Evidence that Initiation Factor 1 Interacts with 23s Ribosomal RNA at the Highly Conserved Alpha Sarcen Site [MAS]

C. E. Smith., M. van Waes, A. L. Galbraith., and W.E. Hill
Dept. of Biological Sciences, University of Montana, Missoula

The cleavage reaction catalyzed by the cytotoxic protein alpha-sarcin on 23s rRNA can be duplicated by using a DNA probe complementary to the region targeted by the toxin (2646-2574). Previous studies on this site utilizing RNase H generate nucleic acid cleavage during in vitro poly-Phe synthesis. Here we use a metal chelator, 1,10-phenanthroline in the presence of Cu++ ions and mercaptopropionic acid to cleave the nucleic acid. We found that cleavage at 2655-2667 and 2654-2664 is possible only with the addition of a crude S150 fraction. Further studies showed that IF-1 was the determining factor involved in generating this cleavage. These results suggest that IF-1 may play a role in producing conformational changes in the alpha-sarcin region of the 23s rRNA.