

Product Specification Sheet

**Hepatitis B surface Antigen Ad (HBsAg), Purified, native, antigen grade**

□ Cat. # HBA26-N-100

Hepatitis Surface Antigen subtype Ad (**HBsAg Ad**), Native (human plasma) purified

**SIZE:** 100 ug

Hepatitis B virus (HBV) is an enveloped, double-stranded DNA virus belonging to the Hepadnaviridae family and is recognized as the major cause of blood transmitted hepatitis together with hepatitis C virus (HCV). Infection with HBV induces a spectrum of clinical manifestations ranging from mild, in apparent disease to fulminant hepatitis, severe chronic liver disease, which in some cases can lead to cirrhosis and carcinoma of the liver. Classification of a hepatitis B infection requires the identification of several serological markers expressed during three phases (incubation, acute and convalescent) of the infection. Hepatitis B surface antigen (**HBsAg**) is an important viral envelope protein, which appears shortly after infection and is a key serological marker for detection and diagnosis of HBV. Clearance during treatment shows recovery and development of neutralizing antibodies (anti-HBs) occurs in 90% of the patients. Due to the introduction of hepatitis B vaccination programs, the detection of anti-HBs has become important method for monitoring of recipients upon vaccination with synthetic and natural HBsAg. The absence of anti-HBs indicates susceptibility to HBV infection.

The hepatitis virus is divided into four major serotypes (**adr, adw, ayr, ayw**) based on antigenic epitopes presented on its envelope proteins, and into eight genotypes (**A-H**) according to overall nucleotide sequence variation of the genome. The **genotypes** have a distinct geographical distribution and are used in tracing the evolution and transmission of the virus. Genotypes differ by at least 8% of their sequence and were first reported in 1988 when six were initially described (**A-F**). Two further types have since been described (**G and H**). Most genotypes are now divided into subgenotypes with distinct properties.

**Genotype A** is most commonly found in the Americas, Africa, India and Western Europe. **Genotype B** is most commonly found in Asia and the United States. **Genotype B1** dominates in Japan, B2 in China and Vietnam while **B3** confined to Indonesia. **B4** is confined to Vietnam. All these strains specify the **serotype ayw1**. **B5 is most common in the Philippines**. **Genotype C** is most common in Asia and the United States. Subgenotype C1 is common in Japan, Korea and China. C2 is common in China, South-East Asia and Bangladesh and C3 in Oceania. All these strains specify the serotype **adrq**. C4 specifying **ayw3** is found in Aborigines from Australia. **Genotype D** is most commonly found in Southern Europe, India and the United States and has been divided into 8 subtypes (D1–D8). **Type E** is most commonly found in West and Southern Africa. **Type F** is most commonly found in Central and South America and has been divided into two subgroups (F1 and F2). **Genotype G** has an insertion of 36 nucleotides in the core gene and is found in France and the United States. **Type H** is most commonly found in Central and South America and California in United States. Africa has five genotypes (A-E). HBsAg has antigenic heterogeneity, specifically, two pairs of sub specific determinants, d/y and w/r allow the following combinations: **adw, ayw, adr, ayr**.

**Source of Antigen**

**HBsAg (subtype ad)** was purified from human plasma using proprietary methods (>99%). It is supplied in 20 mM phosphate buffer, pH 7.4 150 mM NaCl, 5% sucrose and 0.015 mM azide in liquid or lyophilized in the same buffer (lot sp. concn is supplied on the vial). Reconstitute powder

in water at 1 mg/ml. Store at -20oc or below in suitable aliquots.

**Bioburden** ~<10 CFU/ml.

All human derived material has been tested negative for HIV, and HCV. This product is prepared from Hepatitis positive plasma and should be handled as potentially hazardous. It has been heat inactivated at 60oC for 15 hours. Nevertheless, all precautions should be taken and samples be treated as potentially hazardous.

**Shipping and storage**

Lyophilized items are shipped at room temp or cold paks and stored at -20oC upon receipt.

If supplied in liquid then the items are shipped in cold paks and stored frozen at -20oC or below.

**Recommended Usage**

ELISA, Western

References: Barker LF (1996) J. Am. Med. Ass. 276, 841-844; WHO, 2009; Krmavis A (2005) Vaccine 23, 2409-2423; Magnus LO (1995) Intervirology 38, 24-34; Norder H (1994) Virology 198, 489-503; Stuyver L (2000) J. Gen. Virol. 81, 67-74;

\*This product is for In vitro research use only.

**Related material available from ADI**

Catalog# ProdDescription

- 4100 Hepatitis B Surface Antigen (HBsAg) ELISA kit, Quantitative
- 4200 Anti-Hepatitis B Surface Antigen (anti-HBsAg) ELISA kit,
- 4210 Mouse Anti-Hepatitis B Surface Antigen (anti-HBsAg) ELISA kit,
- 4220-AHB Anti-Hepatitis B Surface Antigen (anti-HBsAg) ELISA kit,
- 4230-AHB-R, Anti-Hepatitis B Surface Antigen (anti-HBsAg) rapid test strips

HBA26-N-100

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