



ARCHITECT HAVAb-IgM

REF 6C30-27

REF 6C30-22



en

HAVAb-IgM

6C30

G8-0448/R01

B6C3Z0

Package insert instructions must be carefully followed. Reliability of assay results cannot be guaranteed if there are any deviations from the instructions in this package insert.

NAME

ARCHITECT HAVAb-IgM

INTENDED USE

The ARCHITECT HAVAb-IgM assay is a chemiluminescent microparticle immunoassay (CMIA) for the qualitative detection of IgM antibody to hepatitis A virus (IgM anti-HAV) in human serum and plasma.

The ARCHITECT HAVAb-IgM assay is indicated for use as an aid in the diagnosis of acute or recent hepatitis A viral infection.

SUMMARY AND EXPLANATION OF THE TEST

The ARCHITECT HAVAb-IgM assay determines the presence of IgM anti-HAV in human serum and plasma. Hepatitis A is a self-limiting disease and is often a subclinical disorder, particularly in children. Since symptomatic hepatitis A virus (HAV) infections can be clinically indistinguishable from infection with hepatitis B or C virus, serological testing is an important tool to achieve proper diagnosis. During the acute phase of HAV infection, IgM anti-HAV appears in the patient's serum and is nearly always detectable at the onset of symptoms.¹⁻⁴ In most cases, IgM anti-HAV response usually peaks within the first month of illness and can persist for up to six months.^{5, 6}

BIOLOGICAL PRINCIPLES OF THE PROCEDURE

The ARCHITECT HAVAb-IgM assay is a two-step immunoassay for the qualitative detection of IgM anti-HAV in human serum and plasma using CMIA technology with flexible assay protocols, referred to as Chemiflex.

1. Prediluted sample, assay diluent, and hepatitis A virus (human) coated paramagnetic microparticles are combined. IgM anti-HAV present in the sample binds to the hepatitis A virus (human) coated microparticles.
2. After washing, the IgM anti-HAV binds to the anti-human IgM acridinium-labeled conjugate that is added.
3. Following another wash cycle, Pre-Trigger and Trigger Solutions are added to the reaction mixture.
4. The resulting chemiluminescent reaction is measured as relative light units (RLUs). There is a direct relationship between the amount of IgM anti-HAV in the sample and the RLUs detected by the ARCHITECT iSystem optics.

The presence or absence of IgM anti-HAV in the specimen is determined by comparing the chemiluminescent signal in the reaction to the cutoff signal determined from an active calibration. Specimens with signal to cutoff (S/CO) values > 1.20 are considered reactive for IgM anti-HAV. Specimens with S/CO values of 0.80 to 1.20 are considered grayzone reactive. Specimens with S/CO values < 0.80 are considered nonreactive.

For additional information on system and assay technology, refer to the ARCHITECT System Operations Manual, Section 3.

REAGENTS

Kit Contents

ARCHITECT HAVAb-IgM 6C30

NOTE: Some kit sizes are not available in all countries or for use on all ARCHITECT iSystems. Please contact your local distributor.

REF	6C30-27	6C30-22
	100	400
MICROPARTICLES	1 x 6.1 mL	4 x 6.1 mL
CONJUGATE	1 x 5.9 mL	4 x 5.9 mL
ASSAY DILUENT	1 x 10.0 mL	4 x 10.0 mL

MICROPARTICLES Hepatitis A virus (human) coated microparticles in TRIS buffer. Minimum concentration: 0.10% solids. Preservative: ProClin 300.

CONJUGATE Anti-human IgM (mouse, monoclonal) acridinium-labeled conjugate in MES buffer with protein (bovine) stabilizer. Minimum concentration: 0.05 µg/mL. Preservatives: ProClin 300 and other Antimicrobial Agents.

ASSAY DILUENT HAVAb-IgM Assay Diluent containing protein (bovine) stabilizer in TRIS buffer. Preservatives: ProClin 300 and other Antimicrobial Agents.

Other Reagents

PRE-TRIGGER SOLUTION ARCHITECT Pre-Trigger Solution containing 1.32% (w/v) hydrogen peroxide.

TRIGGER SOLUTION ARCHITECT Trigger Solution containing 0.35 N sodium hydroxide.

WASH BUFFER ARCHITECT Wash Buffer containing phosphate buffered saline solution. Preservatives: antimicrobial agents.


