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Indian hepatitis E virus shows a major deletion in the small open reading frame

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Abstract

Enterically transmitted non-A, non-B hepatitis virus (HEV), the causative agent for sporadic and large epidemic outbreaks in developing countries, contains a positive-sense single-stranded RNA genome. The genome of the virus encodes three open reading frames (ORF1, ORF2, and ORF3). The gene segment corresponding to the small open reading frame (ORF3), overlapping between ORF1 and ORF2, was synthesized by reverse transcription-polymerase chain reaction (RT-PCR) from a number of previously identified HEV-positive clinical specimens. A DNA fragment of 166 bp was consistently obtained from all the clinical specimens. This small fragment was cloned, sequenced, and found to contain an open reading frame encoding only 41 amino acid residues. Comparison of our results with that of geographically related Burma HEV suggests a major inframe deletion of 246 bp in the ORF3 of Indian strain. The protein encoded by ORF3 does not appear to be useful for early serodiagnosis as a synthetic peptide deduced from the truncated ORF3 failed to show any demonstrable immunoreactivity against HEV-infected acute phase sera in an enzyme-linked immunosorbent assay.

Reference

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