



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**

<b>Code assigned:</b>	<b>2010.008aV</b>	(to be completed by ICTV officers)			
<b>Short title:</b> 13 new species in the genus <i>Gammatorquevirus</i> (e.g. 6 new species in the genus <i>Zetavirus</i> )					
<b>Modules attached</b> (modules 1 and 9 are required)	1 <input checked="" type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input 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  
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**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

**ICTV-EC or Study Group comments and response of the proposer:**

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Date first submitted to ICTV:

Date of this revision (if different to above):

13 July 2010

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	<b>2010.008aV</b>	(assigned by ICTV officers)
<b>To create 13 new species within:</b>		
Genus:	<b><i>Gammatorquevirus</i></b>	Fill in all that apply. • If the higher taxon has yet to be created (in a later module, below) write “ <b>(new)</b> ” after its proposed name. • If no genus is specified, enter “ <b>unassigned</b> ” in the genus box.
Subfamily:		
Family:	<b><i>Anelloviridae</i></b>	
Order:		
<b>And name the new species:</b>		
<i>Torque teno midi virus 3</i>		<b>EF538875</b>
<i>Torque teno midi virus 4</i>		<b>EF538876</b>
<i>Torque teno midi virus 5</i>		<b>AB303552</b>
<i>Torque teno midi virus 6</i>		<b>AB303553</b>
<i>Torque teno midi virus 7</i>		<b>AB303554</b>
<i>Torque teno midi virus 8</i>		<b>AB303558</b>
<i>Torque teno midi virus 9</i>		<b>AB303559</b>
<i>Torque teno midi virus 10</i>		<b>AB303560</b>
<i>Torque teno midi virus 11</i>		<b>AB303561</b>
<i>Torque teno midi virus 12</i>		<b>AB303562</b>
<i>Torque teno midi virus 13</i>		<b>AB303564</b>
<i>Torque teno midi virus 14</i>		<b>AB303566</b>
<i>Torque teno midi virus 15</i>		<b>AB449062</b>

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

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., Uch, R., Belhouchet, M., Attoui, H., Cantaloube, J.F., Brisbarre, N. & de Micco, P. (2007). Circular genomes related to anelloviruses identified in human and animal samples using a combined rolling-circle amplification- sequence independent single primer amplification approach. J Gen Virol 88, 2696-2701.

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

Jones, M. S., Kapoor, A., Lukashov, V. V., Simmonds, P., Hecht, F. & Delwart, E. (2005). New DNA viruses identified in patients with acute viral infection syndrome. J Virol 79, 8230-8236.

Ninomiya, M., Nishizawa T., Takahashi, M., Lorenzo, F.R., Shimosegawa, T. & Okamoto, H. (2007). Identification and genomic characterization of a novel human torque teno virus of 3.2 kb. J Gen Virol 88, 1939-1944.

Ninomiya, M., Takahashi, M., Hoshino, Y., Ichiyama, K., Simmonds, P. & Okamoto, H. (2009). Analysis of the entire genomes of torque teno midi virus variants in chimpanzees: infrequent cross-species infection between humans and chimpanzees. J Gen Virol 90: 347-358.

