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ANTIGENIC PROPERTIES OF THE ARTIFICIAL MOSAIC PROTEINS OF HEPATITIS E VIRUS

Objectives. The purpose of this study was to evaluate diagnostic relevance of a set of 8 artificial polypeptides composed of antigenic epitopes derived from proteins encoded by open reading frame (ORF) 1 and 2 of the hepatitis E virus (HEV).

Methods. A full-length artificial mosaic antigen composed of epitopes derived from 4 different antigenic domains of the ORF2 encoded protein and from the ORF3 encoded protein, and 7 different fragments of this artificial antigen were expressed in *E. coli* as hybrid proteins with Glutathione S-transferase. All these proteins were purified using ligand affinity chromatography and tested against a panel of serum specimens obtained from patients acutely infected with HEV (n=73) and from normal blood donors (n=59). All acute specimens were preliminary tested with a set of 6 synthetic peptides corresponding to the regions included into the artificial antigen.

Results. All 8 proteins immunoreacted with IgG anti-HEV. However, the full-length protein was the most broadly immunoreactive. This protein immunoreacted with acute serum specimens with 98.5% sensitivity and 100% specificity. Surprisingly, the synthetic peptides did not bind antibody from all sera immunoreactive with recombinant proteins.

Conclusion. The artificial mosaic proteins used in this study demonstrated a significant diagnostic potential and should be considered as candidates for the development of diagnostic assays for the detection of anti-HEV activity in serum specimens.