WHO Prequalification of In Vitro Diagnostics
PUBLIC REPORT

Product: Alinity m HCV
WHO reference number: PQDx 0461-027-00

Alinity m HCV with product codes 08N50-090, 08N50-080 and 08N50-070, manufactured by **Abbott Molecular Inc**, **CE-Mark regulatory version**, was accepted for the WHO list of prequalified in vitro diagnostics and was listed on 6 March 2020.

Summary of WHO prequalification assessment for Alinity m HCV

	Date	Outcome
Prequalification listing	6 March 2020	listed
Dossier review	N/A	N/A
Site inspection(s) of the quality management system	12 February 2020	MR
Product performance evaluation	Quarter (Q) 4 2019- Q1 2020	MR

MR: Meet Requirements N/A: Not Applicable

Report amendments and product changes

This public report has since been amended. Amendments may have arisen because of changes to the prequalified product for which the WHO has been notified and has undertaken a review. Amendments to the report are summarized in the following table, and details of each amendment are provided below.

Public report amendment	Summary of amendment	Date of report amendment
2.0	1. The access hole size of the Alinity m Retention bar is being reduced, and the assay IFU has been updated to require the usage of this retention bar with blood collection tubes with gel separators 2. Updates to reflect the new legal entity name 3. Updated the new legal entity name and additional label elements in preparation for IVDR. 4. Extension of shelf-life of Alinity m HCV reagents to 24 months.	15 May 2023

Intended use:

According to the claim of intended use by Abbott Molecular Inc, "*The Alinity m HCV assay is an in vitro reverse transcription-polymerase chain reaction (RT-PCR) assay for use with the automated Alinity m System (List No. 08N53-002) to detect and quantitate hepatitis C virus (HCV) RNA in human serum or plasma. The Alinity m HCV assay is intended for use in the clinical management of HCV-infected patients undergoing antiviral therapy in conjunction with clinical presentation and other laboratory markers. The Alinity m HCV assay may also be used as a diagnostic test to confirm active HCV infection. The results from the Alinity m HCV assay must be interpreted within the context of all relevant clinical and laboratory findings. This assay is not intended to be used in screening blood, blood products, tissue, or organ donors for HCV.*

The Alinity m HCV AMP Kit is intended to be used by laboratorians that will perform the testing. Sites of use for the Alinity m HCV AMP Kit include:

- *Healthcare facilities that provide patient care*
- *Reference diagnostic laboratories*
- *Private diagnostic laboratories*
- *Hospital based diagnostic laboratories*
- *Public health sector".*

Assay Description:

According to the claim of assay description from Abbott Molecular Inc, "*The Alinity m HCV assay utilizes real-time reverse transcription polymerase chain reaction (RT-PCR) to amplify and detect HCV RNA genomic sequences that have been extracted from human plasma or serum specimens. The steps of the Alinity m HCV assay consist of sample preparation, RT-PCR assembly, amplification/detection, and result calculation and reporting. All steps of the Alinity m HCV assay procedure are executed automatically by the Alinity m System. Manual dilutions may be performed for low-volume specimens to meet the minimum volume requirement, and for high-titer specimens above the upper limit of quantitation (ULOQ). The Alinity m System is designed to be a random access analyzer that can perform the Alinity m HCV assay in parallel with other Alinity m assays on the same instrument. HCV RNA from human plasma or serum is extracted using the Alinity m Sample Prep Kit 2, Alinity m Lysis Solution, and Alinity m Diluent Solution. The Alinity m System employs magnetic microparticle technology to facilitate nucleic acid capture, wash and elution. The resulting purified RNA is then combined with liquid unit-dose Alinity m HCV activation reagent and lyophilized unit-dose Alinity m HCV amplification/detection reagents and transferred into a reaction vessel. Alinity m Vapor Barrier Solution is then added to the reaction vessel which is then transferred to an amplification/detection unit for reverse transcription, PCR amplification, and real-time fluorescence detection of HCV. At the beginning of the Alinity m HCV sample preparation process, a lyophilized unit-dose IC on the AMP Tray is rehydrated by the Alinity m System and delivered into each sample preparation reaction. The IC is then processed through the entire sample preparation and RT-PCR procedure along with the*

specimens, calibrators and controls to demonstrate proper sample processing and validity. The Alinity m HCV amplification/detection reagents consist of enzymes, primers, probes and activation reagents that enable reverse transcription, polymerization, and detection. The Alinity m HCV amplification/detection reagent also contains Uracil-DNA Glycosylase (UDG) as a contamination control for amplicons containing uracil, which may be present in molecular laboratories. An HCV calibration curve is required for determination of HCV RNA concentration. Two levels of calibrators are processed through sample preparation and RT-PCR to generate the calibration curve. The concentration of HCV RNA in specimens and controls is then calculated from the stored calibration curve. Assay controls are tested at or above an established minimum frequency to help ensure that instrument and reagent performance remains satisfactory. During each control event, a negative control, a low-positive control, and a high-positive control are processed through sample preparation and RT-PCR procedures that are identical to those used for specimens. The possibility of nucleic acid contamination on the Alinity m System is minimized because:

• Aerosol barrier pipette tips are used for all pipetting. The pipette tips are discarded after use.

• PCR amplification and detection is carried out automatically in a sealed reaction vessel.

• Disposal of the reaction vessel is performed automatically by the Alinity m System. For additional information on system and assay technology, refer to the Alinity m System Operations Manual, Section 3."

Test kit contents (provided):

Component	Number of tests and product codes
Alinity amplification kit Alinity m HCV AMP TRAY 1 Alinity m HCV AMP TRAY 2	192 Tests, product code 08N50-090 4 trays / 48 tests each 4 trays / 48 tests each

Materials required but not provided:

Alinity m HCV Calibrator kit	**Product code 08N50-070**
Alinity m HCV CAL A	(List No. 8N50A) 4 tubes x 1.95 mL
Alinity m HCV CAL B	(List No. 8N50B) 4 tubes x 1.95 mL
Alinity m HCV CNRL kit	**Product code 08N50-080 and description**
Alinity m HCV Negative Control	(List No. 8N50Z) 12 tubes x 1.15 mL
Alinity m HCV Low Positive Control	(List No. 8N50W) 12 tubes x 0.75 mL
Alinity m HCV High Positive Control	(List No. 8N50X) 12 tubes x 0.75 mL
Alinity m Sample Prep Kit 2	List No. 09N12-001
Alinity m Lysis Solution	List No. 09N20-001
Alinity m Diluent Solution	List No. 09N20-003
Alinity m Vapor Barrier Solution	List No. 09N20-004

Alinity m Specimen Dilution Kit I[a]	List No. 09N50-001
Alinity m HCV Application Specification File	List No. 08N50-0XX
Vortex mixer	General lab equipment
Centrifuge	Capable of 2000g
Alinity m LRV Tube[a]	List No. 09N49-001
Calibrated pipettes	capable of delivering 10 to 1000 µL[a]
Aerosol barrier pipette tips for 10 to 1000 µL pipettes[a]	General lab consumable
Plate adapter for 384 well plates	Corning Catalog No. 3820 or Eppendorf Catalog No. 022638955
Centrifuge with swing plate	rotor capable of accommodating the plate adapter and capable of ≥ 100g
Alinity m Transport Tube Pierceable Capped	List No. 09N49-010
Alinity m Transport Tube	List No. 09N49-011
Alinity m Pierceable Cap	List No. 09N49-012
Alinity m Aliquot Tube	List No. 09N49-013
Equipment	
Automated Alinity m System	List No. 08N53-002

[a] These items are used in the Specimen Dilution Procedure if dilution is required.

For information on materials required for the operation of the instrument, refer to the Alinity m System Operations Manual, Section 1.

Storage:

- Alinity m HCV AMP kit (08N50-090), Alinity m HCV CAL Kit (08N50-070) and Alinity m HCV CTRL Kit (08N50-080) should be shipped on dry ice**.**
- Alinity m HCV AMP Kit (08N50-090) should be stored at 2 to 8°C.
- Alinity m HCV CAL Kit (08N50-070), and Alinity m HCV CTRL Kit (08N50-080) should be stored at – 20 ± 5°C.

Shelf-life upon manufacture:
24 months.

Warnings/limitations:

Refer to the current instructions for use.

Prioritization for prequalification
Based on the established eligibility criteria, Alinity m HCV was given priority for the WHO prequalification assessment.

Product dossier assessment

In accordance with the WHO procedure for abridged prequalification assessment, Abbott Molecular Inc was not required to submit a product dossier for Alinity m HCV as per the *"Instructions for compilation of a product dossier"* (PQDx_018 version 3). Notwithstanding, certain aspects of the product dossier previously submitted for stringent regulatory review were reviewed by an assessor during the site inspection.

Commitment for prequalification:

Abbott Molecular Inc commits to state the intended user of the product, materials required but not provided and Alinity m System Application Specification file by 31 Mar 2022. The manufacturer addressed the commitment.

Manufacturing site inspection

A desk assessment of Abbott Molecular Inc located at 1300 East Touhy Avenue, Des Plaines, 60018, United States of America was conducted on 12 February 2020. At the time of considering the product application for Prequalification, the Manufacturer of the product had a well-established quality management system and manufacturing practices in place that would support the manufacture of a product of consistent quality.

Routine inspections of the Manufacturing site will be conducted with copies of the WHO Public Inspection Report (WHOPIR) published on the WHO Prequalification web page as per Resolution WHA57.14 of the World Health Assembly. Note that a WHOPIR reflects the information on the most current inspection performed at a manufacturing site for in vitro diagnostic products and gives a summary of the inspection findings.

Information on the most current inspection can be found at:
https://extranet.who.int/pqweb/inspection-services/prequalification-reports/whopirs-vitro-diagnostics

All published WHOPIRs are with the agreement of the manufacturer.

Product performance evaluation

Alinity m HCV was evaluated by the National Serology Reference Laboratory (NRL), Melbourne, Australia, on behalf of WHO in the 4th quarter of 2019 and 1st quarter 2020, according to protocol PQDx_225, version 4.

Clinical performance evaluation

In this limited laboratory-based evaluation of clinical performance characteristics, a panel of 195 ACD plasma specimens was used. The specimens were characterized using the following reference assay: cobas HCV quantitative nucleic acid test with cobas 6800 System (Roche Diagnostics GmBH).

Clinical performance characteristics in comparison with an agreed reference standard	
Sensitivity (95% CI) (N=97)	100% (95% CI: 95.2% – 99.9%)
Specificity (95% CI) (N=97*)	100% (95% CI: 95.2% - 99.9%)
Invalid rate (N=195)	2.0%
Bias Limits of agreement	0.19 log10 IU/mL -0.31 to 0.70 log_{10} IU/mL

** One negative specimen was invalid on initial testing and could not be repeated, and was excluded from the analysis*

Analytical performance evaluation

Analytical performance characteristics	
Limit of detection (LoD)	The LoD was estimated at 11 IU/mL (95% CI: 6.8-25.3 IU/mL) The LoD claimed by the manufacturer (12 IU/mL) was verified.
Within-run precision (repeatability)	At 10^2 cp/mL, CV% were < 8% At 10^4 cp/mL, CV% were < 3%
Within-laboratory precision (reproducibility)	At 10^2 cp/mL, CV% were < 13% At 10^4 cp/mL, CV% were < 4%
Analytical sensitivity on 4th HCV RNA Genotype Panel (NIBSC code: 14/290) and NRL HCV Mixed Genotype Panel	All 6 HCV genotypes were detected.
Cross-contamination / carry-over	No cross-contamination was observed when high positive and negative specimens were tested together.

Operational characteristics and ease of use

This assay requires laboratory equipment and cannot be performed in laboratories with limited facilities. The instrument requires significant physical space. Adequate technical support from the manufacturer or representative is critical.

The assay was found easy to perform by the operators performing the evaluation. However, they mentioned that training of at least 2-2.5 days would be recommended for staff not familiar with instrumentation and instrumentation software.

Key operational characteristics	
Number of steps for one specimen*	3 steps 0 step with precision pipetting
Number of steps for instrument management**	8 steps
Time to result for one test	Approx. 2 hours and 15 minutes
Operator hands-on time for one run/day	Checking and loading Reagents: Approximately 20 minutes. Checking and loading Supplies (Solutions and Inventory) and discarding waste: At least 30 minutes Creating orders and loading specimens: Approximately 10 minutes per specimen rack (using manual sample ordering) Unloading specimens: Approximately 5 minutes per sample rack. Results review: Approximately 10 minutes (per day)
Level of automation	Fully automated sample preparation, amplification and detection. Manual loading and unloading of samples, reagents and supplies (Solutions and Inventory) onto the Alinity m instrument.
Quality controls	QC materials are provided by the manufacturer and should be purchased separately. Three controls (negative, low positive and high positive controls) should be tested at a minimum frequency of once every 48 hours.
Operating temperature	15-28°C
Result display and connectivity	The Alinity m System collects and stores data. The Alinity m System is designed to work with the Abbott Worldwide LIMS (WWLIMS) solution through a private interface to download orders, transmit results, and update instrument states. The Alinity m System allows external system access to WWLIMS through a single ethernet connection.
Power sources	Main power Stable power source is required. UPS can be purchased from Abbott as an optional device that allows the Alinity m System to keep running when the primary power

	source is temporarily lost. It also provides protection from power surges.
Biosafety *(outside of infectious specimen handling)*	The operators reported biosafety concerns for the user. Reagents, controls and calibrators contain warnings and precautions. They are all sealed and do not require opening prior to loading on the instrument, which reduces potential hazards. However, spillage may occur when removing and discarding reagents and difficulties were reported in releasing the clamps to remove reagents from the Assay Tray Carriers.
Waste	The volume of waste was not assessed in this evaluation. Waste disposal does not require specific measures in addition to usual laboratory biohazard waste disposal procedures.
Calibration	Calibrators are provided by the manufacturer and should be purchased separately. Calibration is required when a new lot number of Alinity m HCV AMP Kit, Alinity m Sample Prep Kit 2 or Alinity m Lysis Solution is used, when the assay calibration has expired, or when a new version for the Alinity m HCV Application Specification File is installed. Calibration may be required after maintenance of critical parts or subsystems or after service procedures have been performed.
Maintenance	Weekly and monthly maintenance is required.
Other specific requirements	Space requirements: the Alinity m System is approximately 248 cm (length) x 101.6 cm (width) x 188cm (height), and additional space is required on all sides of the system to allow for adequate cooling of electrical components, accurate temperature control of the system and access for maintenance.

** Steps for one specimen: each action required to obtain a result for one specimen (excluding specimen collection, instrument management, maintenance/calibration),* ***e.g.*** *add specimen to the cartridge, close the cartridge, scan/type specimen ID, load the cartridge on the instrument, press start (5 steps) OR scan/type specimen ID, load the specimen collection tube into the instrument, press start (3 steps)*

*** Steps for instrument management: each action required daily or per run to set up and shut down the instrument,* ***e. g****. switch on the instrument, login, maintain supplies, maintain reagents, discard liquid waste, discard solid waste, archive results, switch off instrument (8 steps)*

Based on these results, Alinity m HCV meets the current performance evaluation requirements for prequalification.

Labelling

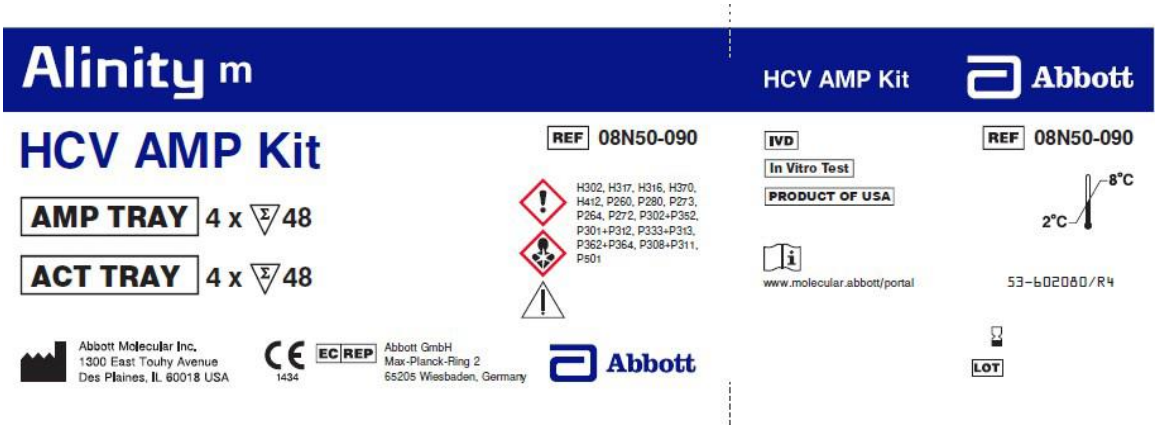
Labels and Instructions for use[1]

[1] English version of the IFU was the one that was assessed by WHO. It is the responsibility of the manufacturer to ensure correct translation into other languages.

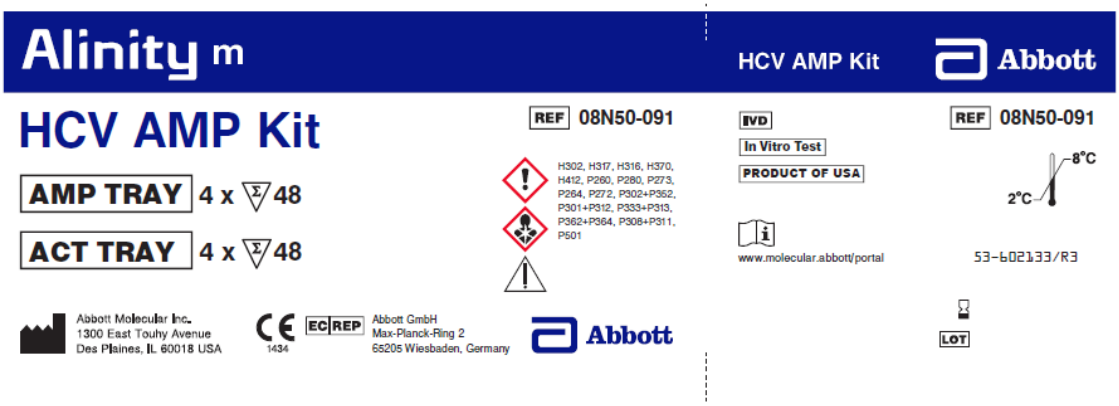
The Package Insert (Instructions for Use) is provided in the language that is accepted in the Member State where the device is intended to be sold.

1.0 Alinity m HCV AMP Kit Labels

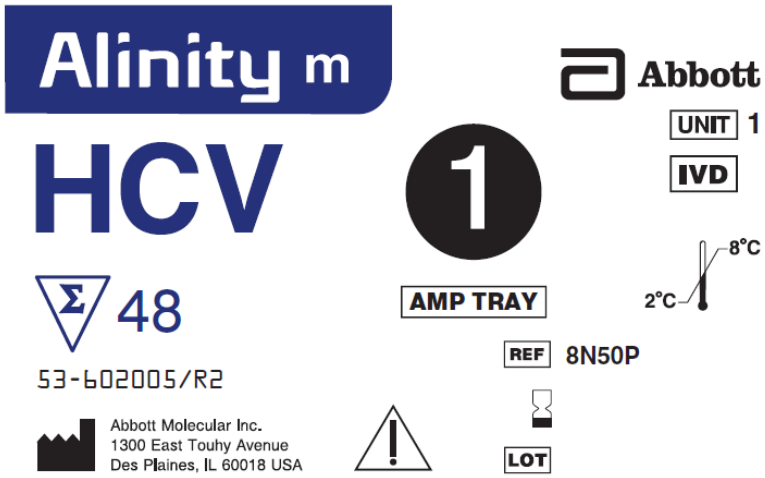
1.1.1 Alinity m HCV AMP Kit (List No. 08N50-090 [Label No. 53-602080])



1.1.2 Alinity m HCV AMP Kit (List No. 08N50-091 [Label No. 53-602133])

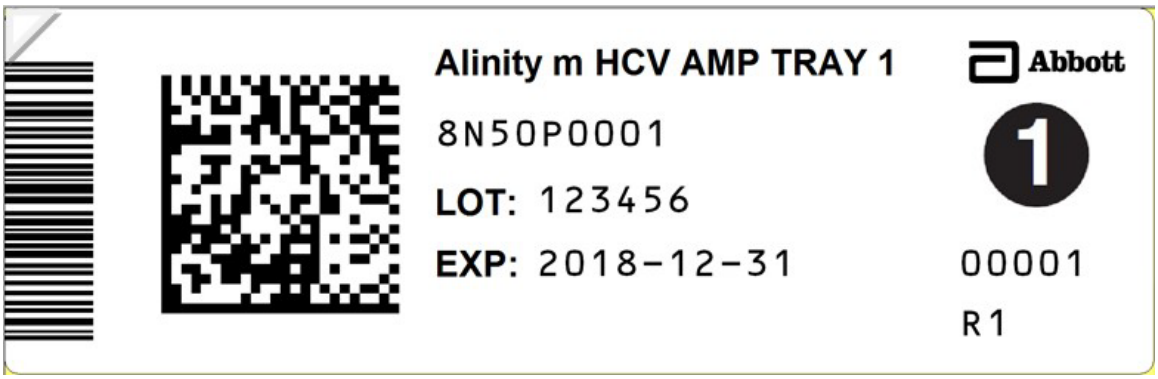


1.1.3 Alinity m HCV AMP Pouch (Label No. 53-602005)

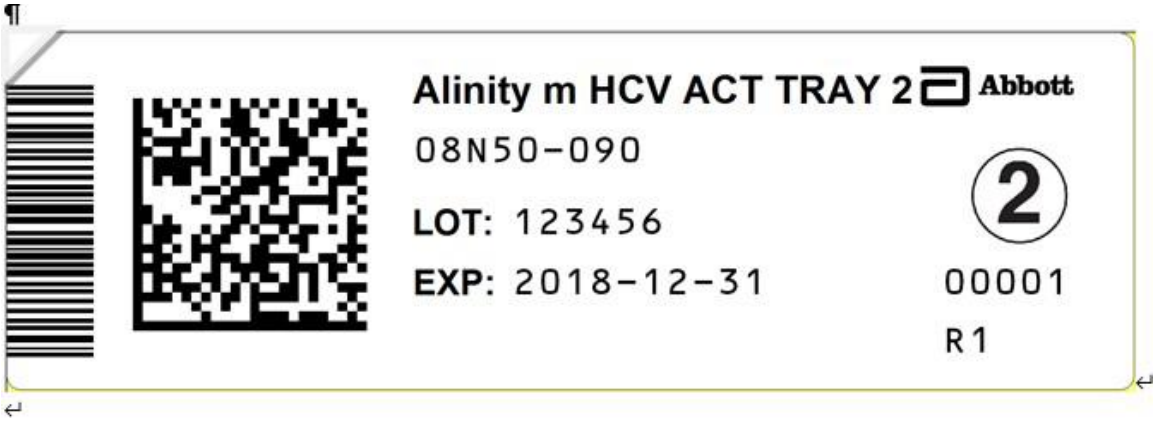


1.1.4 Alinity m HCV ACT Pouch (Label No. 53-602084)

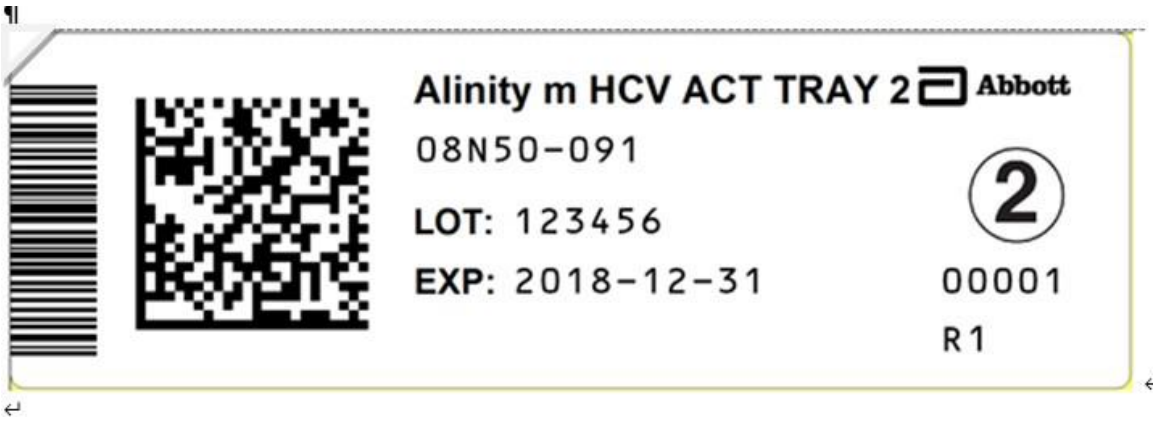
1.1.5 Alinity m HCV AMP TRAY 1 (For List Nos. 08N50-090, 08N50-091)



1.1.6 Alinity m HCV ACT TRAY 2 (List No. 08N50-090)



1.1.7 Alinity m HCV ACT TRAY 2 (List No. 08N50-091)



HCV AMP Kit

Revised February 2022

REF 08N50-090
53-608062/R7

NOTE: Changes highlighted

CUSTOMER SERVICE: 1-800-553-7042
CUSTOMER SERVICE INTERNATIONAL: CALL YOUR ABBOTT REPRESENTATIVE

Instructions must be carefully followed. Reliability of assay results cannot be guaranteed if there are any deviations from these instructions.

NOTICE TO USER

If a serious incident occurs in relation to this device, the incident should be reported to the manufacturer and to the appropriate competent authority of the member state in which the user and/or the patient is established. To report to the manufacturer, see the contact information provided in the technical assistance section of these instructions.

NAME

Alinity m HCV AMP Kit

INTENDED USE

The Alinity m HCV assay is an in vitro reverse transcription-polymerase chain reaction (RT-PCR) assay for use with the automated Alinity m System to detect and quantitate hepatitis C virus (HCV) RNA in human serum or plasma. The Alinity m HCV assay is intended for use in the clinical management of HCV-infected patients undergoing antiviral therapy in conjunction with clinical presentation and other laboratory markers.

The Alinity m HCV assay may also be used as a diagnostic test to confirm active HCV infection. The results from the Alinity m HCV assay must be interpreted within the context of all relevant clinical and laboratory findings.

This assay is not intended to be used in screening blood, blood products, tissue, or organ donors for HCV.

INTENDED USER

The intended users for the Alinity m HCV AMP Kit are laboratory professionals.

SUMMARY AND EXPLANATION OF THE TEST

Hepatitis C virus (HCV) is one of the major causes of liver disease. It was estimated that about 1.1% of the population are chronically infected with hepatitis C[1] and approximately 700,000 people die each year from hepatitis C-related liver disease.[2] HCV is a positive-strand RNA virus and transmitted primarily through intravenous drug use and through blood products. About 55 to 85% of HCV-infected individuals develop chronic hepatitis, with up to 30% of chronically infected individuals developing cirrhosis.[1] In patients with cirrhosis, the incidence of hepatocellular carcinoma is 2 to 4% per year.[1]

The diagnosis of HCV infection utilizes testing algorithms that rely on a sequential two-step process with the initial test leveraging the presence/absence of HCV-specific antibody and followed by a confirmatory assay (eg, HCV nucleic acid test) for those with a positive HCV antibody result.[2-6] A positive HCV antibody result indicates prior exposure of HCV but does not differentiate between active and non-active infections. In the presence of HCV antibodies, detection of HCV RNA confirms current HCV infection.

Quantitative measurement of HCV RNA level in peripheral blood has been shown to be an essential parameter in management of various anti-HCV therapies.[7-14] With the advent of direct acting antiviral regimens, the treatments for HCV infection are advanced dramatically.

The objective of anti-HCV therapies is to achieve a sustained virologic response (SVR), presented as continued absence of detectable HCV RNA.[3-6] Measurements of HCV viral load have been used to individualize treatment duration and response-guided therapy or to determine and predict sustained or non-sustained virologic response of antiviral therapy.[3-6]

The Alinity m HCV assay is designed to target a highly conserved sequence of the HCV genome. The HCV primers and probes for the assay include a second probe to further ensure assay robustness against new and emerging HCV variants. Both HCV probes are labeled with the same fluorophore. The design ensures accurate detection and quantification of HCV genotypes 1 through 6 while maintaining high sensitivity.

In addition to the HCV primers and probes, the assay utilizes an internal control (IC) primer/probe set for amplification and detection of the IC target sequence, which is not related to HCV. The IC probe is labeled with a different fluorophore than the HCV probes. This allows for simultaneous detection and discrimination of both the HCV and IC amplified products within the same reaction vessel.

BIOLOGICAL PRINCIPLES OF THE PROCEDURE

The Alinity m HCV assay requires 3 separate assay specific kits:

- Alinity m HCV AMP Kit (08N50-090) consisting of 2 types of multi-well assay trays. The amplification trays (AMP Trays) contain lyophilized, unit-dose RT-PCR amplification/detection reagents and lyophilized, unit-dose IC in separate wells, and the activation trays (ACT Trays) contain liquid activation reagent. The intended storage condition for the Alinity m HCV AMP Kit is 2 to 8°C.
- Alinity m HCV CAL Kit (08N50-070) consisting of 2 calibrator levels, each supplied as liquid in single-use tubes. The intended storage condition for the Alinity m HCV CAL Kit is −20±5°C.
- Alinity m HCV CTRL Kit (08N50-080) consisting of negative controls, low-positive controls and high-positive controls, each supplied as liquid in single-use tubes. The intended storage condition for the Alinity m HCV CTRL Kit is −20±5°C.

The Alinity m HCV assay utilizes real-time reverse transcription polymerase chain reaction (RT-PCR) to amplify and detect HCV RNA genomic sequences that have been extracted from human plasma or serum specimens. The steps of the Alinity m HCV assay consist of sample preparation, RT-PCR assembly, amplification/detection, and result calculation and reporting. All steps of the Alinity m HCV assay procedure are executed automatically by the Alinity m System. Manual dilutions may be performed for low-volume specimens to meet the minimum volume requirement, and for high-titer specimens above the upper limit of quantitation (ULOQ).

The Alinity m System is designed to be a random access analyzer that can perform the Alinity m HCV assay in parallel with other Alinity m assays on the same instrument.

HCV RNA from human plasma or serum is extracted using the Alinity m Sample Prep Kit 2, Alinity m Lysis Solution, and Alinity m Diluent Solution. The Alinity m System employs magnetic microparticle technology to facilitate nucleic acid capture, wash and elution. The resulting purified RNA is then combined with liquid unit-dose Alinity m HCV activation reagent and lyophilized unit-dose Alinity m HCV amplification/detection reagents and transferred into a reaction vessel. Alinity m Vapor Barrier Solution is then added to the reaction vessel which is then transferred to an amplification/detection unit for reverse transcription, PCR amplification, and real-time fluorescence detection of HCV. At the beginning of the Alinity m HCV sample preparation process, a lyophilized unit-dose IC on the AMP Tray is rehydrated by the Alinity m System and delivered into each sample preparation reaction.

The IC is then processed through the entire sample preparation and RT-PCR procedure along with the specimens, calibrators and controls to demonstrate proper sample processing and validity.

The Alinity m HCV amplification/detection reagents consist of enzymes, primers, probes and activation reagents that enable reverse transcription, polymerization, and detection. The Alinity m HCV amplification/detection reagent also contains Uracil-DNA Glycosylase (UDG) as a contamination control for amplicons containing uracil, which may be present in molecular laboratories.

An HCV calibration curve is required for determination of HCV RNA concentration. Two levels of calibrators are processed through sample preparation and RT-PCR to generate the calibration curve. The concentration of HCV RNA in specimens and controls is then calculated from the stored calibration curve.

Assay controls are tested at or above an established minimum frequency to help ensure that instrument and reagent performance remains satisfactory. During each control event, a negative control, a low-positive control, and a high-positive control are processed through sample preparation and RT-PCR procedures that are identical to those used for specimens.

The possibility of nucleic acid contamination on the Alinity m System is minimized because:

- Aerosol barrier pipette tips are used for all pipetting. The pipette tips are discarded after use.
- PCR amplification and detection is carried out automatically in a sealed reaction vessel.
- Disposal of the reaction vessel is performed automatically by the Alinity m System.

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

REAGENTS

Kit Contents

Alinity m HCV AMP Kit List No. 08N50-090

The Alinity m HCV AMP Kit is comprised of 2 types of multi-well trays: Alinity m HCV AMP TRAY 1 and Alinity m HCV ACT TRAY 2.

Each Alinity m HCV AMP TRAY 1 (individually packed in a foil pouch with a desiccant bag) contains 48 unit-dose lyophilized amplification reagent wells and 48 unit-dose lyophilized IC wells. One well of each is used per test.

- Amplification reagent wells consist of synthetic oligonucleotides, DNA Polymerase, Reverse Transcriptase, Uracil-DNA Glycosylase, excipient, and dNTPs in a buffered solution with a reference dye.
- Internal control (IC) wells consist of noninfectious Armored RNA® with IC sequences and excipient in negative human plasma. Negative human plasma was tested and found to be nonreactive for HBsAg, HIV-1 antigen, Syphilis, HIV-1 RNA, HCV RNA, HBV DNA, anti-HIV-1/HIV-2, and anti-HCV.

Each Alinity m HCV ACT TRAY 2 (individually packed in a foil pouch without a desiccant bag) contains 48 unit-dose liquid activation reagent wells. One reagent well is used per test.

- Activation reagent wells consist of magnesium chloride and tetramethyl ammonium chloride.
  Preservative: 0.15% ProClin 950.

	Quantity
Σ	192 tests
Alinity m HCV AMP TRAY 1	4 trays / 48 tests each
Alinity m HCV ACT TRAY 2	4 trays / 48 tests each

WARNINGS AND PRECAUTIONS

IVD

- **For In Vitro Diagnostic Use**

Safety Precautions

The following warnings and precautions apply to:
Alinity m HCV AMP TRAY 1.

CAUTION: This preparation contains human-sourced and/or potentially infectious components. Refer to the **REAGENTS** section of this package insert. Components sourced from human blood have been tested and found to be non-reactive by appropriate FDA-licensed, approved, or cleared tests for antibody to HCV, antibody to HIV-1, antibody to HIV-2, HBsAg, HIV-1 antigen and Syphilis. The material is also tested and found to be negative by appropriate FDA-licensed, approved, or cleared PCR methods for HIV-1 RNA, HCV RNA, and HBV DNA. No known test method can offer complete assurance that products derived from human sources or inactivated microorganisms will not transmit infection. These reagents and human specimens should be handled as if infectious using safe laboratory procedures, such as those outlined in Biosafety in Microbiological and Biomedical Laboratories,[15] OSHA Standard on Bloodborne Pathogens,[16] CLSI Document M29-A4,[17] and other appropriate biosafety practices.[18] Therefore all human sourced materials should be considered infectious.

These precautions include, but are not limited to, the following:

- Wear gloves when handling specimens or reagents.
- Do not pipette by mouth.
- Do not eat, drink, smoke, apply cosmetics, or handle contact lenses in areas where these materials are handled.
- Clean and disinfect spills of specimens by including the use of a tuberculocidal disinfectant such as 1.0% sodium hypochlorite or other suitable disinfectant.[15]

Decontaminate and dispose of all potentially infectious materials in accordance with local, state and federal regulations.[18]

The following warnings and precautions apply to:
Alinity m HCV ACT TRAY 2.

DANGER	Contains Tetramethylammonium chloride, and 2-Methyl-4-isothiazolin-3-one
H302	Harmful if swallowed.
H316	Causes mild skin irritation[a]
H317	May cause an allergic skin reaction.
H370	Causes damage to organs.
H412	Harmful to aquatic life with long lasting effects.
Prevention	
P260	Do not breathe mist / vapours / spray.
P264	Wash hands thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves / protective clothing / eye protection.
Response	
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water.
P308+P311	IF exposed or concerned: Call a POISON CENTER/ doctor.
P333+P313	If skin irritation or rash occurs: Get medical advice / attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
Disposal	
P501	Dispose of contents / container in accordance with local regulations.

[a] Not applicable where regulation EU 1272/2008 (CLP) or OSHA Hazard Communication 29CFR1910.1200 (HCS) 2012 have been implemented.

Important information regarding the safe handling, transport and disposal of this product is contained in the Safety Data Sheet.

Safety Data Sheets are available from your Abbott Representative.

For a detailed discussion of safety precautions during system operation, refer to the Alinity m System Operations Manual, Section 7 and Section 8.

Reagent Shipment

	Shipment Condition
Alinity m HCV AMP Kit	On dry ice

Reagent Storage

In order to minimize damage to foil pouches, it is recommended that the Alinity m HCV AMP TRAY 1 (AMP TRAY 1) and Alinity m HCV ACT TRAY 2 (ACT TRAY 2) are stored in the original kit packaging. Open the foil pouch for the reagent trays just prior to loading onto the instrument. Onboard storage time begins when reagents are loaded on the Alinity m System.

	Storage Temperature	Maximum Storage Time
Unopened	2 to 8°C	Until expiration date
Onboard	System Temperature	30 days (not to exceed expiration date)

Reagent Handling

- Do not use reagents that have been damaged.
- Minimize contact with the surface of reagent trays during handling.
- Only load AMP TRAY 1 and ACT TRAY 2 from the same AMP Kit lot on the same Alinity m Assay Tray Carrier. Do not load AMP TRAY 1 and ACT TRAY 2 from different AMP Kit lots on the same Alinity m Assay Tray Carrier.
- The Alinity m System will track the onboard storage time of AMP TRAY 1 and ACT TRAY 2 while on the instrument. The Alinity m System will not allow the use of AMP TRAY 1 and ACT TRAY 2 if the maximum onboard storage time has been exceeded.
- For a detailed discussion of reagent handling precautions during system operation, refer to the Alinity m System Operations Manual, Section 8.

Indications of Reagent Deterioration

- Deterioration of the reagents may be indicated when a calibration or control error occurs or controls are repeatedly out of the specified ranges.
- Reagents are shipped on dry ice and are stored at 2 to 8°C upon arrival. If reagents arrive in a condition contrary to this recommendation or are damaged, immediately contact your Abbott Representative.
- For troubleshooting information, refer to the Alinity m System Operations Manual, Section 10.

INSTRUMENT PROCEDURE

The Alinity m HCV application specification file must be installed on the Alinity m System prior to performing the assay.

For detailed information on viewing and editing the customizable assay parameters, refer to the Alinity m System Operations Manual, Section 2.

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

For a detailed description of system operating instructions, refer to the Alinity m System Operations Manual, Section 5.

SPECIMEN COLLECTION AND PREPARATION FOR ANALYSIS

Specimen Types

The specimen types listed below can be used with this assay on the Alinity m System. Plasma and serum specimens may be tested for viral load determination and for diagnostic confirmatory evaluation. For the Alinity m HCV assay, only use collection tubes as described in the following table for the corresponding specimen type. Alinity m HCV performance with other specimen types or collection tubes has not been evaluated.

Specimen Types[a]	Blood Collection Tubes
Plasma	Acid Citrate Dextrose (ACD) K_2 EDTA K_3 EDTA Plasma Preparation Tube (PPT)[b]
Serum	Serum Serum Separator Tube (SST)[b]

a The instrument does not provide the capability to verify specimen types. It is the responsibility of the operator to use the correct specimen types in the assay.

b The Plasma Preparation Tube and Serum Separator Tube are gel tubes.

Specimen Storage: Plasma Testing

Specimen	Temperature	Maximum Storage Time	Special Instructions
Whole Blood	2 to 8°C	2 days	Whole blood may be stored between draw and plasma separation.
	15 to 25°C	1 day	
Plasma	2 to 8°C	3 days	Plasma may be stored in primary or secondary tubes after separation from blood cells.
	15 to 25°C	1 day	
	–20°C	30 days	Plasma may be stored frozen in primary gel tubes (PPT) or secondary tubes after separation from blood cells.[a] Plasma from non-gel tubes must be transferred to secondary tubes prior to storage.[a]
	–70°C or colder	Longer storage	

[a] Avoid more than 2 freeze-thaw cycles

Specimen Storage: Serum Testing

Specimen	Temperature	Maximum Storage Time	Special Instructions
Whole Blood	2 to 8°C	2 days	Whole blood may be stored between draw and serum separation.
	15 to 25°C	1 day	
Serum	2 to 8°C	3 days	Serum may be stored in primary or secondary tubes after separation from the clot.
	15 to 25°C	1 day	
	–20°C	30 days	Serum may be stored frozen in primary gel tubes (SST) or secondary tubes after separation from the clot.[a] Serum from non-gel tubes must be transferred to secondary tubes prior to storage.[a]
	–70°C or colder	Longer storage	

[a] Avoid more than 3 freeze-thaw cycles.

Specimen Shipping

Ship specimens according to the recommended storage temperature and time listed in the **Specimen Storage** section. Package and label specimens in compliance with applicable state, federal, and international regulations covering the transport of clinical, diagnostic, or biological specimens.

Preparation for Analysis

Freshly Drawn Whole Blood Specimens:

- Follow the specimen collection tube manufacturer instructions for blood collection and centrifugation. Separate plasma and serum from cells or clot by centrifugation.
- After centrifugation, plasma may be stored on the blood cells (in tube with or without gel) prior to being loaded onto the Alinity m System or used for dilution. Serum may be stored on the clot (in tube with or without gel) prior to being loaded onto the Alinity m System or used for dilution.

  NOTE: Specimens stored on the blood cells or on the clot cannot be frozen without a gel.
- Plasma and serum specimens may also be transferred to a secondary tube for storage prior to being loaded onto the Alinity m System or used for dilution. If longer storage is required, plasma and serum specimens in the secondary tubes may be stored frozen.

Frozen Specimens: Primary Gel Tubes

- Thaw specimens at 15 to 25°C or at 2 to 8°C. Once thawed, specimens can be stored at 2 to 8°C for up to 6 hours if not processed immediately.
- Vortex each specimen 3 times for 2 to 3 seconds.
- Centrifuge specimens stored in primary gel tubes at 2000*g* for 5 minutes before loading onto the Alinity m System or before preparing a specimen dilution. If any clot or debris is observed, transfer the supernatant of the specimen into the new tube. Avoid transferring any debris or clot into the new tube.

Frozen Specimens: Secondary Aliquot Tubes

- Thaw specimens at 15 to 25°C or at 2 to 8°C. Once thawed, specimens can be stored at 2 to 8°C for up to 6 hours if not processed immediately.
- Vortex each specimen 3 times for 2 to 3 seconds.
- Centrifuge specimens at 2000*g* for 5 minutes before loading onto the Alinity m System or before preparing a specimen dilution. If any clot or debris is observed, transfer the supernatant of the specimen into a new tube. Avoid transferring any debris or clot into a new tube.

All specimen tubes (primary and secondary tubes) must be labeled with specimen ID barcodes or must be identified with a specimen ID and rack and position. Refer to the **Assay Procedure** section of this package insert or the Alinity m System Operations Manual, Section 4, for tube sizes. Avoid touching the inside of the cap when opening tubes.

PROCEDURE

Materials Provided

08N50-090 Alinity m HCV AMP Kit

Materials Required but not Provided

- 08N50-070 Alinity m HCV CAL Kit
- 08N50-080 Alinity m HCV CTRL Kit
- 09N12-001 Alinity m Sample Prep Kit 2
- 09N20-001 Alinity m Lysis Solution
- 09N20-003 Alinity m Diluent Solution
- 09N20-004 Alinity m Vapor Barrier Solution
- 09N50-001 Alinity m Specimen Dilution Kit I[a]
- Alinity m HCV Application Specification File
- Vortex mixer
- Centrifuge capable of 2000*g*
- 09N49-001 Alinity m LRV Tube[a]
- Calibrated pipettes capable of delivering 10 to 1000 µL[a]
- Aerosol barrier pipette tips for 10 to 1000 µL pipettes[a]
- Plate adapter for 384 well plates (such as Corning Catalog No. 3820 or Eppendorf Catalog No. 022638955)
- Centrifuge with swing plate rotor capable of accommodating the plate adapter and capable of ≥ 100*g*
- 09N49-010 Alinity m Transport Tube Pierceable Capped
- 09N49-011 Alinity m Transport Tube
- 09N49-012 Alinity m Pierceable Cap
- 09N49-013 Alinity m Aliquot Tube

[a] These items are used in the **Specimen Dilution Procedure** if dilution is required.

For information on materials required for operation of the instrument, refer to the Alinity m System Operations Manual, Section 1.

For general operating procedures, refer to the Alinity m System Operations Manual, Section 5.

For optimal performance, it is important to perform routine maintenance as described in the Alinity m System Operations Manual, Section 9.

Procedural Precautions

- Read the instructions in this package insert carefully before processing samples.
- Use aerosol barrier pipette tips or disposable pipettes only one time when pipetting specimens. To prevent contamination to the pipette barrel while pipetting, care should be taken to avoid touching the pipette barrel to the inside of the sample tube or container. The use of extended aerosol barrier pipette tips is recommended.
- Work area and instrument platforms must be considered potential sources of contamination.
- Ensure the Alinity m HCV AMP TRAY 1 is tapped prior to loading on the Alinity m System per instructions in the **Assay Procedure** section.
- Ensure the Alinity m HCV ACT TRAY 2 is centrifuged prior to loading on the Alinity m System per instructions in **Assay Procedure** section.
- Monitoring procedures for the presence of amplification product can be found in the Alinity m System Operations Manual, Section 9.
- If longer storage is required, plasma and serum specimens in a gel tube may be stored frozen.
- To reduce the risk of nucleic acid contamination, clean and disinfect spills of specimens by including the use of a tuberculocidal disinfectant such as 1.0% (v/v) sodium hypochlorite or other suitable disinfectant.
- To prevent contamination, change to new gloves before handling the Alinity m Sample Prep Kit 2, assay trays, system solutions, Integrated Reaction Unit (IRU) sleeves, and pipette tips. Also change to new gloves whenever they are contaminated by a specimen, a calibrator, a control, or a reagent. Always use powder-free gloves.
- The use of the Alinity m HCV CAL Kit and CTRL Kit is integral to the performance of the Alinity m HCV assay. Refer to the **QUALITY CONTROL PROCEDURES** section of this package insert for details. Refer to the Alinity m HCV CAL Kit package insert and/or Alinity m HCV CTRL Kit package insert for preparation and usage.
- The Alinity m HCV calibrator and control reagents are contained in single-use tubes with pierceable caps. Avoid contamination or damage to the caps after removal from their original packaging. Discard tubes after use.

Assay Procedure

Prior to loading on the Alinity m System, hold the AMP TRAY 1 by the edges with the label facing up and tap 3 times on the bench.

Prior to loading on the Alinity m System, the ACT TRAY 2 must be centrifuged as follows:

1. Load the ACT TRAY 2 onto the plate adapter (Corning Catalog No. 3820 or Eppendorf Catalog No. 022638955).
2. Load the plate adapter (with the ACT TRAY 2) on a swing plate centrifuge capable of accommodating the plate adapter. Spin at 100 to 800*g* for 1 to 5 minutes to remove potential bubbles.
3. Immediately following centrifugation, carefully transfer the ACT TRAY 2 to the Alinity m Assay Tray Carriers. Take care to minimize disturbance to the ACT TRAY 2. Load the tray carriers per the Alinity m System Operations Manual, Section 5.
4. If disturbance occurs during the transfer that could potentially introduce bubbles (eg, dropping, bumping, inversion of the ACT TRAY 2), re-centrifuge the ACT TRAY 2.
5. Proceed with the **Reagent and sample inventory management** procedure per the Alinity m System Operations Manual, Section 5.

For a detailed description of how to run an assay, refer to the Alinity m System Operations Manual, Section 5. Prior to testing specimens, check the calibration and control status. If recalibration or control testing is required, refer to the **QUALITY CONTROL PROCEDURES** section. Calibrators and/or controls may be tested separately or with specimens.

From the Create Order screen, select the assay (HCV) being tested. The Alinity m System will track the onboard storage time of amplification reagents, calibrators, controls and specimens while on the instrument. The Alinity m System will not allow the use of amplification reagents, calibrators, controls or process specimens that have exceeded the allowable onboard storage time.

Specimen tubes need to meet the requirements for minimum sample volume and use of caps when loaded on the Alinity m System. Blood collection tubes with separated plasma or serum and specimen aliquot tubes may be placed on the Alinity m Universal Sample Rack (sample rack) onboard the system for up to 4 hours prior to processing.

Tube Type[a]	List No.	Minimum Plasma/ Serum Volume Required	Cap Requirement on Instrument
Blood Collection Tube (Primary Tubes)			
Blood collection tubes with minimum inner diameter 10.0 mm	NA	11.0 mm[b] above the gel, clot, or blood cells	Uncapped
Specimen Aliquot Tube (Secondary Tubes)			
Alinity m Aliquot Tube	09N49-013	0.75 mL	Capped[c] or uncapped
Alinity m Transport Tube	09N49-011	1.0 mL	Uncapped
Alinity m Transport Tube Pierceable Capped	09N49-010	1.0 mL	Uncapped[d]
Other aliquot tubes with minimum inner diameter 10.0 mm	NA	0.9 mL for tubes with 10.6 mm or less inner diameter. 1.4 mL for tubes with 13.2 mm or less inner diameter.	Uncapped

[a] Refer to the Alinity m System Operations Manual, Section 4, for sample tube specifications and requirements and Section 5 for sample rack loading instructions.

[b] Represents requirement for minimum column height of plasma or serum above the gel/clot/blood cells in the primary tube. The minimum volume in milliliters can be calculated using the inner diameter (ID in mm) of the tube in the formula: Minimum Volume = $0.00864 \times ID^2$.

[c] Alinity m Pierceable Cap, List No. 09N49-012, is the only type of cap that can be used with Alinity m Aliquot Tube when loaded on the Alinity m System.

[d] Cap must be removed prior to loading.

When loading sample tubes to the Alinity m System, the Sample Rack Retention Bar is required for the following situations.

1. Calibrator, Control with pierceable caps
2. Specimen in blood collection tubes with gel separator
3. Specimen in Transport tube with pierceable cap

Clean the retention bar after each use

Prior to loading the specimen tubes on to the Alinity m System:

- Ensure individual specimen tubes are labeled correctly with specimen ID barcodes.
- Inspect serum or plasma specimens for bubbles and foam. Specimens should be free of bubbles and foam. If found, remove them with a new sterile pipette tip for each tube to prevent cross-contamination.

Specimen Dilution Procedure (Optional)

Specimens may be diluted manually for testing on the Alinity m System using the Alinity m Specimen Dilution Kit I per the table below.

Low volume specimens with a minimum of 260 µL volume available for Alinity m HCV testing can be diluted 1:2.5. Specimens with 50 to 259 µL volume available for Alinity m HCV testing can be diluted 1:50. High-titer specimens above the upper limit of quantitation (>ULOQ) can also be diluted 1:50 before testing.

Specimen Dilution Scenario	Available Specimen Volume	Dilution Factor
Low volume	≥260 µL	1:2.5
	50 to 259 µL	1:50
> ULOQ result	≥50 µL	1:50

The operator must select the dilution factor in the Specimen tab on the Create Order screen of the Alinity m System software. The system will use the selected dilution factor to automatically calculate and report the result of the neat specimen.

NOTE: Upon dilution, the specimen must be loaded onto the system within 2 hours.

Specimens are diluted with a dilution factor of 2.5, using Specimen Dilution Kit I as follows:

1. Apply a barcode label for the designated specimen ID to an Alinity m LRV Tube.
2. Open a fresh Alinity m Specimen Diluent Tube and transfer 390 µL of Specimen Diluent into the Alinity m LRV Tube.
3. Add 260 µL of the patient specimen into the Alinity m LRV Tube.
4. Cap the tube, vortex 3 times for 2 to 3 seconds, and tap upright on the bench to bring liquid to the bottom of the tube.
5. Remove the cap from the Alinity m LRV Tube. Inspect the fluid in the tube and remove any bubbles if found.
6. Place the Alinity m LRV Tube in the sample rack.

Specimens are diluted with a dilution factor of 50, using Specimen Dilution Kit I as follows:

1. Apply a barcode label for the designated specimen ID to an unused Alinity m Specimen Diluent Tube. Remove the cap from the Alinity m Specimen Diluent Tube. Save the cap for later use.
2. Add 50 µL of the patient specimen to the Alinity m Specimen Diluent Tube.
3. Cap the tube, vortex 3 times for 2 to 3 seconds, and tap upright on the bench to bring liquid to the bottom of the tube.
4. Load the tube directly onto the sample rack. The cap may remain on the tube.

NOTE: Do not use an Alinity m Specimen Diluent Tube that has crystals or liquid on the outside of the tube because this may be evidence of leakage.

QUALITY CONTROL PROCEDURES

Assay Calibration

For instructions on performing an assay calibration, refer to the Alinity m System Operations Manual, Section 6.

Lot-specific concentration values for assay calibrators and controls are available via: Abbott Mail, the Abbott customer portal www.molecular.abbott/portal, and from your Abbott Representative.

When an assay calibration is being performed:

- Lot-specific concentration values can be automatically imported to the Alinity m System via Abbott Mail upon scanning the calibrators (HCV CAL A and HCV CAL B) or controls (HCV NEG CTRL, HCV LOW POS CTRL, and HCV HIGH POS CTRL) tube barcodes.
- Lot-specific concentration values can also be obtained from the Abbott customer portal or provided by your Abbott Representative and imported via a USB drive.

For instructions on creating a test order for calibration and loading calibrators on the instrument, refer to the Alinity m System Operations Manual, Section 5.

A calibration curve is required to quantitate the HCV RNA concentration.

At a minimum, 1 Alinity m HCV CAL A tube and 1 Alinity m HCV CAL B tube from the Alinity m HCV CAL Kit are required for performing an assay calibration on the Alinity m System. The Alinity m System will process 3 replicates from each calibrator tube. The output data of the 2 calibrators will be used to generate a calibration curve (lot-specific HCV concentration versus the threshold cycle [C_t] at which a reactive level of fluorescent signal is detected). The calibration curve slope and intercept are calculated and stored on the instrument.

Once an assay calibration is accepted and stored, all subsequent samples may be tested without further calibration unless any of the following situations occurs:

- An Alinity m HCV AMP Kit with a new lot number is used.
- An Alinity m Sample Prep Kit 2 or Alinity m Lysis Solution with a new lot number is used.
- The assay calibration has expired.
- A new version of the Alinity m HCV Application Specification File is installed.

This assay may require recalibration after maintenance to critical parts or subsystems or after service procedures have been performed. Contact your Abbott Representative for further instructions.

Detection of Inhibition

An IC threshold cycle [C_t] assay validity parameter is established during a calibration run.

A defined, consistent quantity of IC is introduced into each specimen, calibrator, and control at the beginning of sample preparation and measured on the Alinity m System to demonstrate proper specimen processing and assay validity.

The median IC C_t value from calibrator samples establishes an IC C_t validity range for subsequently processed specimens and controls.

A Message Code is assigned to a specimen or control when its IC C_t value is outside of the IC C_t validity range. When the IC C_t value exceeds the upper limit of the IC C_t validity range, abnormal assay conditions, such as inhibition, are indicated.

Refer to the Alinity m System Operations Manual, Section 10 for an explanation of the corrective actions for Message Codes.

Negative and Positive Controls

An Alinity m HCV Negative CTRL, Low Positive CTRL and High Positive CTRL are recommended to be tested, at or above the minimum frequency of once every 48 hours, to monitor the performance of the assay and Alinity m System. Valid results for all control levels must be obtained before specimen results are reported. The assay controls are also tested following calibrators and valid results for controls are required to establish a new calibration curve.

Additional controls may be tested in accordance with local, state, and/or federal regulations or accreditation requirements and your laboratory's quality control policy.

If quality control results do not meet the acceptance criteria, refer to the Alinity m System Operations Manual, Section 10, for troubleshooting information.

A flag is displayed for specimens when a control result is invalid. All of the specimens processed following an invalid assay control must be retested.

If control results are invalid, refer to the Alinity m System Operations Manual, Section 5 for a description of quality control flags, and Section 10 for troubleshooting information.

The presence of HCV must not be detected in the negative control. HCV detected in the negative control is indicative of contamination by other samples or by amplified product. To avoid contamination, clean the Alinity m System and repeat sample processing for controls and specimens following the Procedural Precautions in this package insert. Monitoring procedures for the presence of amplification product can be found in the Alinity m System Operations Manual, Section 9.

If negative controls are persistently reactive, contact your Abbott Representative.

When a set of assay controls are being processed, the lot-specific concentration values of the Alinity m HCV low-positive control and Alinity m HCV high-positive control can be:

- Automatically imported to the Alinity m System via Abbott Mail upon scanning the barcode labels on control tubes (HCV LOW POS CTRL and HCV HIGH POS CTRL).
- Obtained from the Abbott customer portal or provided by your Abbott Representative and imported to the Alinity m System via a USB drive.

RESULTS

Calculation

Quantitative viral load results are reported for patient specimens with HCV viral concentrations within the assay's quantitation range. The concentration of HCV RNA in a specimen is calculated from the calibration curve by the system software. The Alinity m System reports the results in International Units as IU/mL or Log [IU/mL]. Refer to the Alinity m System Operations Manual for configuration of result units.

For specimens tested with the Specimen Dilution Procedure, the Alinity m System calculates and reports the neat concentration (ie, prior to dilution), by using the dilution factor selected by the user.

Interpretation of Results

Undiluted Specimens (Viral Load and Diagnostic Confirmatory Testing)

Alinity m HCV results for patient specimens can be interpreted for viral load determination and for diagnostic confirmatory evaluation. The diagnostic confirmatory interpretation is not directly reported by the Alinity m System. A confirmatory interpretation is performed by the user, based on the viral load result/interpretation.

For each specimen, the Alinity m System will report a result and an interpretation, as shown in the tables below. If applicable, message codes or flags will also be displayed. The last column provides the diagnostic confirmatory interpretation corresponding to each test result.

Undiluted Specimens

Alinity m System Reported			User Performed
Result	**Interpretation**	**Flags**	**Confirmatory Interpretation**
Not Detected	Target not detected		HCV RNA not detected
< 1.08 Log IU/mL	Detected < LLOQ		HCV RNA detected
1.08 to 8.00 Log IU/mL			HCV RNA detected
> 8.00 Log IU/mL	> ULOQ		HCV RNA detected

Diluted Specimens

For specimens diluted 1:2.5 or 1:50, the Alinity m System reports a viral load result, a viral load interpretation (if applicable), and a DIL flag indicating that the specimen has been diluted. The quantitative results and the upper and lower limits of the quantitation range (ULOQ and LLOQ, respectively) reported represent the HCV RNA concentrations in the specimens prior to dilution.

For diluted specimens from which the HCV signal is not detected, no result is reported, and a message code (9827) is displayed. These specimens cannot be interpreted as "Target not detected" and should be retested with undiluted specimens or from a newly prepared dilution.

Specimens Tested Using 1:2.5 Dilution

Alinity m System Reported			User Performed
Result	**Interpretation**	**Flags**	**Confirmatory Interpretation**
< 1.48 Log IU/mL	Detected < LLOQ	DIL	HCV RNA detected
1.48 to 8.40 Log IU/mL		DIL	HCV RNA detected
> 8.40 Log IU/mL	> ULOQ	DIL	HCV RNA detected

Specimens Tested Using 1:50 Dilution

Alinity m System Reported			User Performed
Result	**Interpretation**	**Flags**	**Confirmatory Interpretation**
< 2.78 Log IU/mL	Detected < LLOQ	DIL	HCV RNA detected
2.78 to 9.70 Log IU/mL		DIL	HCV RNA detected
> 9.70 Log IU/mL	> ULOQ	DIL	HCV RNA detected

Note: The upper and lower limits of the quantitation range (ULOQ and LLOQ, respectively) displayed for Specimens Tested Using Dilution are not the same as the ULOQ and LLOQ of the Alinity m HCV assay when applied to specimens tested without dilution. Their corresponding values are specified in the Result column in each table.

Flags, Results Codes, and Message Codes

Some results may contain information in the Flags and Codes fields. For a description of the flags and result codes that may appear in these fields, refer to the Alinity m System Operations Manual, Section 5.

For a description of message codes refer to the Alinity m System Operations Manual, Section 10.

LIMITATIONS OF THE PROCEDURE

- Optimal performance of this test requires appropriate specimen collection and handling (refer to the **SPECIMEN COLLECTION AND PREPARATION FOR ANALYSIS** section of this package insert).
- Human serum (including serum separator) and plasma (ACD, EDTA, and PPT) specimens may be used with the Alinity m HCV assay. The use of other anticoagulants have not been evaluated.
- Debris within serum and plasma specimens (eg, clots, fibrin strands) may interfere with sample processing.
- If the HCV results are inconsistent with clinical evidence, additional testing is suggested to confirm the result.
- The instruments and assay procedures reduce the risk of contamination by amplification product. However, nucleic acid contamination from the calibrators, positive controls, or specimens must be controlled by good laboratory practice and careful adherence to the procedures specified in this package insert.

SPECIFIC PERFORMANCE CHARACTERISTICS

Limit of Detection

The limit of detection (LOD) of Alinity m HCV is 12 IU/mL in plasma and serum.

The LOD was determined by testing dilutions of 4th World Health Organization (WHO) International Standard for Hepatitis C Virus for Nucleic Acid Amplification Techniques (NIBSC code: 06/102; genotype 1) prepared in HCV negative human plasma and serum. Testing for each HCV RNA concentration was performed with 4 lots of amplification reagents across multiple days. The results, representative of the analytical sensitivity performance of Alinity m HCV, are summarized for plasma (Table 1) and serum (Table 2).

Table 1. Alinity m HCV Limit of Detection (LOD) in Plasma

HCV RNA (IU/mL)	No. of Valid Replicates	No. Detected	Detection Rate (%)
15.00	96	96	100.0
12.00	96	95	99.0
9.00	95	95	100.0
6.00	96	90	93.8
3.00	96	85	88.5

Probit analysis determined that the concentration of HCV RNA in plasma detected with 95% probability was 5.11 IU/mL (95% CI 3.92 to 8.46 IU/mL).

Table 2. Alinity m HCV Limit of Detection (LOD) in Serum

HCV RNA (IU/mL)	No. of Valid Replicates	No. Detected	Detection Rate (%)
15.00	94	94	100.0
12.00	96	94	97.9
9.00	96	96	100.0
6.00	95	90	94.7
3.00	96	82	85.4

Probit analysis determined that the concentration of HCV RNA in serum detected with 95% probability was 5.11 IU/mL (95% CI 4.16 to 7.47 IU/mL).

Limit of Detection for Genotypes 2, 3, 4, 5 and 6

HCV clinical specimens for genotypes 2, 3, 4, 5, and 6 were diluted to 3 different concentrations in HCV negative plasma and serum. Testing was performed with 1 lot of amplification reagents across multiple days. The results, representative of the analytical sensitivity performance of Alinity m HCV for genotypes 2, 3, 4, 5 and 6, are summarized in Tables 3 and 4. These results demonstrate that Alinity m HCV detected HCV at

and above 12 IU/mL in plasma and serum, with an upper one-sided 95% confidence interval (CI) equal to or greater than the expected rate of 95.0%.

Table 3. Alinity m HCV Genotype Limit of Detection (LOD) in Plasma

Genotype	HCV RNA IU/mL	No. Valid Replicates	No. Detected	Detection Rate (%)	95% CI (%)[a]
	16.00	22	22	100.0	100.0
2	12.00	24	24	100.0	100.0
	9.00	24	24	100.0	100.0
	16.00	23	23	100.0	100.0
3	12.00	24	24	100.0	100.0
	9.00	24	24	100.0	100.0
	16.00	23	23	100.0	100.0
4	12.00	24	23	95.8	99.1
	9.00	24	23	95.8	99.1
	16.00	24	24	100.0	100.0
5	12.00	24	24	100.0	100.0
	9.00	24	24	100.0	100.0
	16.00	24	24	100.0	100.0
6	12.00	23	23	100.0	100.0
	9.00	24	24	100.0	100.0

[a] Upper one-sided 95% confidence interval (%).

Table 4. Alinity m HCV Genotype Limit of Detection (LOD) in Serum

Genotype	HCV RNA IU/mL	No. Valid Replicates	No. Detected	Detection Rate (%)	95% CI (%)[a]
	16.00	23	23	100.0	100.0
2	12.00	24	24	100.0	100.0
	9.00	24	22	91.7	97.2
	16.00	24	24	100.0	100.0
3	12.00	24	24	100.0	100.0
	9.00	24	24	100.0	100.0
	16.00	24	24	100.0	100.0
4	12.00	24	23	95.8	99.1
	9.00	24	23	95.8	99.1
	16.00	24	24	100.0	100.0
5	12.00	23	23	100.0	100.0
	9.00	23	23	100.0	100.0
	16.00	24	24	100.0	100.0
6	12.00	24	24	100.0	100.0
	9.00	23	23	100.0	100.0

[a] Upper one-sided 95% confidence interval (%).

Linear Range

Linearity of Alinity m HCV was assessed by testing a dilution series of HCV genotype 1 in negative human plasma and serum, each consisting of 9 panel members spanning from 12 IU/mL to 200,000,000 IU/mL. The panel members with lower concentration were prepared using a clinical specimen, while the panel members with higher concentrations were prepared using Armored RNA. The linearity panel was designed to have at least 2 Log IU/mL titer overlap between the two target sources.

Representative results for Alinity m HCV linearity performance are shown in Figures 1 and 2.

Alinity m HCV was linear in plasma and serum across the range of HCV RNA concentrations tested (from 12 IU/mL to 200,000,000 IU/mL).

Figure 1. Linearity in Plasma

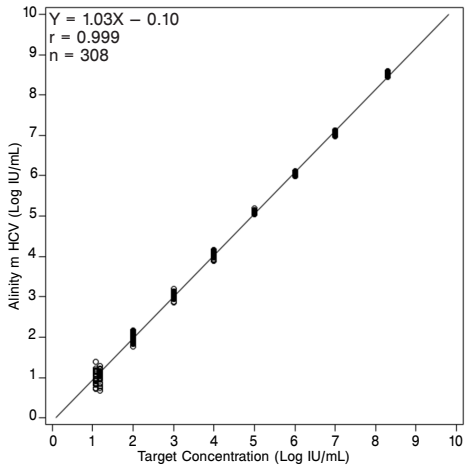
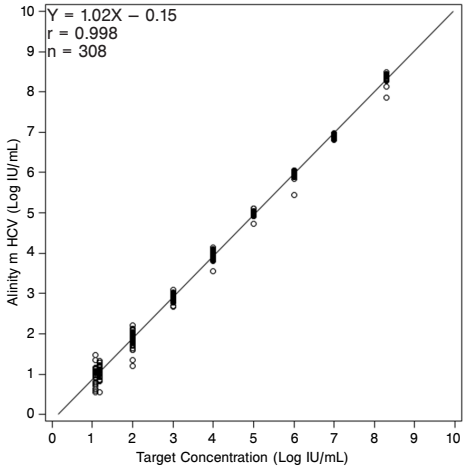


Figure 2. Linearity in Serum



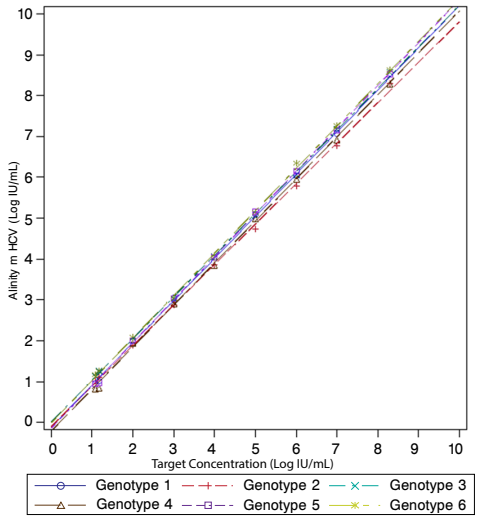
Linearity Across HCV Genotypes

Linearity of Alinity m HCV for genotypes 2, 3, 4, 5 and 6 was confirmed by testing a dilution series in negative human plasma and serum, each consisting of 9 panel members spanning from 12 IU/mL to 200,000,000 IU/mL. For each genotype, the panel members with lower concentration were prepared using a clinical specimen, while the panel members with higher concentrations were prepared using Armored RNA. The linearity panel was designed to have at least 2 Log IU/mL titer overlap between the 2 target sources.

Representative results for Alinity m HCV linearity performance for genotypes 2, 3, 4, 5 and 6, along with results for genotype 1 (**Linear Range** section), are shown in Figures 3 and 4.

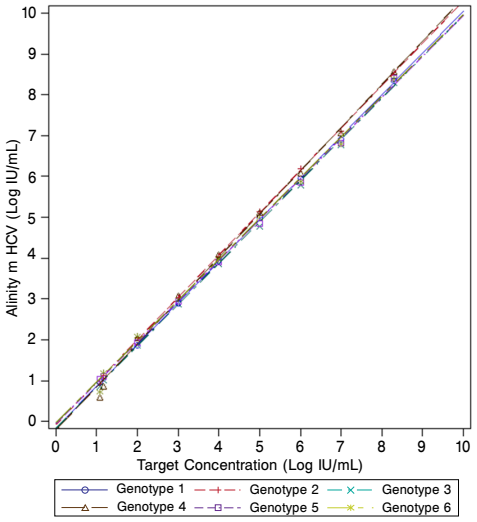
Alinity m HCV was linear in plasma and serum across the range of HCV RNA concentrations tested for genotypes 1, 2, 3, 4, 5 and 6 (from 12 IU/mL to 200,000,000 IU/mL).

Figure 3. Linearity Across HCV Genotypes in Plasma



NOTE: The markers in the plot represent the mean Alinity m HCV concentration (in Log IU/mL) for each panel member.

Figure 4. Linearity Across HCV Genotypes in Serum



NOTE: The markers in the plot represent the mean Alinity m HCV concentration (in Log IU/mL) for each panel member.

Precision

Alinity m HCV was designed to achieve a within-laboratory standard deviation (SD) of less than or equal to 0.25 Log IU/mL of HCV RNA from 2 to 8 Log IU/mL (100 to 100,000,000 IU/mL), and less than or equal to 0.35 Log IU/mL at 3 times the lower limit of quantitation (LLOQ).

Precision of Alinity m HCV was determined by analyzing an 8-member plasma panel and an 8-member serum panel. Panel members 1, 2, 4, 6, 7, and 8 were prepared by diluting HCV genotype 1 into HCV negative human plasma and serum, whereas panel members 3 and 5 were prepared by diluting HCV genotype 4 into HCV negative human plasma and serum. Clinical specimens were used as the target sources for panel members with concentrations less than 5 Log IU/mL (100,000 IU/mL). For panel members with higher concentrations, Armored RNA was used as the target source. Each panel member was tested in 4 replicates, twice each day for 5 days, on 3 Alinity m Systems with 3 AMP Kit lots by 3 operators, for a total of 120 replicates.

The results, representative of the precision of Alinity m HCV in plasma and serum, are summarized in Tables 5 and 6, respectively.

Table 5. Precision in Plasma

Panel Member	N[d]	Mean Conc. (Log IU/mL)	Within Run SD	Between Run SD	Between Day SD	Within Laboratory[a] SD	Between Instrument[b] SD	Total[c]
1	118	1.40	0.17	0.00	0.06	0.18	0.00	0.18
2	118	1.83	0.10	0.00	0.04	0.11	0.02	0.11
3	120	2.95	0.11	0.09	0.03	0.14	0.00	0.14
4	119	3.76	0.06	0.01	0.02	0.07	0.01	0.07
5	118	4.97	0.06	0.02	0.02	0.07	0.02	0.07
6	119	5.99	0.05	0.02	0.01	0.05	0.04	0.06
7	117	6.94	0.05	0.02	0.02	0.06	0.05	0.08
8	118	8.42	0.03	0.03	0.00	0.04	0.10	0.11

[a] Within-Laboratory includes Within-Run, Between-Run and Between-Day components.
[b] The Between-Instrument component consists of Alinity m System, AMP Kit lot, and operator.
[c] Total includes Within-Run, Between-Run, Between-Day, and Between-Instrument components.
[d] Valid replicates.

Table 6. Precision in Serum

Panel Member	N[d]	Mean Conc. (Log IU/mL)	Within Run SD	Between Run SD	Between Day SD	Within Laboratory[a] SD	Between Instrument[b] SD	Total[c]
1	120	1.43	0.12	0.00	0.04	0.13	0.03	0.13
2	120	1.87	0.10	0.08	0.03	0.13	0.04	0.14
3	119	2.78	0.11	0.08	0.00	0.14	0.08	0.16
4	119	3.79	0.06	0.07	0.04	0.10	0.03	0.10
5	119	4.92	0.07	0.05	0.00	0.09	0.06	0.11
6	119	5.96	0.04	0.01	0.02	0.05	0.06	0.08
7	120	6.91	0.05	0.01	0.02	0.06	0.07	0.09
8	118	8.39	0.03	0.02	0.01	0.04	0.12	0.12

[a] Within-Laboratory includes Within-Run, Between-Run and Between-Day components.
[b] The Between-Instrument component consists of Alinity m System, AMP Kit lot, and operator.
[c] Total includes Within-Run, Between-Run, Between-Day, and Between-Instrument components.
[d] Valid replicates.

Specificity

The specificity of Alinity m HCV was determined by testing HCV negative plasma and serum specimens from individual donors. A total of 504 specimens were analyzed including 250 plasma and 254 serum. The overall specificity was 100.0% (95% CI: 99.2 to 100.0%).

Analytical Specificity – Potential Cross-Reactants

The analytical specificity of Alinity m HCV was evaluated with a panel of microorganisms (Table 7) in HCV negative plasma, positive plasma containing 36 IU/mL HCV, and positive plasma containing 10,000 IU/mL HCV. No cross-reactivity or interference in Alinity m HCV performance was observed in the presence of the tested microorganisms.

Table 7. Microorganisms

Viruses
Adenovirus Type 5
BK Polyomavirus
Dengue Virus 1
Dengue Virus 2
Dengue Virus 3
Dengue Virus 4
FSME Virus
GB Virus C/Hepatitis G Virus
Hepatitis A Virus
Hepatitis B Virus
Hepatitis D Virus
Human Herpesvirus 1/Herpes Simplex Virus 1
Human Herpesvirus 2/Herpes Simplex Virus 2
Human Herpesvirus 5/Human Cytomegalovirus
Human Herpesvirus 4/Epstein Barr Virus
Human Herpesvirus 6B
Human Herpesvirus 8
Human Immunodeficiency Virus 1
Human Immunodeficiency Virus 2

Human Papilloma Virus 16
Human Papilloma Virus 18
Human T-Lymphotropic Virus 1
Human T-Lymphotropic Virus 2
Influenza A
Japanese Encephalitis
Murray Valley Encephalitis Virus
Parvo Virus B19
Rubella Virus
St. Louis Encephalitis
Vaccinia Virus
Varicella-Zoster Virus
West Nile Virus
Yellow Fever Virus
Zika Virus
Bacteria
Chlamydia trachomatis
Corynebacterium diphtheriae
Mycobacterium gordonae
Mycobacterium smegmatis
Neisseria gonorrhoeae
Propionibacterium acnes
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus pneumoniae
Protozoan
Trichomonas vaginalis
Yeast
Candida albicans

Analytical Specificity – Potentially Interfering Substances

The effects of endogenous substances, the presence of non-HCV related diseases, the presence of high levels of therapeutic drugs commonly prescribed for the treatment of HCV and related diseases, were evaluated. Potential interference on Alinity m HCV performance was assessed by testing HCV negative samples, and positive samples containing 36 and 10,000 IU/mL HCV.

No interference was observed in the presence of albumin (60 mg/mL), hemoglobin (2 mg/mL), triglycerides (37 mM), conjugated bilirubin (0.342 mM), unconjugated bilirubin (0.342 mM), or human genomic DNA (2 mg/L).

No interference was observed for specimens collected from patients with the following disease states: systemic lupus erythematosus (SLE), anti-nuclear antibodies (ANA), rheumatoid factor (RF), alcoholic hepatitis, non-alcoholic steatohepatitis (NASH), cirrhosis, auto-immune hepatitis, or hepatocellular carcinoma (HCC).

No interference was observed in the presence of drug compounds tested in pools that are listed in Table 8, at a concentration of 3 times the reported C_{max} or higher.

Table 8. Drug Compounds

Pools Tested	Drug Compounds
1	Abacavir sulfate, Acetaminophen, Acyclovir, Adefovir, Amitriptyline, Amlodipine, Aspirin, Atazanavir, Atenolol, Atorvastatin, Azithromycin, Celecoxib, Cidofovir, Clarithromycin, Clopidogrel
2	Didanosine, Efavirenz, Entecavir, Fluconazole, Fluoxetine, Ibuprofen, Indinavir, Kaletra (Lopinavir and Ritonavir), Lamivudine, Levofloxacin, Maraviroc, Nelfinavir, Nevirapine, Paroxetine
3	Prednisone, Raltegravir, Ribavirin, Rifamate (Rifampin and Isoniazid), Saquinavir, Sertraline, Stavudine, Stribild (Elvitegravir, Cobicistat, Emtricitabine, and Tenofovir), Bactrim (Sulfamethoxazole and Trimethoprim)
4	Darunavir, Ethambutol, Etravirine, Flucytosine, Fluticasone propionate, Furosemide, Hydrochlorothiazide, Levothyroxine, Rifabutin, Rilpivirine, Salmeterol xinafoate, Simeprevir, Sofosbuvir, Telaprevir, Tenofovir alafenamide, Trazodone, Warfarin, Zalcitabine
5	Fosamprenavir, Keflex (Cephalexin), Metformin, Naproxen, Pyrazinamide
6	Tipranavir
7	Ceftriaxone, Ciprofloxacin, Foscarnet, Lisinopril, Peginterferon alfa-2a, Enfuvirtide, Imipramine
8	Cyclosporine, Telbivudine, Valacyclovir, Valganciclovir, Zidovudine, Amphotericin B, Ganciclovir
9	Hydrocodone
10	Biotin

Carryover

The carryover rate for Alinity m HCV was determined by analyzing 373 replicates of HCV negative samples processed from alternating positions with high concentration HCV positive samples at 10,000,000 IU/mL, across a total of 15 runs. HCV RNA was not detected in any HCV negative sample, resulting in an overall carryover rate of 0.0% (95% CI: 0.0 to 1.0%).

Matrix Equivalency

25 HCV-negative plasma and serum pairs and 54 HCV-positive plasma and serum pairs were tested. All HCV negative plasma and serum samples were not detected, and all HCV positive plasma and serum samples were detected, resulting in an overall percent agreement between plasma and serum samples of 100.0% (95% CI: 95.4 to 100.0%). The HCV RNA concentrations for the HCV positive plasma and serum pairs were distributed across the quantitation range of the assay. The Alinity m HCV quantitation demonstrated a slope of 0.96, intercept of 0.24, correlation coefficient (r) of 0.986, and mean bias of 0.06 Log IU/mL between plasma and serum samples.

Alinity m HCV Testing Using Dilution Procedure

The 1 : 2.5 and 1 : 50 dilution procedures were evaluated by comparing quantitation of neat (undiluted) samples and samples that were tested using Alinity m HCV dilution procedures. Panel members in plasma and serum, consisting of HCV concentrations within the quantitation ranges for the diluted samples, were tested using both dilution factors. Each panel member was tested neat or diluted in 5 replicates. The test results for neat and diluted panel members are shown in Table 9.

Table 9. Alinity m HCV Results for Samples Tested Using Dilution Procedures

		Neat (Undiluted)	Diluted
Dilution	Panel Member[a]	Mean Conc. (Log IU/mL)	Mean Conc. (Log IU/mL)
1 : 2.5	01	1.84	1.94
	02	3.50	3.43
	03	3.86	3.81
	04	4.86	4.87
	05	7.78	7.47
	06	8.32	8.37
	07	3.43	3.45
	08	3.76	3.79
	09	4.64	4.74
	10	6.05	6.01
1 : 50	11	3.50	3.29
	12	3.86	3.69
	13	4.86	4.58
	14	7.78	7.33
	15	8.32	8.07
	16	3.43	3.28
	17	3.76	3.67
	18	4.64	4.61
	19	6.05	5.88
	20	7.72	7.35

[a] Panel members 1 to 6 and 11 to 15 were plasma. Panel members 7 to 10 and 16 to 20 were serum.

Precision of Alinity m HCV Using Dilution Procedures

Precision of Alinity m HCV, using the dilution procedures, was determined by analyzing 3 panel members prepared by spiking HCV clinical specimen or Armored RNA in HCV negative human plasma. Each panel member was tested in 4 replicates, twice each day for 5 days, on 3 Alinity m Systems with 3 AMP Kit lots by 3 operators, for a total of 120 replicates. The results, representative of the precision of Alinity m HCV using dilution procedures, are summarized in Table 10.

Table 10. Precision of Alinity m HCV Using Dilution Procedures

Panel Member	Dilution	N[d]	Mean Conc. (Log IU/mL)	Within Run SD	Between Run SD	Between Day SD	Within Laboratory[a] SD	Between Instrument[b] SD	Total[c]
1	1:2.5	120	2.70	0.08	0.03	0.05	0.09	0.00	0.09
2	1:50	120	7.03	0.06	0.03	0.00	0.07	0.01	0.07
3	1:50	119	5.51	0.05	0.03	0.00	0.06	0.02	0.07

[a] Within-Laboratory includes Within-Run, Between-Run and Between-Day components.
[b] The Between-Instrument component consists of Alinity m System, AMP Kit lot, and operator
[c] Total includes Within-Run, Between-Run, Between-Day and Between-Instrument components.
[d] Valid replicates.

Seroconversion Sensitivity

Sequential specimens from 10 HCV seroconversion panels, each starting with a seronegative bleed, were tested. These panels were commercially available and pre-characterized for HCV infection. Alinity m HCV detected HCV in 77 out of 100 total number of bleeds compared with 27 that were reactive by a HCV antibody test (ARCHITECT Anti-HCV) and 51 that were reactive by an HCV antigen/antibody combination test (Murex HCV Ag/Ab Combo). Among the bleeds reactive by the HCV antibody test, 100% (27/27) were detected by Alinity m HCV. Among the bleeds reactive by the HCV antigen/antibody combination test, 100% (51/51) were detected by Alinity m HCV. The first detected bleed (ie, panel member) for Alinity m HCV occurred earlier than the HCV antibody test in all 10 panels (median 30.0 days; mean 30.0 days). The first detected bleed for Alinity m HCV occurred earlier than or on the same bleed date as the HCV antigen/antibody combination test in all 10 panels (median 0.0 days; mean 11.9 days). Results are presented in Table 11.

Table 11. Seroconversion Panel Data Summary

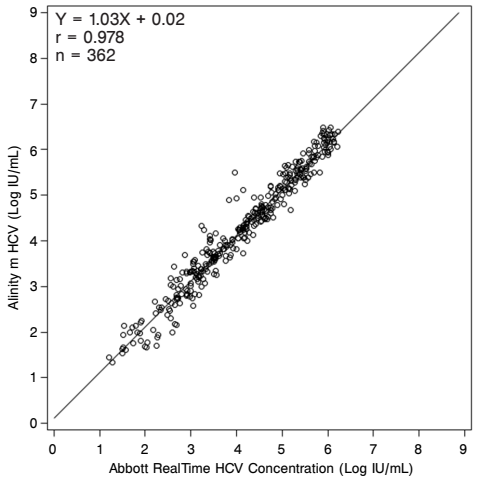
		No. of Detected/Reactive Panel Members			Days to First Detected/Reactive Result			Difference in Days to First Detected/Reactive Result (Based on Bleed Date)	
Panel ID	No. of Panel Members Tested	Alinity m HCV	HCV Antibody[a,b]	HCV Ag/Ab Combo[a,c]	Alinity m HCV	HCV Antibody	HCV Ag/Ab Combo	Days Earlier than HCV Antibody	Days Earlier than HCV Ag/Ab Combo
HCV6222	8	6	1	6	17	40	17	23	0
HCV6224	6	6[d]	2	2	0	19	19	19	19
HCV6226	12	12[d]	4	0[e]	0	37	47	37	47
HCV9054	10	4	2	3	52	77	74	25	22
HCV6227	7	4	2	4	42	74	42	32	0
HCV9047	10	10[d]	4	10[d]	0	28	0	28	0
HCV6228	12	12[d]	4	3	0	28	31	28	31
HCV9041	8	7	4	7	24	62	24	38	0
HCV9045	8	8[d]	2	8[d]	0	37	0	37	0
HCV6225	19	8	2	8	45	78	45	33	0
Total	**100**	**77**	**27**	**51**			**Median =**	**30.0**	**0.0**
							Mean =	**30.0**	**11.9**

[a] Based on data from the vendor of the seroconversion panels.
[b] ARCHITECT Anti-HCV assay.
[c] Murex HCV Ag/Ab Combo.
[d] All bleeds in these panels were detected or reactive. Zero was used as the "Days to First Detected/Reactive Result."
[e] All bleeds in this panel were non-reactive. The last bleed day was used as the "Days to First Detected/Reactive Result."

Clinical Performance – Method Correlation

The performance of Alinity m HCV was compared with Abbott RealTi*m*e HCV by analyzing 180 plasma and 185 serum specimens from HCV-infected patients (including genotypes 1, 2, 3, 4, 5, and 6) that generated valid results. The Deming regression analysis was performed on 362 specimens that generated results within the quantitation ranges common to both assays, as shown in Figure 5. The mean bias between the two assays (Alinity m HCV minus Abbott RealTi*m*e HCV) was 0.13 Log IU/mL (95% CI: 0.11 to 0.16).

Figure 5. Correlation between Alinity m HCV and Abbott RealTi*m*e HCV



Clinical Performance – Test Agreement

To assess test agreement in support of confirmatory claim, 327 plasma and 335 serum specimens from anti-HCV positive and negative individuals were tested using Alinity m HCV and a comparator CE-marked HCV RNA assay and generated valid results. The overall percent agreement between the confirmatory interpretations of the two assays (Table 12) was 100.0% (662/662; 95% CI: 99.4 to 100.0%), with positive percent agreement of 100.0% (363/363; 95% CI: 99.0 to 100.0%) and negative percent agreement of 100.0% (299/299; 95% CI: 98.7 to 100.0%).

Table 12. Agreement Between Alinity m HCV and Comparator HCV RNA Assay

		Alinity m HCV	
		HCV RNA Detected	**HCV RNA Not Detected**
Comparator HCV RNA Assay	**Reactive for HCV RNA**	363	0
	Non-Reactive for HCV RNA	0	299

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KEY TO SYMBOLS

REF	Reference Number
IVD	In Vitro Diagnostic Medical Device
LOT	Lot Number
In Vitro Test	In Vitro Test
PRODUCT OF USA	Product of USA
AMP TRAY	AMP TRAY
ACT TRAY	ACT TRAY
UNIT	Unit
	Systemic Health Effects
	Warning
	Caution
	Consult Instructions for Use
	Temperature Limitation
	Sufficient for
	Use By
EC REP	Authorized Representative in the European Community
	Manufacturer

TECHNICAL ASSISTANCE

For technical assistance, call Abbott Technical Services at 1-800-553-7042 (within the US) or +49-6122-580 (outside the US), or visit the Abbott website at www.molecular.abbott

Abbott Molecular Inc. is the legal manufacturer of the Alinity m HCV AMP Kit.

The Alinity m HCV AMP Kit is imported into the European Union by Abbott Diagnostics GmbH, located at Max-Planck-Ring 2, 65205 Wiesbaden, Germany.

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CE 1434

EC REP

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53-608062/R7

Abbott

HCV AMP Kit

Revised April 2021

REF 08N50-091
53-608063/R5

NOTE: Changes highlighted

CUSTOMER SERVICE: 1-800-553-7042
CUSTOMER SERVICE INTERNATIONAL: CALL YOUR ABBOTT REPRESENTATIVE

Instructions must be carefully followed. Reliability of assay results cannot be guaranteed if there are any deviations from these instructions.

NOTICE TO USER

If a serious incident occurs in relation to this device, the incident should be reported to the manufacturer and to the appropriate competent authority of the member state in which the user and/or the patient is established. To report to the manufacturer, see the contact information provided in the technical assistance section of these instructions.

NAME

Alinity m HCV AMP Kit

INTENDED USE

The Alinity m HCV assay is an in vitro reverse transcription-polymerase chain reaction (RT-PCR) assay for use with the automated Alinity m System to quantitate hepatitis C virus (HCV) RNA in human serum or plasma. The Alinity m HCV assay is intended for use in the clinical management of HCV-infected patients undergoing antiviral therapy in conjunction with clinical presentation and other laboratory markers. The results from the Alinity m HCV assay must be interpreted within the context of all relevant clinical and laboratory findings.

This assay is not intended to be used in screening blood, blood products, tissue, or organ donors for HCV.

INTENDED USER

The intended users for the Alinity m HCV AMP Kit are laboratory and healthcare professionals.

SUMMARY AND EXPLANATION OF THE TEST

Hepatitis C virus (HCV) is one of the major causes of liver disease. It was estimated that about 1.1% of the population are chronically infected with hepatitis C[1] and approximately 700,000 people die each year from hepatitis C-related liver disease.[2] HCV is a positive-strand RNA virus and transmitted primarily through intravenous drug use and through blood products. About 55 to 85% of HCV-infected individuals develop chronic hepatitis, with up to 30% of chronically infected individuals developing cirrhosis.[1] In patients with cirrhosis, the incidence of hepatocellular carcinoma is 2 to 4% per year.[1]

Quantitative measurement of HCV RNA level in peripheral blood has been shown to be an essential parameter in management of various anti-HCV therapies.[6-13] With the advent of direct acting antiviral regimens, the treatments for HCV infection are advanced dramatically. The objective of anti-HCV therapies is to achieve a sustained virologic response (SVR), presented as continued absence of detectable HCV RNA.[2-5] Measurements of HCV viral load have been used to individualize treatment duration and response-guided therapy or to determine and predict sustained or non-sustained virologic response of antiviral therapy.[2-5]

The Alinity m HCV assay is designed to target a highly conserved sequence of the HCV genome. The HCV primers and probes for the assay include a second probe to further ensure assay robustness against new and emerging HCV variants. Both HCV probes are labeled with the same fluorophore. The design ensures accurate detection and quantification of HCV genotypes 1 through 6 while maintaining high sensitivity.

In addition to the HCV primers and probes, the assay utilizes an internal control (IC) primer/probe set for amplification and detection of the IC target sequence, which is not related to HCV. The IC probe is labeled with a different fluorophore than the HCV probes. This allows for simultaneous detection and discrimination of both the HCV and IC amplified products within the same reaction vessel.

BIOLOGICAL PRINCIPLES OF THE PROCEDURE

The Alinity m HCV assay requires 3 separate assay specific kits:

- Alinity m HCV AMP Kit (08N50-091) consisting of 2 types of multi-well assay trays. The amplification trays (AMP Trays) contain lyophilized, unit-dose RT-PCR amplification/detection reagents and lyophilized, unit-dose IC in separate wells, and the activation trays (ACT Trays) contain liquid activation reagent. The intended storage condition for the Alinity m HCV AMP Kit is 2 to 8°C.
- Alinity m HCV CAL Kit (08N50-070) consisting of 2 calibrator levels, each supplied as liquid in single-use tubes. The intended storage condition for the Alinity m HCV CAL Kit is −20±5°C.
- Alinity m HCV CTRL Kit (08N50-080) consisting of negative controls, low-positive controls and high-positive controls, each supplied as liquid in single-use tubes. The intended storage condition for the Alinity m HCV CTRL Kit is −20±5°C.

The Alinity m HCV assay utilizes real-time reverse transcription polymerase chain reaction (RT-PCR) to amplify and detect HCV RNA genomic sequences that have been extracted from human plasma or serum specimens. The steps of the Alinity m HCV assay consist of sample preparation, RT-PCR assembly, amplification/detection, and result calculation and reporting. All steps of the Alinity m HCV assay procedure are executed automatically by the Alinity m System. Manual dilutions may be performed for low-volume specimens to meet the minimum volume requirement, and for high-titer specimens above the upper limit of quantitation (ULOQ).

The Alinity m System is designed to be a random access analyzer that can perform the Alinity m HCV assay in parallel with other Alinity m assays on the same instrument.

HCV RNA from human plasma or serum is extracted using the Alinity m Sample Prep Kit 2, Alinity m Lysis Solution, and Alinity m Diluent Solution. The Alinity m System employs magnetic microparticle technology to facilitate nucleic acid capture, wash and elution. The resulting purified RNA is then combined with liquid unit-dose Alinity m HCV activation reagent and lyophilized unit-dose Alinity m HCV amplification/detection reagents and transferred into a reaction vessel. Alinity m Vapor Barrier Solution is then added to the reaction vessel which is then transferred to an amplification/detection unit for reverse transcription, PCR amplification, and real-time fluorescence detection of HCV. At the beginning of the Alinity m HCV sample preparation process, a lyophilized unit-dose IC on the AMP Tray is rehydrated by the Alinity m System and delivered into each sample preparation reaction.

The IC is then processed through the entire sample preparation and RT-PCR procedure along with the specimens, calibrators and controls to demonstrate proper sample processing and validity.

The Alinity m HCV amplification/detection reagents consist of enzymes, primers, probes and activation reagents that enable reverse transcription, polymerization, and detection. The Alinity m HCV amplification/detection reagent also contains Uracil-DNA Glycosylase (UDG) as a contamination control for amplicons containing uracil, which may be present in molecular laboratories.

An HCV calibration curve is required for determination of HCV RNA concentration. Two levels of calibrators are processed through sample preparation and RT-PCR to generate the calibration curve. The concentration of HCV RNA in specimens and controls is then calculated from the stored calibration curve.

Assay controls are tested at or above an established minimum frequency to help ensure that instrument and reagent performance remains satisfactory. During each control event, a negative control, a low-positive control, and a high-positive control are processed through sample preparation and RT-PCR procedures that are identical to those used for specimens.

The possibility of nucleic acid contamination on the Alinity m System is minimized because:

- Aerosol barrier pipette tips are used for all pipetting. The pipette tips are discarded after use.
- PCR amplification and detection is carried out automatically in a sealed reaction vessel.
- Disposal of the reaction vessel is performed automatically by the Alinity m System.

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

REAGENTS

Kit Contents

Alinity m HCV AMP Kit List No. 08N50-091

The Alinity m HCV AMP Kit is comprised of 2 types of multi-well trays: Alinity m HCV AMP TRAY 1 and Alinity m HCV ACT TRAY 2.

Each Alinity m HCV AMP TRAY 1 (individually packed in a foil pouch with a desiccant bag) contains 48 unit-dose lyophilized amplification reagent wells and 48 unit-dose lyophilized IC wells. One well of each is used per test.

- Amplification reagent wells consist of synthetic oligonucleotides, DNA Polymerase, Reverse Transcriptase, Uracil-DNA Glycosylase, excipient, and dNTPs in a buffered solution with a reference dye.
- Internal control (IC) wells consist of noninfectious Armored RNA® with IC sequences and excipient in negative human plasma. Negative human plasma was tested and found to be nonreactive for HBsAg, HIV-1 antigen, Syphilis, HIV-1 RNA, HCV RNA, HBV DNA, anti-HIV-1/HIV-2, and anti-HCV.

Each Alinity m HCV ACT TRAY 2 (individually packed in a foil pouch without a desiccant bag) contains 48 unit-dose liquid activation reagent wells. One reagent well is used per test.

- Activation reagent wells consist of magnesium chloride and tetramethyl ammonium chloride.
  Preservative: 0.15% ProClin 950.

	Quantity
Σ	192 tests
Alinity m HCV AMP TRAY 1	4 trays / 48 tests each
Alinity m HCV ACT TRAY 2	4 trays / 48 tests each

WARNINGS AND PRECAUTIONS

IVD

- **For In Vitro Diagnostic Use**

Safety Precautions

The following warnings and precautions apply to:
Alinity m HCV AMP TRAY 1.

CAUTION: This preparation contains human-sourced and/or potentially infectious components. Refer to the **REAGENTS** section of this package insert. Components sourced from human blood have been tested and found to be non-reactive by appropriate FDA-licensed, approved, or cleared tests for antibody to HCV, antibody to HIV-1, antibody to HIV-2, HBsAg, HIV-1 antigen and Syphilis. The material is also tested and found to be negative by appropriate FDA-licensed, approved, or cleared PCR methods for HIV-1 RNA, HCV RNA, and HBV DNA. No known test method can offer complete assurance that products derived from human sources or inactivated microorganisms will not transmit infection. These reagents and human specimens should be handled as if infectious using safe laboratory procedures, such as those outlined in Biosafety in Microbiological and Biomedical Laboratories,[14] OSHA Standard on Bloodborne Pathogens,[15] CLSI Document M29-A4,[16] and other appropriate biosafety practices.[17] Therefore all human sourced materials should be considered infectious.

These precautions include, but are not limited to, the following:

- Wear gloves when handling specimens or reagents.
- Do not pipette by mouth.
- Do not eat, drink, smoke, apply cosmetics, or handle contact lenses in areas where these materials are handled.
- Clean and disinfect spills of specimens by including the use of a tuberculocidal disinfectant such as 1.0% sodium hypochlorite or other suitable disinfectant.[14]

Decontaminate and dispose of all potentially infectious materials in accordance with local, state and federal regulations.[17]

The following warnings and precautions apply to:
Alinity m HCV ACT TRAY 2.

DANGER	Contains Tetramethylammonium chloride, and 2-Methyl-4-isothiazolin-3-one
H302	Harmful if swallowed.
H316	Causes mild skin irritation[a]
H317	May cause an allergic skin reaction.
H370	Causes damage to organs.
H412	Harmful to aquatic life with long lasting effects.
Prevention	
P260	Do not breathe mist / vapours / spray.
P264	Wash hands thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves / protective clothing / eye protection.
Response	
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water.
P308+P311	IF exposed or concerned: Call a POISON CENTER/ doctor.
P333+P313	If skin irritation or rash occurs: Get medical advice / attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
Disposal	
P501	Dispose of contents / container in accordance with local regulations.

[a] Not applicable where regulation EU 1272/2008 (CLP) or OSHA Hazard Communication 29CFR1910.1200 (HCS) 2012 have been implemented.

Important information regarding the safe handling, transport and disposal of this product is contained in the Safety Data Sheet.

Safety Data Sheets are available from your Abbott Representative.

For a detailed discussion of safety precautions during system operation, refer to the Alinity m System Operations Manual, Section 7 and Section 8.

Reagent Shipment

	Shipment Condition
Alinity m HCV AMP Kit	On dry ice

Reagent Storage

In order to minimize damage to foil pouches, it is recommended that the Alinity m HCV AMP TRAY 1 (AMP TRAY 1) and Alinity m HCV ACT TRAY 2 (ACT TRAY 2) are stored in the original kit packaging. Open the foil pouch for the reagent trays just prior to loading onto the instrument. Onboard storage time begins when reagents are loaded on the Alinity m System.

	Storage Temperature	Maximum Storage Time
Unopened	2 to 8°C	Until expiration date
Onboard	System Temperature	30 days (not to exceed expiration date)

Reagent Handling

- Do not use reagents that have been damaged.
- Minimize contact with the surface of reagent trays during handling.
- Only load AMP TRAY 1 and ACT TRAY 2 from the same AMP Kit lot on the same Alinity m Assay Tray Carrier. Do not load AMP TRAY 1 and ACT TRAY 2 from different AMP Kit lots on the same Alinity m Assay Tray Carrier.
- The Alinity m System will track the onboard storage time of AMP TRAY 1 and ACT TRAY 2 while on the instrument. The Alinity m System will not allow the use of AMP TRAY 1 and ACT TRAY 2 if the maximum onboard storage time has been exceeded.
- For a detailed discussion of reagent handling precautions during system operation, refer to the Alinity m System Operations Manual, Section 8.

Indications of Reagent Deterioration

- Deterioration of the reagents may be indicated when a calibration or control error occurs or controls are repeatedly out of the specified ranges.
- Reagents are shipped on dry ice and are stored at 2 to 8°C upon arrival. If reagents arrive in a condition contrary to this recommendation or are damaged, immediately contact your Abbott Representative.
- For troubleshooting information, refer to the Alinity m System Operations Manual, Section 10.

INSTRUMENT PROCEDURE

The Alinity m HCV application specification file must be installed on the Alinity m System prior to performing the assay.

For detailed information on viewing and editing the customizable assay parameters, refer to the Alinity m System Operations Manual, Section 2.

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

For a detailed description of system operating instructions, refer to the Alinity m System Operations Manual, Section 5.

SPECIMEN COLLECTION AND PREPARATION FOR ANALYSIS

Specimen Types

The specimen types listed below can be used with this assay on the Alinity m System. For the Alinity m HCV assay, only use collection tubes as described in the following table for the corresponding specimen type. Alinity m HCV performance with other specimen types or collection tubes has not been evaluated.

Specimen Types[a]	Blood Collection Tubes
Plasma	Acid Citrate Dextrose (ACD) K_2 EDTA K_3 EDTA Plasma Preparation Tube (PPT)[b]
Serum	Serum Serum Separator Tube (SST)[b]

a The instrument does not provide the capability to verify specimen types. It is the responsibility of the operator to use the correct specimen types in the assay.

b The Plasma Preparation Tube and Serum Separator Tube are gel tubes.

Specimen Storage: Plasma Testing

Specimen	Temperature	Maximum Storage Time	Special Instructions
Whole Blood	2 to 8°C	2 days	Whole blood may be stored between draw and plasma separation.
	15 to 25°C	1 day	
Plasma	2 to 8°C	3 days	Plasma may be stored in primary or secondary tubes after separation from blood cells.
	15 to 25°C	1 day	
	–20°C	30 days	Plasma may be stored frozen in primary gel tubes (PPT) or secondary tubes after separation from blood cells.[a] Plasma from non-gel tubes must be transferred to secondary tubes prior to storage.[a]
	–70°C or colder	Longer storage	

a Avoid more than 2 freeze-thaw cycles

Specimen Storage: Serum Testing

Specimen	Temperature	Maximum Storage Time	Special Instructions
Whole Blood	2 to 8°C	2 days	Whole blood may be stored between draw and serum separation.
	15 to 25°C	1 day	
Serum	2 to 8°C	3 days	Serum may be stored in primary or secondary tubes after separation from the clot.
	15 to 25°C	1 day	
	–20°C	30 days	Serum may be stored frozen in primary gel tubes (SST) or secondary tubes after separation from the clot.[a] Serum from non-gel tubes must be transferred to secondary tubes prior to storage.[a]
	–70°C or colder	Longer storage	

a Avoid more than 3 freeze-thaw cycles.

Specimen Shipping

Ship specimens according to the recommended storage temperature and time listed in the **Specimen Storage** section. Package and label specimens in compliance with applicable state, federal, and international regulations covering the transport of clinical, diagnostic, or biological specimens.

Preparation for Analysis

Freshly Drawn Whole Blood Specimens:

- Follow the specimen collection tube manufacturer instructions for blood collection and centrifugation. Separate plasma and serum from cells or clot by centrifugation.
- After centrifugation, plasma may be stored on the blood cells (in tube with or without gel) prior to being loaded onto the Alinity m System or used for dilution. Serum may be stored on the clot (in tube with or without gel) prior to being loaded onto the Alinity m System or used for dilution.

  NOTE: Specimens stored on the blood cells or on the clot cannot be frozen without a gel.
- Plasma and serum specimens may also be transferred to a secondary tube for storage prior to being loaded onto the Alinity m System or used for dilution. If longer storage is required, plasma and serum specimens in the secondary tubes may be stored frozen.

Frozen Specimens: Primary Gel Tubes

- Thaw specimens at 15 to 25°C or at 2 to 8°C. Once thawed, specimens can be stored at 2 to 8°C for up to 6 hours if not processed immediately.
- Vortex each specimen 3 times for 2 to 3 seconds.
- Centrifuge specimens stored in primary gel tubes at 2000*g* for 5 minutes before loading onto the Alinity m System or before preparing a specimen dilution. If any clot or debris is observed, transfer the supernatant of the specimen into the new tube. Avoid transferring any debris or clot into the new tube.

Frozen Specimens: Secondary Aliquot Tubes

- Thaw specimens at 15 to 25°C or at 2 to 8°C. Once thawed, specimens can be stored at 2 to 8°C for up to 6 hours if not processed immediately.
- Vortex each specimen 3 times for 2 to 3 seconds.
- Centrifuge specimens at 2000*g* for 5 minutes before loading onto the Alinity m System or before preparing a specimen dilution. If any clot or debris is observed, transfer the supernatant of the specimen into a new tube. Avoid transferring any debris or clot into a new tube.

All specimen tubes (primary and secondary tubes) must be labeled with specimen ID barcodes or must be identified with a specimen ID and rack and position. Refer to the **Assay Procedure** section of this package insert or the Alinity m System Operations Manual, Section 4, for tube sizes. Avoid touching the inside of the cap when opening tubes.

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PROCEDURE

Materials Provided

08N50-091 Alinity m HCV AMP Kit

Materials Required but not Provided

- 08N50-070 Alinity m HCV CAL Kit
- 08N50-080 Alinity m HCV CTRL Kit
- 09N12-001 Alinity m Sample Prep Kit 2
- 09N20-001 Alinity m Lysis Solution
- 09N20-003 Alinity m Diluent Solution
- 09N20-004 Alinity m Vapor Barrier Solution
- 09N50-001 Alinity m Specimen Dilution Kit I[a]
- Alinity m HCV Application Specification File
- Vortex mixer
- Centrifuge capable of 2000*g*
- 09N49-001 Alinity m LRV Tube[a]
- Calibrated pipettes capable of delivering 10 to 1000 µL[a]
- Aerosol barrier pipette tips for 10 to 1000 µL pipettes[a]
- Plate adapter for 384 well plates (such as Corning Catalog No. 3820 or Eppendorf Catalog No. 022638955)
- Centrifuge with swing plate rotor capable of accommodating the plate adapter and capable of ≥ 100*g*
- 09N49-010 Alinity m Transport Tube Pierceable Capped
- 09N49-011 Alinity m Transport Tube
- 09N49-012 Alinity m Pierceable Cap
- 09N49-013 Alinity m Aliquot Tube

[a] These items are used in the **Specimen Dilution Procedure** if dilution is required.

For information on materials required for operation of the instrument, refer to the Alinity m System Operations Manual, Section 1.

For general operating procedures, refer to the Alinity m System Operations Manual, Section 5.

For optimal performance, it is important to perform routine maintenance as described in the Alinity m System Operations Manual, Section 9.

Procedural Precautions

- Read the instructions in this package insert carefully before processing samples.
- Use aerosol barrier pipette tips or disposable pipettes only one time when pipetting specimens. To prevent contamination to the pipette barrel while pipetting, care should be taken to avoid touching the pipette barrel to the inside of the sample tube or container. The use of extended aerosol barrier pipette tips is recommended.
- Work area and instrument platforms must be considered potential sources of contamination.
- Ensure the Alinity m HCV AMP TRAY 1 is tapped prior to loading on the Alinity m System per instructions in the **Assay Procedure** section.
- Ensure the Alinity m HCV ACT TRAY 2 is centrifuged prior to loading on the Alinity m System per instructions in **Assay Procedure** section.
- Monitoring procedures for the presence of amplification product can be found in the Alinity m System Operations Manual, Section 9.
- If longer storage is required, plasma and serum specimens in a gel tube may be stored frozen.
- To reduce the risk of nucleic acid contamination, clean and disinfect spills of specimens by including the use of a tuberculocidal disinfectant such as 1.0% (v/v) sodium hypochlorite or other suitable disinfectant.
- To prevent contamination, change to new gloves before handling the Alinity m Sample Prep Kit 2, assay trays, system solutions, Integrated Reaction Unit (IRU) sleeves, and pipette tips. Also change to new gloves whenever they are contaminated by a specimen, a calibrator, a control, or a reagent. Always use powder-free gloves.
- The use of the Alinity m HCV CAL Kit and CTRL Kit is integral to the performance of the Alinity m HCV assay. Refer to the **QUALITY CONTROL PROCEDURES** section of this package insert for details. Refer to the Alinity m HCV CAL Kit package insert and/or Alinity m HCV CTRL Kit package insert for preparation and usage.
- The Alinity m HCV calibrator and control reagents are contained in single-use tubes with pierceable caps. Avoid contamination or damage to the caps after removal from their original packaging. Discard tubes after use.

Assay Procedure

Prior to loading on the Alinity m System, hold the AMP TRAY 1 by the edges with the label facing up and tap 3 times on the bench.

Prior to loading on the Alinity m System, the ACT TRAY 2 must be centrifuged as follows:

1. Load the ACT TRAY 2 onto the plate adapter (Corning Catalog No. 3820 or Eppendorf Catalog No. 022638955).
2. Load the plate adapter (with the ACT TRAY 2) on a swing plate centrifuge capable of accommodating the plate adapter. Spin at 100 to 800*g* for 1 to 5 minutes to remove potential bubbles.
3. Immediately following centrifugation, carefully transfer the ACT TRAY 2 to the Alinity m Assay Tray Carriers. Take care to minimize disturbance to the ACT TRAY 2. Load the tray carriers per the Alinity m System Operations Manual, Section 5.
4. If disturbance occurs during the transfer that could potentially introduce bubbles (eg, dropping, bumping, inversion of the ACT TRAY 2), re-centrifuge the ACT TRAY 2.
5. Proceed with the **Reagent and sample inventory management** procedure per the Alinity m System Operations Manual, Section 5.

For a detailed description of how to run an assay, refer to the Alinity m System Operations Manual, Section 5. Prior to testing specimens, check the calibration and control status. If recalibration or control testing is required, refer to the **QUALITY CONTROL PROCEDURES** section. Calibrators and/or controls may be tested separately or with specimens.

From the Create Order screen, select the assay (HCV) being tested.

The Alinity m System will track the onboard storage time of amplification reagents, calibrators, controls and specimens while on the instrument. The Alinity m System will not allow the use of amplification reagents, calibrators, controls or process specimens that have exceeded the allowable onboard storage time.

Specimen tubes need to meet the requirements for minimum sample volume and use of caps when loaded on the Alinity m System. Blood collection tubes with separated plasma or serum and specimen aliquot tubes may be placed on the Alinity m Universal Sample Rack (sample rack) onboard the system for up to 4 hours prior to processing.

Tube Type[a]	List No.	Minimum Plasma/ Serum Volume Required	Cap Requirement on Instrument
Blood Collection Tube (Primary Tubes)			
Blood collection tubes with minimum inner diameter 10.0 mm	NA	11.0 mm[b] above the gel, clot, or blood cells	Uncapped
Specimen Aliquot Tube (Secondary Tubes)			
Alinity m Aliquot Tube	09N49-013	0.75 mL	Capped[c] or uncapped
Alinity m Transport Tube	09N49-011	1.0 mL	Uncapped
Alinity m Transport Tube Pierceable Capped	09N49-010	1.0 mL	Uncapped[d]
Other aliquot tubes with minimum inner diameter 10.0 mm	NA	0.9 mL for tubes with 10.6 mm or less inner diameter. 1.4 mL for tubes with 13.2 mm or less inner diameter.	Uncapped

[a] Refer to the Alinity m System Operations Manual, Section 4, for sample tube specifications and requirements and Section 5 for sample rack loading instructions.

[b] Represents requirement for minimum column height of plasma or serum above the gel/clot/blood cells in the primary tube. The minimum volume in milliliters can be calculated using the inner diameter (ID in mm) of the tube in the formula: Minimum Volume = $0.00864 \times ID^2$.

[c] Alinity m Pierceable Cap, List No. 09N49-012, is the only type of cap that can be used with Alinity m Aliquot Tube when loaded on the Alinity m System.

[d] Cap must be removed prior to loading.

When loading samples tubes to the Alinity m System, the Sample Rack Retention Bar is required for the following situations.

1. Calibrator, Control with pierceable caps
2. Specimen in blood collection tubes with gel separator
3. Specimen in Transport tube with pierceable cap

Clean the retention bar after each use

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Prior to loading the specimen tubes on to the Alinity m System:

- Ensure individual specimen tubes are labeled correctly with specimen ID barcodes.
- Inspect serum or plasma specimens for bubbles and foam. Specimens should be free of bubbles and foam. If found, remove them with a new sterile pipette tip for each tube to prevent cross-contamination.

Specimen Dilution Procedure (Optional)

Specimens may be diluted manually for testing on the Alinity m System using the Alinity m Specimen Dilution Kit I per the table below.

Low volume specimens with a minimum of 260 µL volume available for Alinity m HCV testing can be diluted 1:2.5. Specimens with 50 to 259 µL volume available for Alinity m HCV testing can be diluted 1:50. High-titer specimens above the upper limit of quantitation (> ULOQ) can also be diluted 1:50 before testing.

Specimen Dilution Scenario	Available Specimen Volume	Dilution Factor
Low volume	≥260 µL	1:2.5
	50 to 259 µL	1:50
> ULOQ result	≥50 µL	1:50

The operator must select the dilution factor in the Specimen tab on the Create Order screen of the Alinity m System software. The system will use the selected dilution factor to automatically calculate and report the result of the neat specimen.

NOTE: Upon dilution, the specimen must be loaded onto the system within 2 hours.

Specimens are diluted with a dilution factor of 2.5, using Specimen Dilution Kit I as follows:

1. Apply a barcode label for the designated specimen ID to an Alinity m LRV Tube.
2. Open a fresh Alinity m Specimen Diluent Tube and transfer 390 µL of Specimen Diluent into the Alinity m LRV Tube.
3. Add 260 µL of the patient specimen into the Alinity m LRV Tube.
4. Cap the tube, vortex 3 times for 2 to 3 seconds, and tap upright on the bench to bring liquid to the bottom of the tube.
5. Remove the cap from the Alinity m LRV Tube. Inspect the fluid in the tube and remove any bubbles if found.
6. Place the Alinity m LRV Tube in the sample rack.

Specimens are diluted with a dilution factor of 50, using Specimen Dilution Kit I as follows:

1. Apply a barcode label for the designated specimen ID to an unused Alinity m Specimen Diluent Tube. Remove the cap from the Alinity m Specimen Diluent Tube. Save the cap for later use.
2. Add 50 µL of the patient specimen to the Alinity m Specimen Diluent Tube.
3. Cap the tube, vortex 3 times for 2 to 3 seconds, and tap upright on the bench to bring liquid to the bottom of the tube.
4. Load the tube directly onto the sample rack. The cap may remain on the tube.

NOTE: Do not use an Alinity m Specimen Diluent Tube that has crystals or liquid on the outside of the tube because this may be evidence of leakage.

QUALITY CONTROL PROCEDURES

Assay Calibration

For instructions on performing an assay calibration, refer to the Alinity m System Operations Manual, Section 6.

Lot-specific concentration values for assay calibrators and controls are available via: Abbott Mail, the Abbott Molecular customer portal www.molecular.abbott/portal, and from your Abbott Representative.

When an assay calibration is being performed:

- Lot-specific concentration values can be automatically imported to the Alinity m System via Abbott Mail upon scanning the calibrators (HCV CAL A and HCV CAL B) or controls (HCV NEG CTRL, HCV LOW POS CTRL, and HCV HIGH POS CTRL) tube barcodes.
- Lot-specific concentration values can also be obtained from the Abbott Molecular customer portal or provided by your Abbott Representative and imported via a USB drive.

For instructions on creating a test order for calibration and loading calibrators on the instrument, refer to the Alinity m System Operations Manual, Section 5.

A calibration curve is required to quantitate the HCV RNA concentration.

At a minimum, 1 Alinity m HCV CAL A tube and 1 Alinity m HCV CAL B tube from the Alinity m HCV CAL Kit are required for performing an assay calibration on the Alinity m System. The Alinity m System will process 3 replicates from each calibrator tube. The output data of the 2 calibrators will be used to generate a calibration curve (lot-specific HCV concentration versus the threshold cycle [C_t] at which a reactive level of fluorescent signal is detected). The calibration curve slope and intercept are calculated and stored on the instrument.

Once an assay calibration is accepted and stored, all subsequent samples may be tested without further calibration unless any of the following situations occurs:

- An Alinity m HCV AMP Kit with a new lot number is used.
- An Alinity m Sample Prep Kit 2 or Alinity m Lysis Solution with a new lot number is used.
- The assay calibration has expired.
- A new version of the Alinity m HCV Application Specification File is installed.

This assay may require recalibration after maintenance to critical parts or subsystems or after service procedures have been performed. Contact your Abbott Representative for further instructions.

Detection of Inhibition

An IC threshold cycle [C_t] assay validity parameter is established during a calibration run.

A defined, consistent quantity of IC is introduced into each specimen, calibrator, and control at the beginning of sample preparation and measured on the Alinity m System to demonstrate proper specimen processing and assay validity.

The median IC C_t value from calibrator samples establishes an IC C_t validity range for subsequently processed specimens and controls.

A Message Code is assigned to a specimen or control when its IC C_t value is outside of the IC C_t validity range. When the IC C_t value exceeds the upper limit of the IC C_t validity range, abnormal assay conditions, such as inhibition, are indicated.

Refer to the Alinity m System Operations Manual, Section 10 for an explanation of the corrective actions for Message Codes.

Negative and Positive Controls

An Alinity m HCV Negative CTRL, Low Positive CTRL and High Positive CTRL are recommended to be tested, at or above the minimum frequency of once every 48 hours, to monitor the performance of the assay and Alinity m System. Valid results for all control levels must be obtained before specimen results are reported. The assay controls are also tested following calibrators and valid results for controls are required to establish a new calibration curve.

Additional controls may be tested in accordance with local, state, and/or federal regulations or accreditation requirements and your laboratory's quality control policy.

If quality control results do not meet the acceptance criteria, refer to the Alinity m System Operations Manual, Section 10, for troubleshooting information.

A flag is displayed for specimens when a control result is invalid. All of the specimens processed following an invalid assay control must be retested.

If control results are invalid, refer to the Alinity m System Operations Manual, Section 5 for a description of quality control flags, and Section 10 for troubleshooting information.

The presence of HCV must not be detected in the negative control. HCV detected in the negative control is indicative of contamination by other samples or by amplified product. To avoid contamination, clean the Alinity m System and repeat sample processing for controls and specimens following the Procedural Precautions in this package insert. Monitoring procedures for the presence of amplification product can be found in the Alinity m System Operations Manual, Section 9.

If negative controls are persistently reactive, contact your Abbott Representative.

When a set of assay controls are being processed, the lot-specific concentration values of the Alinity m HCV low-positive control and Alinity m HCV high-positive control can be:

- Automatically imported to the Alinity m System via Abbott Mail upon scanning the barcode labels on control tubes (HCV LOW POS CTRL and HCV HIGH POS CTRL).
- Obtained from the Abbott Molecular customer portal or provided by your Abbott Representative and imported to the Alinity m System via a USB drive.

RESULTS

Calculation

Quantitative viral load results are reported for patient specimens with HCV viral concentrations within the assay's quantitation range. The concentration of HCV RNA in a specimen is calculated from the calibration curve by the system software. The Alinity m System reports the results in International Units as IU/mL or Log [IU/mL]. Refer to the Alinity m System Operations Manual for configuration of result units.

For specimens tested with the Specimen Dilution Procedure, the Alinity m System calculates and reports the neat concentration (ie, prior to dilution), by using the dilution factor selected by the user.

Interpretation of Results

Undiluted Specimens

Alinity m HCV results for patient specimens can be interpreted for viral load determination.

For each specimen, the Alinity m System will report a result and an interpretation, as shown in the tables below. If applicable, message codes or flags will also be displayed.

Undiluted Specimens

Alinity m System Reported		
Result	**Interpretation**	**Flags**
Not Detected	Target not detected	
< 1.08 Log IU/mL	Detected < LLOQ	
1.08 to 8.00 Log IU/mL		
> 8.00 Log IU/mL	> ULOQ	

Diluted Specimens

For specimens diluted 1:2.5 or 1:50, the Alinity m System reports a viral load result, a viral load interpretation (if applicable), and a DIL flag indicating that the specimen has been diluted. The quantitative results and the upper and lower limits of the quantitation range (ULOQ and LLOQ, respectively) reported represent the HCV RNA concentrations in the specimens prior to dilution.

For diluted specimens from which the HCV signal is not detected, no result is reported, and a message code (9827) is displayed. These specimens cannot be interpreted as "Target not detected" and should be retested with undiluted specimens or from a newly prepared dilution.

Specimens Tested Using 1:2.5 Dilution

Alinity m System Reported		
Result	**Interpretation**	**Flags**
< 1.48 Log IU/mL	Detected < LLOQ	DIL
1.48 to 8.40 Log IU/mL		DIL
> 8.40 Log IU/mL	> ULOQ	DIL

Specimens Tested Using 1:50 Dilution

Alinity m System Reported		
Result	**Interpretation**	**Flags**
< 2.78 Log IU/mL	Detected < LLOQ	DIL
2.78 to 9.70 Log IU/mL		DIL
> 9.70 Log IU/mL	> ULOQ	DIL

Note: The upper and lower limits of the quantitation range (ULOQ and LLOQ, respectively) displayed for Specimens Tested Using Dilution are not the same as the ULOQ and LLOQ of the Alinity m HCV assay when applied to specimens tested without dilution. Their corresponding values are specified in the Result column in each table.

Flags, Results Codes, and Message Codes

Some results may contain information in the Flags and Codes fields. For a description of the flags and result codes that may appear in these fields, refer to the Alinity m System Operations Manual, Section 5.

For a description of message codes refer to the Alinity m System Operations Manual, Section 10.

LIMITATIONS OF THE PROCEDURE

- Optimal performance of this test requires appropriate specimen collection and handling (refer to the **SPECIMEN COLLECTION AND PREPARATION FOR ANALYSIS** section of this package insert).
- Human serum (including serum separator) and plasma (ACD, EDTA, and PPT) specimens may be used with the Alinity m HCV assay. The use of other anticoagulants have not been evaluated.
- Debris within serum and plasma specimens (eg, clots, fibrin strands) may interfere with sample processing.
- If the HCV results are inconsistent with clinical evidence, additional testing is suggested to confirm the result.
- The instruments and assay procedures reduce the risk of contamination by amplification product. However, nucleic acid contamination from the calibrators, positive controls, or specimens must be controlled by good laboratory practice and careful adherence to the procedures specified in this package insert.

SPECIFIC PERFORMANCE CHARACTERISTICS

Limit of Detection

The limit of detection (LOD) of Alinity m HCV is 12 IU/mL in plasma and serum.

The LOD was determined by testing dilutions of 4th World Health Organization (WHO) International Standard for Hepatitis C Virus for Nucleic Acid Amplification Techniques (NIBSC code: 06/102; genotype 1) prepared in HCV negative human plasma and serum. Testing for each HCV RNA concentration was performed with 4 lots of amplification reagents across multiple days. The results, representative of the analytical sensitivity performance of Alinity m HCV, are summarized for plasma (Table 1) and serum (Table 2).

Table 1. Alinity m HCV Limit of Detection (LOD) in Plasma

HCV RNA (IU/mL)	No. of Valid Replicates	No. Detected	Detection Rate (%)
15.00	96	96	100.0
12.00	96	95	99.0
9.00	95	95	100.0
6.00	96	90	93.8
3.00	96	85	88.5

Probit analysis determined that the concentration of HCV RNA in plasma detected with 95% probability was 5.11 IU/mL (95% CI 3.92 to 8.46 IU/mL).

Table 2. Alinity m HCV Limit of Detection (LOD) in Serum

HCV RNA (IU/mL)	No. of Valid Replicates	No. Detected	Detection Rate (%)
15.00	94	94	100.0
12.00	96	94	97.9
9.00	96	96	100.0
6.00	95	90	94.7
3.00	96	82	85.4

Probit analysis determined that the concentration of HCV RNA in serum detected with 95% probability was 5.11 IU/mL (95% CI 4.16 to 7.47 IU/mL).

Limit of Detection for Genotypes 2, 3, 4, 5 and 6

HCV clinical specimens for genotypes 2, 3, 4, 5, and 6 were diluted to 3 different concentrations in HCV negative plasma and serum. Testing was performed with 1 lot of amplification reagents across multiple days. The results, representative of the analytical sensitivity performance of Alinity m HCV for genotypes 2, 3, 4, 5 and 6, are summarized in Tables 3 and 4. These results demonstrate that Alinity m HCV detected HCV at and above 12 IU/mL in plasma and serum, with an upper one-sided 95% confidence interval (CI) equal to or greater than the expected rate of 95.0%.

Table 3. Alinity m HCV Genotype Limit of Detection (LOD) in Plasma

Genotype	HCV RNA IU/mL	No. Valid Replicates	No. Detected	Detection Rate (%)	95% CI (%)[a]
	16.00	22	22	100.0	100.0
2	12.00	24	24	100.0	100.0
	9.00	24	24	100.0	100.0
	16.00	23	23	100.0	100.0
3	12.00	24	24	100.0	100.0
	9.00	24	24	100.0	100.0
	16.00	23	23	100.0	100.0
4	12.00	24	23	95.8	99.1
	9.00	24	23	95.8	99.1
	16.00	24	24	100.0	100.0
5	12.00	24	24	100.0	100.0
	9.00	24	24	100.0	100.0
	16.00	24	24	100.0	100.0
6	12.00	23	23	100.0	100.0
	9.00	24	24	100.0	100.0

[a] Upper one-sided 95% confidence interval (%).

Table 4. Alinity m HCV Genotype Limit of Detection (LOD) in Serum

Genotype	HCV RNA IU/mL	No. Valid Replicates	No. Detected	Detection Rate (%)	95% CI (%)[a]
	16.00	23	23	100.0	100.0
2	12.00	24	24	100.0	100.0
	9.00	24	22	91.7	97.2
	16.00	24	24	100.0	100.0
3	12.00	24	24	100.0	100.0
	9.00	24	24	100.0	100.0
	16.00	24	24	100.0	100.0
4	12.00	24	23	95.8	99.1
	9.00	24	23	95.8	99.1
	16.00	24	24	100.0	100.0
5	12.00	23	23	100.0	100.0
	9.00	23	23	100.0	100.0
	16.00	24	24	100.0	100.0
6	12.00	24	24	100.0	100.0
	9.00	23	23	100.0	100.0

[a] Upper one-sided 95% confidence interval (%).

Linear Range

Linearity of Alinity m HCV was assessed by testing a dilution series of HCV genotype 1 in negative human plasma and serum, each consisting of 9 panel members spanning from 12 IU/mL to 200,000,000 IU/mL. The panel members with lower concentration were prepared using a clinical specimen, while the panel members with higher concentrations were prepared using Armored RNA. The linearity panel was designed to have at least 2 Log IU/mL titer overlap between the two target sources.

Representative results for Alinity m HCV linearity performance are shown in Figures 1 and 2.

Alinity m HCV was linear in plasma and serum across the range of HCV RNA concentrations tested (from 12 IU/mL to 200,000,000 IU/mL).

Figure 1. Linearity in Plasma

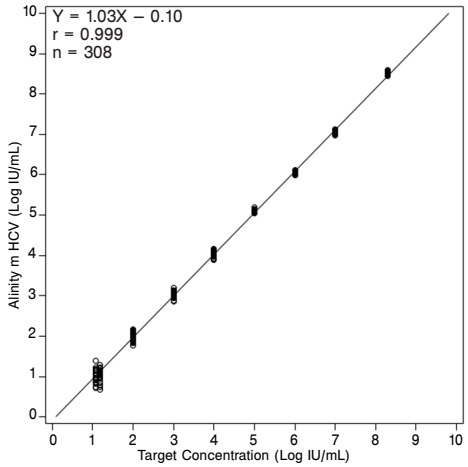
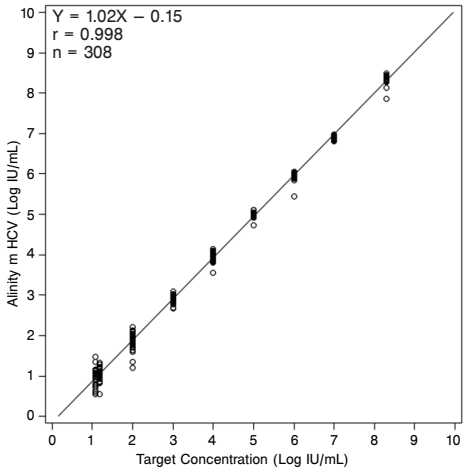


Figure 2. Linearity in Serum



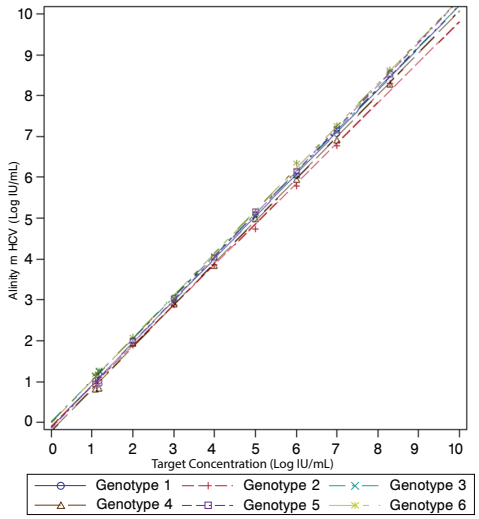
Linearity Across HCV Genotypes

Linearity of Alinity m HCV for genotypes 2, 3, 4, 5 and 6 was confirmed by testing a dilution series in negative human plasma and serum, each consisting of 9 panel members spanning from 12 IU/mL to 200,000,000 IU/mL. For each genotype, the panel members with lower concentration were prepared using a clinical specimen, while the panel members with higher concentrations were prepared using Armored RNA. The linearity panel was designed to have at least 2 Log IU/mL titer overlap between the 2 target sources.

Representative results for Alinity m HCV linearity performance for genotypes 2, 3, 4, 5 and 6, along with results for genotype 1 (**Linear Range** section), are shown in Figures 3 and 4.

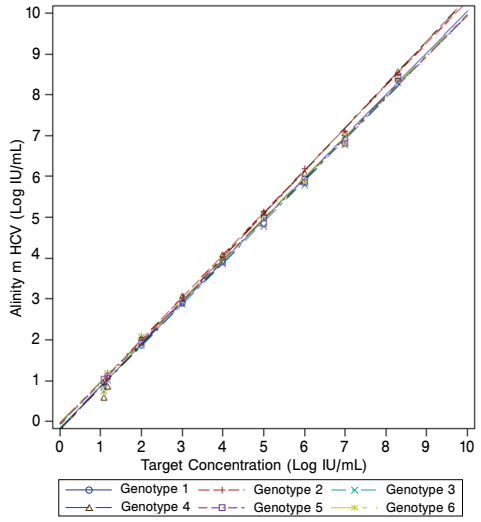
Alinity m HCV was linear in plasma and serum across the range of HCV RNA concentrations tested for genotypes 1, 2, 3, 4, 5 and 6 (from 12 IU/mL to 200,000,000 IU/mL).

Figure 3. LinearityAcross HCV Genotypes in Plasma



NOTE: The markers in the plot represent the mean Alinity m HCV concentration (in Log IU/mL) for each panel member.

Figure 4. Linearity Across HCV Genotypes in Serum



NOTE: The markers in the plot represent the mean Alinity m HCV concentration (in Log IU/mL) for each panel member.

Precision

Alinity m HCV was designed to achieve a within-laboratory standard deviation (SD) of less than or equal to 0.25 Log IU/mL of HCV RNA from 2 to 8 Log IU/mL (100 to 100,000,000 IU/mL), and less than or equal to 0.35 Log IU/mL at 3 times the lower limit of quantitation (LLOQ).

Precision of Alinity m HCV was determined by analyzing an 8-member plasma panel and an 8-member serum panel. Panel members 1, 2, 4, 6, 7, and 8 were prepared by diluting HCV genotype 1 into HCV negative human plasma and serum, whereas panel members 3 and 5 were prepared by diluting HCV genotype 4 into HCV negative human plasma and serum. Clinical specimens were used as the target sources for panel members with concentrations less than 5 Log IU/mL (100,000 IU/mL). For panel members with higher concentrations, Armored RNA was used as the target source. Each panel member was tested in 4 replicates, twice each day for 5 days, on 3 Alinity m Systems with 3 AMP Kit lots by 3 operators, for a total of 120 replicates.

The results, representative of the precision of Alinity m HCV in plasma and serum, are summarized in Tables 5 and 6, respectively.

Table 5. Precision in Plasma

Panel Member	N[d]	Mean Conc. (Log IU/mL)	Within Run SD	Between Run SD	Between Day SD	Within Laboratory[a] SD	Between Instrument[b] SD	Total[c]
1	118	1.40	0.17	0.00	0.06	0.18	0.00	0.18
2	118	1.83	0.10	0.00	0.04	0.11	0.02	0.11
3	120	2.95	0.11	0.09	0.03	0.14	0.00	0.14
4	119	3.76	0.06	0.01	0.02	0.07	0.01	0.07
5	118	4.97	0.06	0.02	0.02	0.07	0.02	0.07
6	119	5.99	0.05	0.02	0.01	0.05	0.04	0.06
7	117	6.94	0.05	0.02	0.02	0.06	0.05	0.08
8	118	8.42	0.03	0.03	0.00	0.04	0.10	0.11

[a] Within-Laboratory includes Within-Run, Between-Run and Between-Day components.
[b] The Between-Instrument component consists of Alinity m System, AMP Kit lot, and operator.
[c] Total includes Within-Run, Between-Run, Between-Day, and Between-Instrument components.
[d] Valid replicates.

Table 6. Precision in Serum

Panel Member	N[d]	Mean Conc. (Log IU/mL)	Within Run SD	Between Run SD	Between Day SD	Within Laboratory[a] SD	Between Instrument[b] SD	Total[c]
1	120	1.43	0.12	0.00	0.04	0.13	0.03	0.13
2	120	1.87	0.10	0.08	0.03	0.13	0.04	0.14
3	119	2.78	0.11	0.08	0.00	0.14	0.08	0.16
4	119	3.79	0.06	0.07	0.04	0.10	0.03	0.10
5	119	4.92	0.07	0.05	0.00	0.09	0.06	0.11
6	119	5.96	0.04	0.01	0.02	0.05	0.06	0.08
7	120	6.91	0.05	0.01	0.02	0.06	0.07	0.09
8	118	8.39	0.03	0.02	0.01	0.04	0.12	0.12

[a] Within-Laboratory includes Within-Run, Between-Run and Between-Day components.
[b] The Between-Instrument component consists of Alinity m System, AMP Kit lot, and operator.
[c] Total includes Within-Run, Between-Run, Between-Day, and Between-Instrument components.
[d] Valid replicates.

Specificity

The specificity of Alinity m HCV was determined by testing HCV negative plasma and serum specimens from individual donors. A total of 504 specimens were analyzed including 250 plasma and 254 serum. The overall specificity was 100.0% (95% CI: 99.2 to 100.0%).

Analytical Specificity – Potential Cross-Reactants

The analytical specificity of Alinity m HCV was evaluated with a panel of microorganisms (Table 7) in HCV negative plasma, positive plasma containing 36 IU/mL HCV, and positive plasma containing 10,000 IU/mL HCV. No cross-reactivity or interference in Alinity m HCV performance was observed in the presence of the tested microorganisms.

Table 7. Microorganisms

Viruses
Adenovirus Type 5
BK Polyomavirus
Dengue Virus 1
Dengue Virus 2
Dengue Virus 3
Dengue Virus 4
FSME Virus
GB Virus C/Hepatitis G Virus
Hepatitis A Virus
Hepatitis B Virus
Hepatitis D Virus
Human Herpesvirus 1/Herpes Simplex Virus 1
Human Herpesvirus 2/Herpes Simplex Virus 2
Human Herpesvirus 5/Human Cytomegalovirus
Human Herpesvirus 4/Epstein Barr Virus
Human Herpesvirus 6B
Human Herpesvirus 8
Human Immunodeficiency Virus 1
Human Immunodeficiency Virus 2

Abbott

Human Papilloma Virus 16
Human Papilloma Virus 18
Human T-Lymphotropic Virus 1
Human T-Lymphotropic Virus 2
Influenza A
Japanese Encephalitis
Murray Valley Encephalitis Virus
Parvo Virus B19
Rubella Virus
St. Louis Encephalitis
Vaccinia Virus
Varicella-Zoster Virus
West Nile Virus
Yellow Fever Virus
Zika Virus
Bacteria
Chlamydia trachomatis
Corynebacterium diphtheriae
Mycobacterium gordonae
Mycobacterium smegmatis
Neisseria gonorrhoeae
Propionibacterium acnes
Staphylococcus aureus
Staphylococcus epidermidis
Streptococcus pneumoniae
Protozoan
Trichomonas vaginalis
Yeast
Candida albicans

Analytical Specificity – Potentially Interfering Substances

The effects of endogenous substances, the presence of non-HCV related diseases, the presence of high levels of therapeutic drugs commonly prescribed for the treatment of HCV and related diseases, were evaluated. Potential interference on Alinity m HCV performance was assessed by testing HCV negative samples, and positive samples containing 36 and 10,000 IU/mL HCV.

No interference was observed in the presence of albumin (60 mg/mL), hemoglobin (2 mg/mL), triglycerides (37 mM), conjugated bilirubin (0.342 mM), unconjugated bilirubin (0.342 mM), or human genomic DNA (2 mg/L).

No interference was observed for specimens collected from patients with the following disease states: systemic lupus erythematosus (SLE), anti-nuclear antibodies (ANA), rheumatoid factor (RF), alcoholic hepatitis, non-alcoholic steatohepatitis (NASH), cirrhosis, auto-immune hepatitis, or hepatocellular carcinoma (HCC).

No interference was observed in the presence of drug compounds tested in pools that are listed in Table 8, at a concentration of 3 times the reported C_{max} or higher.

Table 8. Drug Compounds

Pools Tested	Drug Compounds
1	Abacavir sulfate, Acetaminophen, Acyclovir, Adefovir, Amitriptyline, Amlodipine, Aspirin, Atazanavir, Atenolol, Atorvastatin, Azithromycin, Celecoxib, Cidofovir, Clarithromycin, Clopidogrel
2	Didanosine, Efavirenz, Entecavir, Fluconazole, Fluoxetine, Ibuprofen, Indinavir, Kaletra (Lopinavir and Ritonavir), Lamivudine, Levofloxacin, Maraviroc, Nelfinavir, Nevirapine, Paroxetine
3	Prednisone, Raltegravir, Ribavirin, Rifamate (Rifampin and Isoniazid), Saquinavir, Sertraline, Stavudine, Stribild (Elvitegravir, Cobicistat, Emtricitabine, and Tenofovir), Bactrim (Sulfamethoxazole and Trimethoprim)
4	Darunavir, Ethambutol, Etravirine, Flucytosine, Fluticasone propionate, Furosemide, Hydrochlorothiazide, Levothyroxine, Rifabutin, Rilpivirine, Salmeterol xinafoate, Simeprevir, Sofosbuvir, Telaprevir, Tenofovir alafenamide, Trazodone, Warfarin, Zalcitabine
5	Fosamprenavir, Keflex (Cephalexin), Metformin, Naproxen, Pyrazinamide
6	Tipranavir
7	Ceftriaxone, Ciprofloxacin, Foscarnet, Lisinopril, Peginterferon alfa-2a, Enfuvirtide, Imipramine
8	Cyclosporine, Telbivudine, Valacyclovir, Valganciclovir, Zidovudine, Amphotericin B, Ganciclovir
9	Hydrocodone
10	Biotin

Carryover

The carryover rate for Alinity m HCV was determined by analyzing 373 replicates of HCV negative samples processed from alternating positions with high concentration HCV positive samples at 10,000,000 IU/mL, across a total of 15 runs. HCV RNA was not detected in any HCV negative sample, resulting in an overall carryover rate of 0.0% (95% CI: 0.0 to 1.0%).

Matrix Equivalency

25 HCV-negative plasma and serum pairs and 54 HCV-positive plasma and serum pairs were tested. All HCV negative plasma and serum samples were not detected, and all HCV positive plasma and serum samples were detected, resulting in an overall percent agreement between plasma and serum samples of 100.0% (95% CI: 95.4 to 100.0%). The HCV RNA concentrations for the HCV positive plasma and serum pairs were distributed across the quantitation range of the assay. The Alinity m HCV quantitation demonstrated a slope of 0.96, intercept of 0.24, correlation coefficient (r) of 0.986, and mean bias of 0.06 Log IU/mL between plasma and serum samples.

Alinity m HCV Testing Using Dilution Procedure

The 1 : 2.5 and 1 : 50 dilution procedures were evaluated by comparing quantitation of neat (undiluted) samples and samples that were tested using Alinity m HCV dilution procedures. Panel members in plasma and serum, consisting of HCV concentrations within the quantitation ranges for the diluted samples, were tested using both dilution factors. Each panel member was tested neat or diluted in 5 replicates. The test results for neat and diluted panel members are shown in Table 9.

Table 9. Alinity m HCV Results for Samples Tested Using Dilution Procedures

		Neat (Undiluted)	Diluted
Dilution	Panel Member[a]	Mean Conc. (Log IU/mL)	Mean Conc. (Log IU/mL)
1 : 2.5	01	1.84	1.94
	02	3.50	3.43
	03	3.86	3.81
	04	4.86	4.87
	05	7.78	7.47
	06	8.32	8.37
	07	3.43	3.45
	08	3.76	3.79
	09	4.64	4.74
	10	6.05	6.01
1 : 50	11	3.50	3.29
	12	3.86	3.69
	13	4.86	4.58
	14	7.78	7.33
	15	8.32	8.07
	16	3.43	3.28
	17	3.76	3.67
	18	4.64	4.61
	19	6.05	5.88
	20	7.72	7.35

[a] Panel members 1 to 6 and 11 to 15 were plasma. Panel members 7 to 10 and 16 to 20 were serum.

Precision of Alinity m HCV Using Dilution Procedures

Precision of Alinity m HCV, using the dilution procedures, was determined by analyzing 3 panel members prepared by spiking HCV clinical specimen or Armored RNA in HCV negative human plasma. Each panel member was tested in 4 replicates, twice each day for 5 days, on 3 Alinity m Systems with 3 AMP Kit lots by 3 operators, for a total of 120 replicates. The results, representative of the precision of Alinity m HCV using dilution procedures, are summarized in Table 10.

Table 10. Precision of Alinity m HCV Using Dilution Procedures

Panel Member	Dilution	N[d]	Mean Conc. (Log IU/mL)	Within Run SD	Between Run SD	Between Day SD	Within Laboratory[a] SD	Between Instrument[b] SD	Total[c]
1	1:2.5	120	2.70	0.08	0.03	0.05	0.09	0.00	0.09
2	1:50	120	7.03	0.06	0.03	0.00	0.07	0.01	0.07
3	1:50	119	5.51	0.05	0.03	0.00	0.06	0.02	0.07

[a] Within-Laboratory includes Within-Run, Between-Run and Between-Day components.

[b] The Between-Instrument component consists of Alinity m System, AMP Kit lot, and operator

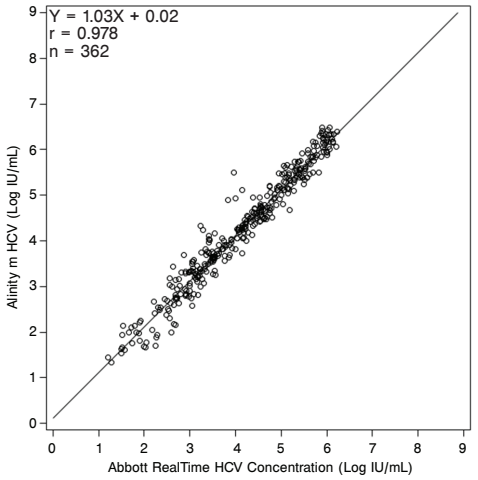
[c] Total includes Within-Run, Between-Run, Between-Day and Between-Instrument components.

[d] Valid replicates.

Clinical Performance

The performance of Alinity m HCV was compared with Abbott RealTi*m*e HCV by analyzing 180 plasma and 185 serum specimens from HCV-infected patients (including genotypes 1, 2, 3, 4, 5, and 6) that generated valid results. The Deming regression analysis was performed on 362 specimens that generated results within the quantitation ranges common to both assays, as shown in Figure 5. The mean bias between the two assays (Alinity m HCV minus Abbott RealTi*m*e HCV) was 0.13 Log IU/mL (95% CI: 0.11 to 0.16).

Figure 5. Correlation between Alinity m HCV and Abbott RealTi*m*e HCV



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KEY TO SYMBOLS

REF	Reference Number
IVD	In Vitro Diagnostic Medical Device
LOT	Lot Number
In Vitro Test	In Vitro Test
PRODUCT OF USA	Product of USA
AMP TRAY	AMP TRAY
ACT TRAY	ACT TRAY
UNIT	Unit
	Systemic Health Effects
	Warning
	Caution
	Consult Instructions for Use
	Temperature Limitation
	Sufficient for
	Use By
EC REP	Authorized Representative in the European Community
	Manufacturer

TECHNICAL ASSISTANCE

For technical assistance, call Abbott Molecular Technical Services at 1-800-553-7042 (within the US) or +49-6122-580 (outside the US), or visit the Abbott Molecular website at www.molecular.abbott/portal.

Abbott Molecular Inc. is the legal manufacturer of the Alinity m HCV AMP Kit.

The Alinity m HCV AMP Kit is imported into the European Union by Abbott Diagnostics GmbH, located at Max-Planck-Ring 2, 65205 Wiesbaden, Germany.

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53-608063/R5

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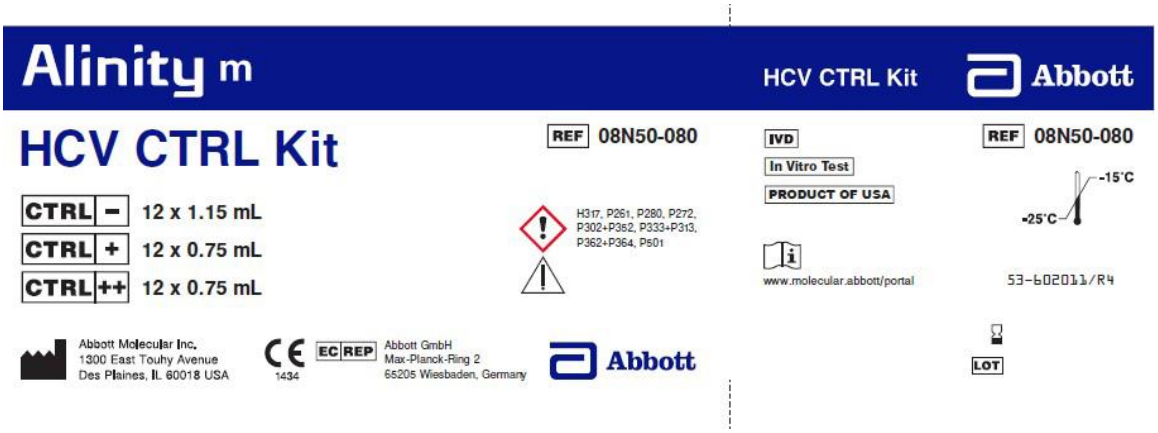
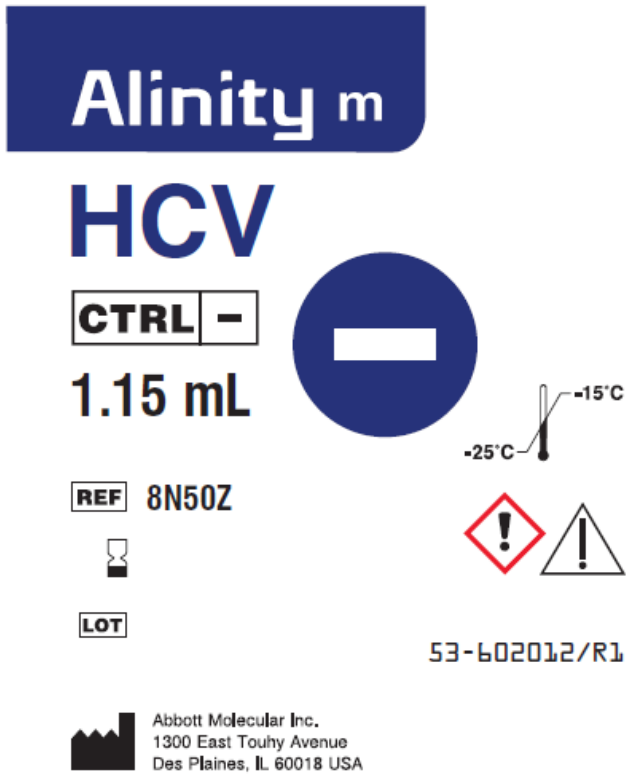
1.2 Alinity m HCV CTRL Kit Labels

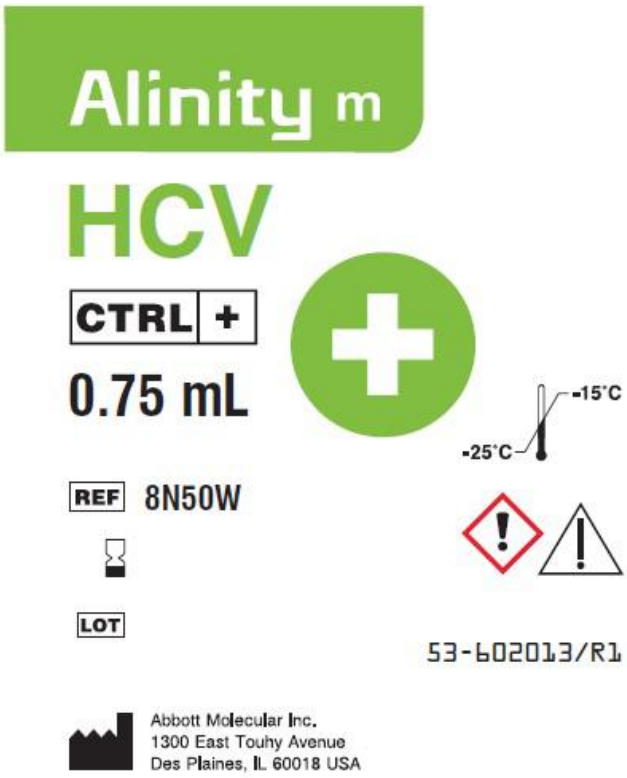
1.2.1 Alinity m HCV CTRL Kit (List No. 08N50-080 [Label No. 53-602011])



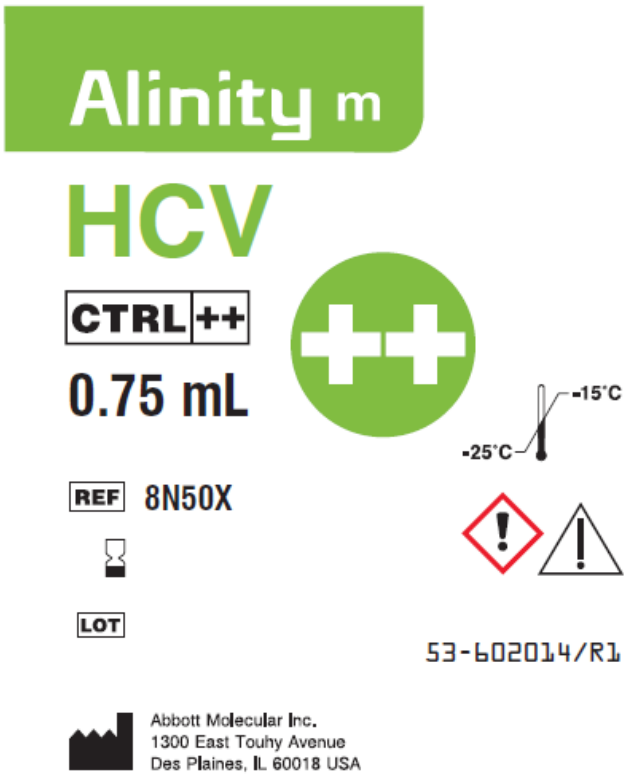
1.2.2 Alinity m HCV Negative CTRL (Label No. 53-602012)



1.2.3 Alinity m HCV Low Positive CTRL (Label No. 53-602013)



1.2.4 Alinity m HCV High Positive CTRL (Label No. 53-602014)



Alinity m

HCV CTRL Kit

en

REF 08N50-080

53-608064/R4

Revised October 2020

REF 08N50-080

53-608064/R4

NOTE: Changes Highlighted

CUSTOMER SERVICE: 1-800-553-7042
CUSTOMER SERVICE INTERNATIONAL: CALL YOUR ABBOTT REPRESENTATIVE

Instructions must be carefully followed. Reliability of assay results cannot be guaranteed if there are any deviations from these instructions.

NOTICE TO USER

If a serious incident occurs in relation to this device, the incident should be reported to the manufacturer and to the appropriate competent authority of the member state in which the user and/or the patient is established. To report to the manufacturer, see the contact information provided in the technical assistance section of these instructions.

NAME

Alinity m HCV CTRL Kit

INTENDED USE

The Alinity m HCV controls are for validity determination of the quantitative Alinity m HCV assay on the automated Alinity m System. These controls are intended to be used with the Alinity m HCV assay; refer to the assay package insert for additional information.

INTENDED USER

The intended users for the Alinity m HCV CTRL Kit are laboratory and healthcare professionals.

REAGENTS

Kit Contents

Alinity m HCV Negative CTRL (List No. 8N50Z) contains defibrinated negative human plasma. Negative human plasma was tested and found to be nonreactive for HBsAg, HIV-1 RNA, HCV RNA, HBV DNA, anti-HIV-1/HIV-2, anti-HCV and Syphilis.

Preservatives: 0.1% ProClin® 300 and 0.087% ProClin 950.

Alinity m HCV Low Positive CTRL (List No. 8N50W) contains noninfectious Armored RNA® with HCV sequences in defibrinated negative human plasma. Negative human plasma was tested and found to be nonreactive for HBsAg, HIV-1 RNA, HCV RNA, HBV DNA, anti-HIV-1/HIV-2, anti-HCV and Syphilis.

Preservatives: 0.1% ProClin 300 and 0.087% ProClin 950.

Alinity m HCV High Positive CTRL (List No. 8N50X) contains noninfectious Armored RNA with HCV sequences in defibrinated negative human plasma. Negative human plasma tested and found to be nonreactive for HBsAg, HIV RNA, HCV RNA, HBV DNA, anti-HIV-1/HIV-2, anti-HCV and Syphilis.

Preservatives: 0.1% ProClin 300 and 0.087% ProClin 950.

Control	Quantity
Alinity m HCV Negative CTRL	12 tubes x 1.15 mL
Alinity m HCV Low Positive CTRL	12 tubes x 0.75 mL
Alinity m HCV High Positive CTRL	12 tubes x 0.75 mL

STANDARDIZATION

Concentrations were standardized against the 4th World Health Organization (WHO) International Standard for Hepatitis C Virus for Nucleic Acid Amplification Techniques (NIBSC code: 06/102).

WARNINGS AND PRECAUTIONS

IVD

- **For In Vitro Diagnostic Use**

Safety Precautions

The following warnings and precautions apply to:
Alinity m HCV Negative CTRL, Low Positive CTRL, and High Positive CTRL.

CAUTION: This preparation contains human-sourced and/or potentially infectious components. Refer to the **REAGENTS** section of this package insert. Components sourced from human blood have been tested and found to be non-reactive by appropriate FDA-licensed, approved, or cleared tests for antibody to HCV, antibody to HIV-1, antibody to HIV-2, HBsAg, HIV-1 antigen and Syphilis. The material is also tested and found to be negative by appropriate FDA-licensed, approved, or cleared PCR methods for HIV-1 RNA, HCV RNA, and HBV DNA. No known test method can offer complete assurance that products derived from human sources or inactivated microorganisms will not transmit infection. These reagents and human specimens should be handled as if infectious using safe laboratory procedures, such as those outlined in Biosafety in Microbiological and Biomedical Laboratories,[1] OSHA Standard on Bloodborne Pathogens,[2] CLSI Document M29-A4,[3] and other appropriate biosafety practices.[4] Therefore all human sourced materials should be considered infectious.

These precautions include, but are not limited to, the following:

- Wear gloves when handling specimens or reagents.
- Do not pipette by mouth.
- Do not eat, drink, smoke, apply cosmetics, or handle contact lenses in areas where these materials are handled.
- Clean and disinfect spills of specimens by including the use of a tuberculocidal disinfectant such as 1.0% sodium hypochlorite or other suitable disinfectant.[1]

Decontaminate and dispose of all potentially infectious materials in accordance with local, state and federal regulations.[4]

The following warnings and precautions apply to:
Alinity m HCV Negative CTRL, Low Positive CTRL, and High Positive CTRL.

WARNING	Contains 2-Methyl-4-isothiazolin-3-one Reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one (EC no. 247-500-7) and 2-methyl-2H-isothiazol-3-one (EC no. 220-239-6)(3:1); reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one (EC no. 247-500-7) and 2-methyl-4-isothiazolin-3-one (EC no. 220-239-6)(3:1).
H317	May cause an allergic skin reaction.
Prevention	
P261	Avoid breathing mist / vapours / spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves / protective clothing / eye protection.
Response	
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice / attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
Disposal	
P501	Dispose of contents / container in accordance with local regulations.

Important information regarding the safe handling, transport and disposal of this product is contained in the Safety Data Sheet.

Safety Data Sheets are available from your Abbott Representative.

For a detailed discussion of safety precautions during system operation, refer to the Alinity m System Operations Manual; Section 7 and Section 8.

Reagent Shipment

	Shipment Condition
Alinity m HCV CTRL Kit	On dry ice

Reagent Storage

	Storage Temperature	Maximum Storage Time
Unopened	−25 to −15°C	Until expiration date
Onboard	System Temperature	Discard after 4 hours

Reagent Handling

- Alinity m HCV control reagents are contained in single-use tubes with pierceable caps. Avoid any contamination or damage to the caps after removal from the tube's original packaging. The Alinity m System will track onboard storage of the Alinity m assay controls. Onboard storage time begins when control tubes are loaded on the Alinity m System. The Alinity m System will not allow the use of Alinity m assay controls that have exceeded the maximum onboard storage time.
- For a detailed discussion of handling controls during system operations, refer to the Alinity m System Operations Manual, Section 5.

Indications of Reagent Deterioration

- Deterioration of the reagents may be indicated when a calibration or control error occurs or controls are repeatedly out of the specified ranges.
- Reagents are shipped on dry ice and are stored at −25 to −15°C upon arrival. If you receive reagents that are in a condition contrary to this recommendation, or that are damaged, immediately contact your Abbott Representative.
- For troubleshooting information, refer to the Alinity m System Operations Manual, Section 10.

PROCEDURE

Materials Provided

08N50-080 Alinity m HCV CTRL Kit

Instructions for Use

Lot-specific concentration values for assay positive controls are available via Abbott Mail, the Abbott Molecular customer portal www.molecular.abbott/portal, and from your Abbott Representative.

When a control test order is created:

- Lot-specific concentration values can be automatically imported to the Alinity m System via Abbott Mail upon scanning the control tube barcodes (HCV NEG CTRL, HCV LOW POS CTRL, and HCV HIGH POS CTRL).
- Lot-specific concentration values can also be obtained from the Abbott Molecular customer portal or provided by your Abbott Representative and imported to the Alinity m System via a USB drive.

For instructions on creating a test order and loading controls on the instrument, refer to the Alinity m System Operations Manual, Section 5.

The Alinity m HCV Negative CTRL, Alinity m HCV Low Positive CTRL, and Alinity m HCV High Positive CTRL tubes are intended for single-use only.

- Thaw assay controls at 15 to 30°C or at 2 to 8°C.
- Once thawed, assay controls can be stored at 2 to 8°C for up to 24 hours before use.
- This product may be used immediately after removal from 2 to 8°C storage.
- Prior to loading onto the Alinity m System, vortex each assay control 3 times for 2 to 3 seconds. Ensure that the contents of each tube are at the bottom after vortexing by tapping the tubes on the bench to bring liquid to the bottom of the tube.
- Load the assay controls onto the Alinity m Universal Sample Rack with retention bar.

QUALITY CONTROL PROCEDURES

Refer to the **QUALITY CONTROL PROCEDURES** section of the Alinity m HCV AMP Kit package insert.

BIBLIOGRAPHY

1. US Department of Health and Human Services. *Biosafety in Microbiological and Biomedical Laboratories*. 5th ed. Washington, DC: US Government Printing Office; December 2009. [Also available online. Type> www.cdc.gov, search>BMBL5>look up sections III and IV.]
2. US Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910.1030, Bloodborne pathogens.
3. Clinical and Laboratory Standards Institute (CLSI). *Protection of Laboratory Workers From Occupationally Acquired Infections; Approved Guideline—Fourth Edition*. CLSI Document M29-A4. Wayne, PA: CLSI; 2014.
4. World Health Organization. *Laboratory Biosafety Manual*. 3rd ed. Geneva: World Health Organization; 2004.

KEY TO SYMBOLS

REF	Reference Number
IVD	In Vitro Diagnostic Medical Device
LOT	Lot Number
In Vitro Test	In Vitro Test
PRODUCT OF USA	Product of USA
CTRL −	Negative Control
CTRL +	Low Positive Control
CTRL ++	High Positive Control
	Warning
	Caution
	Consult Instructions for Use
	Temperature Limitation
	Use By
EC REP	Authorized Representative in the European Community
	Manufacturer

TECHNICAL ASSISTANCE

For technical assistance, call Abbott Molecular Technical Services at 1-800-553-7042 (within the US) or +49-6122-580 (outside the US), or visit the Abbott Molecular website at www.molecular.abbott/portal.

Abbott Molecular Inc. is the legal manufacturer of the Alinity m HCV CTRL Kit.

The Alinity m HCV CTRL Kit is imported into the European Union by Abbott Diagnostics GmbH, located at Max-Planck-Ring 2, 65205 Wiesbaden, Germany.

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1300 East Touhy Avenue
Des Plaines, IL 60018 USA

CE 1434

EC REP

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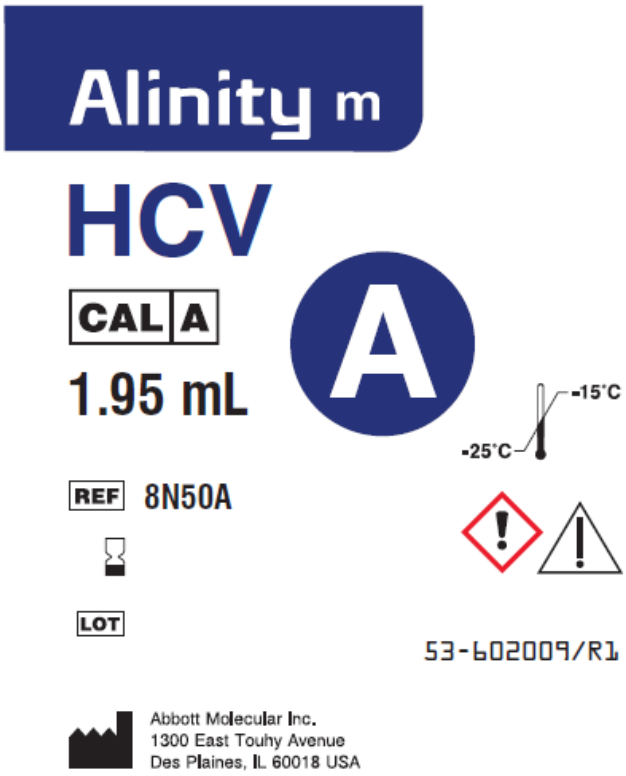
53-608064/R4

Abbott

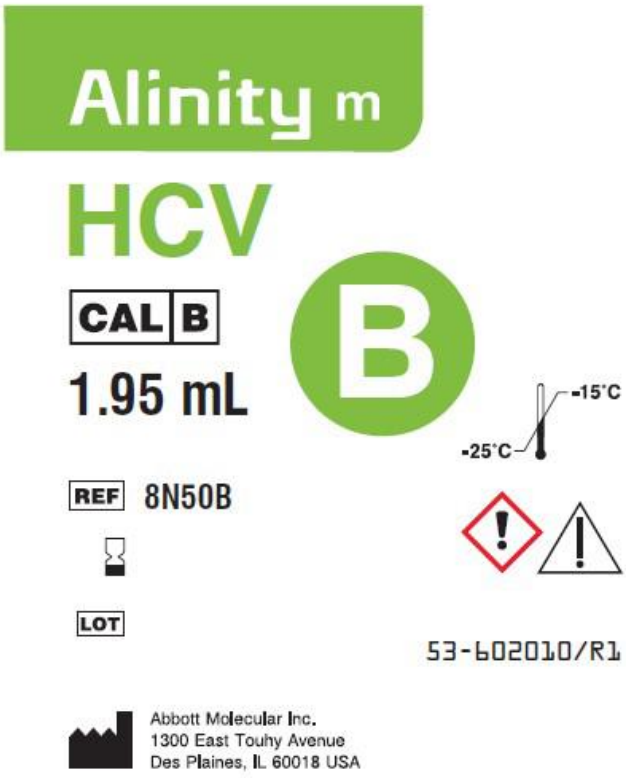
1.3 Alinity m HCV CAL Kit Labels

1.3.1 Alinity m HCV CAL Kit (List No. 08N50-070 [Label No. 53-602007])

1.3.2 Alinity m HCV CAL A (Label No. 53-602009)



1.3.3 Alinity m HCV CAL B (Label No. 53-602010)



Alinity m

HCV CAL Kit

en

REF 08N50-070

53-608065/R3

Revised October 2020

REF 08N50-070

53-608065/R3

NOTE: Changes Highlighted

CUSTOMER SERVICE: 1-800-553-7042
CUSTOMER SERVICE INTERNATIONAL: CALL YOUR ABBOTT REPRESENTATIVE

Instructions must be carefully followed. Reliability of assay results cannot be guaranteed if there are any deviations from these instructions.

NOTICE TO USER

If a serious incident occurs in relation to this device, the incident should be reported to the manufacturer and to the appropriate competent authority of the member state in which the user and/or the patient is established. To report to the manufacturer, see the contact information provided in the technical assistance section of these instructions.

NAME

Alinity m HCV CAL Kit

INTENDED USE

The Alinity m HCV calibrators are for calibration for the Alinity m HCV assay on the automated Alinity m System when used for the quantitative determination of HCV RNA. The calibrators are intended to be used with the Alinity m HCV assay; refer to the assay package insert for additional information.

INTENDED USER

The intended users for the Alinity m HCV assay are laboratory and healthcare professionals.

REAGENTS

Kit Contents

Alinity m HCV CAL A (List No. 8N50A) and Alinity m HCV CAL B (List No. 8N50B) contain noninfectious Armored RNA® with HCV sequences in defibrinated negative human plasma. Negative human plasma was tested and found to be nonreactive for HBsAg, HIV-1 RNA, HCV RNA, HBV DNA, anti-HIV-1/HIV-2, anti-HCV and Syphilis.

Preservatives: 0.1% ProClin® 300 and 0.087% ProClin 950.

Calibrator	Quantity
Alinity m HCV CAL A	4 tubes x 1.95 mL
Alinity m HCV CAL B	4 tubes x 1.95 mL

STANDARDIZATION

Concentrations were standardized against the 4th World Health Organization (WHO) International Standard for Hepatitis C Virus for Nucleic Acid Amplification Techniques (NIBSC code: 06/102).

WARNINGS AND PRECAUTIONS

IVD

- **For In Vitro Diagnostic Use**

Safety Precautions

The following warnings and precautions apply to:
Alinity m HCV CAL A and CAL B.

CAUTION: This preparation contains human-sourced and/or potentially infectious components. Refer to the **REAGENTS** section of this package insert. Components sourced from human blood have been tested and found to be nonreactive by appropriate FDA-licensed, approved, or cleared tests for antibody to HCV, antibody to HIV-1, antibody to HIV-2, HBsAg, HIV-1 antigen and Syphilis. The material is also tested and found to be negative by appropriate FDA-licensed, approved, or cleared PCR methods for HIV-1 RNA, HCV RNA, and HBV DNA. No known test method can offer complete assurance that products derived from human sources or inactivated microorganisms will not transmit infection. These reagents and human specimens should be handled as if infectious using safe laboratory procedures, such as those outlined in Biosafety in Microbiological and Biomedical Laboratories,[1] OSHA Standard on Bloodborne Pathogens,[2] CLSI Document M29-A4,[3] and other appropriate biosafety practices.[4] Therefore all human sourced materials should be considered infectious.

These precautions include, but are not limited to, the following:

- Wear gloves when handling specimens or reagents.
- Do not pipette by mouth.
- Do not eat, drink, smoke, apply cosmetics, or handle contact lenses in areas where these materials are handled.
- Clean and disinfect spills of specimens by including the use of a tuberculocidal disinfectant such as 1.0% sodium hypochlorite or other suitable disinfectant.[1]

Decontaminate and dispose of all potentially infectious materials in accordance with local, state and federal regulations.[4]

The following warnings and precautions apply to:
Alinity m HCV CAL A and CAL B.

WARNING	Contains 2-Methyl-4-isothiazolin-3-one Reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one (EC no. 247-500-7) and 2-methyl-2H-isothiazol-3-one (EC no. 220-239-6)(3:1); reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one (EC no. 247-500-7) and 2-methyl-4-isothiazolin-3-one (EC no. 220-239-6)(3:1).
H317	May cause an allergic skin reaction.
Prevention	
P261	Avoid breathing mist / vapours / spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves / protective clothing / eye protection.
Response	
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice / attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
Disposal	
P501	Dispose of contents / container in accordance with local regulations.

Important information regarding the safe handling, transport and disposal of this product is contained in the Safety Data Sheet.

Safety Data Sheets are available from your Abbott Representative.

For a detailed discussion of safety precautions during system operation, refer to the Alinity m System Operations Manual, Section 7 and Section 8.

Reagent Shipment

	Shipment Condition
Alinity m HCV CAL Kit	On dry ice

Reagent Storage

	Storage Temperature	Maximum Storage Time
Unopened	– 25 to – 15°C	Until expiration date
Onboard	System Temperature	Discard after 4 hours

Reagent Handling

Alinity m HCV calibrator reagents are contained in single-use tubes with pierceable caps. Avoid any contamination or damage to the caps after removal from the tube's original packaging. The Alinity m System will track onboard storage of the Alinity m assay calibrators. Onboard storage time begins when calibrator tubes are loaded on the Alinity m System. The Alinity m System will not allow the use of Alinity m assay calibrators that have exceeded the maximum onboard storage time.

- For a detailed discussion of handling calibrators during system operations, refer to the Alinity m System Operations Manual, Section 5.

Indications of Reagent Deterioration

- Deterioration of the reagents may be indicated when a calibration or control error occurs or controls are repeatedly out of the specified ranges.
- Reagents are shipped on dry ice and are stored at – 25 to – 15°C upon arrival. If you receive reagents that are in a condition contrary to this recommendation, or that are damaged, immediately contact your Abbott Representative.
- For troubleshooting information, refer to the Alinity m System Operations Manual, Section 10.

PROCEDURE

Materials Provided

08N50-070 Alinity m HCV CAL Kit

Instructions for Use

For instructions on performing an assay calibration, refer to the Alinity m System Operations Manual, Section 6.

Lot-specific concentration values for assay calibrators are available via Abbott Mail, the Abbott Molecular customer portal www.molecular.abbott/portal, and from your Abbott Representative.

When an assay calibration is performed:

- Lot-specific concentration values can be automatically imported to the Alinity m System via Abbott Mail upon scanning the calibrator tube barcodes (HCV CAL A and HCV CAL B).
- Lot-specific concentration values can also be obtained from the Abbott Molecular customer portal or provided by your Abbott Representative and imported to the Alinity m System via a USB drive.

For instructions on creating a test order and loading calibrators on the instrument, refer to the Alinity m System Operations Manual, Section 5.

At a minimum, 1 Alinity m HCV CAL A tube and 1 Alinity m HCV CAL B tube from the Alinity m HCV CAL Kit are required for performing an assay calibration on the Alinity m System. The Alinity m System will process 3 replicates from each calibrator tube. The output data of the 2 calibrators will be used to generate a calibration curve. The calibrator tubes are intended for single-use only.

- Thaw assay calibrators at 15 to 30°C or at 2 to 8°C.
- Once thawed, assay calibrators can be stored at 2 to 8°C for up to 24 hours before use.
- This product may be used immediately after removal from 2 to 8°C storage.
- Prior to loading onto the Alinity m System, vortex each assay calibrator 3 times for 2 to 3 seconds. Ensure that the contents of each tube are at the bottom after vortexing by tapping the tubes on the bench to bring liquid to the bottom of the tube.
- Load the assay calibrators onto the Alinity m Universal Sample Rack with retention bar.

QUALITY CONTROL PROCEDURES

Refer to the **QUALITY CONTROL PROCEDURES** section of the Alinity m HCV AMP Kit package insert.

BIBLIOGRAPHY

1. US Department of Health and Human Services. *Biosafety in Microbiological and Biomedical Laboratories*. 5th ed. Washington, DC: US Government Printing Office; December 2009. [Also available online. Type> www.cdc.gov, search>BMBL5>look up sections III and IV.]
2. US Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910.1030, Bloodborne pathogens.
3. Clinical and Laboratory Standards Institute (CLSI). *Protection of Laboratory Workers From Occupationally Acquired Infections; Approved Guideline—Fourth Edition*. CLSI Document M29-A4. Wayne, PA: CLSI; 2014.
4. World Health Organization. *Laboratory Biosafety Manual*. 3rd ed. Geneva: World Health Organization; 2004.

KEY TO SYMBOLS

REF	Reference Number
IVD	In Vitro Diagnostic Medical Device
LOT	Lot Number
In Vitro Test	In Vitro Test
PRODUCT OF USA	Product of USA
CAL A	Calibrator A
CAL B	Calibrator B
	Warning
	Caution
	Consult Instructions for Use
	Temperature Limitation
	Use By
EC REP	Authorized Representative in the European Community
	Manufacturer

TECHNICAL ASSISTANCE

For technical assistance, call Abbott Molecular Technical Services at 1-800-553-7042 (within the US) or +49-6122-580 (outside the US), or visit the Abbott Molecular website at www.molecular.abbott/portal.

Abbott Molecular Inc. is the legal manufacturer of the Alinity m HCV CAL Kit.

The Alinity m HCV CAL Kit is imported into the European Union by Abbott Diagnostics GmbH, located at Max-Planck-Ring 2, 65205 Wiesbaden, Germany.

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53-608065/R3

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