Policy Statement	Core Laboratory personnel are responsible for insuring the specimen submitted for testing is acceptable and the procedure for performing the test is adhered to.
Purpose	This procedure provides technical instruction for the performance of HBc IgM on the ADVIA Centaur System.
Scope	This procedure applies to testing Personnel authorized to perform testing on the ADVIA Centaur System. This group includes, but is not limited to Medical Laboratory Technicians/Technologists, as well as leads and supervisory personnel.
Responsibility	All above personnel are responsible for following the ADVIA Centaur System procedure without exception. In addition, testing personnel are also responsible for evaluating the results and taking proper remedial action.
Related Documents	CORE 6910 R ADVIA Centaur System Operation CORE 6950 R Infectious Disease Reportable Tests CORE 6035 R Daily Quality Control Procedure Daily Handling, Processing and Reporting Results

Title: Detection of IgM Antibodies to Hepatitis B Core Antigen in Serum on the ADVIA Centaur System

Reporting Results

Reference Interval

- Nonreactive: less than 0.80 Index Value
- Equivocal: greater than or equal to 0.80 Index Value and less than or equal to 1.00 Index Value
- Reactive: greater than or equal to 1.00 Index Value

Note: For equivocal results attach the following comment. “Results in the equivocal range are repeated in duplicate. It is recommended that patients testing in the equivocal range receive supplemental testing as clinically indicated.”

Alert Values

N/A

Reporting Protocol for Alert Values

Reactive results are called to a licensed care provider and reported to the State. See CORE 6950 R Infectious Disease Reportable Tests for detailed instructions.

Reportable Range

The reportable range of the ADVIA Centaur HBc IgM assay is 0.05 to 9.00 Index Value.

Interpretation of Results

The system reports HBc IgM results in Index Values and as positive, equivocal, or negative.

- Samples with a calculated value of less than 0.80 Index Value are considered negative for IgM antibodies to hepatitis B core antigen.
- Samples with a calculated value greater than or equal to 0.80 Index Value and less than 1.00 Index Value are considered equivocal and must be repeated. It is recommended that the test be repeated in duplicate and the results be reported based on the repeat results. If the results are still equivocal after repeat testing, obtain a new specimen and retest using the ADVIA Centaur HBc IgM assay.
- Samples with a calculated value greater than or equal to 1.00 Index Value are considered positive for IgM antibodies to hepatitis B core antigen.
- The cutoff for the ADVIA Centaur HBc IgM assay was verified based on results of Receiver-Operator characteristics (ROC) Curve and clinical agreement generated from clinical studies.
- Sample results are invalid and must be repeated if the controls are out of range.

Procedure Notes

Dilutions

Do not dilute patient samples.

Equivocal Values

Equivocal values must be repeated. 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 ADVIA Centaur HBc IgM assay.

Quality Control (QC)

QC Materials

Use HBc IgM quality control material to monitor assay performance.

QC Frequency

Analyze all levels of quality control material each shift that samples are analyzed.

Analyze all levels of quality control material each time a two-point calibration is performed.

Troubleshooting Out-of-Range QC Values

A QC run is acceptable when all values fall within the expected ranges.

If the quality control results do not fall within defined ranges technologists are expected to follow procedure CORE 6035 R.

Specimen Collection and Handling

Specimen Collection

- Serum is the recommended sample types for this assay.
- Do not use specimens with obvious microbial contamination.
- This assay requires 15 *u*L of sample for a single determination.
- Centrifugation may occur up to 24 hours post draw.

Specimen Storage and Stability

- Keep tubes covered and upright at all times.
- Tightly cover and refrigerate specimens at 2 to 8°C if not tested immediately.
- Store specimens at 2 to 8°C up to 7 days.
- Freeze samples, devoid of red blood cells, at or below -20°C for longer storage.
- Do not store in frost-free freezers.

