ALPHA DIAGNOSTIC INTERNATIONAL

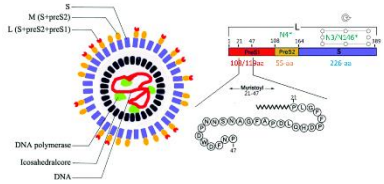
Product Specification Sheet

Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide control and Antibodies

☐ **Cat.** HBVS12-P Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide control/blocking peptide **SIZE**:100 ug

☐ **Cat.** HBVS12-A Rabbit Anti-Hepatitis B Surface Antigen (HBsAg) pre-S1 peptide IgG, aff pure **SIZE**:100 ul

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 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 C (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+PreS2+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 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 and Antibodies

Antigen	47-aa peptide 13-59aa from Pre-S1 of **HBV Genotype C**; **Designation (HBVS12-P, control/blocking peptide**) conjugated to KLH;
Ab Host/type	Rabbit, Polyclonal IgG, purified over antigen-agarose (Cat # **HBVS12**-A) PBS+0.1% BSA and 0.1% azide
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control IgG	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG

☐ 100 ug/100 ul ☐ solution ☐ lyophilized

Supplied in **Buffer**: PBS+0.1% BSA, 0.1% azide

Reconstitute powder in 100 ul water

Control/blocking peptide

☐ 100 ug/100 ul ☐ solution ☐ lyophilized

Supplied in Buffer: PBS pH 7.5,

Reconstitute powder in water in 100 ul.

Storage

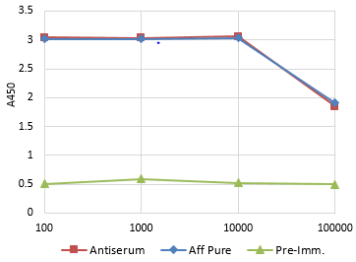
Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at –20C 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 1:500-1:2000 dilution of affinity pure using Chemiluminescence technique.

ELISA (1:1,000-1:100,000; using 50-100 ng of control peptide/well).

Histochemistry & Immunofluorescence: Not tested. We recommend the use of affinity purified antibody at 1:200-1:000 dilution in paraformaldehyde fixed tissues.

Specificity & Cross-reactivity

Pre-S1 antigenic peptide (13-59aa, genotype C) is conserved in various HBV genotypes: A (96%), B (85%), D (81%), E (79%), F (83%), G (81%), H (83%), Chimp (81%). Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol see detailed protocol at the web site).

General References: Zhang P (2012) BMC Microbiol. 12 (1), 307; Shouval D (2015) Med Microbiol Immunol. 2015; 204: 57–68; Itoh Y (1986) PNAS 9174-9178; Leroux-Roels G (1997) Vaccine,15:1724–1731; Fujisawa Y (1990) Vaccine, 8:192–198;

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

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