Rapid Response™

HBsAg Test Cassette
(Serum/Plasma)

REF HBsAg-12C40 Product Insert

A rapid test for the qualitative detection of Hepatitis B Surface Antigen (HBsAg) in human serum or plasma.

For professional *in vitro* diagnostic use only.

Intended Use

The Rapid Response™ HBsAg Test Cassette is a rapid chromatographic immunoassay for the qualitative detection of Hepatitis B Surface Antigen in serum or plasma.

Summary

Viral hepatitis is a systemic disease primarily involving the liver. Most cases of acute viral hepatitis are caused by Hepatitis A virus, Hepatitis B virus (HBV) or Hepatitis C virus. The complex antigen found on the surface of HBV is called HBsAg. Previous designations included the Australia or Au antigen.[1] The presence of HBsAg in serum or plasma is an indication of an active Hepatitis B infection, either acute or chronic. In a typical Hepatitis B infection, HBsAg will be detected 2 to 4 weeks before the ALT level becomes abnormal and 3 to 5 weeks before symptoms or jaundice develop. HBsAg has four principal subtypes: adw, ayw, adr and ayr. Because of antigenic heterogeneity of the determinant, there are 10 major serotypes of Hepatitis B virus.

The Rapid Response™ HBsAg Test Cassette is a rapid test to qualitatively detect the presence of HBsAg in serum or plasma specimen. The test utilizes a combination of monoclonal and polyclonal antibodies to selectively detect elevated levels of HBsAg in serum or plasma.

Principle

The Rapid Response™ HBsAg Test Cassette is a qualitative, solid phase, two-site sandwich immunoassay for the detection of HBsAg in serum or plasma. The membrane is pre-coated with anti-HBsAg antibodies on the test line region of the cassette. During testing, the serum or plasma specimen reacts with the particle coated with anti-HBsAg antibodies. The mixture migrates upward on the membrane chromatographically by capillary action to react with anti-HBsAg antibodies on the membrane and generate a colored line. The presence of this colored line in the test region indicates a positive result, while its absence indicates a negative result. To serve as a procedural control, a colored line will always appear in the control line region indicating that proper volume of specimen has been added and membrane wicking has occurred.

Reagents

The test contains anti-HBsAg particles and anti-HBsAg coated on the membrane.

Precautions

Please read all the information in this package insert before performing the test.

1. For professional *in vitro* diagnostic use only. Do not use after the expiration date.
2. The test should remain in the sealed pouch until ready to use.
3. All specimens should be considered potentially hazardous and handled in the same manner as an infection agent.
4. The used test should be discarded according to the local regulations.

Materials

Materials provided

- Test cassettes
- Droppers
- Product insert

Materials required but not provided

- Specimen collection containers
- Centrifuge
- Timer

Storage and Stability

Store as packaged at room temperature or refrigerated (35.6-86°F; 2-30°C). The test is stable through the expiration date printed on the sealed pouch. The test must remain in the sealed pouch until use. **DO NOT FREEZE.** Do not use beyond the expiration date.

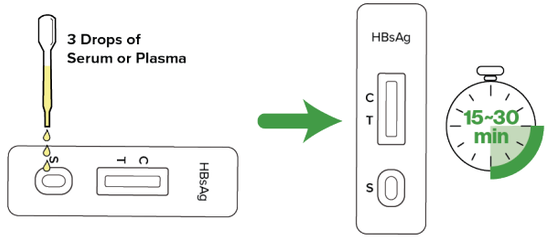
Specimen Collection and Preparation

1. The Rapid Response™ HBsAg Test Cassette can be performed using serum or plasma.
2. Separate serum or plasma from blood as soon as possible to avoid hemolysis. Use only clear, non-hemolyzed specimens.
3. Testing should be performed immediately after specimen collection. Do not leave the specimens at room temperature for prolonged periods. Serum and plasma specimens may be stored at 35.6-46.4°F (2-8°C) for up to 3 days. For long term storage, specimens should be kept below -4°F (-20°C).
4. Bring specimens to room temperature prior to testing. Frozen specimens must be completely thawed and mixed well prior to testing. Specimens should not be frozen and thawed repeatedly.
5. If specimens are to be shipped, they should be packed in compliance with federal regulations covering the transportation of etiologic agents.

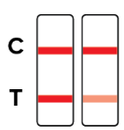
Test Procedure

Allow test cassette, specimen, and/or controls to equilibrate to room temperature (59-86°F; 15-30°C) prior to testing.

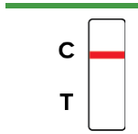
1. Remove the test cassette from the sealed foil pouch and use it as soon as possible. Best results will be obtained if the assay is performed immediately after opening the foil pouch.
2. For **Serum or Plasma** specimen:
   Hold the dropper vertically and transfer **3 drops of serum or plasma (approximately 120 µL)** to the specimen well of test cassette and start the timer. See illustration below.
3. Wait for the colored line is appeared. The result should be read at **15~30 minutes**. Do not interpret the result after **30 minutes**.