**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.

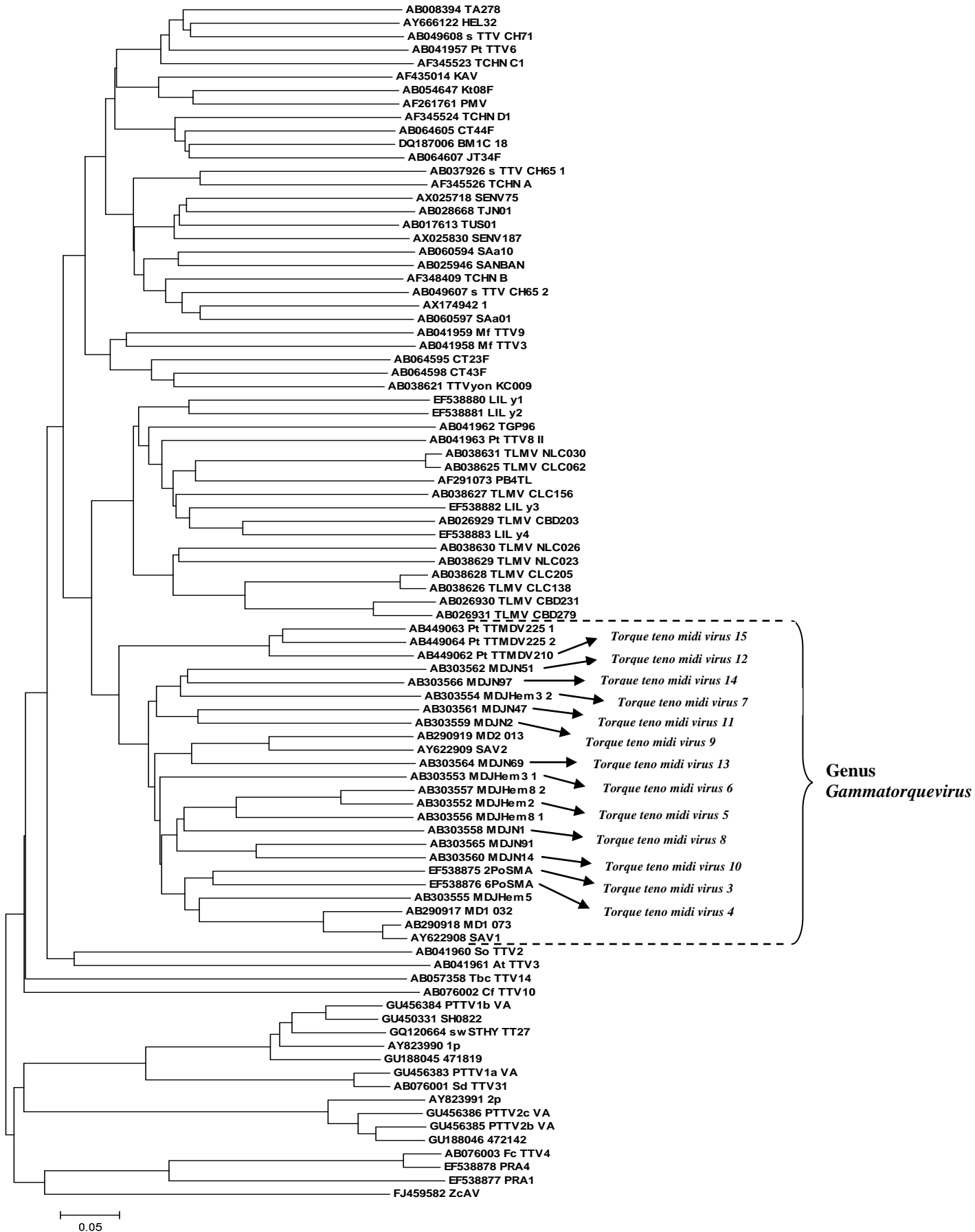
Host: Human, chimpanzee.

The new isolates which are considered here have 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 isolates listed above meet the species 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>	<b>EF538875</b>
<i>Torque teno midi virus 4</i>	<b>EF538876</b>
<i>Torque teno midi virus 5</i>	<b>AB303552</b>
<i>Torque teno midi virus 6</i>	<b>AB303553</b>
<i>Torque teno midi virus 7</i>	<b>AB303554</b>
<i>Torque teno midi virus 8</i>	<b>AB303558</b>
<i>Torque teno midi virus 9</i>	<b>AB303559</b>
<i>Torque teno midi virus 10</i>	<b>AB303560</b>
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<i>Torque teno midi virus 14</i>	<b>AB303566</b>
<i>Torque teno midi virus 15</i>	<b>AB449062</b>
<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 3</i>	AY823991
<i>Lambdatorquevirus</i>	
<i>Torque teno zalophus virus 1</i>	FJ459582

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