Warnings and Precautions

- **IVD**
- For *In Vitro* Diagnostic Use

Safety Precautions



CAUTION: This product contains human-sourced and/or potentially infectious components. Refer to the **REAGENTS** section of this package insert. No known test method can offer complete assurance that products derived from human sources or inactivated microorganisms will not transmit infection. Therefore, all human-sourced materials should be considered potentially infectious. It is recommended that these reagents and human specimens be handled in accordance with the OSHA Standard on Bloodborne Pathogens. Biosafety Level 2 or other appropriate biosafety practices should be used for materials that contain or are suspected of containing infectious agents.⁷⁻¹⁰

The following warnings and precautions apply to: MICROPARTICLES / CONJUGATE / ASSAY DILUENT	
	
WARNING	Contain methylisothiazolones.
H317	May cause an allergic skin reaction.
Prevention	
P261	Avoid breathing mist / vapors / spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves / protective clothing / eye protection.
Response	
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice / attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
Disposal	
P501	Dispose of contents / container in accordance with local regulations.

Safety Data Sheets are available at www.abbottiagnostics.com or contact your local representative.

For a detailed discussion of safety precautions during system operation, refer to the ARCHITECT System Operations Manual, Section 8.

Reagent Handling

- Do not use reagent kits beyond the expiration date.
- Do not pool reagents within a kit or between kits.**
- Before loading the reagent kit on the system for the first time, the microparticle bottle requires mixing to resuspend microparticles that may have settled during shipment. For microparticle mixing instructions, refer to the **PROCEDURE, Assay Procedure** section of this package insert.
- Septums MUST be used to prevent reagent evaporation and contamination and to ensure reagent integrity. Reliability of assay results cannot be guaranteed if septums are not used according to the instructions in this package insert.**
 - To avoid contamination, wear clean gloves when placing a septum on an uncapped reagent bottle.
 - Once a septum has been placed on an open reagent bottle, **do not invert the bottle** as this will result in reagent leakage and may compromise assay results.
 - Over time, residual liquids may dry on the septum surface. These are typically dried salts and have no effect on assay efficacy.
- When handling conjugate vials, change gloves that have contacted human serum or plasma, since introduction of human IgM will result in a neutralized conjugate.

For a detailed discussion of handling precautions during system operation, refer to the ARCHITECT System Operations Manual, Section 7.

Reagent Storage

When stored and handled as directed, reagents are stable until the expiration date.

	Storage Temperature	Maximum Storage Time	Additional Storage Instructions
Unopened/ Opened*	2-8°C	Until expiration date	May be used immediately after removal from 2-8°C storage. Store in upright position.
On board	System temperature	30 days	Discard after 30 days. For information on tracking onboard time, refer to the ARCHITECT System Operations Manual, Section 5.

* Reagents may be stored on or off the ARCHITECT iSystem. If reagents are removed from the system, store them at 2-8°C (with septums and replacement caps) in an upright position. For reagents stored off the system, it is recommended that they be stored in their original trays and boxes to ensure they remain upright. **If the microparticle bottle does not remain upright (with a septum installed) while in refrigerated storage off the system, the reagent kit must be discarded.** For information on unloading reagents, refer to the ARCHITECT System Operations Manual, Section 5.

Indications of Reagent Deterioration

When a control value is out of the specified range, it may indicate deterioration of the reagents or errors in technique. Associated test results are invalid, and samples must be retested. Assay recalibration may be necessary. For troubleshooting information, refer to the ARCHITECT System Operations Manual, Section 10.

INSTRUMENT PROCEDURE

The ARCHITECT HAVAb-IgM assay file must be installed on the ARCHITECT iSystem from an ARCHITECT iSystem Assay CD-ROM prior to performing the assay.

For detailed information on assay file installation and viewing and editing assay parameters, refer to the ARCHITECT System Operations Manual, Section 2.

NOTE: For details on defining a grayzone interpretation on the ARCHITECT iSystem, refer to the ARCHITECT System Operations Manual, Section 2.

NOTE: It is recommended to set the number of decimal places for reported results at 2 (x.xx). If the number of decimal places is set higher than 2, there may be a greater incidence of grayzone reactive results reported for the ARCHITECT HAVAb-IgM assay. For more information on editing the decimal places of reported results, refer to the ARCHITECT System Operations Manual, Section 2.

