SIEMENS Healthineers

Anti-Hepatitis B e Antigen (aHBe)

Assay for the Detection of Antibodies to Hepatitis B e Antigen

Current Revision and Date[a]	Rev. 03, 2019-07	
Product Name	Atellica IM Anti-Hepatitis B e Antigen (aHBe)	REF 10995451
Abbreviated Product Name	Atellica IM aHBe	
Test Name/ID	aHBe	
Systems	Atellica IM Analyzer	
Optional Materials	Atellica IM aHBe QC	REF 10995452
Specimen Types	Serum, EDTA plasma, lithium heparin plasma, sodium heparin plasma	
Sample Volume	100 µL	
Measuring Interval	0.05–4.50 Index	

[a] A vertical bar in the page margin indicates technical content that differs from the previous version.

CE 0197

Intended Use

The Atellica™ IM Anti-Hepatitis B e Antigen (aHBe) assay is for *in vitro* diagnostic use in the qualitative determination of antibody response to the e antigen of the hepatitis B virus (HBV) in human serum and plasma (EDTA, lithium heparin, and sodium heparin) using the Atellica™ IM Analyzer.

Use this assay in combination with other HBV marker assays to define the clinical status of known HBV-infected patients.

Summary and Explanation

The Atellica IM aHBe assay is a competitive/neutralizing microparticle chemiluminometric immunoassay used for the detection of antibody to hepatitis B e antigen in human serum and plasma.

Hepatitis B virus (HBV) is endemic throughout the world and is the major cause of liver disease. HBV is transmitted through direct contact with blood and body fluids. Common modes of transmission include blood transfusion, needle puncture, direct contact with open wounds, sexual contact, and mother-neonate contact during birth.[1,2]

The average incubation period for HBV infection is 6–8 weeks (range 1–6 months). Common clinical symptoms include malaise, fever, gastroenteritis, and icterus. HBV infection can result in typical icteric hepatitis, subclinical anicteric hepatitis, fulminant hepatitis, or chronic or persistent hepatitis. In adults, 90%–95% of patients with HBV infection completely recover from acute illness and clear the virus. Approximately 5%–10% of patients with HBV become chronic carriers. In HBV-infected neonates, approximately 90% develop chronic hepatitis B infection. It is estimated that over 300 million people worldwide are chronic carriers of the virus. HBV infection, particularly in cases of chronic infection, is clearly associated with the development of hepatocellular carcinoma.[1-3]

Anti-HBe appears soon after the end of acute stage of HBV infection and is present as the patient recovers or becomes a chronic carrier. Anti-HBe is no longer present by the time recovery from HBV infection is complete. Although anti-HBe can be present with HBsAg in chronic carriers, the presence of anti-HBe in the absence of HBsAg is an indication of early or ongoing recovery. The appearance of anti-HBe is an indicator of treatment efficacy in the case of chronic HBV carriers undergoing treatment with anti-viral medications.[1,4,5]

Principles of the Procedure

The Atellica IM aHBe assay is a competitive/neutralizing immunoassay using a 2-step, single-wash format. The Ancillary Well Reagent contains rHBeAg in a specimen diluent. The Solid Phase contains streptavidin-coated microparticles preformed with biotinylated anti-HBe monoclonal antibody. The Lite Reagent contains anti-HBe monoclonal antibody labeled with acridinium ester.

The sample is incubated with the Ancillary Well Reagent. During this incubation, anti-HBe in the sample binds with rHBeAg. The Solid Phase and Lite Reagent are added next and bind any rHBeAg not already bound by sample anti-HBe. After a wash step, the chemiluminescent reaction is initiated.

An inverse relationship exists between the amount of anti-HBe activity present in the patient sample and the amount of relative light units (RLUs) detected by the system. A result of reactive, nonreactive, or equivocal is determined according to the Index Value established with the calibrators. Refer to *Interpretation of Results*.