Reagents

Storage and Stability

- Store the reagents upright at 2–8 °C.
- Store Wash 1 upright at 2–25 °C.
- Primary and ancillary reagents stable until the expiration date on the pack label, or for 41 days onboard the system.
- Calibrators and controls stable until the expiration date on the vial label, or for 8 hours onboard the system.
- Wash stable until the expiration date on the pack label, or for 14 days onboard the system.
- Do not use reagents beyond the expiration date.

Calibration

Two-point Calibration Interval

Use HBc IgM Calibrator to perform two-point calibrations.

Perform a two-point calibration every 28 days. Additionally, calibrate when the following conditions occur:

- the lot numbers of the primary reagent packs have changed
- system components are repaired or replaced
- quality control results do not fall within established ranges

Method Limitations

- Assay performance characteristics have not been established when the ADVIA Centaur HBc IgM assay is used in conjunction with other manufacturers' assay for specific HBV serological markers.
- The performance of the ADVIA Centaur HBc IgM assay has not been established with cord blood, neonatal specimens, cadaver specimens, heat-inactivated specimens, or body fluids other than serum, such as saliva, urine, amniotic, or pleural fluids.
- The performance of the assay has not been established for populations of immunocompromised or immunosuppressed patients.

- Heterophilic antibodies in human serum can react with reagent immunoglobulins, interfering with *in vitro* immunoassays. Patients routinely exposed to animals or to animal serum products can be prone to this interference and anomalous values may be observed. Additional information may be required for diagnosis.

Principle of the Test

The ADVIA Centaur® HBc IgM assay is an IgM capture immunoassay using a 2-step format. The Ancillary Reagent contains biotinylated anti-human IgM. The Solid Phase contains streptavidin coated microparticles. In the Lite Reagent, recombinant HBc antigen is combined with anti-HBc labeled with acridinium ester.

The sample is incubated with the Ancillary Reagent. The Solid Phase is added next and the streptavidin coated microparticles in the Solid Phase bind the IgM. After a wash step, the Lite Reagent is added. Antibody-antigen complexes will form if anti-HBc IgM is present in the sample.

A direct relationship exists between the titer of anti-HBc IgM present in the patient sample and the amount of relative light units (RLUs) detected by the system. A result of positive or negative is determined according to the Index Value established with the calibrators. Refer to *Interpretation of Results* for a description of the Cutoff Value calculation.

Clinical Application and Usefulness

The ADVIA Centaur HBc IgM assay is an *in vitro* diagnostic immunoassay for the qualitative determination of IgM response to the core antigen of the hepatitis B virus (HBc IgM) in human serum using the ADVIA Centaur System. This assay is used in combination with other hepatitis B virus (HBV) marker assays to define the clinical status of known HBV infected patients or it can be combined with other HBV, HAV (hepatitis A virus), and HCV (hepatitis C virus) assays for the diagnosis of patients presenting symptoms of acute viral hepatitis.

Equipment and Supplies

- ADVIA Centaur HBc IgM Primary ReadyPack
- ADVIA Centaur HBc IgM Ancillary ReadyPack
- ADVIA Centaur HBc IgM Calibrator
- ADVIA Centaur HBcIgM Quality Control Material
- ADVIA Centaur Wash 1
- ADVIA Centaur Sample Cups and Caps

- ADVIA Centaur Cuvettes
- ADVIA Centaur Tips
- ADVIA Centaur Cleaning Solution Concentrate
- ADVIA Centaur Acid Reagent (0.5% H_20_2, 0.1N HNO_3)
- ADVIA Centaur Base Reagent (0.25N NaOH and surfactant)
- Reagent Water

References

1. Siemens HealthCare ADVIA Centaur HBc IgM product insert, Revision F
2. Siemens Diagnostics ADVIA Centaur Operator's Guide, Revision A
3. National Committee for Clinical Laboratory Standards (NCCLS). Clinical Laboratory Procedure Manuals—Third Edition (GP2-A3), 1996.

Technical Assistance

Siemens HealthCare Technical Care Center: 1-877-229-3711

Customer Service: 1-800-255-3232

Serial Number: 21251109