ARCHITECT®
SYSTEM

E

AUSAB
REF 1L82
XX-XXXX/R1

AUSAB®

CUSTOMER SERVICE
UNITED STATES: 1-877-4ABBOTT

Caution: United States Federal Law restricts this device to sale and distribution by or on the order of a physician, or to a clinical laboratory; and use is restricted to by or on the order of a physician.

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

i

Key to symbols used

REF	List Number	REACTION VESSELS	Reaction Vessels
IVD	*In Vitro* Diagnostic Medical Device	SAMPLE CUPS	Sample Cups
2°C–8°C	Store at 2-8°C	SEPTUMS	Septums
LOT	Lot Number	REPLACEMENT CAPS	Replacement Caps
	Expiration Date	SN	Serial Number
	CAUTION: Consult accompanying documents	CONTROL NO.	Control Number
		REAGENT LOT	Reagent Lot

See REAGENTS section for a full explanation of symbols used in reagent component naming.

Abbott Laboratories
Diagnostics Division
Abbott Park, IL 60064 USA

Printed in USA

NAME

ARCHITECT AUSAB

INTENDED USE

The ARCHITECT AUSAB assay is a chemiluminescent microparticle immunoassay (CMIA) for the quantitative determination of antibody to hepatitis B surface antigen (anti-HBs) in human adult and pediatric serum and plasma (dipotassium EDTA, lithium heparin, and sodium heparin) and neonatal serum. It is intended for quantitative measurement of antibody response following hepatitis B virus (HBV) vaccination, determination of HBV immune status, and for the laboratory diagnosis of HBV disease associated with HBV infection when used in conjunction with other laboratory results and clinical information.

Warning: Not intended for use in screening blood, plasma, or tissue donors. The effectiveness of ARCHITECT AUSAB for use in screening blood, plasma, or tissue donors has not been established.

Assay performance characteristics have not been established for immunocompromised or immunosuppressed patients. The user is responsible for establishing their own assay performance characteristics in these populations.

SUMMARY AND EXPLANATION OF THE TEST

The ARCHITECT AUSAB assay determines the concentration of anti-HBs present in human serum and plasma.

Hepatitis B virus (HBV) is a major cause of liver disease and is endemic worldwide. The virus can be transmitted through direct contact with blood and body fluids including sexual contact. The incubation period for HBV infection can range from 1 to 6 months averaging around 6 to 8 weeks. Typical acute clinical symptoms of HBV hepatitis include malaise, jaundice, gastroenteritis, and fever. However, HBV infection can also result in subclinical anicteric hepatitis, fulminant hepatitis, or chronic or persistent hepatitis. Although most adult patients with HBV infection completely recover from acute illness and clear the virus, 5 to 10% of patients with HBV may become chronic carriers. It is estimated that over 300 million people worldwide are chronic carriers of the virus. Chronic HBV infection, is associated with the development of hepatocellular carcinoma. In HBV infected neonates, approximately 90% develop chronic hepatitis B infection.[3]

Anti-HBs assays are often used to determine the success of hepatitis B vaccination. The presence of anti-HBs has been shown to be important in protection against HBV infection.[4] Numerous studies have demonstrated the effectiveness of the hepatitis B vaccine to stimulate the immune system to produce anti-HBs and to prevent HBV infection.[5,6]

Assays for anti-HBs are also used to monitor the convalescence and recovery of hepatitis B infected individuals. The presence of anti-HBs after acute HBV infection and loss of hepatitis B virus surface antigen (HBsAg) can be a useful indicator of disease resolution. Detection of anti-HBs in an asymptomatic individual may indicate previous exposure to HBV or HBV vaccination.

BIOLOGICAL PRINCIPLES OF THE PROCEDURE

The ARCHITECT AUSAB assay is a two-step immunoassay for the quantitative determination of anti-HBs in human serum and plasma using CMIA technology with flexible assay protocols, referred to as Chemiflex™.

In the first step, sample and recombinant HBsAg (rHBsAg) coated paramagnetic microparticles are combined. Anti-HBs present in the sample binds to the rHBsAg coated microparticles. After washing, acridinium-labeled rHBsAg conjugate is added in the second step. Following another wash cycle, pre-trigger and trigger solutions are added to the reaction mixture. The resulting chemiluminescent reaction is measured as relative light units (RLUs). A direct relationship exists between the amount of anti-HBs in the sample and the RLUs detected by the ARCHITECT i System optics.

The concentration of anti-HBs in the sample is determined using an active ARCHITECT AUSAB calibration curve.

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

REAGENTS

Reagent Kit, 100/500 Tests

NOTE: Reagent Kit configuration varies based on order.

ARCHITECT AUSAB Reagent Kit (1L82)

- **MICROPARTICLES** 1 or 4 Bottle(s) (4.56 mL/16.80 mL) hepatitis B surface (*E. coli*, recombinant) antigen (subtypes *ad* and *ay*) coated microparticles in TRIS buffer with protein (bovine) stabilizers (76 µM). Minimum concentration: 0.125% solids. Preservatives: antimicrobial agents.
- **CONJUGATE** 1 or 4 Bottle(s) (5.9 mL/26.3 mL) hepatitis B surface (*E. coli*, recombinant) antigen (subtypes *ad* and *ay*) acridinium labeled conjugate in MES buffer with protein (112.5 g/L bovine serum and 102.7 g/L human plasma) stabilizers. Minimum concentration: 0.10 µg/mL. Preservatives: antimicrobial agents.

Assay Diluent

ARCHITECT i Multi-Assay Manual Diluent (7D82-50)

- **MULTI-ASSAY MANUAL DILUENT** 1 Bottle (100 mL) ARCHITECT i Multi-Assay Manual Diluent is phosphate buffered saline solution. Preservative: antimicrobial agent.

Other Reagents

ARCHITECT i Pre-Trigger Solution

- **PRE-TRIGGER SOLUTION** Pre-trigger solution containing 1.32% (w/v) hydrogen peroxide.

ARCHITECT i Trigger Solution

- **TRIGGER SOLUTION** Trigger solution containing 0.35N sodium hydroxide

ARCHITECT i Wash Buffer

- **WASH BUFFER** Wash buffer containing phosphate buffered saline solution. Preservative: antimicrobial agent.

WARNINGS AND PRECAUTIONS

For *In Vitro* Diagnostic Use.

Safety Precautions

- ⚠ **CAUTION: This product contains human sourced infectious and/or potentially infectious components. 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.[6] Biosafety Level 2[7] or other appropriate biosafety practices[8,9] should be used for materials that contain or are suspected of containing infectious agents.**

  The conjugate is nonreactive for HBsAg, HIV-1 RNA or HIV-1 Ag, anti-HIV-1/HIV-2, and anti-HCV.
- For information on the safe disposal of sodium azide and a detailed discussion of safety precautions during system operation, refer to the ARCHITECT System Operations Manual, Section 8.

Handling Precautions

- Do not use reagents beyond the expiration date.
- **Do not pool reagents within a reagent kit or between reagent kits.**
- Before loading the ARCHITECT AUSAB 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.**
  - Before placing the septum on an uncapped reagent bottle, squeeze the septum in half to confirm that the slits are open. If the slits appear sealed, continue to gently squeeze the septum to open the slits.
  - Once a septum has been placed on the 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.
- For a detailed discussion of handling precautions during system operation, refer to the ARCHITECT System Operations Manual, Section 7.