For information on printing assay parameters, refer to the ARCHITECT System Operations Manual, Section 5.

For a detailed description of system procedures, refer to the ARCHITECT System Operations Manual.

SPECIMEN COLLECTION AND PREPARATION FOR ANALYSIS

Specimen Types

Validated specimen types to be used with this assay:

Specimen Types	Collection Tubes
Human serum	Serum
	Serum separator tubes
Human plasma	Potassium EDTA
	Sodium citrate
	Sodium heparin
	ACD
	CPDA-1
	CPD

- Other anticoagulants have not been validated for use with this assay.
- Performance has not been established for the use of cadaveric specimens or the use of body fluids other than human serum and plasma.
- The instrument does not provide the capability to verify specimen type. It is the responsibility of the operator to verify that the correct specimen types are used in the assay.

Specimen Conditions

- Do not use specimens with the following conditions:
 - heat-inactivated
 - pooled
 - grossly hemolyzed
 - obvious microbial contamination
- To prevent cross contamination, use of disposable pipettes or pipette tips is recommended.
- Ensure that complete clot formation in serum specimens has taken place prior to centrifugation. Some specimens, especially those from patients receiving anticoagulant or thrombolytic therapy, may exhibit increased clotting time. If the specimen is centrifuged before a complete clot forms, the presence of fibrin may cause erroneous results or aspiration errors.
- Specimens from heparinized patients may be partially coagulated and erroneous results could occur due to the presence of fibrin. To prevent this phenomenon, draw the specimen prior to heparin therapy.
- For accurate results, serum and plasma specimens should be free of fibrin, red blood cells, or other particulate matter.

Preparation for Analysis

- Follow the tube manufacturer's processing instructions for collection tubes. Gravity separation is not sufficient for specimen preparation.
- Specimens must be separated from clots or red blood cells using centrifugation, as recommended by the tube manufacturer.
- After specimens have been processed according to the collection tube manufacturer's instructions, they must be transferred to a centrifuge tube and centrifuged at $\geq 10,000$ RCF (Relative Centrifugal Force) for 10 minutes, if one or more of the following occurs:
 - they contain red blood cells, clots, or particulate matter
 - they require repeat testing

Transfer clarified specimens to a sample cup or secondary tube for testing.

- Multiple freeze/thaw cycles of specimens should be avoided. **Mix thawed specimens by inverting tubes 180° from upright and returning, for a total of 10 inversion cycles. Visually inspect the specimens for the absence of stratification. If layering or stratification is observed repeat until specimens are visibly homogeneous.** Centrifuge at $\geq 10,000$ RCF for 10 minutes to remove particulate matter and ensure consistency in the results.
- Centrifuged specimens with a lipid layer on the top must be transferred to a sample cup or secondary tube. Care must be taken to transfer only the clarified specimen without the lipemic material.
- Inspect all specimens for bubbles. Remove bubbles with an applicator stick before analysis. Use a new applicator stick for each specimen to prevent cross contamination.

Specimen Storage

Specimen Type	Storage Temperature	Maximum Storage Time
Serum and plasma	2-8°C	≤ 7 days

Specimens may be stored on or off the clot or red blood cells.

If testing will be delayed more than 7 days, remove serum or plasma from the clot, serum separator, or red blood cells and store frozen at -10°C or colder.

No qualitative performance differences were observed between experimental controls and 26 nonreactive or 26 spiked reactive specimens subjected to 6 freeze/thaw cycles; however, multiple freeze/thaw cycles should be avoided.

No qualitative performance differences were observed between experimental controls and 21 nonreactive or 21 spiked reactive specimens tested with elevated levels of bilirubin (≤ 20 mg/dL), triglycerides ($\leq 3,000$ mg/dL), protein (≤ 12 g/dL), or hemoglobin (≤ 500 mg/dL).

No qualitative performance differences were observed between experimental controls and 25 nonreactive or 25 spiked reactive specimens tested with elevated levels of red blood cells ($\leq 0.4\%$ v/v).

Specimen Shipping

- Package and label specimens in compliance with applicable state, federal, and international regulations covering the transport of clinical specimens and infectious substances.
- Do not exceed the storage limitations listed above.

