

Taxonomy of Picornaviridae: Current Situation and Future Proposals

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RECENT ICTV-APPROVED CHANGES (ICTV LEVEL 05)

Four taxonomic proposals have recently been approved by the ICTV: i) to combine the *Enterovirus* and *Rhinovirus* genera, keeping the existing name *Enterovirus*; ii) to combine the species *Poliovirus* and *Human enterovirus C*, retaining the latter name; iii) to assign *Human enterovirus C* as the type species of the enterovirus genus; iv) to create a new order, *Picornavirales* (Le Gall *et al.*, 2008), containing the families *Picornaviridae*, *Comoviridae*, *Dicistroviridae*, *Iflaviridae*, *Marnaviridae* and *Sequiviridae* and the unassigned genera *Cheravirus* and *Sadwavirus*.

Thus, the family *Picornaviridae* currently consists of 22 species in 8 genera (*Enterovirus*, *Cardiovirus*, *Aphthovirus*, *Hepatovirus*, *Parechovirus*, *Erbovirus*, *Kobuvirus* and *Teschovirus*).

CURRENT PROPOSALS (ICTV LEVEL 02)

Genus "*Sapelovirus*"

Species "*Porcine sapelovirus*" (formerly *Porcine enterovirus A*), single type porcine sapelovirus (PSV) (formerly porcine enterovirus 8) (Krumbholz *et al.*, 2002)

Species "*Simian sapelovirus*", 3 types simian sapelovirus (SSV) 1, SSV-2 and SSV-3 (formerly simian virus 2 and related viruses) (Oberste *et al.*, 2003)

Species "*Avian sapelovirus*", single type avian sapelovirus (ASV) (formerly duck picornavirus TW90A) (Tseng & Tsai, 2007b).

Genus "*Senecavirus*"

Species "*Seneca Valley virus*"; single type Seneca Valley virus (SVV) (Hales *et al.*, 2008).

Genus "*Tremovirus*"

Species, "*Avian encephalomyelitis virus*"; single type avian encephalomyelitis virus (AEV) (Marvil *et al.*, 1999).

CURRENT PROPOSALS (ICTV LEVEL 01)

Genus "*Avihepatovirus*"

Species, "*Duck hepatitis A virus*"; three types: duck hepatitis A virus (DHAV) 1, DHAV-2 and DHAV-3 (Kim *et al.*, 2006, 2007; Tseng *et al.*, 2007; Tseng & Tsai, 2007a).

PROPOSALS UNDER DISCUSSION OR IN PREPARATION

1-3 are proposals in preparation, while 4-5 are under discussion:

- 1) bovine rhinovirus type 2 (Hollister *et al.*, 2008) to be classified as a new species ("*Bovine rhinitis B virus*") in the genus *Aphthovirus*;
- 2) the species *Bovine enterovirus* is to be divided into two species, "*Bovine enterovirus A*" and "*Bovine enterovirus B*";
- 3) seal picornavirus 1 (Kapoor *et al.*, 2008a) be placed in a new species and genus, yet to be named;
- 4) a new group of human rhinoviruses has been suggested to form a third rhinovirus species ("*Human rhinovirus C*") within the genus *Enterovirus* (Lamson *et al.*, 2006; Kistler *et al.*, 2007; Lau *et al.*, 2007; McErlan *et al.*, 2008).
- 5) the genome sequences of some unassigned simian enteroviruses suggest their placement in one or more new species in the *Enterovirus* genus (Oberste *et al.*, 2007).

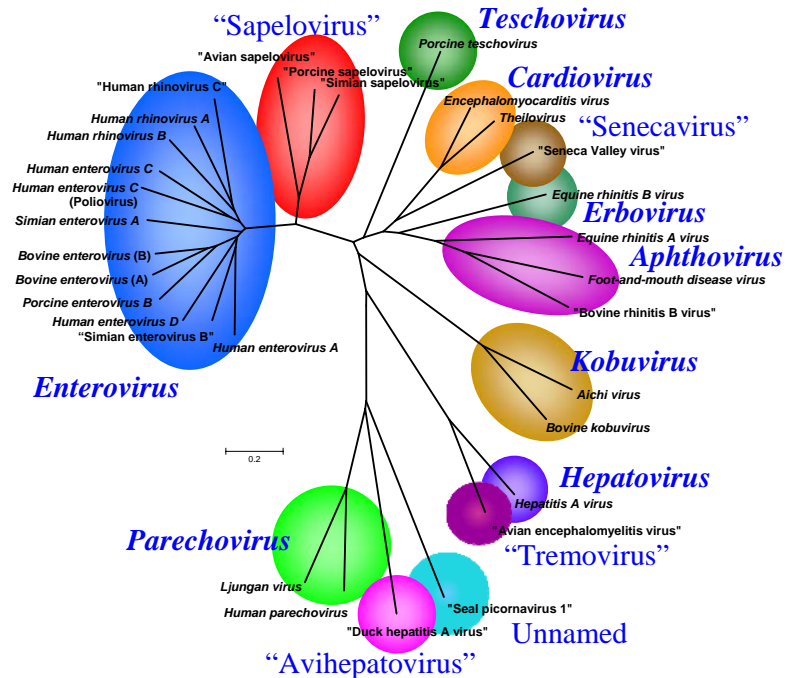


Figure 1. Unrooted Neighbor-joining tree of the *Picornaviridae* based on a comparison of the P1 capsid region.

THE FUTURE

If all these changes are eventually approved by the ICTV, the *Picornaviridae* will comprise some 30 species in 13 genera and it is expected that these numbers will steadily increase as new picornaviruses are discovered.

The deadline for proposals to be considered at the 2008 Annual Meeting of the ICTV Executive Committee is 30 June 2008.

The latest classification and proposals may be viewed on the *Picornaviridae* Study Group website: <http://www.picornastudygroup.com> and on the ICTV website: <http://talk.ictvonline.org>.

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Your opinions are important to us:
If you have any views on the classification/taxonomy of the *Picornaviridae* please contact one of the Study Group members.