7</i>	AB303554
<i>Torque teno midi virus 8</i>	AB303558
<i>Torque teno midi virus 9</i>	AB303559
<i>Torque teno midi virus 10</i>	AB303560
<i>Torque teno midi virus 11</i>	AB303561
<i>Torque teno midi virus 12</i>	AB303562
<i>Torque teno midi virus 13</i>	AB303564
<i>Torque teno midi virus 14</i>	AB303566
<i>Torque teno midi virus 15</i>	AB449062
<i>Deltatorquevirus</i>	
<i>Torque teno tupaia virus</i>	AB057358
<i>Epsilontorquevirus</i>	
<i>Torque teno tamarin virus</i>	AB041960
<i>Zetatorquevirus</i>	
<i>Torque teno douroucouli virus</i>	AB041961
<i>Etatorquevirus</i>	
<i>Torque teno felis virus 1</i>	AB076003
<i>Torque teno felis virus 2</i>	EF538877
<i>Thetatorquevirus</i>	
<i>Torque teno canis virus</i>	AB076002
<i>Iotatorquevirus</i>	
<i>Torque teno sus virus 1</i>	AB076001
<i>Torque teno sus virus 2</i>	AY823990
<i>Kappatorquevirus</i>	
<i>Torque teno sus virus k2</i>	AY823991
<i>Lambdatorquevirus</i>	
<i>Torque teno zalophus virus 1</i>	FJ459582
