

P020 The Stem-Loop Binding Protein stimulates histone translation at an early step in the initiation pathway
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Metazoan replication-dependent histone mRNAs do not have a poly(A) tail but end instead in a conserved stem-loop structure. Efficient translation of these mRNAs is dependent on the stem-loop binding protein (SLBP). We explore the mechanism by which SLBP stimulates translation in vertebrate cells, using the tethered function assay and analysing protein-protein interactions. Interestingly, we find that the activity of SLBP increases during oocyte maturation. SLBP can interact directly with eIF3 and with Paip1, however neither of these interactions is sufficient to mediate its effects on translation. *Xenopus* SLBP1 stimulates translation at the level of initiation, primarily at an early stage in the cap-dependent initiation pathway, targeting small ribosomal subunit recruitment. Analysis of IRES-driven translation in *Xenopus* oocytes suggests that SLBP activity requires eIF4E. We propose a model in which a novel factor contacts eIF4E bound to the 5' cap and SLBP bound to the 3'end simultaneously, mediating formation of an alternative end-to-end complex.