This Word module should be used for all taxonomic proposals.

Please complete **Part 1** and:

either **Part 3** for proposals to create new taxa or change existing taxa

or **Part 2** for proposals of a general nature.

Submit the completed Word module, together with the accompanying Excel module named in Part 3, to the appropriate ICTV Subcommittee Chair.

The Word module explains and justifies your proposal. The Excel module is a critical document that will be used to implement the proposed taxonomic changes once they are approved and ratified. If proposals presented in the Word module are not presented accurately in the Excel module, the taxonomic changes cannot proceed.

For guidance, see the notes written in blue, below, and the Help Notes in file Taxonomic\_Proposals\_Help\_2019.

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Code assigned:** | ***2019.090B*** | |  |
| **Short title:** Create one new genus (*Taipeivirus*) including six new species in the family *Ackermannviridae* | | | |
|  | | | |
| **Author(s) and email address(es):** | | | |
| List authors in a single line *Archives of Virology* citation format (e.g. Smith AB, Huang C-L, Santos, F) | | Provide email address for each author in a single line separated by semi-colons | |
| Kropinski AM, Adriaenssens EM, Rohde M, Korf I, Wittmann J | | Phage.Canada@gmail.com;  evelien.adriaenssens@quadram.ac.uk;  Manfred.Rohde@helmholtz-hzi.de;  ims16@dsmz.de;  jow12@dsmz.de | |
| **Author(s) institutional address(es) (optional):**   |  | | --- | | Provide institutional addresses, each on a single line followed by author(s) initials (e.g. University of Woolloomooloo [SAB, HCL]) | | University of Guelph, Canada [AMK]  Quadram Institute Bioscience, UK [EMA]  Helmholtz Centre for Infection Research, Germany [MR]  DSMZ, Germany [IK, JW] | | | | |
| **Corresponding author** | | | |
| Johannes Wittmann | | | |
| **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 (there are six virus subcommittees: animal DNA and retroviruses, animal ssRNA-, animal ssRNA+, fungal and protist, plant, bacterial and archaeal) | | **Bacterial and Archaeal Viruses Subcommittee**  **Caudovirales Study Group** | |
| **ICTV Study Group comments (if any) and response of the proposer:** | | | |
|  | | | |
|  | | | |
| Date first submitted to ICTV: | | |  |
| Date of this revision (if different to above): | | |  |

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

**Part 2:** **NON-STANDARD**

Template for any proposal regarding ICTV procedures, rules or policy, not involving the creation of new taxonomy.

| **Text of proposal:** |
| --- |
|  |

**Part 3:** **PROPOSED TAXONOMY**

|  |
| --- |
| **Name of accompanying Excel module:** 2019.090B.A.v1.Taipeivirus\_1gen6sp.xlsx |

The taxonomic changes you are proposing should be presented on an accompanying Excel module, 2019\_TP\_Template\_Excel\_module. Please enter the file name of the completed module in this box.