Storage Instructions

- 2°C – 8°C: The ARCHITECT AUSAB Reagent Kit must be stored at 2-8°C in an upright position and may be used immediately after removal from 2-8°C storage.
- When stored and handled as directed, the reagents are stable until the expiration date.
- The ARCHITECT AUSAB Reagent Kit may be stored on board the ARCHITECT i System for a maximum of 30 days. After 30 days, the reagent kit must be discarded. For information on tracking onboard time, refer to the ARCHITECT System Operations Manual, Section 5.
- Reagents may be stored on or off the ARCHITECT i System. 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.** After reagents are removed from the system, initiate a scan to update the onboard stability timer.

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 AUSAB assay file must be installed on the ARCHITECT *i* System from the ARCHITECT *i* System Assay CD-ROM before 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.
- 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.
- The default result unit for the ARCHITECT AUSAB assay is mIU/mL. An alternate result unit, IU/L, may be selected for reporting results by editing assay parameter "Result concentration units" to IU/L. The conversion factor used by the system is 1.

SPECIMEN COLLECTION AND PREPARATION FOR ANALYSIS

Specimen Types

- The following specimen tube types were verified for use with the ARCHITECT AUSAB assay:

Glass	Plastic
· Serum · Serum separator	· Serum · Serum separator · Lithium heparin plasma separator · Sodium heparin · Dipotassium EDTA

- The ARCHITECT *i* System 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 ARCHITECT AUSAB assay.

Specimen Conditions

- Do not use specimens with the following conditions:
  - heat-inactivated
  - pooled
  - grossly hemolyzed
  - obvious microbial contamination
- Performance has not been established for the use of cadaveric specimens, or the use of body fluids other than human serum and plasma.
- **For accurate results, serum and plasma specimens should be free of fibrin, red blood cells, and other particulate matter.** Serum specimens from patients receiving anticoagulant or thrombolytic therapy may contain fibrin due to incomplete clot formation.
- Use caution when handling patient specimens to prevent cross contamination. Use of disposable pipettes or pipette tips is recommended.
- For optimal results, 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.

Preparation for Analysis

- Follow the tube manufacturer's processing instructions for serum and plasma collection tubes. Gravity separation is not sufficient for specimen preparation.
- Mix thawed specimens thoroughly by low speed vortexing or by inverting 10 times. Visually inspect the specimens. If layering or stratification is observed, continue mixing until specimens are visibly homogeneous.
- To ensure consistency in results, specimens must be transferred to a centrifuge tube and centrifuged at > 10,000 RCF (Relative Centrifugal Force) for 10 minutes before testing if
  - they contain fibrin, red blood cells, or other particulate matter or
  - they were frozen and thawed.
- 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.
- Transfer clarified specimen to a sample cup or secondary tube for testing.

Storage

- Specimens may be stored on or off the clot, red blood cells, or separator gel for
  - up to 3 days at room temperature (study performed at 21°C to 22°C) or
  - up to 7 days at 2-8°C.
- If testing will be delayed more than 3 days for specimens stored at room temperature or more than 7 days for specimens stored at 2-8°C, remove serum or plasma from the clot, red blood cells, or separator gel and store at -20°C or colder.
- Avoid more than three freeze/thaw cycles.

Shipping

- Before shipping specimens, it is recommended that specimens be removed from the clot, red blood cells, or separator gel.
- When shipping specimens, package and label specimens in compliance with applicable state, federal, and international regulations covering the transport of clinical specimens and infectious substances.
- Specimens may be shipped ambient, at 2-8°C (wet ice), or frozen (dry ice). Do not exceed the storage time limitations listed above.

PROCEDURE

Materials Provided:

- 1L82 ARCHITECT AUSAB Reagent Kit

Materials Required but not Provided:

- ARCHITECT *i* System
- ARCHITECT *i* System Assay CD-ROM
- 1L82-01 ARCHITECT AUSAB Calibrators
- 1L82-10 ARCHITECT AUSAB Controls (or other control material)
- 7D82-50 ARCHITECT *i* Multi-Assay Manual Diluent
- ARCHITECT *i* **PRE-TRIGGER SOLUTION**
- ARCHITECT *i* **TRIGGER SOLUTION**
- ARCHITECT *i* **WASH BUFFER**
- ARCHITECT *i* **REACTION VESSELS**
- ARCHITECT *i* **SAMPLE CUPS**
- ARCHITECT *i* **SEPTUMS**
- ARCHITECT *i* **REPLACEMENT CAPS**
- Pipettes or pipette tips (optional) to deliver the specified volumes.

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

Assay Procedure

- Before loading the ARCHITECT AUSAB 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, place a septum on the bottle. For instructions about placing septums on bottles, refer to the **Handling Precautions** section of this package insert.
- Load the ARCHITECT AUSAB Reagent Kit on the ARCHITECT *i* System.
  - 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 positive control and for general operating procedures, refer to the ARCHITECT System Operations Manual, Section 5.
  - Use the following instructions to order a negative control (nonreactive for anti-HBs):
    - Order a negative control as a patient specimen, not as a control.
    - Manually verify the validity of the negative control every time it is run. Because the control is run as a patient specimen, a result will not be flagged by the ARCHITECT *i* System if it is outside the acceptable control range.
    - To troubleshoot control values that fall outside the control range, refer to the ARCHITECT System Operations Manual, Section 10.
- The minimum sample cup volume is calculated by the system and is printed on the Orderlist report. No more than 10 replicates may be sampled from the same sample cup. To minimize the effects of evaporation, verify adequate sample cup volume is present before running the test.
  - Priority: 125 µL for first AUSAB test plus 75 µL for each additional AUSAB test from the same sample cup.
  - < 3 hours onboard: 150 µL for the first AUSAB test plus 75 µL for each additional AUSAB test from the same sample cup.
  - > 3 hours onboard: replace with fresh sample (patient specimens, controls, and calibrators).
  - If using primary or aliquot tubes, use the sample gauge to ensure sufficient patient specimen is present.

- Prepare calibrators and controls.
  - ARCHITECT AUSAB Calibrators and Controls must be mixed by gentle inversion before use.
  - To obtain the recommended volume requirements for the ARCHITECT AUSAB Calibrators and Controls, hold the bottles **vertically** and dispense 7 drops of each calibrator or 5 drops of each control into each respective sample cup.
- 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. When a laboratory requires more frequent maintenance, follow those procedures.

Specimen Dilution Procedures

- Specimens with an anti-HBs value exceeding 1000 mIU/mL are flagged with the code ">1000 mIU/mL" and may be diluted as follows:

Concentration mIU/mL	Dilution Method
< 1000	No dilution required
> 1000	Automated Dilution Protocol (1) or Manual Dilution Procedure (2)
> 15,000	Manual Dilution Procedure (2) or Automated Dilution Protocol Combined with Manual Dilution Procedure (3)
> 100,000	Automated Dilution Protocol Combined with Manual Dilution Procedure (3)

1) Automated Dilution Protocol
   - For results up to 15,000 mIU/mL.
   - The system performs a 1:15 dilution of the specimen and automatically calculates the concentration of the specimen before dilution and reports the result.

2) Manual Dilution Procedure
   - For results up to 100,000 mIU/mL.
   - The suggested manual dilution for AUSAB is 1:100. It is recommended dilutions not exceed 1:100.
   - For a 1:100 dilution, add 10 µL of the patient specimen to 990 µL of ARCHITECT *i* Multi-Assay Manual Diluent.
   - The operator must enter the dilution factor in the Patient or Control order screen. All assays selected for that order will be diluted. The system will use this dilution factor to automatically calculate the concentration of the sample before dilution and report the result. The concentration reported by the ARCHITECT *i* System **MUST** be greater than or equal to 1,000 mIU/mL. If the reported concentration is less than 1,000 mIU/mL, use a lower dilution factor.

