**Product Specification Sheet**

**Recombinant Hepatitis B Surface Antigen (HBsAg) pre-S1+S2 protein**

- **Cat.** HBVS26-R-10
- **Recombinant (E.Coli) HBsAg/adw pre-S1+2 (1-174-aa, His-tag)**
- **SIZE:** 10 ug

**Hepatitis** B is an infectious disease caused by the hepatitis B virus (HBV) which affects the liver. HBV is divided into four major serotypes (adr, adw, ayr, ayw) based on antigenic epitopes presented on its envelope proteins, and into eight major genotypes (A–H, and now I–J). 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 anicosahedral 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 C (HBcAg) and pre-core processed protein HBPreC. 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 myristylated 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 exclusively 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**

HBsAg Pres-S1+S2 (1-174-aa, adw) was expressed in E. coli as His-tag fusion protein and purified using proprietary methods (>95%, mol wt ~21 kda). It is supplied in PBS, pH 7.4 in liquid or lyophilized in the same buffer (lot sp. concn is supplied on the vial). **Reconstitute** powder in PBS, pH 7.4 at 1 mg/ml. Store at -20oC or below in suitable aliquots.

**Storage**

- **Short-term:** unopened, undiluted liquid vials at -200C and powder at 40C or -200C.
- **Long-term:** at –20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at –20oC or below.

**Shipping:** 4oC for solutions and room temp for powder

**Recommended Usage**

**Western Blotting** load 50-200 ng/lane and detect with appropriate antibodies.

**ELISA** coat 50-100 ng of protein/well).

**Specificity & Cross-reactivity**

Pre-S2 antigenic peptide (genotype C) is conserved in various HBV genotypes: A (83%), B (77%), D (91%), E (92%), F (76%), G (85%), and H (80%).

**General References:**

- *This product is for in vitro research use only.*

**Related material available from ADI**

- **Catalog#**
  - 4300: Human Anti-Hepatitis B Surface Antigen Pres-S1 (HB Pre-S1) IgG ELISA kit
  - 4400: Human Anti-Hepatitis B Surface Antigen Pres-S2 (HB Pre-S2) IgG ELISA kit
  - 4505: Human Anti-Hepatitis B Surface Antigen Pres-S1+2 (HB Pre-S1+2) IgM ELISA kit

- HBVS26-R-10: Recombinant (E.Coli) Hepatitis B Surface Antigen (HBsAg) pre-S1 (108-aa, >95%, ~14 kda)
- HBVS16-U-100: Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide (2-48 aa, >95%, ~5.2 kda, unlabeled)
- HBVS17-B-100: Myristylated-Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide –Biotin (2-48 aa, >95%, ~6.5 kda)
- HBVS17-U-100: Myristylated-Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide (2-48 aa, >98%, ~5.4 kda)
- HBVS21-M: Mouse monoclonal Anti-Hepatitis B Surface Antigen (HBsAg) pre-S1 IgG
- HBVS12-A: Rabbit Anti-Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide IgG, aff pure
- HBVS12-P: Rabbit Hepatitis B Surface Antigen (HBsAg pre-S1 peptide control/blocking peptide
- HBVS26-R-10: Recombinant (E.Coli) Hepatitis B Surface Antigen (HBsAg/adw) pre-S1 (170-aa, >95%, ~2 kda, his-tag)
- HBVS26-P-100: Hepatitis B Surface Antigen (HBsAg/adw) pre-S2 (55-aa, >95%, ~5.7 kda, no tag)
- NTCP11-A: Rabbit Anti-Human NTCP (Nax – taurocholate co-transporting protein/SLC10A1) peptide IgG1, aff pure
- RP-1648: Recombinant (E.Coli) Hepatitis B Surface Antigen (HBsAg) pre-S protein (174-aa, ~25 kda, Adw2, full length, >95%, His-tag)
- RP-446: Recombinant (E.Coli) Hepatitis B Surface Antigen pre-S1 (HBsAg) (119-aa, >95%, ~13 kda)
- RP-446-2: Recombinant (E.Coli) Hepatitis B Surface Antigen pre-S1 (HBsAg/Genotype C, 1-445aa, >95%, His-tag)
- RP-449: Recombinant Hepatitis B Surface Antigen (HBsAg) pre-S2 (>95%, 55-aa, ~4 kda)
- RP-449-2: Recombinant (E. coli) Hepatitis B Surface Antigen pre-S2-S (HBsAg/Genotype C, 1-400 aa, ~50 kda >95%, His-tag)
- RP-449-3: Recombinant (E. coli) Hepatitis B Surface Antigen pre-S2+S (HBsAg/Genotype B, 1-445 aa, ~50 kda >95%, His-tag)

**Product Web Site**

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