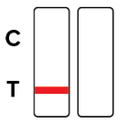
Results Interpretation



POSITIVE:* Two colored lines appear. One colored line should be in the control region (C) and another colored line should be in the test region (T).
***NOTE:** The intensity of the color in the test line region (T) will vary depending on the concentration of HBsAg present in the specimen. Therefore, any shade of color in the test region (T) should be considered positive.



NEGATIVE: One colored line appears in the control region (C). No apparent colored line appears in the test region (T).



INVALID: Control line fails to appear. Insufficient specimen volume or incorrect procedural techniques are the most likely reasons for control line failure. Review the procedure and repeat the test with a new test cassette. If the problem persists, discontinue using the test kit immediately and contact your local distributor.

Quality Control

A procedural control is included in the test. A colored line appearing in the control region (C) is the internal procedural control. It confirms sufficient specimen volume and correct procedural technique. Control standards are not supplied with this kit; however, it is recommended that a positive control (containing 10ng/mL HBsAg) and a negative control (containing 0ng/mL HBsAg) be tested as a good laboratory practice to confirm the test procedure and to verify proper test performance.

Limitations

1. The Rapid Response™ HBsAg Test Cassette is for professional *in vitro* diagnostic use only. The test should be used for the detection of HBsAg in serum or plasma specimen. Neither the quantitative value nor the rate of HBsAg concentration can be determined by this qualitative test.
2. The Rapid Response™ HBsAg Test Cassette will only indicate the presence of HBsAg in the specimen and should not be used as the sole criteria for the diagnosis of Hepatitis B viral infection.
3. As with all diagnostic tests, all results must be considered with other clinical information available to the physician.
4. The Rapid Response™ HBsAg Test Cassette cannot detect less than 1 PEI ng/mL of HBsAg in specimens. If the test result is negative and clinical symptoms persist, additional follow-up testing using other clinical methods is suggested. A negative result at any time does not preclude the possibility of Hepatitis B infection.

Performance Characteristics

Sensitivity

The Rapid Response™ HBsAg Test Cassette has been tested with a sensitivity panel ranging from 0 to 300ng/mL. All 10 HBsAg subtypes produced positive results on The Rapid Response™ HBsAg Test Cassette. The test can detect 1 PEI ng/mL of HBsAg in serum/plasma.

Specificity

Antibodies used for the Rapid Response™ HBsAg Test Cassette

were developed against whole Hepatitis B antigen isolated from Hepatitis B virus. Specificity of the Rapid Response™ HBsAg Test Cassette was also tested with laboratory strains of Hepatitis A and Hepatitis C. They all yielded negative results.

Method		ELISA		Total Results
Rapid Response™ HBsAg Test Cassette	Results	Positive	Negative	
	Positive	241	2	243
	Negative	0	359	359
Total Results		241	361	602

Relative Sensitivity: >99.9% (95%CI*: 98.8%-100%)
Relative Specificity: 99.4% (95%CI*: 98%-100%)
Accuracy: 99.7% (95%CI*: 98.8%-100%)
*Confidence Intervals

Precision

Intra-Assay

Within-run precision has been determined by using 15 replicates of three specimens containing 0ng/mL, 1ng/mL and 5ng/mL of HBsAg. The negative and positive values were correctly identified >99% of the time.

Inter-Assay

Between-run precision has been determined by using the same three specimens of 0ng/mL, 1ng/mL and 5ng/mL of HBsAg in 15 independent assays. Three different lots of the Rapid Response™ HBsAg Test Cassette has been tested over a 10 days period using negative, low positive and high positive specimens. The specimens were correctly identified >99% of the time.

Cross-reactivity

The Rapid Response™ HBsAg Test Cassette has been tested by HAMA, Rheumatoid factor (RF), HAV, Syphilis, HIV, H. Pylori, MONO, CMV, Rubella and TOXO positive specimens. The results showed no cross-reactivity.

Interfering Substances

The Rapid Response™ HBsAg Test Cassette has been tested for possible interference from visibly hemolyzed and lipemic specimens. No interference was observed.
In addition, no interference was observed in specimens containing up to 2,000 mg/dL Hemoglobin, 1000 mg/dL Bilirubin, and 2000 mg/dL human serum Albumin.

Bibliography

1. Blumberg, B.S. The Discovery of Australian Antigen and its relation to viral hepatitis. Vitro. 1971; 7: 223

Glossary of Symbols

Consult instructions for use	Test per Kit	Do Not Reuse
Store between 35.6°F to 86°F	Use by	Catalogue #
Lot Number	For *in vitro* diagnostic use only	Manufacturer

BTNX Inc.
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