



Supplementary information s1 (figure). **Sampylation and its connection to sulphur transfer.** In archaea, at least two Ub-like proteins (Samp1 and Samp2) require the E1-like UbaA for the formation of protein conjugates. UbaA is thought to adenylate the Samp1 and Samp2 for the formation of a thioester intermediate and transfer to the lysine residues of protein substrates. In addition, the adenylated Samp1 and Samp2 are thought to be converted to C-terminal thiocarboxylated forms through sulphur transfer from a cysteine desulphurase (SufS), rhodanese (RHD) or other type of sulphur mobilization enzyme homologue. Thiocarboxylated Samp1 is thought to associate with MoeE and form a molybdopterin synthetase that catalyses the transfer of sulphur to precursor Z, forming molybdopterin. By contrast, thiocarboxylated Samp2 may associate with a tRNA adenylyltransferase such as Ncs6/Ncs2 for sulphur transfer to tRNA (2-thiolation). Image is modified, with permission, from REF. 1 © (2011) National Academy of Sciences USA.

1. Miranda, H. V. *et al.* E1- and ubiquitin-like proteins provide a direct link between protein conjugation and sulfur transfer in archaea. *Proc. Natl Acad. Sci. USA* **108**, 4417–4422 (2011).