

**P054** Development of an infectious clone of *Sulfolobus* turreted icosahedral virus

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*Sulfolobus* turreted icosahedral virus (STIV) was isolated from Rabbit Creek in Yellowstone National Park. The virus infects the crenarchaeote, *Sulfolobus solfataricus* P2, and is the first lytic virus of *Sulfolobus* to be described. While the virus has little sequence homology to anything in the databases, it has structural similarity to viruses of both Bacteria and Eukarya, suggesting a shared evolutionary history. The 17 kb dsDNA genome has been sequenced and several open reading frames have been annotated by homology to other proteins in the databases. A number of proteins have been shown to be associated with the particle by mass spectrometry, and structures have been solved for several proteins allowing for the inference of function, however, the majority of open reading frames have yet to be annotated in any way.

Construction of a genetic clone was undertaken in order to further investigate gene function. The clone has been shown to be infectious in *Sulfolobus solfataricus* P2. Three different genes have been disrupted, and each has proven to be a lethal knockout. We have also inserted in-frame markers into several regions of the genome and will show results from these experiments. We are also constructing a transposon-based random insert library and will present preliminary data from these experiments as well.