PROCEDURE

Materials Provided

6C30 ARCHITECT HAVAb-IgM Reagent Kit

Materials Required but not Provided

- ARCHITECT HAVAb-IgM Assay file obtained from the ARCHITECT iSystem e-Assay CD-ROM found on www.abbottdiagnostics.com.
- 6C30-02 ARCHITECT HAVAb-IgM Calibrator
- 6C30-11 ARCHITECT HAVAb-IgM Controls
- ARCHITECT Pre-Trigger Solution
- ARCHITECT Trigger Solution
- ARCHITECT Wash Buffer
- ARCHITECT Reaction Vessels
- ARCHITECT Sample Cups
- ARCHITECT Septum
- ARCHITECT Replacement Caps
- Pipettes or pipette tips (optional) to deliver the volumes specified on the patient or control order screen.

For information on materials required for maintenance procedures, refer to the ARCHITECT System Operations Manual, Section 9.

Assay Procedure

- Before loading the reagent kit on the system for the first time, the microparticle bottle requires mixing to resuspend microparticles that may have settled during shipment. After the first time the microparticles have been loaded, no further mixing is required.
 - **Invert the microparticle bottle 30 times.**
 - Visually inspect the bottle to ensure microparticles are resuspended. If microparticles are still adhered to the bottle, continue to invert the bottle until the microparticles have been completely resuspended.
 - **If the microparticles do not resuspend, DO NOT USE. Contact your local Abbott representative.**
 - Once the microparticles have been resuspended, remove and discard the cap. Wearing clean gloves, remove a septum from the bag. Carefully snap the septum onto the top of the bottle.
- Load the reagent kit on the ARCHITECT iSystem.
 - Verify that all necessary reagents are present.
 - Ensure that septums are present on all reagent bottles.

- Order calibration, if necessary.
 - For information on ordering calibrations, refer to the ARCHITECT System Operations Manual, Section 6.
- Order tests.
 - For information on ordering patient specimens and controls and for general operating procedures, refer to the ARCHITECT System Operations Manual, Section 5.
- Minimum sample cup volume is calculated by the system and printed on the Orderlist report. To minimize the effects of evaporation, verify adequate sample cup volume is present prior to running the test.

Maximum number of replicates sampled from the same sample cup: 10

 - Priority:
 - Sample volume for first test: 70 µL
 - Sample volume for each additional test from same sample cup: 20 µL
 - ≤ 3 hours on board:
 - Sample volume for first test: 150 µL
 - Sample volume for each additional test from same sample cup: 20 µL
 - > 3 hours on board: Additional sample volume required. Refer to the ARCHITECT System Operations Manual, Section 5, for information on sample evaporation and volumes.
 - If using primary or aliquot tubes, use the sample gauge to ensure sufficient patient specimen is present.
- Prepare ARCHITECT HAVAb-IgM Calibrator 1 and Controls.
 - Mix calibrator(s) and controls by gentle inversion before use.
 - Hold bottles **vertically** and dispense recommended volumes into each respective sample cup.
 - Recommended volumes:
 - for each calibrator: 4 drops
 - for each control: 4 drops
- Load samples.
 - For information on loading samples, refer to the ARCHITECT System Operations Manual, Section 5.
- Press RUN.
- For additional information on principles of operation, refer to the ARCHITECT System Operations Manual, Section 3.
- For optimal performance, it is important to perform routine maintenance as described in the ARCHITECT System Operations Manual, Section 9. Perform maintenance more frequently when required by laboratory procedures.

NOTE: The ARCHITECT HAVAb-IgM assay performs a sample predilution, and therefore requires two RVs per test.

Specimen Dilution Procedures

Specimens cannot be diluted for the ARCHITECT HAVAb-IgM assay.

Calibration

- Test Calibrator 1 in replicates of three. Calibrator 1 should be priority loaded.

A single sample of each control level must be tested to evaluate the assay calibration. Ensure that assay control values are within the ranges specified in the respective control package insert.
- Once an ARCHITECT HAVAb-IgM calibration is accepted and stored, all subsequent samples may be tested without further calibration unless:
 - A reagent kit with a new lot number is used or
 - Controls are out of range.
- For detailed information on how to perform an assay calibration, refer to the ARCHITECT System Operations Manual, Section 6.