Reagents

Material Description	Storage	Stability[a]
Atellica IM aHBe ReadyPack® primary reagent pack **Lite Reagent** 5.0 mL/reagent pack Acridinium-ester-labeled mouse monoclonal anti-HBe (~0.1 µg/mL) in buffer; bovine serum albumin; mouse IgG; surfactant; sodium azide (< 0.1%); preservatives **Solid Phase** 10.0 mL/reagent pack Biotinylated mouse monoclonal anti-HBe (~1.0 µg/mL) combined with streptavidin-coated paramagnetic microparticles in buffer; bovine serum albumin; goat serum; mouse IgG; surfactant; sodium azide (< 0.1%); preservatives **Ancillary Well Reagent** 5.0 mL/reagent pack Recombinant HBe antigen (~0.06 µg/mL) grown in *E. coli* in buffer; bovine serum albumin; surfactant; sodium azide (< 0.1%); preservatives	Unopened at 2–8°C Onboard	Until expiration date on product 26 days

Material Description	Storage	Stability[a]
Atellica IM aHBe CAL 2.0 mL/vial Processed human plasma positive for antibodies to HBe antigen; sodium azide (< 0.1%); preservatives	At 2–8°C	Until expiration date on product
	Onboard at room temperature	8 hours
	Atellica™ Sample Handler[b]	

[a] Refer to *Storage and Stability*.

[b] Refer to the supplementary document "Atellica Sample Handler Calibrator and QC Storage and Stability" for information about storage and stability of materials in the Cal-QC tube storage area.

Warnings and Precautions

For *in vitro* diagnostic use.

For Professional Use.

CAUTION

Federal (USA) law restricts this device to sale by or on the order of a licensed healthcare professional.

Safety data sheets (SDS) available on siemens.com/healthineers.

H317
P272, P280, P302+P352, P333+P313, P363, P501

Warning!
May cause an allergic skin reaction.
Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. Dispose of contents and container in accordance with all local, regional, and national regulations.
Contains: reaction mass of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H-isothiazol-3-one (3:1) (in Atellica IM aHBe CAL)

CAUTION POTENTIAL BIOHAZARD

Contains human source material. Each donation of human blood or blood component was tested by FDA-approved methods for the presence of antibodies to human immunodeficiency virus type 1 (HIV-1) and type 2 (HIV-2), as well as for hepatitis B surface antigen (HBsAg) and antibody to hepatitis C virus (HCV). The test results were negative (not repeatedly reactive). No test offers complete assurance that these or other infectious agents are absent; this material should be handled using good laboratory practices and universal precautions.[6-8]

The calibrators contain human plasma that may be reactive for HBsAg. The units were treated with a BPL-UV inactivation procedure[9]; however, all products manufactured using human source material should be handled as potentially infectious.

CAUTION

This device contains material of animal origin and should be handled as a potential carrier and transmitter of disease.

Contains sodium azide as a preservative. Sodium azide can react with copper or lead plumbing to form explosive metal azides. On disposal, flush reagents with a large volume of water to prevent buildup of azides. Disposal into drain systems must be in compliance with prevailing regulatory requirements.

Dispose of hazardous or biologically contaminated materials according to the practices of your institution. Discard all materials in a safe and acceptable manner and in compliance with prevailing regulatory requirements.

Note For information about reagent preparation, refer to *Preparing the Reagents* in the *Procedure* section.

Note For information about calibrator preparation, refer to *Preparing the Calibrators*.

Storage and Stability

Store reagents in an upright position. Protect the product from heat and light sources. Unopened reagents are stable until the expiration date on the product when stored at 2–8°C.

Store calibrators in an upright position. Calibrators are stable until the expiration date on the product when stored at 2–8°C. Calibrators are stable for 8 hours on the system at room temperature.

Refer to the supplementary document "Atellica Sample Handler Calibrator and QC Storage and Stability" for information about storage and stability of materials in the Cal-QC tube storage area.

Do not use products beyond the expiration date printed on the product labeling.

Onboard Stability

Reagents are stable onboard the system for 26 days. Discard reagents at the end of the onboard stability interval. Do not use products beyond the expiration date printed on the product labeling.

