P035 New archaeal viruses from hot springs

Peter Redder[1], Xu Peng[2], Kim Brügger[2], Bo Greve[2], Qunxin She[2], Christa Schleper[3], Patrick Forterre[1], Roger A. Garrett[2] and David Prangishvili[1]

[1]BMGE, Institut Pasteur, France. Department of Biology, Copenhagen University, Denmark, [3]University of Vienna, Austria

Three new viruses were isolated from a single enrichment-culture, derived from a sample taken at the Icelandic geothermal area Hveragerdi. One virus is icosahedral, the other pleiomorphic, and the third has a previously unobserved bullet-shape. All were produced by colony-purified species of *Sulfolobus*.

The icosahedral virus is closely related to the *Sulfolobus* turreted icosahedral virus (STIV), and we have named it STIV2. However, the characteristic “turrets” of the STIV have a different shape in STIV2, possibly reflecting a different host range.

The pleiomorphic virus was named SSV6, and is related to the spindle-shaped viruses from the fuselloviridae-family. However, the largest ORF (~800 aa), otherwise conserved in other fusello-viruses, has been exchanged with a completely different gene in SSV6. This substitution is not unique, as it is also present in a fourth new virus presented here, an *Acidianus* fusellovirus from Yellowstone National Park. Furthermore, genomic comparisons of both new and earlier isolates of known fuselloviruses suggest a possible mechanism for inter-viral recombination.

The bullet shaped virus is produced in very low amounts by its natural host, and work is currently ongoing to produce enough material for sequencing and further morphological studies.