Quality Control Procedures

The recommended control requirement for the ARCHITECT HAVAb-IgM assay is that a single sample of each control level be tested once every 24 hours each day of use. If the quality control procedures in your laboratory require more frequent use of controls to verify test results, follow your laboratory-specific procedures. The ARCHITECT HAVAb-IgM Control values must be within the acceptable ranges specified in the control package insert. If a control is out of its specified range, the associated test results are invalid and the samples must be retested. Recalibration may be indicated.

Verification of Assay Claims

For protocols to verify package insert claims, refer to the ARCHITECT System Operations Manual, Appendix B.

The ARCHITECT HAVAb-IgM assay belongs to method group 5.

RESULTS

Calculation

The ARCHITECT iSystem calculates the cutoff RLU (CO) from the mean RLU value of three replicates for Calibrator 1 and stores the result.

- Cutoff RLU = Calibrator 1 mean RLU Value x 0.275
- The cutoff RLU is stored for each reagent lot calibration.

The ARCHITECT iSystem calculates a result based on the ratio of the sample RLU to the cutoff RLU for each specimen and control.

- S/CO = sample RLU/cutoff RLU
- Example
 - If the sample RLU = 2161 and the Cutoff RLU = 512.25
 - $2161/512.25 = 4.22$
 - S/CO = 4.22

Interpretation of Results

Initial ARCHITECT HAVAb-IgM Results	
Initial Results (S/CO)	Interpretation
< 0.80	Nonreactive (NR)
0.80 to 1.20	Grayzone Reactive (GZ)
> 1.20	Reactive (R)

It is recommended that patients exhibiting grayzone reactive ARCHITECT HAVAb-IgM results be closely monitored at approximately one week intervals. This monitoring will distinguish rising IgM anti-HAV levels associated with acute hepatitis A infection from decreasing or unchanging IgM anti-HAV levels often associated with recovery.

NOTE:

For details on configuring the ARCHITECT iSystem to use grayzone interpretations, refer to the ARCHITECT System Operations Manual, Section 2.

NOTE: It is recommended to set the number of decimal places for reported results at 2 (x.xx). If the number of decimal places is set higher than 2, there may be a greater incidence of grayzone reactive results reported for the ARCHITECT HAVAb-IgM assay. For more information on editing the decimal places of reported results, refer to the ARCHITECT System Operations Manual, Section 2.

Flags

Some results may contain information in the Flags field. For a description of the flags that may appear in this field, refer to the ARCHITECT System Operations Manual, Section 5.

LIMITATIONS OF THE PROCEDURE

- If the IgM anti-HAV results are inconsistent with clinical evidence, additional testing is recommended.
- Results should be used in conjunction with other data; e.g., symptoms, results of other tests, and clinical impressions.
- Specimens from heparinized patients may be partially coagulated and erroneous results could occur due to the presence of fibrin. To prevent this phenomenon, draw the specimen prior to heparin therapy.
- Specimens from patients with high levels of IgM (e.g., specimens from patients with multiple myeloma) may show depressed values when tested with assay kits that use reagents containing anti-human IgM.
- Specimens from patients who have received preparations of mouse monoclonal antibodies for diagnosis or therapy may contain human anti-mouse antibodies (HAMA). Such specimens may show either falsely elevated or depressed values when tested with assay kits that employ mouse monoclonal antibodies.^{11, 12} ARCHITECT HAVAb IgM reagents contain a component that reduces the effect of HAMA reactive specimens. Additional clinical or diagnostic information may be required to determine patient status.
- 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.¹³

SPECIFIC PERFORMANCE CHARACTERISTICS

Precision

The ARCHITECT HAVAb-IgM assay demonstrated imprecision of $\leq 10\%$ for the Calibrator 1 and Positive Control in a study where a panel, consisting of one diluted IgM anti-HAV reactive specimen, three control lots, and three calibrator lots, was tested. The study was performed at one external site, running one ARCHITECT iSystem, and one internal site, running two ARCHITECT iSystems. Both sites tested all panel members with three reagent lots and evaluated them with each calibrator lot. Each combination of instruments, control lots, calibrator lots, and reagent lots was tested in four runs. The controls and calibrator were tested in replicates of three on each run. The diluted IgM anti-HAV reactive specimen was tested in replicates of four on each run. The intra-run and inter-run standard deviation (SD) and percent coefficient of variation (%CV) were analyzed with a variance components analysis¹⁴ using a mixed analysis of variance model.¹⁵ The data from this study are summarized in Table 1.*

