



**Human hepatitis B virus surface  
antigen (HBsAg) ELISA Kit  
Catalog No. CSB-E10089h  
(96T)**

- ☐ This immunoassay kit allows for the in vitro semi-quantitative determination of human HBsAg concentrations in serum, plasma.
- ☐ Expiration date six months from the date of manufacture
- ☐ FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.

**PRINCIPLE OF THE ASSAY**

The microtiter plate provided in this kit has been pre-coated with HBsAb. Samples are then added to the appropriate microtiter plate wells with a Horseradish Peroxidase (HRP)-conjugated HBsAb and incubated. Then substrate solutions are added to each well. Only those wells that contain HBsAg and enzyme-conjugated HBsAb will exhibit a change in color. The enzyme-substrate reaction is terminated by the addition of a sulphuric acid solution and the color change is measured spectrophotometrically at a wavelength of 450 nm ± 2 nm.

**MATERIALS PROVIDED**

Reagent	Quantity
Assay plate	1
HRP-conjugate	1 x 7 ml
Positive Control	1 x 1 ml
Negative Control	1 x 1 ml
Substrate A	1 x 7 ml
Substrate B	1 x 7 ml
Wash Buffer (20×concentrate)	1 x 30 ml
Stop Solution	1 x 7 ml

**STORAGE**

1. Unopened test kits should be stored at 2-8°C upon receipt

and the microtiter plate should be kept in a sealed bag. The test kit may be used throughout the expiration date of the kit. Refer to the package label for the expiration date.

2. Opened test kits will remain stable until the expiring date shown, provided it is stored as prescribed above.

3. A microtiter plate reader with a bandwidth of 10 nm or less and an optical density range of 0.03 OD or greater at 450nm wavelength is acceptable for use in absorbance measurement.

#### REAGENT PREPARATION

Bring all reagents to room temperature before use.

1. Wash Buffer If crystals have formed in the concentrate, warm up to room temperature and mix gently until the crystals have completely dissolved. Dilute 30 ml of Wash Buffer Concentrate into deionized or distilled water to prepare 600 ml of Wash Buffer.

Precaution: The Stop Solution provided with this kit is an acid solution. Wear eye, hand, face, and clothing protection when using this material.

#### OTHER SUPPLIES REQUIRED

☐ Microplate reader capable of measuring absorbance at 450 nm, with the correction wavelength set at 540 nm or 570 nm.

☐ Pipettes and pipette tips.

☐ Deionized or distilled water.

☐ Squirt bottle, manifold dispenser, or automated microplate washer.

#### SAMPLE COLLECTION AND STORAGE

☐ Serum Use a serum separator tube (SST) and allow samples to clot for 30 minutes before centrifugation for 15 minutes at 1000 g. Remove serum and assay immediately or aliquot and store samples at ☐ 20° C. Avoid repeated freeze-thaw cycles.

☐ Plasma Collect plasma using citrate, EDTA, or heparin as an anticoagulant. Centrifuge for 15 minutes at 1000 g within 30 minutes of collection. Assay immediately or aliquot and store samples at ☐ 20°C. Avoid repeated freeze-thaw cycles.

Note: Grossly hemolyzed samples are not suitable for use in this assay.

#### ASSAY PROCEDURE

Bring all reagents and samples to room temperature before use. It is recommended that all samples, and controls be assayed in duplicate.

1. Set a Blank well without any solution. Add 50>l of Negative Control, Positive Control or Sample per well.
2. Add 50>l of HRP-conjugate to each well (not to Blank!). Cover the microtiter plate with a adhesive strip. Incubate for 30 minutes at 37°C.
3. Aspirate each well and wash, repeating the process five times for a total of five washes. Wash by filling each well with Wash Buffer (200>l) using a squirt bottle, multi-channel pipette, manifold dispenser or autowasher. Complete removal of liquid at each step is essential to good performance. After the last wash, remove any remaining Wash Buffer by aspirating or decanting. Invert the plate and blot it against clean paper towels.
4. Add 50>l of Substrate A and 50>l of Substrate B to each well. Incubate for 15 minutes at 37°C. Keeping the plate away from drafts and other temperature fluctuations in the dark.
5. Add 50>l of Stop Solution to each well. If color change does not appear uniform, gently tap the plate to ensure thorough mixing.
6. Determine the optical density of each well within 30 minutes, using a microplate reader set to 450 nm.

#### CALCULATION OF RESULTS

For calculation the valence of human HBsAg, compare the sample well with control.

When  $OD_{\text{negative}} < 0.05$ , calculate it as 0.05.

While  $OD_{\text{sample}} / OD_{\text{negative}} \geq 2.1$ : Positive

While  $OD_{\text{sample}} / OD_{\text{negative}} < 2.1$ : Negative

#### LIMITATIONS OF THE PROCEDURE

- ☐ The kit should not be used beyond the expiration date on the kit label.
- ☐ Do not mix or substitute reagents with those from other lots or sources.
- ☐ Any variation in operator, pipetting technique, washing technique, incubation time or temperature, and kit age can cause variation in binding.
- ☐ This assay is designed to eliminate interference by soluble receptors, binding proteins, and other factors present in biological samples. Until all factors have been tested in the Quantikine Immunoassay, the possibility of interference cannot be excluded.

#### TECHNICAL HINTS

- ☐ Centrifuge vials before opening to collect contents.
- ☐ When mixing or reconstituting protein solutions, always avoid foaming.

- ☐ To avoid cross-contamination, change pipette tips between sample additions, and between reagent additions. Also, use separate reservoirs for each reagent.
- ☐ When using an automated plate washer, adding a 30 second soak period following the addition of wash buffer, and/or rotating the plate 180 degrees between wash steps may improve assay precision.
- ☐ To ensure accurate results, proper adhesion of plate sealers during incubation steps is necessary.
- ☐ Substrate Solution should remain colorless until added to the plate. Keep Substrate Solution protected from light. Substrate Solution should change from colorless to gradations of blue. Stop Solution should be added to the plate in the same order as the Substrate Solution. The color developed in the wells will turn from blue to yellow upon addition of the Stop Solution. Wells that are green in color indicate that the Stop Solution has not mixed thoroughly with the Substrate Solution.

GENTAUR