Specimen Collection and Handling

Serum and plasma (EDTA, lithium heparin, and sodium heparin) are the recommended sample types for this assay.

Collecting the Specimen

- Observe universal precautions when collecting specimens. Handle all specimens as if they are capable of transmitting disease.[8]
- Follow recommended procedures for collection of diagnostic blood specimens by venipuncture.[10]
- Follow the instructions provided with your specimen collection device for use and processing.[11]
- Allow blood specimens to clot completely before centrifugation.[7]
- Keep tubes capped at all times.[7]
- Samples are processed by centrifugation, typically followed by physical separation of the serum or plasma from the red cells. The centrifugation step may occur up to 24 hours post-draw. When testing 5 samples where the centrifugation step was varied up to 24 hours post-draw, no clinically significant differences were observed.
- Test samples as soon as possible after collecting. Store samples at 2–8°C if not tested within 1 day of collection.

Storing the Specimen

- Store primary tube samples at 2–8°C for up to 7 days. Primary tube samples include serum stored on the clot, plasma stored on packed red cells, and samples processed and stored in gel-barrier blood collection tubes. When 5 samples in these primary tubes were tested for up to 10 days at 2–8°C, no clinically significant differences were observed.
- Store samples capped and upright at all times at 2–8°C for up to 7 days.
- Freeze samples, devoid of red blood cells, at ≤ -20°C longer storage. Do not store in a frost-free freezer. When 5 samples were subjected to 4 freeze-thaw cycles, no clinically significant differences were observed.

CAUTION

Thoroughly mix thawed samples and centrifuge them at 10,000 x g for 2 minutes before using. Collect the supernatant into a clean vial.

The handling and storage information provided here is based on data or references maintained by the manufacturer. It is the responsibility of the individual laboratory to use all available references and/or its own studies when establishing alternate stability criteria to meet specific needs.

Transporting the Specimen

Package and label specimens for shipment in compliance with applicable federal and international regulations covering the transport of clinical specimens and etiological agents.

Store samples capped at 2–8°C upon arrival. If shipment is expected to exceed 7 days, ship specimens frozen.

Preparing the Samples

This assay requires 100 µL of sample for a single determination. This volume does not include the unusable volume in the sample container or the additional volume required when performing duplicates or other tests on the same sample. For information about determining the minimum required volume, refer to the online help.

Note Do not use specimens with apparent contamination.

Before placing samples on the system, ensure that samples are free of:

- Bubbles or foam.
- Fibrin or other particulate matter.

Note Remove particulates by centrifugation according to CLSI guidance and the collection device manufacturer's recommendations.[7]

Note For a complete list of appropriate sample containers, refer to the online help.

Procedure

Materials Provided

The following materials are provided:

REF	Contents	Number of Tests
10995451	1 ReadyPack primary reagent pack containing Atellica IM aHBe Lite Reagent, Solid Phase, and Ancillary Well Reagent Atellica IM aHBe master curve and test definition MC TDEF 1 vial Atellica IM aHBe CAL low calibrator CAL L 1 vial Atellica IM aHBe CAL high calibrator CAL H Atellica IM aHBe calibrator lot-specific value sheet CAL LOT VAL	50

Materials Required but Not Provided

The following materials are required to perform this assay, but are not provided:

REF	Description
	Atellica IM Analyzer[a]

[a] Additional system fluids are required to operate the system: Atellica IM Wash, Atellica IM Acid, Atellica IM Base, and Atellica IM Cleaner. For system fluid instructions for use, refer to the Document Library.

Optional Materials

The following materials may be used to perform this assay, but are not provided:

REF	Description	
10995452	Atellica IM aHBe QC (quality control material)	2 x 10.0 mL negative quality control CONTROL - 2 x 10.0 mL positive quality control CONTROL + Quality control lot-specific value sheet CONTROL LOT VAL

Assay Procedure

The system automatically performs the following steps:

1. Dispenses 100 µL of sample into a cuvette.
2. Dispenses 100 µL of Ancillary Well Reagent, then incubates the mixture for 32 minutes at 37°C.
3. Dispenses 200 µL of Solid Phase and 100 µL of Lite Reagent, then incubates for 18 minutes at 37°C.
4. Separates the Solid Phase from the mixture, then aspirates the unbound reagent.
5. Washes the cuvette with Atellica IM Wash.
6. Dispenses 300 µL each of Atellica IM Acid and Atellica IM Base to initiate the chemiluminescent reaction.
7. Reports results.

