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TWO IMMUNODOMINANT REGIONS WITHIN THE HEPATITIS C VIRUS NS3 PROTEIN

The antigenic composition of the hepatitis C virus (HCV) NS3 protein was studied using 23 overlapping PCR fragments derived from the HCV NS3 gene. Each PCR fragment encoded for ~100 aa region of the NS3 protein. All fragments were cloned and expressed as fusion proteins with Glutathione S-transferase (GST) in *E.coli*.
Immunoreactivity of these proteins was examinated using a panel of anti-HCV positive (n=134) and anti-HCV negative (n=50) serum specimens. Anti-HCV positive specimens were obtained from patients infected with HCV of different genotypes.
Eight recombinant proteins containing HCV regions at position 1193-1300, 1221-1325, 1261-1367, 1295-1403, 1319-1426, 1340-1441, 1357-1459, and 1375-1494 aa were found to be immunoreactive. Two of these proteins containing sequences at position 1221-1325 aa (c11) and 1357-1459 aa (c16) detected antibody in 78% and 87% of anti-HCV positive serum samples, respectively.
All anti-HCV positive serum specimens used in the present study contained antibody specifically recognizing at least one of these two proteins. Using synthetic genes, 3 sets of recombinant proteins representing different HCV genotypes have been obtained for c11, c16 and c33 region (1192-1456 aa). The enzyme immunoassay competition experiments demonstrated that the combination of c11 and c16 proteins blocked efficiently antibody binding to c33 antigen. This observation indicates that the c11 and c16 antigenic regions are expressed in functionally active form in the HCV c33 antigen. In conclusion, the results of this study suggest that the HCV NS3 protein contains two immunodominant regions at position 1221–1325 aa and 1357–1459 aa.

World Congress of Virology, Paris, July, 2002