Internal ribosome entry in the coding region of murine hepatitis virus mRNA 5

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The unique region of murine hepatitis virus (MHV) mRNA 5 has two open reading frames. ORF 5a and ORF 5b, that encode small proteins of unknown function. In the experiments described here, we have used the in vitro translation of synthetic mRNAs to examine the expression of these ORFs. Our results show that a synthetic mRNA containing both ORFs is functionally bicistronic. More importantly, the expression of ORF 5b, but not ORF 5a, is maintained in a tricistronic mRNA containing an additional 5’-proximal ORF. Thus, in the context of the MHV mRNA 5 unique region, the initiation of protein synthesis on ORF 5b can occur independently of ribosomes that enter from the 5’ end of the mRNA. We conclude that the translation of ORF 5b is mediated by the internal entry of ribosomes.

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