September 09, 2025

Beckman Coulter Inc.
Fatima Pacheco
Staff Regulatory Affairs
1000 Hazeltine Drive
Chaska, Minnesota 55318

Re: K243846
Trade/Device Name: Access anti-HAV
Regulation Number: 21 CFR 866.3310
Regulation Name: Hepatitis A Virus (HAV) Serological Assays
Regulatory Class: Class II
Product Code: LOL, QCH
Dated: August 11, 2025
Received: August 12, 2025

Dear Fatima Pacheco:

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 System (QS) regulation (21 CFR Part 820), which includes, but is not limited to, 21 CFR 820.30, Design controls; 21 CFR 820.90, Nonconforming product; and 21 CFR 820.100, Corrective and preventive action. Please note that regardless of whether a change requires premarket review, the QS regulation requires device manufacturers to review and approve changes to device design and production (21 CFR 820.30 and 21 CFR 820.70) and document changes and approvals in the device master record (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 systems (QS) regulation (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,

Bhawna Poonia -S

for

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)*
K243846

Device Name
Access anti-HAV

Indications for Use *(Describe)*
The Access anti-HAV assay is a paramagnetic particle, chemiluminescent immunoassay for the in vitro qualitative detection of total antibodies (anti-HAV IgG and IgM) to hepatitis A virus (HAV) in human pediatric (2 through 21 years) and adult serum and serum separator tubes or plasma [lithium heparin, lithium heparin separator tubes, sodium citrate, acid-citrate-dextrose (ACD), and citrate phosphate-dextrose (CPD)] using the DxI 9000 Access Immunoassay Analyzer. The Access anti-HAV assay is indicated as an aid in the diagnosis of current or past HAV infection in persons with risk factors and/or signs or symptoms of hepatitis A, when used in conjunction with other serological and clinical information. The assay may also be used in the identification of HAV susceptible individuals and to determine the presence of an antibody response to HAV in vaccine recipients.
This assay is not intended for use for screening donors of blood or blood products or human cells, tissues, or cellular or tissue-based products (HCT/Ps).

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: K243846 **Date Prepared:** September 08, 2025

Submitter Name and Address:
Beckman Coulter, Inc
1000 Lake Hazeltine Drive
Chaska, MN 55318

Primary Contact:
Fatima Pacheco
Staff Regulatory Affairs
Email: fpacheco@beckman.com

Device Trade Name: Access anti-HAV
Common Name: Hepatitis A virus (HAV) serological assays
Classification Regulation: 21 CFR 866.3310
Class: 2
Classification Product Code: LOL

Predicate Device
Device Name: Elecsys Anti-HAV II
510(k) Numbers: K190428

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

Device Description

The Access anti-HAV assay requires Access anti-HAV (reagent packs), Access anti-HAV Calibrator (C1), and Access anti-HAV QC (QC1-QC2). The Access anti-HAV assay is a two-step competitive immunoassay. During incubation, the anti-HAV antibodies present in the patient sample bind to the coated antigen. After incubation in a reaction vessel, materials bound to the solid phase are held in a magnetic field while unbound materials are washed away. A monoclonal anti-HAV antibody alkaline phosphatase conjugate is added to the reaction vessel and the conjugate competes with the bound patient antibodies to affix the HAV antigen coated on the particles. After a second incubation and wash step, the chemiluminescent substrate is 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. The Qualitative assessment is automatically determined from a stored calibration.

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

The Access anti-HAV 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-HAV Calibrator kit contains one vial, and the Access anti-HAV QC kit contains three vials, each of anti-HAV positive control and anti-HAV negative control. Other items needed to run the assay include Lumi-Phos PRO (chemiluminescent substrate) and UniCel DxI Wash Buffer II.

Intended Use

The Access anti-HAV assay is a paramagnetic particle, chemiluminescent immunoassay for the *in vitro* qualitative detection of total antibodies (anti-HAV IgG and IgM) to hepatitis A virus (HAV) in human pediatric (2 through 21 years) and adult serum and serum separator tubes or plasma [lithium heparin, lithium heparin separator tubes, sodium citrate, acid-citrate-dextrose (ACD), and citrate phosphate-dextrose (CPD)] using the DxI 9000 Access Immunoassay Analyzer.

The Access anti-HAV assay is indicated as an aid in the diagnosis of current or past HAV infection in persons with risk factors and/or signs or symptoms of hepatitis A, when used in conjunction with other serological and clinical information. The assay may also be used in the identification of HAV susceptible individuals and to determine the presence of an antibody response to HAV in vaccine recipients.

This assay is not intended for use for screening donors of blood or blood products or human cells, tissues, or cellular or tissue-based products (HCT/Ps).

Substantial Equivalence Information

The Access anti-HAV and Elecsys Anti-HAV II 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-HAV	Primary Predicate (K190428) Elecsys Anti-HAV II	Comment
Reagent Intended Use and Clinical Indications	The Access anti-HAV assay is a paramagnetic particle, chemiluminescent immunoassay for the *in vitro* qualitative detection of total antibodies (anti-HAV IgG and IgM) to hepatitis A virus (HAV) in human pediatric (2 through 21 years) and adult serum and serum separator tubes or plasma [lithium heparin, lithium heparin separator tubes, sodium citrate, acid-citrate-dextrose (ACD), and citrate phosphate-dextrose (CPD)] using the DxI 9000 Access Immunoassay Analyzer. The Access anti-HAV assay is indicated as an aid in the diagnosis of current or past HAV infection in persons with risk factors and/or signs or symptoms of hepatitis A, when used in conjunction with other serological and clinical information. The assay may also be used in the identification of HAV susceptible individuals and to determine the presence of an antibody response to HAV in vaccine recipients. This assay is not intended for use for screening donors of blood or blood products or human cells, tissues, or cellular or tissue-based products (HCT/Ps).	Immunoassay for the *in vitro* qualitative detection of total antibodies of total antibodies (IgG and IgM) to hepatitis A virus (HAV) in human pediatric (ages 2 through 21 years) and adult serum and plasma (Li-heparin, potassium EDTA, Na-citrate, Na-heparin). The assay, in conjunction with other serological and clinical information, is indicated as an aid in the clinical laboratory diagnosis of acute or past hepatitis A virus infection in persons with signs and symptoms of hepatitis and in persons at increased risk for hepatitis A infection, or as an aid to identify HAV susceptible individuals and to determine the presence of an antibody response to HAV in vaccine recipients. The electrochemical immunoassay "ECLIA" is intended for use on the cobas e immunoassay analyzers. Assay performance characteristics have not been established for immunocompromised or immunosuppressed patients. This assay has not been FDA cleared or approved for the screening of blood or plasma donors.	Similar
Calibrator and QC Intended Use	Calibrator: The Access anti-HAV Calibrator is intended to calibrate the Access anti-HAV assay for the *in vitro* qualitative detection of antibodies to hepatitis A virus. The Access anti-HAV Calibrator is for use on the DxI 9000 Access Immunoassay Analyzer. QC: The Access anti-HAV QC is intended to monitor system performance of the Access anti-HAV assay. The Access anti-HAV QC is for use on the DxI 9000 Access Immunoassay Analyzer.	Calibrator: Not available. QC: PreciControl Anti-HAV II are used for monitoring the performance of the Elecsys Anti-HAV II immunoassay.	Similar
Operating Principle	Two-step competitive	Competition principle	Similar
Analyte Measured	anti-HAV	Same	Same
Assay Type	Qualitative	Same	Similar

Features / Characteristics	Candidate Device Access anti-HAV	Primary Predicate (K190428) Elecsys Anti-HAV II	Comment
Detection Method	Automated, Chemiluminescence	Automated, Electrochemiluminescence	Same
Reagent, Calibrator, and QC format	Liquid, ready to use	Same	Same
Calibrator(s)	1-level (positive) C1	2 levels AHAV 2 Cal1 (negative) AHAV 2 Cal2 (positive) (packed in kit)	Different
Control(s)	2-levels 1 Negative, 1 Positive	2-levels 1 Negative, 1 Positive	Same
Sample Type	Serum and Plasma	Same	Same
Compatible Anticoagulants	Serum, Serum separator tube, Plasma [Lithium Heparin, Lithium Heparin separator tube Sodium Citrate, Acid Citrate Dextrose (ACD) Citrate Phosphate Dextrose (CPD)]	Human serum, plasma (Li-Heparin, potassium EDTA, Na-Citrate, Na-Heparin)	Similar
Sample Volume	55 µL	20 µL	Different
Instrumentation	DxI 9000 Access Immunoassay Analyzer	cobas e 601	Different
Final Test Result Reporting	≥ 1.00 S/CO Non-reactive < 1.00 S/CO Reactive	COI > 1.0 Non-reactive COI ≤ 1.0 Reactive	Similar
Traceability/ Standardization	Second International Standard for Anti-Hepatitis A, Immunoglobulin, Human, NIBSC code: 97/646	Second International Standard for Anti-Hepatitis A, Immunoglobulin, Human, NIBSC code: 97/646	Same
Time to Result	41 minutes	18 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 On-board Stability	21 days	8 weeks	Different
Calibration Frequency	28 days	8 weeks	Different

Standard/Guidance Document Referenced (if applicable):

1. Class II Special Controls Guidance Document: Hepatitis A Virus Serological Assays, Feb. 9, 2006
2. CLSI EP05-A3, *Evaluation of Precision of Quantitative Measurement Procedures*; 2014
3. CLSI EP07-A3, *Interference Testing in Clinical Chemistry*; 2018
4. CLSI EP09c 3rd Edition*, Measurement Procedure Comparison and Bias Estimation Using Patient Samples*, 2018
5. CSI EP10-A3 AMD, *Preliminary Evaluation of Qualitative Clinical Laboratory Measured Procedures*; 2014
6. CLSI EP25-ED2, *Evaluation of Stability of In Vitro Medical Laboratory Test Reagents*; 2023
7. CLSI GP44-A4, *Procedures for Handling and Processing of Blood Specimens for Common Laboratory Tests*; 2010

Summary of Studies

Clinical Performance

Expected Results

The prospective study population was 61.05% White/Caucasian, 36.97% Black or African American, 0.53% Asian, 0.39% American Indian or Alaska Native, and 1.05% other. 45.79% of the prospective study population was of Hispanic/Latino ethnicity. The majority of patients were female (50.53% female, 49.34% male, and 0.13% Not Provided). Patients in the prospective population were from the following states: Arizona (8, 1.05%), California (103,13.55%), Florida (205, 26.97%), Idaho (72, 9.47%), North Carolina (14, 1.84%), Texas (296, 38.95%), and Virginia (62, 8.16%). Each sample was tested at one of three clinical sites located in Eden Prairie, MN; Minneapolis, MN; or Louisville, KY; using the Access anti-HAV assay and commercially available anti-HAV assays.

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

Access anti-HAV							
Age Group (years)	**Sex**	**Reactive**		**Nonreactive**		**Total**	
		N	**%**	**N**	**%**	**N**	**%**
2-12	Female	21	2.76	0	0.00	21	2.76
	Male	16	2.11	2	0.26	18	2.37
13-18	Female	23	3.03	3	0.39	26	3.42
	Male	24	3.16	11	1.45	35	4.61
19-21	Female	5	0.66	0	0.00	5	0.66
	Male	2	0.26	1	0.13	3	0.39
22-29	Female	40	5.26	15	1.97	55	7.24
	Male	24	3.16	10	1.32	34	4.47
30-39	Female	44	5.79	29	3.82	73	9.61
	Male	57	7.50	21	2.76	78	10.26

Access anti-HAV							
Age Group (years)	**Sex**	**Reactive**		**Nonreactive**		**Total**	
		N	**%**	**N**	**%**	**N**	**%**
40-49	Female	36	4.74	51	6.71	87	11.45
	Male	56	7.37	28	3.68	84	11.05
50-59	Female	34	4.47	37	4.87	71	9.34
	Male	31	4.08	37	4.87	68	8.95
	Not Provided	0	0.00	1	0.13	1	0.13
60-69	Female	20	2.63	15	1.97	35	4.61
	Male	28	3.68	17	2.24	45	5.92
70-79	Female	8	1.05	2	0.26	10	1.32
	Male	7	0.92	3	0.39	10	1.32
80-89	Female	0	0.00	1	0.13	1	0.13
Total		**476**	**62.63**	**284**	**37.37**	**760**	**100.00**

Method Comparison

A multi-center study was conducted using the DxI 9000 Access Immunoassay Analyzer to evaluate the ability of the Access anti-HAV assay to detect the presence of IgG and IgM antibodies to HAV in serum specimens from the intended use population. The study population included 860 specimens, consisting of 760 collected prospectively and 100 retrospectively. In the prospective cohort, 265 were from patients classified with signs and symptoms of hepatitis A and 495 were from patients classified as increased risk for hepatitis A due to lifestyle, behavior, occupation, or known exposure events. In addition, 100 retrospective specimens were collected from the acute HAV population (known anti-HAV IgM positive). The table below summarizes the number of specimens in each population.

Cohort	Sub-category	Adult	Pediatric
Prospective	Signs & Symptoms of HAV (n=265)	264	1
	Increased risk of HAV Infection (n=495)	388	107
Retrospective	Acute HAV Infection (n=100)	90	10
Total		**860**	

All samples were tested using the Access anti-HAV assay and anti-HAV comparator assays with a final sample status determined by a Composite Reference Method (CRM) for Access anti-HAV as reactive or nonreactive

Comparison of Results for Adult Population

A comparison of the results between the Access anti-HAV assay and the CRM status from the comparator anti-HAV assays is summarized in the following table.

Adult Cohort	anti-HAV CRM				Total
	Reactive		Nonreactive		
	Access anti-HAV				
	Reactive	Nonreactive	Reactive	Nonreactive	
Signs & Symptoms HAV	163	5	1	95	264
Increased risk of HAV Infection	219	2	2	165	388
Acute HAV Infection	90	0	0	0	90
Total	**472**	**7**	**3**	**260**	**742**

Positive percent agreement and negative percent agreement between the Access anti-HAV assay and the CRM status in the adult population is summarized below.

Adult Cohort	PPA		NPA	
	% (n/N)	95% CI	% (n/N)	95% CI
Signs & Symptoms HAV	97.0 (163/168)	93.2-98.7	99.0 (95/96)	94.3-99.8
Increased Risk of HAV Infection	99.1 (219/221)	96.8-99.8	98.8 (165/167)	95.7-99.7
Acute HAV Infection	100.0 (90/90)	95.9-100.0	0 (0/0)	N/A
Total	**98.5 (472/479)**	**97.0-99.3**	**98.9 (260/263)**	**96.7-99.6**

Comparison of Results for Pediatric Population

A comparison of the results between the Access anti-HAV assay and the CRM status from the comparator anti-HAV assays in both the prospective and retrospective pediatric population is summarized in the following table.

Pediatric Cohort	anti-HAV CRM				Total
	Reactive		Nonreactive		
	Access anti-HAV				
	Reactive	Nonreactive	Reactive	Nonreactive	
Prospective	91	0	0	17	**108**
Retrospective	10	0	0	0	**10**
Total	**101**	**0**	**0**	**17**	**118**

Positive percent agreement and negative percent agreement between the Access anti-HAV assay and the CRM in pediatric population is summarized below.

Pediatric Cohort	PPA		NPA	
	% (n/N)	95% CI	% (n/N)	95% CI
Prospective	100.0 (91/91)	95.9-100.0	100.0 (17/17)	81.6-100.0
Retrospective	100.0 (10/10)	72.2-100.0	0 (0/0)	N/A
Total	**100.0 (101/101)**	**96.3-100.0**	**100.0 (17/17)**	**81.6-100.0**

Vaccine Study

The HAV antibody response to vaccination was evaluated using the Access anti-HAV assay with three different vaccines currently licensed in the United States: TWINRIX® (Hepatitis A, Inactivated and Hepatitis B (recombinant), HAVRIX® (Hepatitis A, Inactivated) both manufactured by GlaxoSmithKline Biologicals and VAQTA® (Hepatitis A, Inactivated) manufactured by Merck & Co., Inc. A first sample was collected prior to the administration of the vaccination series. A second sample was collected four (4) to ten (10) weeks after the complete vaccination series was administered according to vaccine dosing instructions. The first sample was tested for anti-HAV using an FDA-cleared test and any patients testing positive prior to vaccination were excluded from further participation in the study. The prospective vaccine study population was 88.14% White and 11.86% Black or African American. 91.53% were of Hispanic ethnicity. The majority of patients were female (59.32% female, 40.68% male).

For TWINRIX® vaccine, 21 matched sets of pre- and post-vaccine samples were available.
For HAVRIX® vaccine, 22 matched sets of pre- and post-vaccine samples were available.
For VAQTA® vaccine, 16 matched sets of pre- and post-vaccine samples were available.
The data are shown in the table below.

Comparison of Results in HAV Vaccinated Population: Access anti-HAV assay versus CRM

Vaccine		anti-HAV CRM				Total
		Reactive		Nonreactive		
		Access anti-HAV				
		Reactive	Nonreactive	Reactive	Nonreactive	
HAVRIX	Pre-vaccination	0	0	0	22	22
	Post-vaccination	22	0	0	0	22
TWINRIX	Pre-vaccination	0	0	0	21	21
	Post-vaccination	21	0	0	0	21
VAQTA	Pre-vaccination	0	0	0	16	16
	Post-vaccination	16	0	0	0	16

Seroconversion

Four commercially available patient seroconversion panels were tested using the Access anti-HAV assay and a reference assay to determine the seroconversion sensitivity. The performance of the Access anti-HAV assay on the seroconversion panels closely matched the performance of the reference assay. The results are summarized in the table below.