3) Automated Dilution Protocol Combined with Manual Dilution Procedure
   - For results up to 1,500,000 mIU/mL.
   - The suggested manual dilution for AUSAB is 1:100. It is recommended dilutions not exceed 1:100.
   - For a 1:100 dilution, add 10 µL of the patient specimen to 990 µL of ARCHITECT *i* Multi-Assay Manual Diluent.
   - Order the Automated Dilution Protocol using the manually diluted 1:100 sample.
   - The concentration reported by the ARCHITECT System **MUST** be greater than 150 mIU/mL. **Multiply the result (from the Automated Dilution Protocol) by the manual dilution factor (*e.g.*, 100) to obtain the final sample concentration.** If the concentration reported by the ARCHITECT *i* System is less than 150 mIU/mL, use a lower dilution factor.
- **For detailed information on ordering dilutions, refer to the ARCHITECT System Operations Manual, Section 5.**

Calibration

- To perform a calibration, test ARCHITECT AUSAB Calibrators A through F in duplicate. The calibrators should be priority loaded.
- A single sample of each control level must be tested to evaluate the assay calibration.
  - Order controls as described above.
  - Ensure that assay control values are within the concentration ranges specified in the control package insert.
- Calibrator Range: 0 - 1000 mIU/mL.
- Once an ARCHITECT AUSAB 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.
  - Controls are out of range.

QUALITY CONTROL PROCEDURES

The ARCHITECT AUSAB Controls are in a serum matrix made from recalcified plasma. The user should provide alternate control material for plasma when necessary.

The recommended control requirement for the ARCHITECT AUSAB assay is that a single sample of each control level be tested once every 24 hours each day of use. Additional controls may be tested in conformance with local, state, and/or federal regulations or accreditation requirements and your laboratory's quality control policy.

Control values must be within the ranges specified in the control package insert. If a control result is out of its specified range, any test results generated since the last acceptable control results must be evaluated to determine if test results may have been adversely affected. Adversely affected test results are invalid, and these samples must be retested. For troubleshooting information, refer to the ARCHITECT System Operations Manual, Section 10.

RESULTS

Calculation

- The ARCHITECT AUSAB assay utilizes a 4 Parameter Logistic Curve Fit data reduction method (4PLC, X-weighted) to generate a calibration curve.

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.

Interpretation of Results

Initial ARCHITECT AUSAB Results

Initial Result	Instrument Flag	Interpretation	Retest Procedure
< 8.00 mIU/mL	NONREACTIVE	Nonreactive	No retest required.
> 8.00 mIU/mL to < 12.00 mIU/mL	GRAYZONE	Grayzone	Retest in duplicate
> 12.00 mIU/mL	REACTIVE	Reactive	No retest required

ARCHITECT AUSAB Interpretation

Initial Result	Retest Result	Result	Interpretation
< 8.00 mIU/mL	No retest required.	Nonreactive	Individual is considered not immune to HBV infection.
> 8.00 mIU/mL to < 12.00 mIU/mL	Both of the duplicate retest results are < 8.00 mIU/mL.	Nonreactive	Individual is considered not immune to HBV infection.
	One or both of the duplicate retest results are > 8.00 mIU/mL to < 12.00 mIU/mL.	Grayzone	The immune status of the individual should be further assessed by considering other factors, such as clinical status, follow-up testing, associated risk factors, and the use of additional diagnostic information.
	Both of the duplicate retest results are > 12.00 mIU/mL.	Reactive	Individual is considered immune to HBV infection.
> 12.00 mIU/mL	No retest required.	Reactive	Individual is considered immune to HBV infection.

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LIMITATIONS OF THE PROCEDURE

- For diagnostic purposes, results should be used in conjunction with patient history and other hepatitis markers for diagnosis of acute and chronic infection.
- A non-reactive test result does not exclude the possibility of exposure to hepatitis B virus.
- Results obtained with the ARCHITECT AUSAB assay may not be used interchangeably with values obtained with different manufacturers' assay methods.
- Results from immunosuppressed patients should be interpreted with caution.
- Assay does not differentiate between vaccines and natural infections.
- Performance characteristics have not been established for therapeutic monitoring.
- A reactive anti-HBs result does not exclude co-infection by another hepatitis virus.

EXPECTED RESULTS

Due to geographic locations or demographics, assay results obtained in individual laboratories may vary from data presented.

Increased Risk Population

Of the 2389 specimens tested in the ARCHITECT AUSAB clinical study, 1314 were from individuals with increased risk of HBV infection. All 1314 were at risk for HBV due to lifestyle, behavior, occupation, or a known exposure event but were asymptomatic and reported no current signs or symptoms of hepatitis.

The increased risk population (n=1314) consisted of the following race/ethnic groups:

- 625 (47.56%) Caucasian
- 477 (36.30%) African-American
- 167 (12.71%) Hispanic
- 19 (1.45%) Asian
- 6 (0.46%) American Indian/Alaska Native
- 20 (1.52%) Other

The 1314 specimens from the increased risk population were obtained from the following collection locations:

- 743 (56.54%) from Galveston, TX
- 185 (14.08%) from High Point, NC
- 99 (7.53%) from Plymouth, MA
- 76 (5.78%) from Colton, CA
- 59 (4.49%) from Dallas, TX
- 56 (4.26%) from St. Petersburg, FL
- 52 (3.96%) from Miami, FL
- 36 (2.74%) from Denver, CO
- 8 (0.61%) from Chicago, IL

A total of 535 (40.72%) of the specimens in the increased risk population were reactive in the ARCHITECT AUSAB assay. The number of ARCHITECT AUSAB reactive results observed for the increased risk population at each collection location was:

- 276 of 743 (37.15%) from Galveston, TX
- 103 of 185 (55.68%) from High Point, NC
- 29 of 99 (29.29%) from Plymouth, MA
- 35 of 76 (46.05%) from Colton, CA
- 16 of 59 (27.12%) from Dallas, TX
- 16 of 56 (28.57%) from St. Petersburg, FL
- 33 of 52 (63.46%) from Miami, FL
- 24 of 36 (66.67%) from Denver, CO
- 3 of 8 (37.50%) from Chicago, IL

Of the 1314 specimens, 816 (62.10%) were female and 498 (37.90%) were male. The age was not reported for three specimens. Of the remaining 1311 specimens, the mean age was 40 years (age range: 18 to 75 years). The distribution of ARCHITECT AUSAB reactive, grayzone, and nonreactive results among the increased risk population by age and gender (n=1311) is summarized in the following table.

Age Group (years)	Gender	ARCHITECT AUSAB Result			Total
		Reactive n (%)	Grayzone n (%)	Nonreactive n (%)	
10-19	F	9 (64.29)	1 (7.14)	4 (28.57)	14
	M	7 (63.64)	0 (0.00)	4 (36.36)	11
20-29	F	82 (44.57)	2 (1.09)	100 (54.35)	184
	M	35 (36.08)	1 (1.03)	61 (62.89)	97
30-39	F	78 (42.39)	1 (0.54)	105 (57.07)	184
	M	33 (30.84)	0 (0.00)	74 (69.16)	107
40-49	F	106 (42.23)	5 (1.99)	140 (55.78)	251
	M	55 (34.59)	1 (0.63)	103 (64.78)	159
50-59	F	68 (49.64)	3 (2.19)	66 (48.18)	137
	M	30 (27.52)	4 (3.67)	75 (68.81)	109
60-69	F	23 (65.71)	1 (2.86)	11 (31.43)	35
	M	3 (25.00)	0 (0.00)	9 (75.00)	12
70-79	F	3 (37.50)	1 (12.50)	4 (50.00)	8
	M	2 (66.67)	0 (0.00)	1 (33.33)	3
Total		534 (40.73)	20 (1.53)	757 (57.74)	1311*

* Age was not reported for three subjects

Pediatric Population

Of the 2389 specimens tested in the ARCHITECT AUSAB clinical study, 120 were from a pediatric population. The specimens were obtained from a commercial vendor, which collected the specimens from a collection site located in Fall River MA. The specimens were obtained from children ages greater than 1 month to 18 years.

The data are summarized by age and gender in the following table.

Age Group (years)	Gender	Reactive n (%)	Grayzone n (%)	Nonreactive n (%)	Total
Under 2	F	8 (80.00)	1 (10.00)	1 (10.00)	10
	M	12 (85.71)	0 (0.00)	2 (14.29)	14
2 to 12	F	12 (54.55)	2 (9.09)	8 (36.36)	22
	M	8 (21.05)	5 (13.16)	25 (65.79)	38
13 to 18	F	18 (75.00)	1 (4.17)	5 (20.83)	24
	M	8 (66.67)	0 (0.00)	4 (33.33)	12
Total		66 (55.00)	9 (7.50)	45 (37.50)	120

SPECIFIC PERFORMANCE CHARACTERISTICS

Assay results obtained in individual laboratories may vary from data presented.

Precision

The ARCHITECT AUSAB assay is designed to have an imprecision of ≤ 10% Total CV for the ARCHITECT AUSAB Positive Control, a high negative panel targeted to a concentration value of 8 mIU/mL, a low positive panel targeted to a concentration value of 12 mIU/mL, and samples targeted to concentration values up to 500 mIU/mL.

System Reproducibility

A five-day precision study was performed for the ARCHITECT AUSAB assay based on guidance from the Clinical and Laboratory Standards Institute (CLSI) document EP15-A2.[a] Testing was conducted at three clinical sites using three lots each of ARCHITECT AUSAB Reagents, Calibrators, and Controls per site. Two levels of controls and panels were assayed in replicates of four at two separate times of day for 5 days. The data are summarized in the following table.

Sample	n	Grand Mean (mIU/mL)	Within-Run		Within-Day		Within-Laboratory Precision (Total)		Precision with Additional Component of Between-Site		Precision with Additional Component of Between-Lot		Precision with Additional Component of Site and Lot (Overall)	
			SD	%CV	SD	%CV	SD	%CV	SD	%CV	SD	%CV	SD	%CV
Negative Control	360	0.09	0.108	NA	0.110	NA	0.123	NA	0.136	NA	0.162	NA	0.168	NA
Positive Control	360	14.78	0.502	3.4	0.542	3.7	0.739	5.0	0.995	6.7	0.878	5.9	1.015	6.9
High Negative Panel	360	7.20	0.334	4.6	0.370	5.1	0.434	6.0	0.814	11.3	0.570	7.9	0.846	11.7
Low Positive Panel	360	10.84	0.453	4.2	0.497	4.6	0.602	5.6	1.066	9.8	0.826	7.6	1.136	10.5

NA = not applicable

Within-Laboratory Precision

A 20-day precision study was performed for the ARCHITECT AUSAB assay based on guidance from the CLSI document EP5-A2.[a] Testing was conducted at Abbott Laboratories using three ARCHITECT AUSAB assay reagent lots, three calibrator lots, one control lot, and two instruments. Two levels of controls and six levels of panels were assayed in replicates of two at two separate times of day for 20 different days. The data are summarized in the following table.

Instrument	Sample	n	Grand Mean (mIU/mL)	Within-Run		Within-Day		Within-Laboratory Precision (Total)	
				SD	%CV	SD	%CV	SD	%CV
1	Negative Control	240	0.15	0.135	NA	0.136	NA	0.160	NA
	Positive Control	240	14.99	0.499	3.3	0.572	3.8	0.811	5.4
	Panel 1	240	7.55	0.339	4.5	0.339	4.5	0.467	6.2
	Panel 2	240	11.32	0.471	4.2	0.479	4.2	0.666	5.9
	Panel 3	240	49.71	1.407	2.8	1.733	3.5	2.656	5.3
	Panel 4	240	98.24	2.845	2.9	3.497	3.6	5.040	5.1
	Panel 5	240	497.89	13.496	2.7	17.405	3.5	26.504	5.3
	Panel 6	240	837.29	21.876	2.6	25.947	3.1	45.386	5.4
2	Negative Control	240	0.16	0.180	NA	0.180	NA	0.180	NA
	Positive Control	240	15.70	0.496	3.2	0.669	4.3	0.907	5.8
	Panel 1	240	8.18	0.507	6.2	0.544	6.7	0.667	8.2
	Panel 2	240	12.25	0.564	4.6	0.573	4.7	0.776	6.3
	Panel 3	240	51.63	1.388	2.7	1.735	3.4	2.557	5.0
	Panel 4	240	101.84	2.457	2.4	3.229	3.2	4.871	4.8
	Panel 5	240	511.13	12.171	2.4	16.383	3.2	24.981	4.9
	Panel 6	240	852.69	24.829	2.9	33.928	4.0	51.692	6.1

NA = not applicable

Clinical Performance

A prospective multi-center study was conducted to evaluate the ability of the ARCHITECT AUSAB assay to detect anti-HBs antibodies in a group of individuals that would normally be tested in a clinical situation. Of the 2389 specimens tested in the ARCHITECT AUSAB clinical study, 1314 specimens were obtained from individuals with increased risk of HBV infection due to lifestyle, behavior, occupation, disease state, or a known exposure event and 704 specimens were obtained from individuals exhibiting signs and symptoms of hepatitis infection.

The specimens (n=2018) consisted of the following race/ethnic groups:

- 1067 (52.87%) Caucasian
- 577 (28.59%) African-American
- 295 (14.62%) Hispanic
- 40 (1.98%) Asian
- 9 (0.45%) American Indian/Alaska Native
- 30 (1.49%) Other

The specimens (n=2018) were obtained from the following collection locations:

- 794 (39.35%) from Galveston, TX
- 341 (16.90%) from Plymouth, MA
- 185 (9.17%) from High Point, NC
- 166 (8.23%) from Chicago, IL
- 123 (6.10%) from Denver, CO
- 118 (5.85%) from Colton, CA
- 117 (5.80%) from Dallas, TX
- 89 (4.41%) from Miami, FL
- 85 (4.21%) from St. Petersburg, FL

Of the 2018 specimens, 1061 (52.58%) were female and 957 (47.42%) were male. The age was not reported for three specimens. Of the remaining 2015 specimens, the mean age was 41 years (age range, 18 to 83 years). Each specimen was tested using a comparator anti-HBs assay and three HBV reference assays, each detecting a unique serological marker (HBsAg, anti-HBc IgM, total anti-HBc). The HBV classification was determined for each specimen based on the reactivity patterns of the four HBV serological marker results. The comparator and reference assays were from a single manufacturer and during the clinical study, all comparator and reference testing was performed following manufacturers' instructions. Each specimen was also tested at one of three clinical sites located in Galveston, TX, Hershey, PA, or Milwaukee, WI using the ARCHITECT AUSAB assay.

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Results by Specimen Classification

Following testing with the comparator anti-HBs assay and the three reference HBV assays, the 2018 specimens from the increased risk and signs and symptoms populations were assigned an HBV classification according to the following table. There were 19 unique reference marker patterns observed in the ARCHITECT AUSAB clinical study.

HBV Reference Markers				
HBsAg[a]	Anti-HBc IgM[a]	Total Anti-HBc[a]	Anti-HBs[a]	HBV Classification
+	-	-	-	Early Acute
+	+	+	-	Acute
+	+	+	I	Chronic
+	-	+	+	Chronic
+	-	+	-	Chronic
+	-	-	+	Chronic
+	-	+	I	Chronic
-	+	+	+	Recovering Acute
-	+	-	+	Recovering Acute
-	+	+	-	Recovering Acute/Undetectable HBsAg
-	+	+	I	Early Recovery
+	+	+	+	Late Acute/Recovering
-	+	-	-	Possible Recovering Acute/Undetectable HBsAg
-	-	+	+	Immune Due to Natural Infection
-	-	+	I	Distantly Immune/Anti-HBs Unknown
-	-	+	-	Distantly Immune/Anti-HBs Not Detected
-	-	-	+	Immune Due to HBV Vaccination
-	-	-	I	Unknown
-	-	-	-	Susceptible

[a] + = reactive, - = nonreactive, I = Indeterminate

Comparison of Results

The following table compares the ARCHITECT AUSAB assay results with comparator anti-HBs assay results for each of the HBV classifications for the increased risk and signs and symptoms populations. The data are summarized in the following table.

	Comparator Anti-HBs Interpretation																			
	Positive						Indeterminate						Negative							
	ARCHITECT AUSAB Interpretation						ARCHITECT AUSAB Interpretation						ARCHITECT AUSAB Interpretation							
	R[a]		GZ[a]		NR[a]		R[a]		GZ[a]		NR[a]		R[a]		GZ[a]		NR[a]		Total	
HBV Classification	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Early Acute	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	0.10	2	0.10
Acute	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	0.25	5	0.25
Late Acute/Recovering	0	0.00	0	0.00	1	0.05	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.05
Early Recovering	0	0.00	0	0.00	0	0.00	2	0.10	0	0.00	1	0.05	0	0.00	0	0.00	0	0.00	3	0.15
Recovering Acute	4	0.20	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	4	0.20
Chronic	3	0.15	0	0.00	0	0.00	2	0.10	0	0.00	2	0.10	0	0.00	0	0.00	35	1.73	42	2.08
Immune Due to Natural Infection	192	9.51	1	0.05	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	193	9.56
Distantly Immune/ Anti-HBs Unknown	0	0.00	0	0.00	0	0.00	21	1.04	6	0.30	4	0.20	0	0.00	0	0.00	0	0.00	31	1.54
Distantly Immune/ Anti-HBs Not Detected	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	13	0.64	11	0.55	83	4.11	107	5.30
Immune Due to HBV Vaccination	500	24.76	7	0.35	1	0.05	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	508	25.17
Unknown	0	0.00	0	0.00	0	0.00	34	1.68	17	0.84	15	0.74	0	0.00	0	0.00	0	0.00	66	3.27
Susceptible	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	12	0.59	4	0.20	1040	51.54	1056	52.33
Total	**699**	**34.64**	**8**	**0.40**	**2**	**0.10**	**59**	**2.92**	**23**	**1.14**	**22**	**1.09**	**25**	**1.24**	**15**	**0.74**	**1165**	**57.73**	**2018**	**100.00**

[a] R = Reactive, GZ = Grayzone, NR = Nonreactive

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Percent Agreement

The table below summarizes the positive percent agreement and negative percent agreement data for the increased risk and signs and symptoms populations by HBV classification. For the purposes of calculating percent agreement, indeterminate results for the comparator anti-HBs assay were not included in the calculation.

HBV Classification	Positive Percent Agreement % (x/n)	95% Confidence Interval	Negative Percent Agreement % (x/n)	95% Confidence Interval
Early Acute	NA (0/0)	NA	100.00 (2/2)	15.81 - 100.00
Acute	NA (0/0)	NA	100.00 (5/5)	47.82 - 100.00
Late Acute/Recovering	0.00 (0/1)	0.00 - 97.50	NA (0/0)	NA
Early Recovering	NA (0/0)	NA	NA (0/0)	NA
Recovering Acute	100.00 (4/4)	39.76 - 100.00	NA (0/0)	NA
Chronic	100.00 (3/3)	29.24 - 100.00	100.00 (35/35)	90.00 - 100.00
Immune Due to Natural Infection	99.48 (192/193)	97.15 - 99.99	NA (0/0)	NA
Distantly Immune/Anti-HBs Unknown	NA (0/0)	NA	NA (0/0)	NA
Distantly Immune/Anti-HBs Not Detected	NA (0/0)	NA	77.57 (83/107)	68.49 - 85.07
Immune Due to HBV Vaccination	98.43 (500/508)	96.92 - 99.32	NA (0/0)	NA
Unknown	NA (0/0)	NA	NA (0/0)	NA
Susceptible	NA (0/0)	NA	98.48 (1040/1056)	97.55 - 99.13
Total	**98.59 (699/709)**	**97.42 - 99.32**	**96.68 (1165/1205)**	**95.51 - 97.62**

Positive percent agreement = [Number of ARCHITECT AUSAB reactive results in agreement with the comparator anti-HBs positive results] x 100
[Total number of comparator anti-HBs positive results]

Negative percent agreement = [Number of ARCHITECT AUSAB nonreactive results in agreement with the comparator anti-HBs negative results] x 100
[Total number of comparator anti-HBs negative results]

The table below summarizes the positive percent agreement and negative percent agreement data for the pediatric population. For the purposes of calculating percent agreement, indeterminate results for the comparator anti-HBs assay were not included in the calculation.

ARCHITECT AUSAB Results versus Comparator anti-HBs Results Percent Agreement for Pediatric Subgroup n=120

ARCHITECT AUSAB Interpretation	Comparator anti-HBs Interpretation: Positive	Indeterminate	Negative
Reactive	57 (A)	8 (B)	1 (C)
Grayzone	3 (D)	4 (E)	2 (F)
Nonreactive	1 (G)	6 (H)	38 (I)

Negative Percent Agreement = (I / (C+F+I)) x 100 = 92.68 %
Positive Percent Agreement = (A / (A+D+G)) x 100 = 93.44 %
95% Confidence Interval for Negative Percent Agreement = (80.08 % , 98.46 %)
95% Confidence Interval for Positive Percent Agreement = (84.05 % , 98.18 %)

HBV Post Vaccine Recipient Population

Of the 2389 specimens tested in the ARCHITECT AUSAB clinical study, 211 specimens were obtained from individuals who had received a full course of injections (three) of one of the following vaccines:

- GlaxoSmithKline Engerix-B® (n = 106, 50.24%)
- Merck & Co., Inc. RECOMBIVAX HB® (n = 49, 23.22%)
- Sanofi Pasteur MSD (n = 12, 5.69%)
- Merck & Co., Inc. HEPTAVAX-B® (n = 9, 4.27%)
- Merck & Co., Inc. trade name unknown (n = 8, 3.79%)
- Other (includes different combinations of manufacturer and trade name types for the three doses) (n = 5, 2.37%).
- GlaxoSmithKline Twinrix® (n = 1, 0.47%)
- Unknown (n = 21, 9.95%)

Each specimen was tested using the comparator anti-HBs assay following manufacturer's instructions. These specimens were tested using a reference anti-HBc assay and found to be negative. Each specimen was also tested at one of the clinical sites located in Galveston, TX and Milwaukee, WI using the ARCHITECT AUSAB assay. Of the 211 specimens in the post vaccine recipient population, 159 (75.36%) specimens were reactive by the ARCHITECT AUSAB assay and 146 (69.19%) specimens were reactive by the comparator anti-HBs assay. The positive percent agreement between the ARCHITECT AUSAB assay results and the comparator anti-HBs assay results for the post vaccine recipient population was 100.00% (146/146, with a 95% confidence interval of 97.51% to 100.00%). The negative percent agreement between the ARCHITECT AUSAB assay results and the comparator anti-HBs assay results for the post vaccine recipient population was 84.78% (39/46, with a 95% confidence interval of 71.13% to 93.66%). For the purposes of calculating percent agreement, indeterminate results for the comparator anti-HBs assay were not included in the calculation. The data are summarized in the following table.

ARCHITECT AUSAB Results versus Comparator anti-HBs Results Percent Agreement for Vaccine Recipients Subgroup n=211

	Comparator anti-HBs Interpretation		
ARCHITECT AUSAB Interpretation	Positive	Indeterminate	Negative
Reactive	146 (A)	9 (B)	4 (C)
Grayzone	0 (D)	5 (E)	3 (F)
Nonreactive	0 (G)	5 (H)	39 (I)

Negative Percent Agreement = (I / (C+F+I)) x 100 = 84.78 %
Positive Percent Agreement = (A / (A+D+G)) x 100 = 100.00 %
95% Confidence Interval for Negative Percent Agreement = (71.13 % , 93.66 %)
95% Confidence Interval for Positive Percent Agreement = (97.51 % , 100.00 %)

HBV Pre- and Post- Vaccine Recipient Population

Of the 2389 specimens tested in the ARCHITECT AUSAB clinical study, matched pre- and post- vaccination specimens were obtained from 20 hepatitis B vaccine recipients. The pre- vaccination specimens were tested using a reference anti-HBs and anti-HBc assay and found to be negative by both. Each specimen was tested using the comparator anti-HBs assay following manufacturer's instructions. Each specimen was also tested at the clinical site located in Milwaukee, WI using the ARCHITECT AUSAB assay. The table below summarizes the positive percent agreement and negative percent agreement data for the pre and post hepatitis B vaccine recipient population. For the purposes of calculating percent agreement, indeterminate results for the comparator anti-HBs assay were not included in the calculation.

Vaccination Status	Positive Percent Agreement % (x/n)	95% Confidence Interval	Negative Percent Agreement % (x/n)	95% Confidence Interval
Pre-Vaccination	NA (0/0)	NA	100.00 (20/20)	83.16 - 100.00
Post-Vaccination	100.00 (18/18)	81.47 - 100.00	100.00 (2/2)	15.81 - 100.00
Combined	100.00 (18/18)	81.47 - 100.00	100.00 (22/22)	84.56 - 100.00

Limit of Blank, Limit of Detection, and Limit of Quantitation

The assay is designed to have a Limit of Blank (LoB) of < 3.08 mIU/mL, Limit of Detection (LoD) of < 4.23 mIU/mL, and Limit of Quantitation (LoQ) of < 8.00 mIU/mL. A study was conducted based on guidance from CLSI EP17-A[4] producing an LoB of 0.82 mIU/mL, an LoD of 1.21 mIU/mL, and an LoQ of 3.00 mIU/mL.

WHO Standard Linearity

A study was conducted to evaluate dilutions of the World Health Organization (WHO) First International Reference Preparation for Antibody to HBsAg (1977) with the ARCHITECT AUSAB assay calibrated with Abbott internal reference calibrators. A linear regression analysis was performed using mean concentration results from 18 replicates each of 6 WHO Reference Preparation dilutions versus the expected concentrations. Predicted concentrations were determined using the slope equation from various concentrations of the WHO Reference Preparation dilutions. The data are summarized in the following tables.

ARCHITECT AUSAB WHO Standard Linearity

Group	N	Slope		Intercept	
		Estimate	95% Confidence Interval	Estimate	95% Confidence Interval
Samples up to 250 mIU/mL	5	1.05	(1.02 , 1.08)	-0.33	(-3.87 , 3.21)
Samples up to 500 mIU/mL	6	1.02	(0.99 , 1.04)	1.57	(-4.22 , 7.36)
Samples up to 800 mIU/mL	7	1.05	(1.02 , 1.09)	-2.05	(-13.71, 9.60)

ARCHITECT AUSAB WHO Standard Linearity
Least Squares Regression Predicted Values

Group	Expected Concentration (mIU/mL)	Predicted Concentration (mIU/mL)
Samples up to 250 mIU/mL	0	-0.33
	10	10.17
	50	52.19
	100	104.71
	250	262.26
Samples up to 500 mIU/mL	0	1.57
	10	11.77
	50	52.56
	100	103.55
	250	256.51
	500	511.46
Samples up to 800 mIU/mL	0	-2.05
	10	8.49
	50	50.68
	100	103.42
	250	261.64
	500	525.33
	800	841.76

Dilution Linearity

The assay is designed to provide a dilution linearity correlation coefficient of ≥ 0.90. A dilution linearity study was performed evaluating ARCHITECT AUSAB with HBsAg recovered and vaccinee specimens between 300 and 900 mIU/mL. These specimens were each diluted manually using normal human serum for a total of 7 serial dilutions. A regression analysis was performed for each specimen using the expected and observed concentrations and results are summarized in the following table.

Group	Sample	N	Slope		Intercept		Correlation Coefficient	
			Estimate	95% Confidence Interval	Estimate	95% Confidence Interval	Estimate	95% Confidence Interval
Recovered	1	8	0.99	(0.98 , 1.01)	4.20	(0.34 , 8.07)	1.000	(1.000 , 1.000)
	2	8	1.00	(0.96 , 1.04)	6.65	(-0.52 , 13.83)	0.999	(1.000 , 1.000)
	3	8	1.00	(0.97 , 1.03)	6.89	(0.15 , 13.64)	1.000	(1.000 , 1.000)
	4	8	1.00	(0.97 , 1.03)	6.21	(-1.78 , 14.20)	1.000	(1.000 , 1.000)
Vaccinee	1	8	0.99	(0.94 , 1.04)	-2.51	(-9.56 , 4.54)	0.999	(0.990 , 1.000)
	2	8	0.99	(0.97 , 1.01)	5.82	(1.15 , 10.50)	1.000	(1.000 , 1.000)
	3	8	0.99	(0.98 , 1.03)	-0.92	(-7.39 , 6.55)	0.999	(0.990 , 1.000)
	4	8	1.00	(0.98 , 1.02)	3.27	(-3.21 , 9.76)	1.000	(1.000 , 1.000)

Analytical Specificity

The ARCHITECT AUSAB assay was evaluated for potential cross-reactivity for specimens from individuals with medical conditions unrelated to HBV infection and specimens containing potentially interfering substances. The data are summarized in the following tables.

		Comparator Anti-HBs Assay					
		Negative			Positive		
		ARCHITECT AUSAB			ARCHITECT AUSAB		
Category	n	NR*	GZ*	R*	NR*	GZ*	R*
Cytomegalovirus (anti-CMV positive)	9	4	0	0	0	0	5
Epstein-Barr Virus (anti-EBV positive)	9	2	0	0	0	0	7
Hepatitis A Virus (anti-HAV virus)	10	9	0	0	0	0	1
Hepatitis C Virus (anti-HCV virus)	10	6	0	0	0	0	4
Human Immunodeficiency Virus (anti-HIV-1 positive)	10	6	0	0	0	0	4
Herpes Simplex Virus (anti-HSV positive)	6	4	0	0	0	0	2
Elevated bilirubin	9	9	0	0	0	0	0
Elevated protein	8	5	0	0	0	0	3
Human Anti-Mouse Antibodies (HAMA) positive	10	10	0	0	0	0	0
Influenza vaccine recipients	10	4	0	0	0	0	6
Multiparous female	10	10	0	0	0	0	0
Non-viral liver disease	8	6	0	0	0	0	2
Rheumatoid factor positive	6	5	0	0	0	0	1
Rubella antibody positive	10	7	0	0	0	0	3
Syphilis	10	5	0	0	0	0	5
Toxoplasmosis IgG positive	9	5	0	0	0	0	4
Varicella Zoster Virus (VZV) positive	7	4	0	0	1†	0	2
Yeast infection	9	6	0	0	0	0	3
TOTAL	160	107	0	0	1	0	52

* NR = nonreactive, GZ = grayzone, R = reactive

† The final interpretation of the VZV positive specimen was anti-HBs negative when tested using the supplemental AUSAB enzyme immunoassay.

Interferences

At the concentrations listed below bilirubin (conjugated and unconjugated), hemoglobin, total protein, and triglycerides showed less than 10% interference in the ARCHITECT AUSAB assay for high negative samples (concentration range: 6.0 to 9.9 mIU/mL) and low positive samples (concentration range: 10.0 to 14.0 mIU/mL):

- Bilirubin ≤ 20 mg/dL
- Hemoglobin ≤ 500 mg/dL
- Total Protein ≤ 12 g/dL
- Triglycerides ≤ 3000 mg/dL

Tube Type Matrix Comparison

The following tube types are acceptable for use with the ARCHITECT AUSAB assay.

- Glass: serum and serum separator
- Plastic: serum, serum separator, lithium heparin plasma separator, sodium heparin, and dipotassium EDTA

On average, the tube types evaluated showed less than a 10% difference when compared to the control tube type (glass serum). The distribution of the percent differences per tube type is listed in the following table.

	Distribution of %Differences		
Evaluation Tube Type	< 10%	> 10% to ≤ 20%	> 20%
Glass Serum Separator	81.8%(36/44)	15.9%(7/44)	2.3%(1/44)
Plastic Serum	79.5%(35/44)	18.2%(8/44)	2.3%(1/44)
Plastic Serum Separator	79.5%(35/44)	20.5%(9/44)	0.0%(0/44)
Plastic Lithium Heparin Plasma Separator	86.0%(37/43)	14.0%(6/43)	0.0%(0/43)
Plastic Sodium Heparin	85.7%(36/42)	14.3%(6/42)	0.0%(0/42)
Plastic Dipotassium EDTA	78.0%(32/41)	19.5%(8/41)	2.4%(1/41)

Neonate Serum

A study was conducted to evaluate neonate samples when tested with the ARCHITECT AUSAB assay. Twenty-one neonate serum (cord blood) samples, whose final interpretation was determined by consensus testing with three anti-HBs assays, were obtained and tested using the ARCHITECT AUSAB assay and the results were compared. The data are summarized in the following table.

	Consensus Anti-HBs Assay Result					
	Negative			Positive		
	ARCHITECT AUSAB			ARCHITECT AUSAB		
n	NR[a]	GZ[a]	R[a]	NR[a]	GZ[a]	R[a]
21	15	0	0	0	1[b]	5

[a] NR = nonreactive, GZ = grayzone, R = reactive

[b] The final interpretation of the grayzone specimen was anti-HBs positive after supplemental testing.

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

5 466 646 5 543 524 5 545 739
5 565 570 5 669 819 5 783 699

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In Vitro Test
REF 1L82-10
XX-XXXX/R1

AUSAB®

Controls

Key to symbols used

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IVD			
2°C 5°C		CONTROL −	
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INTENDED USE

The ARCHITECT AUSAB Controls are used for monitoring the performance of the ARCHITECT *i* System when used for the quantitative determination of antibody to hepatitis B surface antigen (anti-HBs) using the ARCHITECT AUSAB Reagent Kit. The performance of the ARCHITECT AUSAB Controls has not been established with any other anti-HBs assays.

WARNINGS AND PRECAUTIONS

For *In Vitro* Diagnostic Use.

- ⚠ **CAUTION: This product contains human sourced infectious and/or potentially infectious components. 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.[1] Biosafety Level 2[2] or other appropriate biosafety practices[3,4] should be used for materials that contain or are suspected of containing infectious agents.**
- The negative control is nonreactive for anti-HBs, HBsAg, HIV-1 RNA or HIV-1 Ag, anti-HIV-1/HIV-2, and anti-HCV.
- The positive control is reactive for anti-HBs and nonreactive for HBsAg, HIV-1 RNA or HIV-1 Ag, anti-HIV-1/HIV-2, and anti-HCV.
- This product contains sodium azide. Contact with acids liberates very toxic gas. This material and its container must be disposed of in a safe way.
- The ARCHITECT AUSAB Controls contain 2-methyl-4-isothiazolin-3-one (which is a component of ProClin) and are classified per applicable European Community (EC) Directives as: Irritant (Xi). The following are the appropriate Risk (R) and Safety (S) phrases:

R43	May cause sensitization by skin contact.
S24	Avoid contact with skin.
S35	This material and its container must be disposed of in a safe way.
S37	Wear suitable gloves
S46	If swallowed, seek medical advice immediately and show this container or label.

MATERIALS PROVIDED

2 Bottles (8 mL each) ARCHITECT AUSAB Controls (1 bottle of negative control and 1 bottle of positive control).

- The negative control is recalcified anti-HBs negative human plasma. Preservatives: sodium azide and ProClin® 950.
- The positive control is recalcified anti-HBs positive human plasma in recalcified anti-HBs negative human plasma. The positive control is blue and contains Acid Blue No. 9 dye. Preservatives: sodium azide and ProClin 950.

PREPARATION AND STORAGE

- Controls are liquid ready-to-use. No preparation is required.
- When stored and handled as directed, the controls are stable until the expiration date.
- The controls must be stored at 2-8°C in an upright position and may be used immediately after removal from 2-8°C storage.
- Refer to the ARCHITECT AUSAB assay reagent package insert for the maximum on board stability requirements.

Store at 2-8°C

QUALITY CONTROL PROCEDURE

Refer to the ARCHITECT AUSAB assay reagent package insert and ARCHITECT System Operations Manual for additional information.

The recommended control requirement for the ARCHITECT AUSAB assay is that a single sample of each control level be tested once every 24 hours each day of use. Additional controls may be tested in conformance with local, state, and/or federal regulations or accreditation requirements and your laboratory's quality control policy.

PROCEDURE

- ARCHITECT AUSAB Controls must be mixed by gentle inversion before use.
- To obtain the recommended volume requirements for the ARCHITECT AUSAB Controls, hold the bottles vertically and dispense 5 drops of each control into each sample cup.
- For information on ordering patient specimens and the positive control and for general operating procedures, refer to the ARCHITECT System Operations Manual, Section 5.
- Use the following instructions to order the negative control:
  - Order the negative control as a patient sample. The negative control cannot be ordered as a control.
  - For the negative control, do not configure or use the Westgard or Levey-Jennings software screens for quality control analysis. The use of these screens for the negative control will result in data that is not statistically valid.
  - Manual verification of the validity of the negative control is required any time the negative control is run. For control values that fall outside of the validity range listed in this package insert, refer to the ARCHITECT *i* System Operation Manual, Section 10 for troubleshooting information.
  - Because the negative control is run as a patient sample, patient values will not be flagged by the ARCHITECT *i* System if a negative control is outside of its control range. Only release patient results if a valid negative control value is obtained.
- To troubleshoot control values that fall outside the control range, refer to the ARCHITECT System Operations Manual, Section 10.

EXPECTED RESULTS

The controls are of the following concentrations:

Control	Color	Concentration (mIU/mL or IU/L)	Range (mIU/mL or IU/L)
CONTROL -	Natural	0.00	0.00 - [illegible]
CONTROL +	Blue	10.00	10.00 - [illegible]

Note: The insert ranges for the controls are not for specific use, represent the total range of values which may be generated throughout the life of the product. It is recommended that each laboratory establish its own mean and acceptable ranges which should fall within the package insert ranges. Sources of variation that can be expected include:

- Calibration
- Control lot
- Instrument
- Calibrator lot
- Reagent lot

LIMITATIONS

- Control values have not been established for assays other than the ARCHITECT AUSAB assay. If the user wishes to use the control material with other assays, it is their responsibility to establish the appropriate ranges.
- The ARCHITECT AUSAB Controls are in a serum matrix made from recalcified plasma. The user should provide alternate control material for plasma when necessary.
- The controls are not calibrators and should not be used for assay calibration.

BIBLIOGRAPHY

1. US Department of Labor, Occupational Safety and Health Administration. *29 CFR Part 1910.1030, Occupational safety and health standards, bloodborne pathogens.*
2. US Department of Health and Human Services. *Biosafety in Microbiological and Biomedical Laboratories*. 4th ed. Washington, DC: US Government Printing Office, May 1999.
3. World Health Organization. *Laboratory Biosafety Manual*. 3rd ed. Geneva: World Health Organization, 2004.
4. Clinical and Laboratory Standards Institute. *Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline–Third Edition*. CLSI Document M29-A3. Wayne, PA: Clinical Laboratory Standards Institute, 2005.

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ARCHITECT® SYSTEM

In Vitro Test
REF 1L82-01
XX-XXXX/R1

AUSAB®

Calibrators

Key to symbols used

REF	[illegible]	LOT	[illegible]
IVD	[illegible]	[illegible]	[illegible]
2°C 8°C	[illegible]	CAL A	[illegible]
⚠	[illegible]		

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Confidential

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INTENDED USE

The ARCHITECT AUSAB Calibrators are used to calibrate the ARCHITECT i System when the system is used for the quantitative determination of antibody to hepatitis B surface antigen (anti-HBs) using the ARCHITECT AUSAB Reagent Kit. The performance of the ARCHITECT AUSAB Calibrators has not been established with any other anti-HBs assays.

PRINCIPLES OF PROCEDURE

The ARCHITECT i System utilizes the relative light units from six calibrators spanning the concentration range of the assay. The acceptability of the calibration is assessed against an assay file parameter. The acceptable calibration is stored by the ARCHITECT i System for use with any reagent kit of that lot. The calibration should be used in conjunction with control ranges to determine the validity of the calibration.

WARNINGS AND PRECAUTIONS

- For In Vitro Diagnostic Use

- **CAUTION: This product contains human sourced infectious and/or potentially infectious components. 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.[1] Biosafety Level 2[2] or other appropriate biosafety practices[3,4] should be used for materials that contain or are suspected of containing infectious agents.**
- Calibrator A is nonreactive for anti-HBs, HBsAg, HIV-1 RNA or HIV-1 Ag, anti-HIV-1/HIV-2, and anti-HCV.
- Calibrators B through F are reactive for anti-HBs and nonreactive for HBsAg, HIV-1 RNA or HIV-1 Ag, anti-HIV-1/HIV-2, and anti-HCV.

  This product contains sodium azide. Contact with acids liberates very toxic gas. This material and its container must be disposed of in a safe way.
- The ARCHITECT AUSAB Calibrators contain 2-methyl-4-isothiazolin-3-one (which is a component of ProClin) and are classified per applicable European Community (EC) Directives as: Irritant (Xi). The following are the appropriate Risk (R) and Safety (S) phrases:

R43	May cause sensitisation by skin contact.
S24	Avoid contact with skin.
S35	This material and its container must be disposed of in a safe way.
S37	Wear suitable gloves.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the container or label).

MATERIALS PROVIDED

6 Bottles (4 mL each) ARCHITECT AUSAB Calibrators (1 bottle each of Calibrators A – F)

- Calibrator A is recalcified anti-HBs negative human plasma. Preservatives: sodium azide and ProClin® 950.
- Calibrators B – F are recalcified anti-HBs positive human plasma in recalcified anti-HBs negative human plasma. Preservatives: sodium azide and ProClin 950.

STANDARDIZATION

The ARCHITECT AUSAB Calibrators are traceable to the World Health Organization (WHO) First International Reference Preparation for antibody to HBsAg (1977). The calibrators are manufactured by dilution and have been tested against internal standards. Internal standards are tested against dilutions of the WHO panel.

The calibrators are at the following concentrations:

Calibrator	Anti-HBs Concentration (mIU/mL or IU/L)
CAL A	0
CAL B	10
CAL C	50
CAL D	100
CAL E	500
CAL F	1000

PREPARATION AND STORAGE

- The calibrators are liquid ready-to-use. No preparation is required.
- When stored and handled as directed, the calibrators are stable until the expiration date.
- The calibrators must be stored at 2-8°C in an upright position and may be used immediately after removal from 2-8°C storage.
- Refer to the ARCHITECT AUSAB assay reagent package insert for the maximum on board stability requirements.

Store at 2-8°C

QUALITY CONTROL PROCEDURES

Refer to the ARCHITECT AUSAB assay reagent package insert and ARCHITECT System Operations Manual for additional information.

A single sample of each control level must be tested to evaluate the assay calibration. For information on ordering controls, refer to the ARCHITECT System Operations Manual, Section 5.

- Ensure that assay control values are within the ranges specified in the control package insert.

Once an ARCHITECT AUSAB 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.
- Controls are out of range.

PROCEDURE

- ARCHITECT AUSAB Calibrators must be mixed by gentle inversion before use.
- To perform a calibration, test ARCHITECT AUSAB Calibrators A through F in duplicate. The calibrators should be priority loaded.
- To obtain the recommended volume requirements for the ARCHITECT AUSAB Calibrators, hold the bottles vertically and dispense 7 drops into the respective sample cup.
- For information on ordering calibrations, refer to the ARCHITECT System Operations Manual, Section 6.

BIBLIOGRAPHY

1. US Department of Labor, Occupational Safety and Health Administration. 29 CFR Part 1910.1030, Occupational safety and health standards, bloodborne pathogens.
2. US Department of Health and Human Services. *Biosafety in Microbiological and Biomedical Laboratories*. 4th ed. Washington, DC: US Government Printing Office; May 1999.
3. World Health Organization. *Laboratory Biosafety Manual*. 3rd. ed. Geneva: World Health Organization; 2004.
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