Table 1: ARCHITECT HAVAb-IgM Precision

Panel Member	n	Mean	Intra-assay		Inter-assay ^a	
			SD	%CV	SD	%CV
Calibrator 1	324	1337 RLU	86.9	6.5	88.6	6.6
Negative Control	972	0.23 S/CO	0.026	11.33	0.030	13.10
Positive Control	972	1.89 S/CO	0.113	5.98	0.127	6.72
Diluted Specimen	432	1.16 S/CO	0.068	5.90	0.086	7.42

^a Inter-assay variability contains intra-assay variability.

* Representative performance data are shown. Results obtained at individual laboratories may vary.

Specificity

The ARCHITECT HAVAb-IgM assay demonstrated an overall specificity of $\geq 99.0\%$ in a study testing serum and plasma specimens from the following populations:

- Randomly selected blood donors (BD)
- Randomly selected hospitalized patients (HP)
- Potentially interfering substances (IS)^b

The testing was performed at one clinical site and one internal site. Of the 2126 specimens initially tested, seven specimens were determined to be either reactive or grayzone reactive by ARCHITECT HAVAb-IgM. Five of these seven specimens were also reactive by supplemental testing. The remaining two specimens were concordant reactive or grayzone reactive by ARCHITECT HAVAb-IgM and AxSYM HAVAB-M 2.0. Therefore, these seven specimens were considered true anti-HAV IgM reactives and were excluded from the specificity calculation. The data from this study are summarized in Table 2.*

Table 2: ARCHITECT HAVAb-IgM Specificity Results

Population	n	Initial Reactive/GZ	Repeat Reactive/GZ
BD	724	0/0	--
HP	1312	0/1	0/0
IS ^b	83	0/0	--
Total	2119	0/1	0/0

^b Specimens containing the following potentially interfering substances were evaluated for cross-reactivity by ARCHITECT HAVAb-IgM:

- CMV-IgG
- HBV
- HIV-1
- Flu vaccines
- Alcoholic cirrhosis
- Elevated IgG
- Elevated IgM
- CMV-IgM
- HCV
- HSJ
- Autoimmune antibodies (ANA)
- Rheumatoid factor
- HAMA

* Representative performance data are shown. Results obtained at individual laboratories may vary.

Sensitivity

The ARCHITECT HAVAb-IgM assay demonstrated a sensitivity of $\geq 95.0\%$ in a study testing serum and plasma specimens precharacterized as anti-HAV IgM reactive. Specimens were drawn from patients diagnosed with acute HAV infection and were collected within two months after the onset of symptoms. The data from this study are summarized in Table 3.*

Table 3: ARCHITECT HAVAb-IgM Sensitivity Results

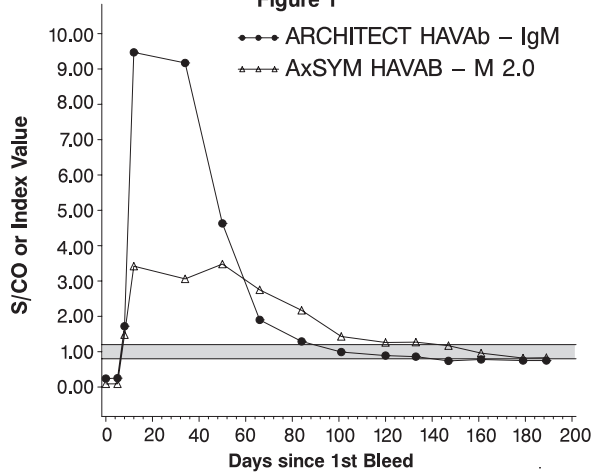
Population	n	Reactive	GZ	Nonreactive	Sensitivity
Acute HAV Infection	141	135	4	2	98.58% (139/141)

* Representative performance data are shown. Results obtained at individual laboratories may vary.

- Testing by ARCHITECT HAVAb-IgM was performed on 120 specimens from patients who had recovered from hepatitis A. Two of these specimens, which were reactive by ARCHITECT HAVAb-IgM, were also reactive by supplemental testing. The remaining 118 specimens were nonreactive by ARCHITECT HAVAb-IgM.

