Inhibition of hepatitis B virus assembly with synthetic peptides derived from the viral surface and core antigens

ABSTRACT

The long surface antigen (L-HBsAg) of hepatitis B virus (HBV) plays a central role in the production of infectious virions. During HBV morphogenesis, both the PreS and S domains of L-HBsAg form docking sites for the viral nucleocapsids. Thus, a compound that disrupts the interaction between the L-HBsAg and nucleocapsids could serve as a therapeutic agent against the virus based upon inhibition of morphogenesis. Synthetic peptides correspond to the binding sites in L-HBsAg inhibited the association of L-HBsAg with core antigen (HBcAg). A synthetic peptide carrying the epitope for a monoclonal antibody to the PreS1 domain competed weakly with L-HBsAg for HBcAg, but peptides corresponding to a linear sequence at the tip of the nucleocapsid spike did not, showing that the competing peptide does not resemble the tip of the spike.

Keyword: Hepatitis B virus; Inhibitors; Protein-protein interaction; Synthetic peptides