Template for Taxonomic Proposal to the ICTV Executive Committee
To create a new Family

Code†	2005.081B.04	To create a new family*	
Code†	2005.082B.04	To name the new family*	***Globuloviridae***
Code†	2005.083B.04	To designate the following genera as part of the new family*:	***Globulovirus***

† Assigned by ICTV officers
° Leave blank is not appropriate
* repeat these lines and the corresponding arguments for each genus created in the family

Author(s) with email address(es) of the Taxonomic Proposal

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Old Taxonomic Order

Order	
Family	
Genus	***Globulovirus***
Type Species	***Pyrobaculum spherical virus***
Species in the Genus	***Pyrobaculum spherical virus***
Tentative Species in the Genus	**none**
Unassigned Species in the family	**none**

New Taxonomic Order

Order	
Family	***Globuloviridae***
Genus	***Globulovirus***
Type Species	***Pyrobaculum spherical virus***
Species in the Genus	***Pyrobaculum spherical virus***
Tentative Species in the Genus	**none**
Unassigned Species in the family	**none**

ICTV-EC comments and response of the SG

Argumentation to create a new family:

We propose classifying *Pyrobaculum spherical virus* (PSV) as the first representative of a new family due to its morphological features, unique for a DNA virus, and its exceptional gene content and genome organization. Spherical virions consist of an envelope surrounding a nucleocapsid with a helical symmetry, consisting of double-stranded DNA and DNA-binding proteins. To our knowledge, in the viral world no other enveloped DNA virus is known with a helical nucleocapsid. Superhelical arrays of nucleoprotein are known for enveloped RNA viruses, like paramyxoviruses. The genomic organisation of the PSV has several peculiarities, the most remarkable of which is that none of the putative genes yields any significant similarity to genes in public sequence databases.

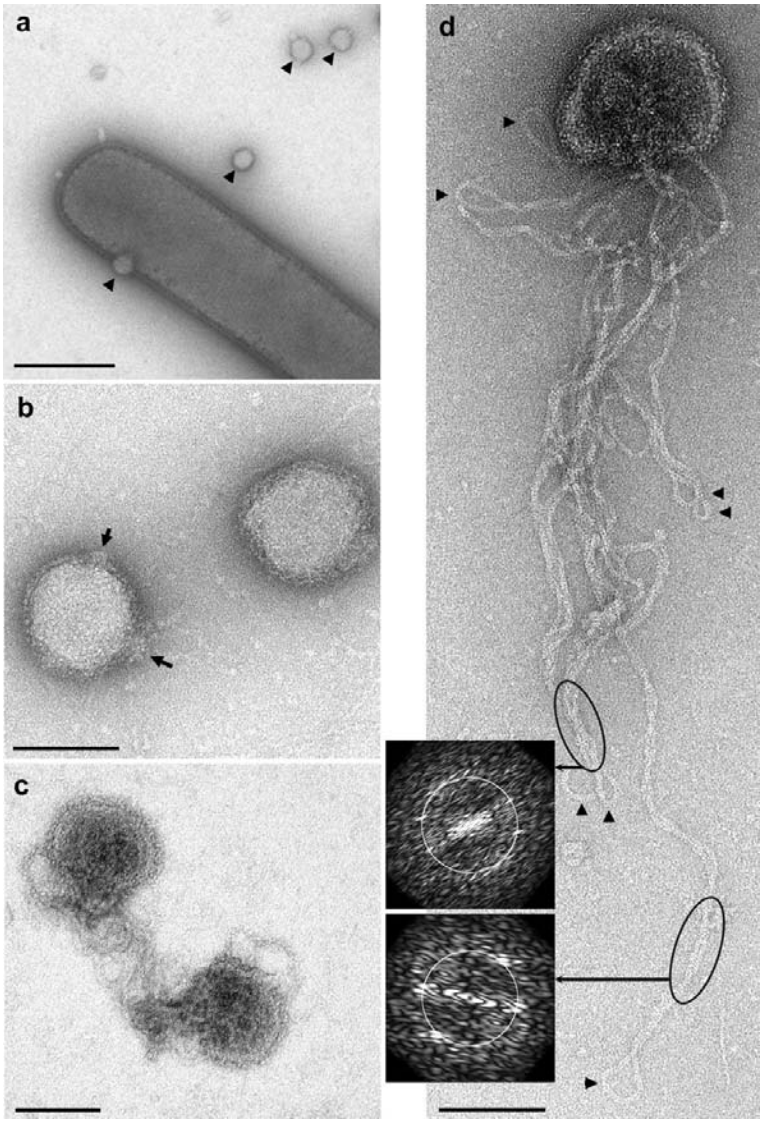
Origin of the proposed family name

From the Latin *globulus*, a small ball.

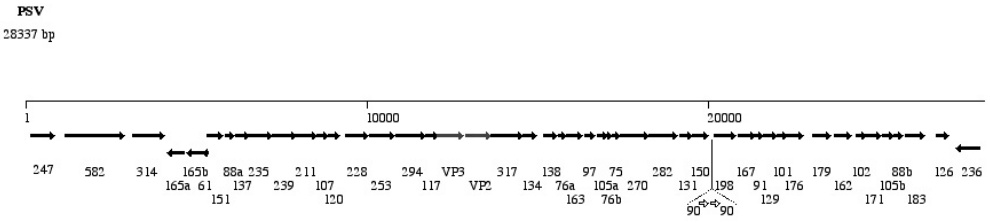
References

Häring M., X. Peng, K. Brügger, R. Rachel, K. O. Stetter, R. A. Garrett, and D. Prangishvili. 2004. Morphology and genome organisation of the virus PSV of the hyperthermophilic archaeal genera *Pyrobaculum* and *Thermoproteus*: a novel virus family, the *Globuloviridae*. *Virology,* 323, 232-242.

Annexes:



Electron microscopy of *Pyrobaculum* sp. D11 and PSV virions, negatively stained with 3% uranyl acetate. (a) Portion of a *Pyrobaculum* sp. D11 cell with four PSV virions marked by arrowheads, bar: 0.5. μm. (b) Two intact PSV virions, spherical protrusions are marked by arrows, bar: 0.1 μm. (c) Two disrupted PSV virions extruding disordered filamentous material, bar: 0.1 μm. (d) Disrupted PSV virion with extended filaments extruding from the particle. Several loops are marked by arrowheads, and two stretches enclosed by ellipsoids were analysed by Fourier analysis as shown in the insets. The circle indicates a frequency of $(2.8\ \text{nm})^{-1}$, bar: 0.1 μm.



Genome map of PSV showing positions and sizes of the ORFs and the direction of the gene transcripts. Only four putative ORFs, 61, 165a, 165 and 236 are encoded on the reverse strand. *VP2* and *VP3* encode virus proteins VP2 and VP3, respectively. The two inset ORF90s indicate the position of the triply repeated 241 bp sequence that occurs in about half of the clones (10 in total) sequenced from the PSV genome library.