- Testing by ARCHITECT HAVAb-IgM and AxSYM HAVAB-M 2.0 was performed on serial bleed panels. The results demonstrate that the ARCHITECT HAVAb-IgM assay's sensitivity is such that a reactive result implies acute hepatitis A viral infection (up to two months after the onset of symptoms). Representative data for one of the panels is provided in Figure 1.

Figure 1



BIBLIOGRAPHY

- Locarnini SA, Ferris AA, Lehmann NI, Gust ID. The antibody response following hepatitis A infection. *Intervirology* 1977;8:309-318.
- Bradley DW, Maynard JE, Hindman SH, et al. Serodiagnosis of viral hepatitis A: detection of acute-phase immunoglobulin M anti-hepatitis A virus by radioimmunoassay. *J Clin Microbiol* 1977;5:521-530.
- Bradley DW, Fields HA, McCaustland KA, et al. Serodiagnosis of viral hepatitis A by a modified competitive binding radioimmunoassay for immunoglobulin M anti-hepatitis A virus. *J Clin Microbiol* 1979;9(1):120-127.
- Deinhardt FW, Frösner GG, Scheidt R, Abb J. Significance of anti-HAV of the IgM class for the diagnosis of hepatitis A. In: Vyas GN, Cohen SN, Schmid R, eds. *Viral Hepatitis*. Philadelphia, PA: The Franklin Institute Press; 1978:736.
- Decker RH, Kosakowski SM, Vanderbilt AS, et al. Diagnosis of acute hepatitis A by HAVAB-M, a direct radioimmunoassay for IgM anti-HAV. *Am J Clin Pathol* 1981;76:140-147.
- Lemon SM. Type A viral hepatitis: epidemiology, diagnosis, and prevention. *Clin Chem* 1997;43:1494-1499.
- US Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910.1030, Bloodborne pathogens.
- US Department of Health and Human Services. *Biosafety in Microbiological and Biomedical Laboratories*. 5th ed. Washington, DC: US Government Printing Office; December 2009.
- World Health Organization. *Laboratory Biosafety Manual*. 3rd ed. Geneva: World Health Organization; 2004.
- Clinical and Laboratory Standards Institute (CLSI). *Protection of Laboratory Workers From Occupationally Acquired Infections; Approved Guideline—Fourth Edition*. CLSI Document M29-A4. Wayne, PA: CLSI; 2014.
- Primus FJ, Kelley EA, Hansen HJ, et al. "Sandwich"-type immunoassay of carcinoembryonic antigen in patients receiving murine monoclonal antibodies for diagnosis and therapy. *Clin Chem* 1988;34(2):261-264.
- Schroff RW, Foon KA, Beatty SM, et al. Human anti-murine immunoglobulin responses in patients receiving monoclonal antibody therapy. *Cancer Res* 1985;45(2):879-885.
- Boscato LM, Stuart MC. Heterophilic antibodies: a problem for all immunoassays. *Clin Chem* 1988;34(1):27-33.
- Box GEP, Hunter WG, Hunter JS. *Statistics for experimenters; an introduction to design, data analysis, and model building*. New York, NY: John Wiley & Sons, Inc, 1978:510-539, 571-583.
- SAS Institute, Inc. SAS Technical Report P-229, *SAS/STAT Software: Changes and enhancements*, Release 6.07. Cary, NC: SAS Institute Inc, 1992:289-366.

Key to Symbols

	Caution
	Consult instructions for use
	Sufficient for
	Manufacturer
	Temperature limitation
	Use by/Expiration date
	Assay Diluent
	Conjugate
	Control Number
	In Vitro Diagnostic Medical Device
	Lot Number
	Microparticles
	Pre-Trigger Solution
	Product of Germany
	Reaction Vessels
	Reagent Lot
	List Number
	Replacement Caps
	Sample Cups
	Septum
	Serial number
	Trigger Solution
	Warning: May cause an allergic reaction.
	Wash Buffer

The following U.S. Patents are relevant to the ARCHITECT iSystem or its components. There are other such patents and patent applications in the United States and worldwide.

5 468 646	5 543 524	5 545 739
5 565 570	5 669 819	5 783 699

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Created October 2016.
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