

P002 Elucidating the role of Sm-like proteins in archaea
Susan Fischer¹, Jörg Soppa², Thorsten Allers³, Anita Marchfelder¹

¹University of Ulm, ²Goethe University, Frankfurt, ³University of Nottingham

In Eukarya Sm and Lsm (Sm-like) proteins are involved in a plethora of functions: they are essential components of small nuclear ribonucleoproteins (snRNPs) that function in pre-mRNA splicing. Additionally, Lsm RNPs are involved in mRNA degradation and maturation of precursor RNAs.

The bacterial counterpart of eukaryotic Lsm proteins is the protein Hfq, holding a comparable multitude of functions. One of these is the interaction with sRNAs enabling thereby translational control and modulation of mRNA stability. Furthermore, Hfq acts as a translational regulator by interfering with mRNA-ribosome binding and was shown to modulate the activity of the key enzymes for mRNA decay.

Lsm proteins have also been found in Archaea and using similarity searches we were able to identify the *Haloferax volcanii* Lsm protein, which we termed HvoLsm. In order to clarify the biological functions of the archaeal Lsm protein, we constructed the deletion mutant $\Delta hvoLsm$. The phenotype of this strain is currently being analysed applying different growth conditions while proteome investigation is achieved using 2D gel electrophoresis. In addition we expressed the protein HvoLsm in *E. coli* to study its *in vitro* functions. We incubated the recombinant HvoLsm with sRNAs from *Haloferax volcanii* in gel shift assays, showing that the protein binds to sRNAs.