Myristoylated-Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide and Conjugate

Hepatitis B is an infectious disease caused by the hepatitis B virus (HBV) which affects the liver. HBV is divided into four major genotypes: A, D, E, and F. The genotypes have a distinct geographical distribution and are used in tracing the evolution and transmission of the virus. The virus particle, (virion) consists of an outer lipid envelope and an icosahedral nucleocapsid core composed of protein.

The nucleocapsid encloses the viral DNA and a DNA polymerase. The outer envelope contains embedded proteins which are involved in viral binding of, and entry into, susceptible cells. Viral genome encodes 4 major proteins (C, X, P, and S). The core protein (HBcAg) and pre-core processed protein HBeAg. The DNA polymerase is encoded by gene P. Gene S is the gene that codes for the surface antigen (HBsAg) that is produced in 3 alternatively transcribed forms: The S protein (226-aa, potential glycosylation at N3 &N146); M protein (S+Pre-S2, 281-aa, potential glycosylation at N4); and the L protein (S+Pre-S2+Pre-S1, 389 or 400-aa depending on the HBV serotype). The small envelope protein S is the most abundantly expressed one. The hydrophilic amino acids 124-149 constitutes the dominant immunogenic epitope or so-called the “a” determinant of HBsAg in all HBV genotypes from A to H. During synthesis and prior to translocation to the lumen of the endoplasmic reticulum (ER), the pre-S domain of the L protein becomes post-translationally myristoylated (Myr) at glycine 2. This modification plays an important role early in the HBV life cycle.

A myristoylated peptide encompassing amino acids 2-48 of the preS1 region is an efficient inhibitor of HBV infection. The Myr-preS1 peptide specifically interacts with a sodium taurocholate co transporting polypeptide (NTCP), a transmembrane transporter extensively localized to the basolateral membrane of high differentiated primary hepatocytes. NTCP mediates the transport of conjugated bile salts and of some drugs from portal blood into the liver. Amino acids 157–165 of NTCP are crucial for NTCP-mediated HBV binding and infection.

Source of Antigen

Myristoylated (Myr) HBsAg Pres-S1 peptides (Genotype C, 2-48aa) were synthesized as unlabeled or biotin, FITC conjugate.

HBVS17-U-100, Unlabeled

Sequence: Myr-GTNL3VFNPL GFFDHQLDP AFGANSNNPD WDFNPNKDHW<br>PEANQVG Mol. Wt: 5399.3 Purity: >98%

HBVS17-B-100, Biotin labeled

Sequence: Myr-GTNL3VFNPL GFFDHQLDP AFGANSNNPD WDFNPNKDHW<br>PEANQVG-Biotin Mol. Wt: 5753.3 Purity: >90%

HBVS17-F-100, FITC labeled

Sequence: Myr-GTNL3VFNPL GFFDHQLDP AFGANSNNPD WDFNPNKDHW<br>PEANQVG-FITC Mol. Wt: 5885.4 Purity: >93%

Storage

Short-term: unopened, powder vials at 4°C.<br>Long-term: at –20°C or below.

Recommended Usage

ELISA coat 50-100 ng of protein/well.

Specificity & Cross-reactivity

Pre-S1 antigenic peptide (genotype C) is conserved in various HBV genotypes: A (96%), B (85%), D (81%), E (79%), F (83%), G (81%), H (83%), Chimp (81%).

General References


Recommended Material available from ADI

Catalog# Description<br>Catalog#<br>4300 Human Anti-Hepatitis B Surface Antigen Pres-S1 (HB Pre-S1) IgG ELISA kit<br>4400 Human Anti-Hepatitis B Surface Antigen Pres-S2 (HB Pre-S2) IgG ELISA kit<br>4505 Human Anti-Hepatitis B Surface Antigen Pres-S1+2 (HB Pre-S2) IgM ELISA kit<br>HBVS11-M Mouse monoclonal Anti-Hepatitis B Surface Antigen (HBsAg) pre-S1 IgG<br>HBVS12-A Rabbit Anti-Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide IgG, aff pure<br>HBVS15-R-10 HBsAg pre-S1 (108-aa, >95%, ~15 kda)<br>HBVS17-U-100 HBsAg pre-S1 peptide (2-48 aa, >95%, ~5.2 kda, unlabeled<br>HBVS17-B-100 Myristoylated-Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide-Biotin (2-48 aa, >90%, ~5.7 kda)<br>HBVS17-U-100 Myristoylated-Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide (2-48 aa, >95%, ~5.4 kda)<br>HBVS21-M Mouse monoclonal Anti-Hepatitis B Surface Antigen (HBsAg) pre-S2 IgG<br>HBVS23-A Rabbit Anti-Hepatitis B Surface Antigen (HBsAg) pre-S2 (55-aa) IgG, aff pure<br>HBVS23-P Hepatitis B Surface Antigen (HBsAg) pre-S2 (55-aa) IgG, aff pure<br>HBVS25-R-10 Recombinant (E.Coli) Hepatitis B Surface Antigen (HBsAg/adw) pre-S2 (120-174 aa, >95%, ~17 kda, His-tag)<br>HBVS26-R-10 Recomb. (E.Coli) HBsAg/adw pre-S1+2 (1-174 aa, >95%, ~21 kda, His-tag)<br>HBVS27-P-100 HBsAg/adw peptide pre-S2 (55-aa, >95%, ~5.7 kda, no tag) NTCP11-A Rabbit Anti-Human NTCP peptide IgG #1, aff pure<br>NTCP12-A Rabbit Anti-Human NTCP peptide IgG #2, aff pure<br>RP-468 Recombinant (E.Coli) HBsAg pre-S protein (114 aa, ~25 kda, Adw2, full length)<br>RP-446 Recombinant (E.Coli) pre-S1 (HBsAg) (119 aa, >95%, ~13 kda)<br>RP-446-2 Recombinant (E.Coli) pre-S1 (HBsAg/Geneotype C, 1-445aa, >95%, His-tag)<br>RP-449 Recombinant (E.Coli) pre-S2 binding (HBsAg) pre-S2 (>95%, 55-aa) NTCP11-A Rabbit Anti-Human NTCP peptide IgG #1, aff pure<br>RP-449-2 Recombinant (E.Coli) pre-S2 (HBsAg/Geneotype C, 1-440aa, ~50 kda, His-tag)<br>RP-449-3 Recomb. (E.coli) pre-S2 and S (HBsAg/Geneotype B, 1-445 aa, ~50 kda His-tag)<br>HBVS17-U-100-HBsAg-Pre-S1-Myristoylated-Peptides 170323A