Preparing the Reagents

All reagents are liquid and ready to use. Before loading primary reagent packs onto the system, mix them by hand and visually inspect the bottom of the reagent pack to ensure that all particles are resuspended. For information about preparing the reagents for use, refer to the online help.

Preparing the System

Ensure that the system has sufficient reagent packs loaded in the reagent compartment. The system automatically mixes reagent packs to maintain homogeneous suspension of the reagents. For information about loading reagent packs, refer to the online help.

Master Curve Definition

Before initiating calibration on each new lot of reagent, load the assay master curve and test definition values by scanning the MC TDEF 2D barcodes. For loading instructions, refer to the online help.

Performing Calibration

For calibration of the Atellica IM aHBe assay, use the calibrators provided with each kit.

Calibration Frequency

Perform a calibration if one or more of the following conditions exist:

- When changing lot numbers of primary reagent packs.
- At the end of the lot calibration interval, for a specified lot of calibrated reagent on the system.
- At the end of the pack calibration interval, for calibrated reagent packs on the system.
- When indicated by quality control results.
- After major maintenance or service, if indicated by quality control results.

At the end of the onboard stability interval, replace the reagent pack on the system with a new reagent pack. Recalibration is not required, unless the lot calibration interval is exceeded.

Stability Interval	Days
Lot Calibration	51
Pack Calibration	21
Reagent Onboard Stability	26

For information about lot calibration and pack calibration intervals, refer to the online help.

Follow government regulations or accreditation requirements for calibration frequency. Individual laboratory quality control programs and procedures may require more frequent calibration.

Preparing the Calibrators

Calibrators are liquid and ready to use. Gently mix and invert the vials to ensure homogeneity of the material.

Note Use calibrator material within the stability limits specified in *Storage and Stability* and discard any remaining material.

Calibration Procedure

The required sample volume for testing depends on several factors. For information about sample volume requirements, refer to the online help.

Use the following lot-specific materials to perform calibration:

- For the master curve and assay test definitions, refer to the lot-specific master curve and test definition sheet MC TDEF provided with the assay reagents.
- Calibrators provided in an assay kit must only be used with reagents from that assay kit lot. Do not use calibrators from one assay kit with reagents from a different assay kit lot.
- For the calibrator definitions, refer to the lot-specific value sheet CAL LOT VAL provided with the calibrator materials.
- Generate lot-specific barcode labels to use with the calibrator samples.

For instructions about how to perform the calibration procedure, refer to the online help.

Performing Quality Control

For quality control of the Atellica IM aHBe assay, use the Atellica IM aHBe QC or an equivalent product at least once during each day that samples are analyzed. Use the quality control material in accordance with the quality control instructions for use.

For the assigned values, refer to the lot-specific value sheet CONTROL LOT VAL provided. A satisfactory level of performance is achieved when the analyte values obtained are within the expected control range for the system or within your range, as determined by an appropriate internal laboratory quality control scheme. Follow your laboratory's quality control procedures if the results obtained do not fall within the acceptable limits. For information about entering quality control definitions, refer to the online help.

Follow government regulations or accreditation requirements for quality control frequency. Individual laboratory quality control programs and procedures may require more frequent quality control testing.

Test quality control samples after a successful calibration.

Taking Corrective Action

If the quality control results do not fall within the assigned values, do not report results. Perform corrective actions in accordance with established laboratory protocol. For suggested protocol, refer to the online help.

Results

Calculation of Results

The system determines the result using the calculation scheme described in the online help. Refer to *Interpretation of Results*

For information about results outside the specified measuring interval, refer to *Measuring Interval*.

