

P049 Interactions of the crenarchaeal plasmid pAH1 with the lipothrixvirus AFV1 and the *Acidianus* host chromosome
**Tamara Basta¹, John Smyth², Patrick Forterre¹,
David Prangishvili¹ and Xu Peng²**

1. Institut Pasteur, 25 Rue du Dr. Roux, 75015 Paris, France

2. Danish Archaea Centre, Department of Biology, Biocenter, Copenhagen University, Ole Maaløes Vej 5, DK-2200 Copenhagen N, Denmark

We isolated an *Acidianus* strain which carries a 28 kbp conjugative plasmid (CP) - like element, pAH1, and can also be infected by the *Acidianus* Filamentous Virus 1 (AFV1). AFV1 infection leads to a loss of the circular form of pAH1 and this correlates positively with the quantity of intracellular AFV1 DNA, indicative of virus inhibition of plasmid propagation. The inhibition appears to occur at a replication level since no degradation of pAH1 was observed. To our knowledge, this archaeal virus inhibition of a resident plasmid propagation is not observed in bacteria, where CP-related bacteriophages are either dependent on a CP for a successful infection or are excluded by a resident CP. We also sequenced the pAH1 genome which closely resembles that of the *Sulfolobus* CP, pARN3. Our analysis revealed conserved nucleotide sequence modules which are exchanged between CPs. Moreover, Southern hybridization showed pAH1 is integrated into the host genome site-specifically. Furthermore, excision of pAH1 from the host chromosome was detected experimentally indicating a dynamic interaction between pAH1 and the host chromosome.