Panel ID	First anti-HAV positive result from initial draw date		Access anti-HAV vs. Reference assay
	Access anti-HAV (days)	Reference assay (days)	Difference in bleed number from the first reactive bleed
0615-0026	10	10	0
HAV002SCP	109	109	0
HAV003SCP	56	56	0
SCP-HAV-002	5	5	0

Imprecision

The imprecision of the Access anti-HAV assay was evaluated in a study based on CLSI EP05-A3 guideline. The study design included two test runs per day over 20 test days. A ten-member panel of plasma (P1-P4) and serum (S1-S4) patient samples and the two Access anti-HAV QC were assayed in each run (in triplicate). Two lots of Access anti-HAV reagent and calibrator were tested on one DxI 9000 Access Immunoassay Analyzer. The results are summarized in the following table.

			Repeatability (Within-Run)		Between-Run		Between-Day		Within-Laboratory		Calibrator lot-to-lot		Reagent lot-to-lot		Overall	
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	SD (S/CO)	%CV	SD (S/CO)	%CV
QC1	480	1.87	0.04	2.3	0.08	4.0	0.04	2.2	0.10	5.1	0.08	4.4	0.03	1.6	0.13	7.0
QC2	480	0.37	0.01	2.5	0.02	4.7	0.01	2.0	0.02	5.7	0.02	4.4	0.00	0.0	0.03	7.2
P1	480	1.73	0.04	2.4	0.07	4.2	0.03	1.6	0.09	5.1	0.08	4.4	0.04	2.2	0.12	7.1
P2	480	0.67	0.01	2.1	0.02	3.0	0.02	2.8	0.03	4.7	0.03	4.4	0.02	2.3	0.05	6.9
P3	480	0.01	0.00	9.1	0.00	5.5	0.00	0.0	0.00	10.7	0.00	4.4	0.00	12.7	0.00	17.2
P4	480	1.29	0.03	2.3	0.04	2.8	0.03	2.6	0.06	4.5	0.06	4.4	0.05	3.8	0.10	7.4
S1	480	0.85	0.02	2.3	0.03	3.7	0.02	2.5	0.04	5.0	0.04	4.4	0.01	1.2	0.06	6.8
S2	480	1.19	0.03	2.4	0.05	4.4	0.02	1.8	0.06	5.3	0.05	4.4	0.03	2.9	0.09	7.5
S3	480	0.21	0.01	3.2	0.01	4.5	0.00	1.2	0.01	5.6	0.01	4.4	0.00	1.7	0.02	7.3
S4	480	1.55	0.04	2.3	0.06	3.9	0.03	2.2	0.08	5.0	0.07	4.4	0.05	3.4	0.12	7.5

Reproducibility

A 5-day reproducibility study was performed on the DxI 9000 Access Immunoassay analyzer based on CLSI EP05-A3 guideline. An eight-member panel of patient samples, including serum and plasma samples, were assayed at three clinical sites, using one lot of Access anti-HAV reagent, 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.

			Between-Site		Between-Day		Between-Run		Repeatability (Within-Run)		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	1.51	0.08	5.3	0.01	0.6	0.00	0.0	0.07	4.9	0.11	7.2
S2	90	1.05	0.05	4.7	0.03	2.7	0.01	0.7	0.03	3.0	0.07	6.2
S3	90	0.44	0.02	3.6	0.01	1.6	0.01	1.6	0.02	3.6	0.02	5.6
S4	90	0.15	0.01	7.3	0.00	1.6	0.00	1.5	0.01	5.8	0.01	9.6
P1	90	1.56	0.09	5.9	0.00	0.0	0.04	2.3	0.07	4.7	0.12	7.8
P2	90	1.10	0.06	5.8	0.01	1.0	0.01	1.1	0.04	4.1	0.08	7.2
P3	90	0.66	0.03	4.0	0.01	1.2	0.01	1.3	0.02	3.1	0.04	5.4
P4	90	0.00	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A

Note: %CV are not meaningful when S/CO is 0.00. Results are noted as N/A.

Interfering Substances

The Access anti-HAV assay was evaluated for interference consistent with CLSI EP07 ED3 guideline. Testing was performed using two negative samples (one negative and one high negative) and one reactive (one low positive) sample 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	43 mg/dL
Bilirubin unconjugated	43 mg/dL
Triglycerides (Intralipid)	3,854 mg/dL (37 mmol/L)
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

The Access anti-HAV assay does not utilize biotin-streptavidin particle chemistry; as a result, it is not susceptible to biotin interference.

Cross Reactivity
Cross-reactivity was evaluated by testing samples for potentially cross-reacting conditions. No cross-reactivity was observed, except for in the Herpes Simplex Virus-1 category where one of twelve samples tested was found reactive. The results are summarized in the following table.

Category	Number of samples tested	Number of Reactive samples	Number of Nonreactive samples
Epstein-Barr virus (EBNA IgG or VCA IgG)	10	0	10
Cytomegalovirus (CMV)	10	0	10
Herpes simplex Virus-1 (HSV-1)	12	1	11
Herpes simplex Virus-2 (HSV-2)	10	0	10
Human immunodeficiency virus (HIV)	15	0	15
Hepatitis B virus (HBV)	10	0	10
Hepatitis C virus (HCV)	10	0	10
Varicella Zoster Virus (VZV)	10	0	10
Alcoholic liver disease	10	0	10
Primary biliary cirrhosis	10	0	10
Rubella	12	0	12
Measles	11	0	11
Mumps	10	0	10
Human anti-mouse antibodies (HAMA)	11	0	11
Anti-nuclear antibody (ANA)	10	0	10
Rheumatoid Factor (RF)	13	0	13
Systemic lupus erythematosus (SLE)	13	0	13
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
Toxoplasmosis	12	0	12

Analytical Sensitivity
The analytical sensitivity of the assay was evaluated using serial dilutions of a standard preparation from the WHO 2nd International Standard NIBSC code: 97/646. The dilutions were tested on the DxI 9000 Access Immunoassay Analyzer for seven days, two runs per day using three different lots of calibrator and three lots of reagent. The analytical sensitivity obtained was 18 mIU/mL.

Matrix Equivalence
A matrix equivalence study was performed using a protocol based on CLSI EP09c, 3rd Edition. Matched donor sets consisting of seven specimen types each were used for the evaluation. Serum (without gel) served as the reference sample type. The Access anti-HAV assay detects HAV antibodies in the following matrices.

Sample Type
Serum without Gel (Reference)
Serum with Gel
Plasma Lithium Heparin without Gel
Plasma Lithium Heparin with Gel
Plasma Sodium Citrate
Plasma ACD (Acid Citrate Dextrose)
Plasma CPD (Citrate Phosphate Dextrose)

The specifications were met for all anti-coagulants, demonstrating that serum with and without gel, plasma (lithium heparin with and without gel, sodium citrate, ACD, and CPD) are acceptable sample types for use with Access anti-HAV assay.

Sample Stability

Sample Handling Stability

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

The study verified the following sample handling claims

- 72 hours at 20-25°C
- 7 days at 2-8°C
- If testing will not be completed within the timelines stated above, samples should be frozen at -20°C or colder. Do not thaw more than 5 times.

All pre-defined acceptance criteria were met.

Fresh vs Frozen Sample Stability

The equivalency between fresh samples (never frozen), and frozen samples after storage at ≤ -18°C for at least 16 hours with the Access anti-HAV assay on the DxI 9000 Access Immunoassay Analyzer. The study was based on CLSI GP44-A4 guideline.

Passing-Bablok regression analysis was applied to evaluate the frozen sample results against the fresh sample results for all samples combined and for the reactive samples separately.

Fresh and frozen samples demonstrated equivalency using the Access anti-HAV assay.

Fresh vs Frozen Samples Regression Analysis Results

n	All Samples Combined Slope Result	n	Reactive Samples Slope Result
56	1.00	46	0.99

Reagent Stability

Access anti-HAV reagents shelf-life dating was established based on real time stability (RTS) studies for the Access anti-HAV reagent pack, Access anti-HAV Calibrator, and Access anti-HAV 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-HAV assay. Test procedures were based on CSI EP10-A3 AMD guideline. No intra-assay carryover was observed with the Access anti-HAV assay tested on the DxI 9000 Access Immunoassay Analyzer.

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

Substantial Equivalence Comparison Conclusion
The results of the non-clinical analytical and clinical performance studies demonstrate that the Beckman Coulter Access anti-HAV assay for use on the DxI 9000 Access Immunoassay Analyzer is as safe, as effective, and performs as well as the predicate device.