

P045 The protein network of the exceptional *Acidianus* two-tailed bicaudavirus ATV

Urte Scheele, Gisle Vestergaard, Susanne Erdmann and Roger A. Garrett

Danish Archaea Centre, Department of Biology, Copenhagen University, Copenhagen, Denmark

The reproductive cycle of ATV shows the unique property of a major extracellular morphological development that occurs independently of the host cell. The virions are released from the host as tail-less, lemon-shaped, particles which then develop long appendages with terminal anchor-like structures (Prangishvili et al., 2005, 2006). The tails consist of tubes and contain a periodic filament reminiscent of structures formed *in vitro* by the virion protein ORF800. The molecular mechanism of this structural transition remains unclear but we consider that a detailed characterization of the structural proteins of ATV may help to elucidate this remarkable process.

Although eleven ATV ORFs were classified as structural proteins, only one, ORF618, produced a clear match in public sequence databases and it was postulated to belong to the AAA-ATPase family, ATPases associated with various cellular activities. A K_M value of 0.6 mM was determined, which is in the range of other AAA-ATPases and, typically for this protein family, ORF618 oligomerizes in the presence of nucleotides, presumably forming hexameric rings.

ORF892, which so far has not been identified as a structural protein, was shown to interact directly with ORF618, probably through its Von Willebrand Factor-A (VWA) domain, an interaction that may be crucial for the extracellular development of ATV. Other protein-protein interactions are currently being investigated.