Interpretation of Results

The system reports Atellica IM aHBe assay results in Index Values and as Nonreactive, Reactive, or Equivocal:

- **Nonreactive:** Samples with a value < 0.80 Index are considered nonreactive for antibodies to hepatitis B e antigen.
- **Reactive:** Samples with a value ≥ 1.20 Index are considered reactive for antibodies to hepatitis B e antigen.
- **Equivocal:** Samples with a value ≥ 0.80 Index and < 1.20 Index are considered equivocal and must be repeated. It is recommended to repeat the test in duplicate, and report the results based on the repeat results. If the results are still equivocal after repeat testing, obtain a new specimen and retest using the Atellica IM aHBe assay.

The cut-off value for the Atellica IM aHBe assay was verified based on the receiver operating characteristic (ROC) curve results [12] and clinical agreement generated from clinical studies.

Note If the controls are out of range, the sample results are invalid. Repeat the assay.

Results of this assay should always be interpreted in conjunction with the patient's medical history, clinical presentation, and other findings.

Limitations

The following information pertains to limitations of the assay:

- A reactive anti-HBe result does not exclude co-infection by another hepatitis virus.
- Assay performance characteristics have not been established for the Atellica IM aHBe assay used in conjunction with other manufacturers' assays for specific HBV serological markers. Laboratories are responsible for establishing their own performance characteristics.
- The performance of the assay has not been established with cord blood, neonatal specimens, cadaver specimens, heat-inactivated specimens, or body fluids other than serum or plasma, such as saliva, urine, amniotic fluid, or pleural fluid.
- The performance of the assay has not been established for populations of immunocompromised or immunosuppressed patients.
- Results from patients taking biotin supplements or receiving high-dose biotin therapy should be interpreted with caution due to possible interference with this test.
- Patient samples may contain heterophilic antibodies that could react in immunoassays to give falsely elevated or depressed results. This assay is designed to minimize interference from heterophilic antibodies.[13,14] Additional information may be required for diagnosis.

Expected Values

The reagent formulations used on the Atellica IM Analyzer are the same as those used on the ADVIA Centaur® system. Expected values were established using the ADVIA Centaur system.

Of 392 HBV-negative donor and hospitalized/clinical samples, 98.21% were nonreactive. Of 214 anti-HBe consensus positive samples, 212 were reactive and 2 were equivocal.

As with all *in vitro* diagnostic assays, each laboratory should determine its own reference interval for the diagnostic evaluation of patient results.[15] Consider these values as guidance only.

Performance Characteristics

The reagent formulations used on the Atellica IM Analyzer are the same as those used on the ADVIA Centaur system. Some performance characteristics for the Atellica IM assay were established using the ADVIA Centaur system.

Performance Characteristics on the ADVIA Centaur System

Specificity

The assay was evaluated for potential cross-reactivity with viral antibodies and disease state specimens. The nonreactive anti-HBe status of each specimen was verified using an anti-HBe reference assay. The following results were obtained:

		ADVIA Centaur anti-HBe Results		
Clinical Category	**Number Tested**	**Nonreactive**	**Equivocal**	**Reactive**
ANA	9	9	0	0
HSV-1	9	8	0	1[a]
HCV	7	7	0	0
HIV-1	8	8	0	0
Flu vaccine recipient	8	8	0	0
Toxoplasma	9	9	0	0
HAMA	10	10	0	0
HAV Total	8	8	0	0
Rheumatoid factor	10	10	0	0
EBV	10	9	0	1[b]
VZV	5	5	0	0
CMV IgG	5	5	0	0
CMV IgM	6	6	0	0
Rubella IgG	8	8	0	0
Syphilis	8	8	0	0
HBsAg vaccine	13	12	1[b]	0
Non-viral liver disease	10	10	0	0
Total	**143**	**140**	**1**	**2**

[a] This sample was equivocal in a reference anti-HBe assay.

[b] This sample was negative in a reference anti-HBe assay.

Results were established using the ADVIA Centaur system.

