

Template for Taxonomic Proposal to the ICTV Executive Committee

Species in an existing genus

Code[†] **FT2003.044I.01** To designate the following viruses as species in the genus: ***Ranavirus*** belonging to the family[°] ***Iridoviridae***

Bohle iridovirus
Epizootic haematopoietic necrosis virus
Ambystoma tigrinum virus
Santee-Cooper ranavirus
European catfish virus

[†] 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

Chinchar et al.
<vchinchar@microbio.umsmmed.edu>

New Taxonomic Order

Order

Family

Iridoviridae

Genus

Ranavirus

Type Species

Frog virus 3

List of Species in the genus

Bohle iridovirus

Epizootic haematopoietic necrosis virus

Ambystoma tigrinum virus

Santee-Cooper ranavirus

European catfish virus

List of Tentative Species in the Genus

List of Unassigned Species in the Family

Argumentation to justify the designation of new species in the genus

Species demarcation criteria in the genus

Species are distinguished by several criteria: the percent common bands in RFLP profiles, size distribution of viral proteins (SDS-PAGE), percent amino acid/nucleotide sequence identity/similarity among key viral genes (e.g., major capsid protein, ATPase, etc.), and host range.

Species show

1. unique RFLP profiles, i.e., <70% bands held in common,
2. distinctive viral protein profiles,
3. <95% sequence identity/similarity between select viral genes,
4. a distinctive range of susceptible species.

Argumentation to justify the designation of new species in the genus

While ranaviruses cannot be distinguished from each other serologically, the different species can be demarcated based on the multiple criteria listed above. Moreover, although viruses within this genera can infect multiple animal species, it is becoming clear that some species are clearly more susceptible than others to infection with a given agent. By using the multiple criteria listed above (e.g., RFLP and protein profiles, amino acid/nucleotide sequence identity, and susceptible animal species) we can distinguish 6 species within the genus *Ranavirus*

List of created Species in the genus

Bohle iridovirus
Epizootic haematopoietic necrosis virus
Ambystoma tigrinum virus
Santee-Cooper ranavirus
European catfish virus

References

- Chinchar V.G. (2002). Ranaviruses (family *Iridoviridae*): Emerging cold-blooded killers. *Arch. Virol.* 147, 447 - 470.
- Essbauer S., Bremont M., Ahne W. (2001). Comparison of eIF-2 α homologous proteins of seven ranaviruses (*Iridoviridae*). *Virus Genes* 23, 347 - 359.
- He JG, Lu L, Deng M, He HH, Weng SP, Wang XH, Zhou SY, Long QX, Wang XZ, and Chan SM (2002). Sequence analysis of the complete genome of an iridovirus isolated from the tiger frog. *Virology* 292, 185 - 197.
- He JG, Deng M, Weng SP, Li Z, Zhou SY, Long QX, Wang XZ, and Chan SM. (2001). Complete genome analysis of the mandarin fish infectious spleen and kidney necrosis iridovirus. *Virology* 291, 126 - 139.
- Hyatt A.D., Gould A.R., Zupanovic Z., Cunningham A.A., Hengstberger S., Whittington R.J., Kattenbelt J., and Coupar B.E.H. (2000). Comparative studies of piscine and amphibian iridoviruses. *Arch. Virol.* 145, 301 - 331 (2000).
- Jakob N.J., Muller K., Bahr U., and Darai G. (2001). Analysis of the first complete DNA sequence of an invertebrate iridovirus: Coding strategy of the genome of Chilo iridescent virus. *Virology* 286, 182 - 196.
- Martinez G., Christian P., Marina C., and Williams T. (2003). Sensitivity of *Invertebrate iridescent virus 6* to organic solvents, detergents, enzymes, and temperature treatment. *Virus Res.* 91, 249 - 254.
- Mao, J., Hedrick, R.P. and Chinchar, V.G. (1997). Molecular characterization, sequence analysis and taxonomic position of newly isolated fish iridoviruses. *Virology*, **229**, 212-220.
- Nakajima K, Inouye K., and Sorimachi M. (1998). Viral diseases in cultured marine fish in Japan. *Fish Pathol.* 33, 181 - 188.
- Stasiak K., Demattei M-V., Federici B.A., Bigot Y. (2000). Phylogenetic position of the *Diadromus pulchellus* ascovirus DNA polymerase among viruses with large double-stranded DNA genomes. *J. Gen. Virol.* 81, 3059 - 3072.
- Sudthongkong C., Miyata M., and Miyazaki T. (2002). Viral DNA sequences of genes encoding the ATPase and the major capsid protein of tropical iridovirus isolates which are pathogenic to fishes in Japan, South China Sea, and Southeast Asian countries. *Arch. Virol.* 47, 2089 - 2109.
- Tidona, C.A. and Darai, G. (1997). The complete DNA sequence of lymphocystis disease virus. *Virology*, **230**, 207-216.
- Tidona, C.A., and Darai, G. (2000). Iridovirus homologues of cellular genes: Implications for the molecular evolution of large DNA viruses. *Virus Genes*, 21, 77 - 81.
- Webby, R., Kalmakoff, J. (1998). Sequence comparison of the major capsid protein gene from 18 diverse iridoviruses. *Arch. Virol.*, 143, 1949-1966.
- Williams, T. (1996). The iridoviruses. *Adv. Virus Res.*, **46**, 347-412.
- Williams, T. and Cory, J.S. (1994). Proposals for a new classification of iridescent viruses. *J. Gen. Virol.*, **75**, 1291-1301

Annexes: