March, 13, 2026

Beckman Coulter, Inc.
Veronica Colinayo
Staff Regulatory Affairs
250 S. Kraemer Blvd.
Brea, California 92821

Re: K254059
Trade/Device Name: Access anti-HBc IgM
Regulation Number: 21 CFR 21 CFR 866.3173
Regulation Name: Hepatitis B Virus (HBV) Antibody Assay
Regulatory Class: Class II
Product Code: SEI
Dated: December 17, 2025
Received: December 17, 2025

Dear Veronica Colinayo:

We have reviewed your section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (the Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database available at https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm identifies combination product submissions. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Additional information about changes that may require a new premarket notification are provided in the FDA guidance documents entitled "Deciding When to Submit a 510(k) for a Change to an Existing Device" (https://www.fda.gov/media/99812/download) and "Deciding When to Submit a 510(k) for a Software Change to an Existing Device" (https://www.fda.gov/media/99785/download).

Your device is also subject to, among other requirements, the Quality Management System Regulation (QMSR) (21 CFR Part 820), which includes, but is not limited to, ISO 13485 clause 7.3 (Design controls), ISO 13484 clause 8.3 (Nonconforming product), and ISO 13485 clause 8.5 (Corrective and preventative action). Please note that regardless of whether a change requires premarket review, the QMSR requires device manufacturers to review and approve changes to device design and production (ISO 13485 clause 7.3 and 21 CFR 820.70) and document changes and approvals in the Medical Device File (21 CFR 820.181).

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801 and Part 809); medical device reporting (reporting of medical device-related adverse events) (21 CFR Part 803) for devices or postmarketing safety reporting (21 CFR Part 4, Subpart B) for combination products (see https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products); good manufacturing practice requirements as set forth in the Quality Management System Regulation (QMSR) (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR Part 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR Parts 1000-1050.

All medical devices, including Class I and unclassified devices and combination product device constituent parts are required to be in compliance with the final Unique Device Identification System rule ("UDI Rule"). The UDI Rule requires, among other things, that a device bear a unique device identifier (UDI) on its label and package (21 CFR 801.20(a)) unless an exception or alternative applies (21 CFR 801.20(b)) and that the dates on the device label be formatted in accordance with 21 CFR 801.18. The UDI Rule (21 CFR 830.300(a) and 830.320(b)) also requires that certain information be submitted to the Global Unique Device Identification Database (GUDID) (21 CFR Part 830 Subpart E). For additional information on these requirements, please see the UDI System webpage at https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/unique-device-identification-system-udi-system.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance) and CDRH Learn (https://www.fda.gov/training-and-continuing-education/cdrh-learn). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Uwe Scherf -S

Uwe Scherf, M.Sc., Ph.D.
Director
Division of Microbiology Devices
OHT7: Office of In Vitro Diagnostics
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: 07/31/2026
See PRA Statement below.

510(k) Number *(if known)*
K254059

Device Name
Access anti-HBc IgM

Indications for Use *(Describe)*

The Access anti-HBc IgM assay is a paramagnetic particle, chemiluminescent immunoassay for the in vitro qualitative detection of IgM antibodies to hepatitis B virus core antigen (anti-HBc IgM) in human pediatric (3 through 21 years) and adult serum and serum separator tubes or plasma [lithium heparin, lithium heparin separator tubes, dipotassium (K2) EDTA, tripotassium (K3) EDTA, sodium citrate, acid citrate dextrose (ACD), and citrate phosphate dextrose (CPD)] using the DxI 9000 Access Immunoassay Analyzer.

The Access anti-HBc IgM assay results may be used as an aid in the laboratory diagnosis of acute or recent hepatitis B virus (HBV) infection in individuals with signs and symptoms of hepatitis, when used in conjunction with other serological and clinical information.

The Access anti-HBc IgM assay is for use on the DxI 9000 Access Immunoassay Analyzer only.

This assay is not intended for the screening of blood, plasma, and cell or tissue donors.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

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510(k) Summary

This summary of 510(k) safety and effectiveness information is being submitted in accordance with the requirements of SMDA 1990 and 21 CFR 807.92.

510(k) Number: K254059 **Date Prepared:** March 11, 2026

Submitter Name and Address:
Beckman Coulter, Inc
250 S. Kraemer Boulevard
Brea, CA 92821

Primary Contact:
Veronica V. Colinayo, Ph.D.
Staff Regulatory Affairs
Email: vvcolinayo@beckman.com

Device Trade Name: Access anti-HBc IgM
Device Classification Name: Qualitative Hepatitis B virus antibody assay
Classification Regulation: 21 CFR 866.3173
Class: II
Classification Product Code: SEI

Predicate Device
Device Name: ARCHITECT CORE-M
510(k) Numbers: P060035

Purpose for Submission: New device market clearance of Access anti-HBc IgM assay for use on the DxI 9000 Immunoassay Analyzer

Device Description

The Access anti-HBc IgM assay is a two-step enzyme immunoassay. Paramagnetic particles coated with anti-human IgM monoclonal antibody and prediluted sample are added to a reaction vessel. After incubation, material bound to the solid phase is held in a magnetic field while unbound materials are washed away. HBc antigen complexed to anti-HBc monoclonal antibody alkaline phosphatase conjugate is added and the conjugate binds to the IgM antibodies captured on the particles. A second separation and wash step remove unbound conjugate.

A chemiluminescent substrate is then added to the vessel and light generated by the reaction is measured with a luminometer. The light production is compared to the cutoff value defined during calibration of the instrument. The qualitative assessment is automatically determined from a stored calibration.

The Access anti-HBc IgM Calibrator is used to establish calibration (determine the cutoff value) for the Access anti-HBc IgM assay. By comparing the light intensity generated by a sample to the cutoff value, the presence or absence of IgM antibodies to hepatitis B virus core antigen (anti-HBc IgM) in the sample is determined.

Quality control (QC) materials simulate the characteristics of patient samples and are essential for monitoring the system performance of the Access anti-HBc IgM immunoassay. In addition, they are an integral part of good laboratory practices. When performing assays with Access reagents for anti-HBc IgM, include quality control materials to validate the integrity of the assays. The assayed values should fall within the acceptable range if the test system is working properly.

The Access anti-HBc IgM reagents are provided in liquid ready-to-use format designed for optimal performance on the Beckman Coulter DxI 9000 Access Immunoassay Analyzer only. Each reagent kit contains two reagent packs. The Access anti-HBc IgM Calibrator kit contains one vial, and the Access anti-HBc IgM QC kit contains three vials each of QC1 (negative for anti-HBc IgM) and QC2 (positive for anti-HBc IgM). Other items needed to run the assay include Lumi-Phos PRO (chemiluminescent substrate) and UniCel DxI Wash Buffer II.

Intended Use

The Access anti-HBc IgM assay is a paramagnetic particle, chemiluminescent immunoassay for the *in vitro* qualitative detection of IgM antibodies to hepatitis B virus core antigen (anti-HBc IgM) in human pediatric (3 through 21 years) and adult serum and serum separator tubes or plasma [lithium heparin, lithium heparin separator tubes, dipotassium (K_2) EDTA, tripotassium (K_3) EDTA, sodium citrate, acid citrate dextrose (ACD), and citrate phosphate dextrose (CPD)] using the DxI 9000 Access Immunoassay Analyzer.

The Access anti-HBc IgM assay results may be used as an aid in the laboratory diagnosis of acute or recent hepatitis B virus (HBV) infection in individuals with signs and symptoms of hepatitis, when used in conjunction with other serological and clinical information.

The Access anti-HBc IgM assay is for use on the DxI 9000 Access Immunoassay Analyzer only.

This assay is not intended for the screening of blood, plasma, and cell or tissue donors.

Substantial Equivalence Information

The Access anti-HBc IgM and ARCHITECT CORE-M reagents employ prepackaged reagents for use on automated test systems. A comparison of the key device features, including similarities and differences of these assays, is shown in the following table.

Comparison Table

Features / Characteristics	Candidate Device Access anti-HBc IgM	Predicate Device ARCHITECT CORE-M (P060035)	Comment
Reagent Intended Use and Clinical Indications	The Access anti-HBc IgM assay is a paramagnetic particle, chemiluminescent immunoassay for the *in vitro* qualitative detection of IgM antibodies to hepatitis B virus core antigen (anti-HBc IgM) in human pediatric (3 through 21 years) and adult serum and serum separator tubes or plasma [lithium heparin, lithium heparin separator tubes, dipotassium (K_2) EDTA, tripotassium (K_3) EDTA, sodium citrate, acid citrate dextrose (ACD), and citrate phosphate dextrose (CPD)] using the DxI 9000 Access Immunoassay Analyzer. The Access anti-HBc IgM assay results may be used as an aid in the laboratory diagnosis of acute or recent hepatitis B virus (HBV) infection in individuals with signs and symptoms of hepatitis, when used in conjunction with other serological and clinical information. The Access anti-HBc IgM assay is for use on the DxI 9000 Access Immunoassay Analyzer only. This assay is not intended for the screening of blood, plasma, and cell or tissue donors.	The ARCHITECT CORE-M assay is a chemiluminescent microparticle immunoassay (CMIA) used for the qualitative detection of IgM antibody to hepatitis B core antigen (IgM anti-HBc) in human adult and pediatric serum or plasma (dipotassium EDTA, lithium heparin, and sodium heparin) and neonatal serum on the ARCHITECT i System. The ARCHITECT CORE-M assay is to be used as an aid in the diagnosis of acute or recent hepatitis B virus (HBV) infection in conjunction with other laboratory results and clinical information.	Similar
Calibrator and QC Intended Use	<u>Calibrator:</u> The Access anti-HBc IgM Calibrator is intended to calibrate the Access anti-HBc IgM assay for the *in vitro* qualitative detection of IgM antibodies to hepatitis B virus core antigen (anti-HBc IgM) in human serum and plasma using the DxI 9000 Access Immunoassay Analyzer. <u>QC:</u> The Access anti-HBc IgM QC is intended for monitoring system performance of the Access anti-HBc IgM assay. The Access anti-HBc IgM QC is for use on the DxI 9000 Access Immunoassay Analyzer.	<u>Calibrator:</u> The ARCHITECT CORE-M Calibrators are used for the calibration of the ARCHITECT i System when the system is used for the qualitative detection of IgM antibody to hepatitis B core antigen (IgM anti-HBc) using the ARCHITECT CORE-M Reagent Kit. The performance of the ARCHITECT CORE-M Calibrators has not been established with any other IgM anti-HBc assays. <u>QC:</u> The ARCHITECT CORE-M Controls are used for monitoring the performance of the ARCHITECT i System when used for the qualitative detection of IgM antibody to hepatitis B core antigen (IgM anti-HBc) in human adult serum and plasma when using the ARCHITECT CORE-M Reagent Kit. The performance of the ARCHITECT CORE-M Controls has not been established with any other IgM anti-HBc assays.	Similar

Features / Characteristics	Candidate Device Access anti-HBc IgM	Predicate Device ARCHITECT CORE-M (P060035)	Comment
Operating Principle	Two-step immunoassay	Same	Same
Analyte Measured	anti-HBc IgM	Same	Same
Assay Type	Qualitative	Same	Same
Detection Method	Automated, Chemiluminescence immunoassay	Automated, Chemiluminescent microparticle immunoassay (CMIA)	Similar
Reagent, Calibrator, and QC format	Liquid, ready-to-use	Same	Same
Calibrator(s)	1 level C1 (positive)	2 levels Calibrator 1 (negative) Calibrator 2 (positive)	Different
Control(s)	2 levels 1 Negative (QC1) 1 Positive (QC2)	2 levels 1 Negative Control 1 Positive Control	Same
Sample Type	Serum and Plasma	Same	Same
Compatible Anticoagulants	Serum, Serum separator tube, Plasma [Lithium Heparin, Lithium Heparin separator tube, Dipotassium (K_2) EDTA, Tripotassium (K_3) EDTA Sodium Citrate, Acid Citrate Dextrose (ACD),Citrate Phosphate Dextrose (CPD)]	Human serum, plasma (dipotassium EDTA, Lithium Heparin, Sodium Heparin)	Similar
Sample Volume	10 µL+ dead volume	64 µL + dead volume	Different
Instrumentation	DxI 9000 Access Immunoassay Analyzer	ARCHITECT i Systems	Different
Test Result Reporting	• < 1.00 S/CO - Nonreactive • ≥ 1.00 S/CO - Reactive	• < 0.80 S/CO - Nonreactive • 0.80 to < 1.21 S/CO - Grayzone, re-test at approximately one-week intervals • ≥ 1.21 S/CO - Reactive	Different
Traceability/ Standardization	Calibrator is traceable to the manufacturer's working calibrator.	Calibrator 2 is traceable to the Reference Standard of the Paul Ehrlich Institute, HBc Referenzserum IgM 84 (IgM anti-HBc).	Different
Time to Result	~ 29 minutes	~ 30 minutes	Different
Reagent Storage and Stability	Unopened at 2 to 10°C up to stated expiration date	Unopened at 2 to 8°C up to stated expiration date	Similar
Reagent In-use (On-board) Stability	56 days	30 days	Different
Calibration Frequency	56 days	30 days	Different

Summary of Studies

Clinical Performance

Study Overview

A multi-center study was conducted using the DxI 9000 Access Immunoassay Analyzer to evaluate the performance of the Access anti-HBc IgM assay to detect anti-HBc IgM in plasma and serum samples from the intended use population. The overall study population included 2,537 specimens, consisting of 2,281 that were prospectively collected, and an additional 256 retrospective samples. Of the 2,281 specimens prospectively collected, 1,955 were from non-pregnant adults classified as increased risk for hepatitis due to lifestyle, behavior, occupation, or known exposure events, or individuals with signs and symptoms of hepatitis. 171 prospective specimens were from the pregnant population with increased risk and/or showed signs and symptoms of hepatitis. Specimens from the pregnant population included 71 from the first trimester, 67 from the second trimester, and 33 from the third trimester. In addition, 163 prospective and retrospective specimens were collected from the pediatric (ages 9-21) increased risk and/or sign & symptoms population. The table below summarizes the number of specimens in each population.

Cohort	Adult (Non-Pregnant) (n =2,203)			Pregnant (n =171)		Pediatric (Non-Pregnant) (n =163)		
	S&S	IR	Retrospective	S&S	IR	S&S	IR	Retrospective
Prospective (n=2,281)	192	1,763	0	12	159	2	153	0
Retrospective (n=256)	0	0	248	0	0	0	0	8
Total (n=2,537)	**192**	**1,763**	**248**	**12**	**159**	**2**	**153**	**8**

S&S = Signs and Symptoms, IR = Increased Risk

Expected Results

The prospective study population was 61.25% White, 26.30% Black or African American, 1.49% Asian, 1.89% American Indian or Alaska Native, 0.13% Native Hawaiian or other Pacific Islander, and 8.94% from unknown/other or unwilling to answer. 34.41% of the prospective study population was of Hispanic ethnicity. The majority of patients were female (59% female and 41% male). Patients in the prospective population were collected from the United States (US) in the following states: Arizona (585, 25.65%), California (26, 1.14%), Connecticut (123, 5.39%), Florida (284, 12.45%), Georgia (61, 2.67%), Idaho (71, 3.11%), Minnesota (68, 2.98%), North Carolina (1, 0.04%), New Jersey (91, 3.99%), New York (445, 19.51%), Ohio (8, 0.35%), Pennsylvania (59, 2.59%), South Carolina (33, 1.45%), Tennessee (40, 1.75%), Texas (381, 16.70%) and Virginia (5, 0.22%). The retrospective study population was comprised of US samples and samples collected outside the US (Spain). Each sample was tested at one of three clinical sites located in Minneapolis, MN; Louisville, KY; or Baltimore, MD using the Access anti-HBc IgM assay and commercially available anti-HBc IgM assays.

The Access anti-HBc IgM results for the prospective population for all clinical trial sites combined by age group and gender are summarized in the table below. Samples were considered nonreactive if S/CO was < 1.00 and reactive if S/CO was ≥ 1.00.

Distribution of Access anti-HBc IgM Reactive and Nonreactive Results Among the Prospective Cohort by Age Group and Sex

Age Range (years)	Sex	Access anti-HBc IgM				Total
		Nonreactive		Reactive		
		N	%	N	%	
9-12	Female	6	0.26	0	0.00	6
	Male	11	0.48	0	0.00	11
13-18	Female	34	1.49	0	0.00	34
	Male	24	1.05	0	0.00	24
19-21	Female	73	3.20	0	0.00	73
	Male	28	1.23	0	0.00	28
22-29	Female	301	13.20	0	0.00	301
	Male	108	4.73	0	0.00	108
30-39	Female	276	12.10	0	0.00	276
	Male	129	5.66	0	0.00	129
40-49	Female	190	8.33	0	0.00	190
	Male	150	6.58	1	0.04	151
50-59	Female	253	11.09	0	0.00	253
	Male	225	9.86	1	0.04	226
60-69	Female	153	6.71	0	0.00	153
	Male	178	7.80	2	0.09	180
70-79	Female	52	2.28	0	0.00	52
	Male	55	2.41	0	0.00	55
80-89	Female	9	0.39	0	0.00	9
	Male	16	0.70	0	0.00	16
90+	Female	1	0.04	0	0.00	1
	Male	5	0.22	0	0.00	5
Total		**2,277**	**99.82**	**4**	**0.18**	**2,281**

Results by Specimen Classification

The HBV classification was determined by serological assessment for all prospective and retrospective specimens (n= 2,537) based on the reactivity patterns of six (6) HBV serological marker results (HBsAg, HBeAg, anti-HBc IgM, anti-HBc Total, anti-HBe, and anti-HBs) as illustrated in the table below. This testing was performed using FDA approved assays following the manufacturers' instructions for use.

Classification	HBsAg	HBeAg	anti-HBc IgM	anti-HBc Total	anti-HBe	anti-HBs
Acute	+	+	+	+	- /+	-
	+	+	- /+	-	-	-
	+	-	-	-	-	-
	+	+	eq	+	-/+	-
	+	-	+	+	-	-
	+	-	eq	+	+	-
Acute (late)	+	-	+	+	+	- /+
Chronic	+	+	+	+	+	+
	+	-	-	+	+	-/+
	+	-	-	+	eq	-
	+	-	-	+	-	-/+
	+	+	+	+	-	+
	+	+	-	+	-	-/+
	+	+	-	+	+	-
Early Recovery	-	-	-	+	-/+	-
	-	-	+	+	-	-/+
	-	-	+	+	+	-/+
Recovery	-	-	-	-/+	+	+
	-	-	-	+	+	eq
Recovered or Immune due to Natural Infection	-	-	-	+	-	+, eq
HBV Vaccine Response	-	-	-	-	-	+
Possible HBV Vaccination Response	-	-	-	-	-	eq
Not Previously Infected	-	-	-	-	-	-
Not Interpretable	-	+	-	+	-	+
	-	-	-	-	+	-
	-	+	-	+	+	-
	-	+	-	-	-	-, eq, +

Notes: The symbols (+) and (-) refer to a final status of reactive and nonreactive, respectively. The symbol eq refers to equivocal.

Due to volume limitations, two (2) samples were classified with four serological markers (HBsAg, anti-HBc IgM, anti-HBc T and anti-HBs) as "susceptible" and "recovered or immune due to natural infection".

Comparison of Results

All samples were tested by the Access anti-HBc IgM assay and anti-HBc IgM comparator assays with a final sample status determined by the Composite Reference Method (CRM) for Access anti-HBc IgM as outlined in table below.

Composite Reference Method (CRM) Status

Reference anti-HBc IgM	Comparator 1	Comparator 2	CRM Status
Reactive	Reactive	Reactive	Reactive
Reactive	Reactive	Nonreactive	Reactive
Reactive	Nonreactive	Reactive	Reactive
Reactive	Nonreactive	Nonreactive	Nonreactive
Equivocal	Reactive	Reactive	Reactive
Equivocal	Reactive	Nonreactive	Indeterminate*
Equivocal	Nonreactive	Reactive	Indeterminate*
Equivocal	Nonreactive	Nonreactive	Nonreactive
Nonreactive	Not tested	Not tested	Nonreactive

*Final indeterminate results were excluded from analysis

Comparison of Results by HBV Classification Category

Access anti-HBc IgM results for each HBV classification were compared with the final interpretation from the CRM anti-HBc IgM assays in the table above. The positive and negative percent agreement (PPA and NPA) between the Access anti-HBc IgM assay results and CRM status from the reference and comparator anti-HBc IgM assays for the prospective population, based on HBV classification, is summarized in the following table.

HBV Classification	Total	PPA		NPA	
		% (n/N)	95% CI	% (n/N)	95% CI
Acute	4	100.0 (2/2)	34.2-100.0	100.0 (2/2)	34.2-100.0
Chronic	20	N/A (0/0)	N/A	95.00 (19/20)	76.4-99.1
Early Recovery	70	25.00 (1/4)**	4.6-69.9	100.0 (66/66)	94.5-100.0
HBV Vaccine Response	769	N/A (0/0)	N/A	100.0 (769/769)	99.5-100.0
Not Previously Infected	1,098	N/A (0/0)	N/A	100.0 (1,098/1,098)	99.7-100.0
Possible HBV Vaccination Response	73	N/A (0/0)	N/A	100.0 (73/73)	95.0-100.0

HBV Classification	Total	PPA		NPA	
		% (n/N)	95% CI	% (n/N)	95% CI
Recovered or Immune due to Natural Infection	121*	N/A (0/0)	N/A	100.0 (121/121)	96.9-100.0
Recovery	121	N/A (0/0)	N/A	100.0 (121/121)	96.9-100.0
Susceptible	1*	N/A (0/0)	N/A	100.0 (1/1)	20.7-100.0
Not Interpretable	4	N/A (0/0)	N/A	100.0 (4/4)	51.0-100.0
Total	**2,281**	**50.00 (3/6)**	**18.8-81.2**	**99.96 (2,274/2,275)**	**99.8-100.0**

*One subject classified with four-marker classification.
** All four early recovery samples produced signals very close to the cutoff values of Access anti-HBc IgM and the reference and comparator anti-HBc IgM assays; two of the discordant samples produced results in concordance with the Access anti-HBc IgM upon re-testing (re-test results not used in performance calculations).

The PPA between the Access anti-HBc IgM assay results and CRM status from the reference and comparator anti-HBc IgM assays for the retrospective population, based on HBV classification, is summarized in the following table.

HBV Classification	Total	PPA	
		% (n/N)	95% CI
Acute	52	98.08 (51/52)	89.9-99.7
Acute (Late)	85	100.0 (85/85)	95.7-100.0
Chronic	5	100.0 (5/5)	56.6-100.0
Early Recovery	52	90.38 (47/52)	79.4-95.8
Not Interpretable	7	42.86 (3/7)	15.8-75.0
Total	**201**	**95.02 (191/201)**	**91.1-97.3**

Comparison of Results for Pregnant Women

One hundred and seventy-one (171) serum samples were prospectively collected from an increased risk and/or signs and symptoms U.S. pregnant population. The NPA between the Access anti-HBc IgM assay results and CRM status from the reference and comparator anti-HBc IgM assays for the pregnant women population by HBV classification is summarized in the following table. This population included 21 pregnant subjects of pediatric age (range 18 - 21 years). There were 71 subjects in the first trimester, 67 subjects in the second trimester and 33 subjects in the third trimester in this study.

HBV Classification	Total	NPA	
		% (n/N)	95% CI
Chronic	1	100.0 (1/1)	20.65-100.0
HBV Vaccine Response	77	100.0 (77/77)	95.25-100.0
Not Previously Infected	82	100.0 (82/82)	95.52-100.0
Possible HBV Vaccination Response	9	100.0 (9/9)	70.09-100.0
Recovery	2	100.0 (2/2)	34.24-100.0
Total	**171**	**100.0 (171/171)**	**97.80-100.0**

Because no anti-HBc IgM positive samples were identified in the pregnant cohort, a spiking study was conducted to evaluate the results when pregnant samples are tested with the Access anti-HBc IgM assay. A total of thirty-one pregnant and control adult serum samples were spiked with a unique native anti-HBc IgM positive sample. The results showed that there were no significant differences between spiked pregnant samples versus control samples, indicating that the Access anti-HBc IgM assay detects anti-HBc IgM comparably between pregnant and non-pregnant adult populations.

Comparison of Results for Pediatric Population

One hundred and fifty-five (155) prospective and eight (8) retrospective specimens were collected with risk factors and/or signs and symptoms from a pediatric (non-pregnant) population (9-21 years). The PPA and NPA between the Access anti-HBc IgM assay results and CRM status from the reference and comparator anti-HBc IgM assays for the prospective pediatric population, based on HBV classification, is summarized in the following table.

HBV Classification	Total	PPA		NPA	
		% (n/N)	95% CI	% (n/N)	95% CI
Early Recovery	1	0.00 (0/1)	0.0-79.3	N/A	N/A
HBV Vaccine Response	53	N/A	N/A	100.0 (53/53)	93.2-100.0
Not Previously Infected	95	N/A	N/A	100.0 (95/95)	96.1-100.0
Possible HBV Vaccination Response	3	N/A	N/A	100.0 (3/3)	43.9-100.0
Recovered or Immune due to Natural Infection	2	N/A	N/A	100.0 (2/2)	34.2-100.0
Not Interpretable	1	N/A	N/A	100.0 (1/1)	20.7-100.0
Total	**155**	**0.00 (0/1)**	**0.0-79.3**	**100.0 (154/154)**	**97.6-100.0**

The PPA between the Access anti-HBc IgM assay results and CRM status from the reference and comparator anti-HBc IgM assays for the retrospective pediatric population, based on HBV classification, is summarized in the following table.

HBV Classification	Total	PPA	
		% (n/N)	95% CI
Acute	2	100.0 (2/2)	34.2-100.0
Acute (Late)	2	100.0 (2/2)	34.2-100.0
Early Recovery	4	100.0 (4/4)	51.0-100.0
Total	**8**	**100.0 (8/8)**	**67.6-100.0**

Because few anti-HBc IgM positives were identified in the pediatric cohort, a spiking study was conducted to evaluate the results when pediatric samples are tested with the Access anti-HBc IgM assay. A total of thirty-one pediatric (age 3–21 years) and control adult serum samples were spiked with a unique native anti-HBc IgM positive sample. The results showed that there were no significant differences in results of spiked pediatric samples versus control samples, indicating the Access anti-HBc IgM assay detects anti-HBc IgM comparably between pediatric and adult populations.

Seroconversion

Commercially available patient seroconversion panels were tested using the Access anti-HBc IgM assay and a reference assay to determine the seroconversion sensitivity of the assay. Equivalent detection with

no difference in bleed number was observed in 3 of the 6 panels and earlier detection by the Access anti-HBc IgM assay was observed in 3 panels. The results are summarized in the table below.

Panel ID	First anti-HBc IgM Positive Result from Initial Draw Date		Access anti-HBc IgM assay vs Reference assay
	Access anti-HBc IgM assay (days)	Reference assay (days)	Difference in bleed number for the first reactive bleed*
HBV-6281	43	43	0
HBV-9092	85	92	-1
HBV-9093	49	49	0
HBV-001	36	43	-1
HBV-002	59	59	0
HBV-004	71	76	-1

*The difference in bleed number is compared to the reference assay. For example, -1 indicates that the reference assay required 1 additional bleed before reactivity was determined compared to the Access anti-HBc IgM assay.

Imprecision

The imprecision of the Access anti-HBc IgM assay was evaluated in a study based on CLSI EP05-A3 guidance. The study design included two test runs per day over a minimum of 20 test days. A ten-member panel of serum (S1-S4) and plasma (P1-P4) patient samples, and the Access anti-HBc IgM QC1 and QC2 were assayed in each run in triplicate. Three lots of Access anti-HBc IgM reagent and two lots of Access anti-HBc IgM calibrator were tested on three DxI 9000 Access Immunoassay Analyzers for the study. The results for all reagents lots combined are summarized in the following table.

Sample	N	Mean (S/CO)	Repeatability (Within-Run)		Between-Run		Between-Day		Between-Lot		Between-Instrument		Within-Laboratory (Overall)	
			SD (S/CO)	%CV	SD (S/CO)	%CV	SD (S/CO)	%CV	SD (S/CO)	%CV	SD (S/CO)	%CV	SD (S/CO)	%CV
QC1	2,160	0.01	0.000	N/A	0.001	N/A	0.001	N/A	0.001	N/A	0.000	N/A	0.002	N/A
QC2	2,160	2.84	0.062	2.2	0.052	1.8	0.039	1.4	0.047	1.7	0.022	0.8	0.104	3.7
S1	2,160	0.01	0.000	N/A	0.000	N/A	0.000	N/A	0.001	N/A	0.000	N/A	0.001	N/A
S2	2,160	0.73	0.018	2.5	0.018	2.5	0.008	1.1	0.018	2.5	0.006	0.9	0.033	4.5
S3	2,160	1.13	0.028	2.5	0.033	2.9	0.015	1.3	0.036	3.1	0.01	0.9	0.059	5.2
S4	2,160	4.45	0.102	2.3	0.097	2.2	0.063	1.4	0.092	2.1	0.034	0.8	0.183	4.1
P1	2,160	0.01	0.001	N/A	0.000	N/A	0.000	N/A	0.001	N/A	0.000	N/A	0.001	N/A
P2	2,160	0.71	0.019	2.7	0.015	2.1	0.014	2	0.018	2.5	0.004	0.5	0.034	4.7
P3	2,160	1.08	0.03	2.8	0.018	1.7	0.031	2.9	0.038	3.6	0.008	0.8	0.061	5.7
P4	2,160	3.84	0.099	2.6	0.054	1.4	0.085	2.2	0.11	2.9	0.047	1.2	0.185	4.8

Note: %CV are not meaningful when S/CO approaches zero. Results are noted as N/A.

Reproducibility

A 5-day reproducibility study was performed on the DxI 9000 Access Immunoassay Analyzer based on CLSI EP05-A3 guidance. A twelve-member panel of patient samples, including serum (S1-S6) and plasma (P1-P6) samples, were assayed at three clinical sites, using one lot of Access anti-HBc IgM reagent kit, on three instruments (one instrument per site). Each panel member was assayed in replicates of three at two separate times per day. The results are summarized in the following table.

			Repeatability (Within-Run)		Between-Run		Between-Day		Between-Site		Reproducibility	
Sample	**N**	**Mean (S/CO)**	**SD (S/CO)**	**%CV**	**SD (S/CO)**	**%CV**	**SD (S/CO)**	**%CV**	**SD (S/CO)**	**%CV**	**SD (S/CO)**	**%CV**
S1	90	0.01	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
S2	90	0.32	0.009	2.7	0.003	1.0	0	0	0.011	3.6	0.015	4.5
S3	90	0.55	0.015	2.7	0.015	2.8	0	0	0.017	3.0	0.027	4.9
S4	90	0.76	0.018	2.4	0.009	1.2	0.003	0.4	0.024	3.2	0.032	4.2
S5	90	1.19	0.030	2.5	0.027	2.2	0	0	0.032	2.6	0.051	4.3
S6	90	4.52	0.108	2.4	0.068	1.5	0.049	1.1	0.087	1.9	0.162	3.6
P1	90	0.01	0	N/A	0	N/A	0	N/A	0	N/A	0	N/A
P2	90	0.33	0.008	2.5	0.007	2.0	0.004	1.1	0.009	2.7	0.014	4.3
P3	90	0.53	0.013	2.6	0.012	2.2	0	0	0.017	3.2	0.025	4.7
P4	90	0.74	0.019	2.6	0.013	1.8	0	0	0.021	2.8	0.031	4.2
P5	90	1.12	0.024	2.1	0.029	2.6	0	0	0.035	3.1	0.052	4.6
P6	90	3.95	0.097	2.5	0.081	2.1	0.042	1.1	0.073	1.8	0.152	3.8

Note: %CV are not meaningful when S/CO approached zero. Results are noted as N/A.

Interfering Substances

The Access anti-HBc IgM assay was evaluated for interference consistent with CLSI document EP07 3rd Edition. Testing was performed using one negative and two reactive samples (one low positive and one moderate positive) with substances at the concentrations indicated. Of the compounds tested, none were found to cause interference using the highest test concentrations indicated in the following table.

Potential Interferent	Highest Concentration Added
Hemoglobin	1,000 mg/dL
Total Protein	15 g/dL
Bilirubin Conjugated	40 mg/dL
Bilirubin Unconjugated	40 mg/dL
Biotin	3,510 ng/mL
Cholesterol	400 mg/dL
Triglycerides (Intralipid)	37 mmol/L (3,854 mg/dL)
Aspirin (acetylsalicylic acid)	167 µmol/L
Salicylic acid	207 µmol/L
Acetaminophen (paracetamol)	1,030 µmol/L
Ibuprofen	1,060 µmol/L
Atorvastatin	1.34 µmol/L
Lisinopril	0.607 µmol/L
Levothyroxine	0.552 µmol/L
Metformin	92.9 µmol/L
Amlodipine	0.183 µmol/L
Omeprazole	24.3 µmol/L
Sertraline	3.03 µmol/L

Cross Reactivity

Cross-reactivity was evaluated by testing samples for potentially cross-reacting conditions. No cross-reactivity was observed. The results are summarized in the following table.

Category	Number of samples tested	Number of Reactive samples	Number of Nonreactive samples
Epstein-Barr virus (EBV IgM or VCA IgG)	10	0	10
Cytomegalovirus (CMV)	10	0	10
Herpes simplex virus (HSV 1/2)	10	0	10
Human immunodeficiency virus (HIV)	10	0	10
Hepatitis A virus (HAV)	10	0	10
Hepatitis C virus (HCV)	10	0	10
Hepatitis E virus (HEV)	10	0	10
Alcoholic liver disease	10	0	10
Primary biliary cirrhosis	10	0	10
Flavivirus (Zika)	10	0	10
Flavivirus (Dengue)	10	0	10
Flavivirus (West Nile)	10	0	10
Influenza post-vaccination	10	0	10
HAMA	10	0	10
Anti-nuclear antibody (ANA)	10	0	10
Rheumatoid Factor	10	0	10
Systemic lupus erythematosus (SLE)	10	0	10

Category	Number of samples tested	Number of Reactive samples	Number of Nonreactive samples
Multiple myeloma	10	0	10
Pregnancy multipara	10	0	10
Pregnancy first trimester	10	0	10
Pregnancy second trimester	10	0	10
Pregnancy third trimester	10	0	10
Syphilis	10	0	10
Toxoplasmosis	10	0	10
Transplant recipient	10	0	10
Dialysis patients	10	0	10
Hemophiliac / Clotting factor deficiency	10	0	10
anti-E. coli (including E. coli urinary infection)	10	0	10
Rubella	10	0	10
Varicella Zoster Virus (VZV)	10	0	10
Measles	10	0	10
Mumps	10	0	10

Matrix Equivalence

A matrix equivalence study was performed using a protocol based on CLSI EP09c, 3rd Edition. Matched donor sets consisting of nine specimen types each were used for the evaluation. Serum (without gel) served as the reference sample type. The results from the study demonstrate the equivalency between the reference sample type, serum (without gel) and the eight serum/plasma matrices evaluated. The results support use of human serum (without gel), serum separator tubes, or plasma (lithium heparin, lithium heparin with gel, dipotassium (K_2) EDTA, tripotassium (K_3) EDTA, sodium citrate, acid citrate dextrose (ACD), and citrate phosphate dextrose (CPD)) sample types.

Sample Stability

Sample Handling Stability

Sample handling and freeze/thaw stability was established for the Access anti-HBc IgM assay on the DxI 9000 Access Immunoassay Analyzer.

The study verified the following sample handling claims

- Up to 72 hours when stored at 20-25°C
- Up to 7 days when stored at 2-8°C
- Up to 30 days, thaw samples no more than 5 times when stored at ≤ -20°C or colder.

Reagent Stability Studies

Access anti-HBc IgM reagents shelf-life dating was established based on real time stability (RTS) studies for the Access anti-HBc IgM Reagent Pack, Access anti-HBc IgM Calibrator, and Access anti-HBc IgM QC. The studies were performed to determine the shelf-life at the recommended storage condition (2-10°C), using a protocol based on CLSI EP25-ED2 guideline.

In-use studies were also performed using a protocol based on CLSI EP25-ED2 guideline. Each study included evaluation stability following simulated winter and summer transport stresses on the reagent packs, Calibrator, and QC.

Intra-Assay Carryover

Testing was conducted to assess the sample-to-sample and sample-to-reagent pack carryover on the Access anti-HBc IgM assay. Test procedures were based on CSI EP10-A3 AMD guideline. No intra-assay carryover was observed with the Access anti-HBc IgM assay tested on the DxI 9000 Access Immunoassay Analyzer.

Hook Effect

A hook study was performed to evaluate if high levels of analyte in patient specimens result in a hook effect that changes the reported results of the Access anti-HBc IgM assay on the DxI 9000 Access Immunoassay Analyzer. The study was performed using a ten-dilution series originating from three anti-HBc IgM positive samples. No hook effect (no change in result interpretation) was observed for this assay.

Substantial Equivalence Comparison Conclusion

The results from the nonclinical and clinical studies demonstrate that the Access anti-HBc IgM assay is as safe, as effective, and performs as well as the predicate device.