Sensitivity

To examine the analytical sensitivity of the assay, the Paul Ehrlich Institute (PEI) anti-HBe reference sample was used to prepare a dilution series that was assayed using 3 reagent lots. Linear regression was used to determine the concentration of PEI reference sample that corresponds to the assay cut-off value (Index Value = 1.00). The PEI International Unit (IU) concentration at the assay cut-off value is < 0.10 IU/mL.

Clinical Sensitivity and Specificity

The performance of the assay was determined by testing a total of 625 samples at 2 sites using the ADVIA Centaur system. The results were compared to test results using a commercially available automated anti-HBe assay. The samples included the following populations: HBV-positive samples, normal blood donors, and hospitalized patients. Discordant samples were repeated in duplicate in both assays and then tested in a third commercially available anti-HBe assay if they remained discordant. Resolved clinical specificity and resolved clinical sensitivity were determined by consensus method (agreement between 2 of 3 anti-HBe assays).

Assay results obtained at individual laboratories may vary from the data presented.

Clinical Sensitivity

A population of 216 HBV-positive patient samples was tested using the ADVIA Centaur system and a commercially available automated anti-HBe assay. Of these HBV-positive patient samples, 213 were found positive for anti-HBe using the reference assay with the same intended use. Of these positive specimens, 211 were reactive, 2 were equivocal, and 0 were nonreactive using the ADVIA Centaur system. The relative sensitivity was 100%.

Relative Sensitivity

	Reference anti-HBe Assay		
ADVIA Centaur anti-HBe Assay	**Reactive**	**Nonreactive**	**Total**
Reactive (≥ 1.20 Index)	211	1	212
Equivocal (0.80–1.19 Index)	2	0	2
Nonreactive (< 0.80 Index)	0	2	2
Total	**213**	**3**	**216**

% Relative Sensitivity = 100.00% (211/211).

95% Confidence Interval = 98.27%–100.00%.

% Equivocal = 0.93%.

Resolved Clinical Sensitivity

The consensus results are shown in the following table:

	Consensus anti-HBe Assay Results		
ADVIA Centaur anti-HBe Assay	**Reactive**	**Nonreactive**	**Total**
Reactive (≥ 1.20 Index)	212	0	212
Equivocal (0.80–1.19 Index)	2	0	2
Nonreactive (< 0.80 Index)	0	2	2
Total	**214**	**2**	**216**

% Resolved Sensitivity = 100.00% (212/212).

95% Confidence Interval = 98.28%–100.00%.

% Equivocal = 0.93%.

Clinical Specificity

A population of 207 random blood donors, 201 hospitalized patients, and 1 HBV acute patient was tested using the ADVIA Centaur anti-HBe assay and a commercially available automated anti-HBe assay. Of these random blood donor and hospitalized patient samples, 401 were found negative for anti-HBe using the reference assay with the same intended use. Of these negative specimens, 385 were nonreactive, 5 were equivocal, and 11 were reactive using the ADVIA Centaur anti-HBe assay. The relative specificity was 97.22%.

Note Samples giving equivocal results were not included in the calculation of relative sensitivity and relative specificity.

Relative Specificity

	Reference anti-HBe Assay		
ADVIA Centaur anti-HBe Assay	**Reactive**	**Nonreactive**	**Total**
Reactive (≥ 1.20 Index)	8	11	19
Equivocal (0.80–1.19 Index)	0	5	5
Nonreactive (< 0.80 Index)	0	385	385
Total	**8**	**401**	**409**

% Relative Specificity = 97.22% (385/396)

95% Confidence Interval = 95.08%–98.61%

% Equivocal = 1.22%

Resolved Clinical Specificity

The consensus results are shown in the following table:

	Consensus anti-HBe Assay Results		
ADVIA Centaur anti-HBe Assay	**Reactive**	**Nonreactive**	**Total**
Reactive (≥ 1.20 Index)	11	7	18
Equivocal (0.80–1.19 Index)	0	4	4
Nonreactive (< 0.80 Index)	0	385	385
Total	**11**	**396**	**407**[a]

[a] Consensus could not be obtained for 2 samples. One had sample volume insufficient for completion of the resolution algorithm, and the other had a different interpretation in each of the 3 anti-HBe assays.

% Resolved Specificity = 98.21% (385/392)

95% Confidence Interval = 96.36%–99.28%

% Equivocal = 0.98%

Seroconversion Panels

Commercially available HBV patient seroconversion panels were tested using the ADVIA Centaur anti-HBe assay to determine the seroconversion sensitivity of the assay. The ADVIA Centaur anti-HBe assay became reactive earlier than the reference assay. The following results were obtained:

	anti-HBe Reactive Result From Initial Draw Date		Reference Assay vs ADVIA Centaur Assay
Panel ID	Reference anti-HBe Assay (Days)	ADVIA Centaur anti-HBe Assay (Days)	Difference (Days)
RP-009	81	56	25
RP-016	81	60	21

Interferences

Interference testing was performed in accordance with CLSI Document EP7-A2.[16]

Hemolysis, Icterus, Lipemia (HIL), and Other Interferences

Serum and plasma specimens that are or that contain . . .	Demonstrate ≤ 20% change in results or have an insignificant effect on the assay . . .
hemolyzed	up to 500 mg/dL of hemoglobin
icteric	up to 40 mg/dL of conjugated bilirubin
icteric	up to 20 mg/dL of unconjugated bilirubin
lipemic	up to 500 mg/dL of triglycerides
lipemic	up to 400 mg/dL of cholesterol
hypoproteinemic	down to 6.0 g/dL of protein
hyperproteinemic	up to 11 g/dL of protein (for serum samples)
hyperproteinemic	up to 9 g/dL of protein (for heparinized plasma samples)
hyperproteinemic	up to 8 g/dL of protein (for EDTA plasma samples)
biotin	up to 1500 ng/mL of biotin

Results were established using the ADVIA Centaur system.

Performance Characteristics on the Atellica IM Analyzer

Measuring Interval

The Atellica IM aHBe assay provides results from 0.05–4.50 Index. Reports values below the measuring interval as < 0.05 Index, Nonreactive.

Relative Sensitivity

Relative sensitivity was determined by comparing the Atellica IM aHBe assay using the Atellica IM Analyzer to the ADVIA Centaur anti-HBe assay using the ADVIA Centaur XP system. A population of 120 ADVIA Centaur anti-HBe reactive samples was tested using the Atellica IM aHBe assay. The performance of the Atellica IM aHBe assay is shown in the following table:

Number	Nonreactive	Reactive	Relative Sensitivity (%)
120	0	120	100% (120/120)

The relative sensitivity of the Atellica IM aHBe assay was 100% (120/120) with a 95% confidence interval of 96.9%–100.0%.

Assay results obtained at individual laboratories may vary from the data presented.

Relative Specificity

Relative specificity was determined by comparing the Atellica IM aHBe assay using the Atellica IM Analyzer to the ADVIA Centaur anti-HBe assay using the ADVIA Centaur XP system. A population of 100 ADVIA Centaur anti-HBe nonreactive samples was tested using the Atellica IM aHBe assay. The performance of the Atellica IM aHBe assay is shown in the following table:

Number	Nonreactive	Reactive	Relative Specificity (%)
100	100	0	100% (100/100)

The relative specificity of the Atellica IM aHBe assay was 100% (100/100) with a 95% confidence interval of 96.3%–100.0%.

Assay results obtained at individual laboratories may vary from the data presented.

Seroconversion Panels

Commercially available HBV patient seroconversion panels were tested using the ADVIA Centaur anti-HBe assay and the Atellica IM aHBe assay. The performance of the Atellica IM aHBe assay on the seroconversion panels closely matched the performance of the ADVIA Centaur anti-HBe assay. The following results were obtained:

	Anti-HBe Reactive Result From Initial Draw Date		Atellica IM aHBe Assay vs ADVIA Centaur anti-HBe Assay
Panel ID	ADVIA Centaur anti-HBe Assay (Days)	Atellica IM aHBe Assay (Days)	Difference in Bleed Number (Bleeds)
HBV9093	123	123	0
HBV6510	70	70	0

Assay results obtained at individual laboratories may vary from the data presented.

Precision

Precision was determined in accordance with CLSI Document EP05-A3.[17] Samples were assayed on an Atellica IM Analyzer in duplicate in 2 runs per day for 20 days. The assay was designed to have within-laboratory precision of ≤ 0.12 SD for samples < 0.80 Index and ≤ 15.0% CV for samples ≥ 1.20 Index. The following results were obtained:

			Repeatability		Within-Laboratory Precision	
Sample Type	**N[a]**	**Mean (Index)**	**SD[b] (Index)**	**CV[c] (%)**	**SD (Index)**	**CV (%)**
Serum A	80	0.46	0.02	4.0	0.04	7.7
Serum B	80	0.90	0.03	3.9	0.04	4.8
Serum C	80	1.41	0.03	2.3	0.05	3.6
Serum D	80	2.04	0.04	1.9	0.06	2.8
Serum E	80	3.61	0.04	1.2	0.07	2.1
Control 1	80	0.95	0.03	2.9	0.05	5.3
Control 2	80	2.20	0.03	1.6	0.07	3.1

[a] Number of samples tested.
[b] Standard deviation.
[c] Coefficient of variation.

Assay results obtained at individual laboratories may vary from the data presented.

Standardization

The Atellica IM aHBe assay standardization is based upon relative clinical agreement with commercially available anti-HBe assays. Refer to *Performance Characteristics*. Assigned values for calibrators and controls are traceable to this standardization.

Technical Assistance

For customer support, contact your local technical support provider or distributor.

siemens.com/healthineers

References

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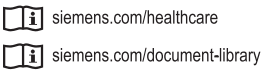
Definition of Symbols

The following symbols may appear on the product labeling:

Symbol	Symbol Title and Description
	Consult instructions for use
 Rev. 01	Version of instructions for use
 siemens.com/healthcare siemens.com/document-library	Internet URL address to access the electronic instructions for use
Rev. REVISION	Revision

Symbol	Symbol Title and Description
	Caution Consult instructions for use or accompanying documents for cautionary information such as warnings and precautions that cannot, for a variety of reasons, be presented on the medical device.
	Biological risks Potential biological risks are associated with the medical device.
	Corrosive
	Dangerous to environment
	Irritant Oral, dermal, or inhalation hazard
	Inhalation hazard Respiratory or internal health
	Flammable Flammable to extremely flammable
	Oxidizing
	Explosive
	Toxic
	Compressed gas
	Keep away from sunlight Prevent exposure to sunlight and heat.
	Up Store in an upright position.
	Do not freeze
	Temperature limit Upper and lower limits of temperature indicators are adjacent to the upper and lower horizontal lines.
	Handheld barcode scanner

Symbol	Symbol Title and Description
IVD	*In vitro* diagnostic medical device
Σ (n)	Contains sufficient for <n> tests Total number of IVD tests the system can perform with the IVD kit reagents appears adjacent to the symbol.
RxOnly	Prescription device (US only) Applies only to United States-registered IVD assays. CAUTION: Federal (USA) law restricts this device to sale by or on the order of a licensed healthcare professional.
	Mixing of substances Mix product before use.
	Reconstitute and mix lyophilized product before use.
	Target
	Interval
	Legal Manufacturer
EC REP	Authorized Representative in the European Community
	Use-by date Use by the designated date.
LOT	Batch code
REF	Catalog number
	Recycle
PRINTED WITH SOY INK	Printed with soy ink
CE	CE Mark
CE 0088	CE Mark with notified body ID number Notified body ID number can vary.
YYYY-MM-DD	Date format (year-month-day)
CHECKSUM	Variable hexadecimal number that ensures the Master Curve and Calibrator definition values entered are valid.
UNITS C	Common Units
UNITS SI	International System of Units

Symbol	Symbol Title and Description
MATERIAL	Material
MATERIAL ID	Unique material identification number
CONTROL NAME	Name of control
CONTROL TYPE	Type of control

Legal Information

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