A Phage – Displayed Cyclic Peptide That Interacts Tightly With the Immunodominant Region of Hepatitis B Surface Antigen.

Abstract

The surface antigen (HBsAg) of hepatitis B virus (HBV) is conformational and generally evokes protective humoral immune response in human. A disulfide constrained, andom heptapeptide library displayed on the coat protein III of filamentous bacteriophage M13 was employed to select specific ligands that interact with HBsAg subtype ad. Fusion phages carrying the amino acid sequence ETGAKPH and other related sequences were isolated. The binding site of peptide ETGAKPH was located on the immunodominant region of HBsAg. An equilibrium binding assays in solution showed that the phage binds tightly to HBsAg with a relative dissociation constant(krel D) of 2.9 ± 0.9 nM. The phage bearing this peptide has the potential to be used as a diagnostic reagent and two assays for detecting HBsAg in blood samples are described.

Keyword: Filamentous bacteriophage, Biopanning, HBsAg, Dissociation constant, Immunodominant region