**Supporting material:**

| additional material in support of this proposal |
| --- |
| Please explain the reasons for the taxonomic changes you are proposing and provide evidence to support them. The following information should be provided, where relevant:   * **Species demarcation criteria**: Explain how new species differ from others in the genus and demonstrate that these differences meet the criteria previously established for demarcating between species. If no criteriahave previously been established, and if there will now be more than one species in the genus, please state the demarcation criteria you are proposing. * **Higher taxa**:   + There is no formal requirement to state demarcation criteria when proposing new genera or other higher taxa. However, a similar concept should apply in pursuit of a rational and consistent virus taxonomy.   + Please indicate the **origin of names** assigned to new taxa at genus level and above.   + For each new genus a **type species** must be designated to represent it. Please explain your choice. * **Supporting evidence**: The use of Figures and Tables is strongly recommended (note that copying from publications will require permission from the copyright holder). For phylogenetic analysis, please provide a tree where branch length is **proportional to genetic** distance, generated using an appropriate algorithm (Neighbour-Joining, Maximum Likelihood, or Bayesian) and provide evidence of the reliability of the branching (e.g., by bootstrapping).   Please refer to the Help Notes file (Taxonomic\_Proposals\_Help\_2019) for more information.   | **References:** | | --- | | 1: Hsu CR, Lin TL, Pan YJ, Hsieh PF, Wang JT. Isolation of a bacteriophage specific for a new capsular type of Klebsiella pneumoniae and characterization of its polysaccharide depolymerase. PLoS One. 2013;8(8):e70092.  2:  [Meier-Kolthoff](https://www.ncbi.nlm.nih.gov/pubmed/?term=Meier-Kolthoff%20JP%5BAuthor%5D&cauthor=true&cauthor_uid=29036289) JP, Goeker M. VICTOR: genome-based phylogeny and classification of prokaryotic viruses. [Bioinformatics](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5860169/). 2017; 33(21): 3396–3404.  3: Korf IHE, Meier-Kolthoff JP, Adriaenssens E, Kropinski AM, Nimtz M, Rohde M, van Raaij M, Wittmann J. Still something to discover – novel insights into Escherichia coli phage diversity and taxonomy. Viruses. Under review.  4. Lowe, T.M. and Chan, P.P. (2016) tRNAscan-SE On-line: Search and Contextual Analysis of Transfer RNA Genes. Nucl. Acids Res. 44: W54-57.  5. Sayers EW, Agarwala R, Bolton EE, Brister JR, Canese K, Clark K, et al. Database resources of the National Center for Biotechnology Information. Nucleic Acids Res. 2019;47(D1):D23-D28.  6. Tolstoy I, Kropinski AM, Brister JR. Bacteriophage Taxonomy: An Evolving Discipline. Methods Mol Biol. 2018;1693:57-71.  7. O'Leary NA, Wright MW, Brister JR, Ciufo S, Haddad D, McVeigh R, et al. Reference sequence (RefSeq) database at NCBI: current status, taxonomic expansion, and functional annotation. Nucleic Acids Res. 2016;44(D1):D733-45.  8. Turner D, Reynolds D, Seto D, Mahadevan P. CoreGenes3.5: a webserver for the determination of core genes from sets of viral and small bacterial genomes. BMC Res Notes. 2013;6:140.  9: Newkirk HN, Lessor L, Gill JJ, Liu M. Complete Genome Sequence of Klebsiella  pneumoniae Myophage Menlow. Microbiol Resour Announc. 2019;8(17). pii:  e00192-19. |   **Species demarcation criteria** We have chosen 95% DNA sequence identity as the criterion for demarcation of species in this new genus. Each of the proposed species differs from the others with more than 5% at the DNA level as confirmed with the BLASTN algorithm.  **Source of the name of this taxon:** The name is derived from the geographical origin of the first isolated phage of this type, Klebsiella phage 0507KN21 (AB797215).  **History:** Phage 0507KN21 is a member of the *Ackermannviridae* family and was isolated from sewage [1].  **GenBank Summary:**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Phage name | RefSeq No. | INSDC | Size (Kb) | GC% | Protein | tRNA | Overall DNA sequence identity (\*\*) | % common proteins (\*\*) | | Klebsiella virus 0507KN21 | [NC\_022343.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_022343.1) | [AB797215.1](https://www.ncbi.nlm.nih.gov/nuccore/AB797215.1) | 159.99 | 46.7 | 154 | 4(\*) | 100% | 100 | | Klebsiella phage Menlow [9] |  | [MG428990.1](https://www.ncbi.nlm.nih.gov/nuccore/MG428990.1) | 157.28 | 46.4 | 215 | 5 | 86.9 | 96.1 | | Klebsiella phage May |  | [MG428991.1](https://www.ncbi.nlm.nih.gov/nuccore/MG428991.1) | 159.63 | 46.8 | 214 | 7 | 81.1 | 94.8 | | Escherichia phage vB\_EcoM\_KWBSE43-6 |  | MK373783 | 158.61 | 46.1 | 222 | 7 | 82.8 | 92.9 | | Serratia virus IME250 |  | KX147096 | 154.94 | 47.4 | 193 | 4 | 73.6 | 92.2 | | Klebsiella phage vB\_KpnM\_KpS110 |  | [MG770379.1](https://www.ncbi.nlm.nih.gov/nuccore/MG770379.1) | 156.8 | 46.1 | 201 | 6 | 79.5 | 90.3 |   **\* None shown in GenBank genome summary; discovered using tRNAscan-SE at** [**http://lowelab.ucsc.edu/tRNAscan-SE/**](http://lowelab.ucsc.edu/tRNAscan-SE/) **[4]**  **\*\* Determined using BLASTn at NCBI [5-7]**  **\*\*\* Determined using CoreGenes 3.5 at** [**http://binf.gmu.edu:8080/CoreGenes3.5/**](http://binf.gmu.edu:8080/CoreGenes3.5/) **[8]**  **Species in red already exist in the database**  **BLASTN homologs:** The next most similar phage is Salmonella phage SenASZ3 which shares 57.9% DNA sequence identity with Klebsiella virus 0507KN21  **Electron micrograph of phage KWBSE43-6:**    **Phylogeny:** The phylogenetic tree was constructed with VICTOR [2], using whole genome sequences of Escherichia phages from different genera of the *Myoviridae* family at the amino acid level [3]. |



Genomic organization of phages of this group [3].