**PURPOSE**

To determine the detection of antibodies to hepatitis C virus (HCV) performed at Einstein Medical Center.

**INTENDED USE**

The ARCHITECT Anti-HCV assay is a chemiluminescent microparticle immunoassay (CMIA) for the qualitative detection of immunoglobulin G (IgG) and immunoglobulin M (IgM) antibodies to hepatitis C virus (anti-HCV) in human adult serum.

Assay results, in conjunction with other laboratory results and clinical information, may be used to provide presumptive evidence of infection with HCV (state of infection or associated disease not determined) in persons with signs and symptoms of hepatitis and in persons at risk for hepatitis C infection.

Assay performance characteristics have not been established for newborns, infants, children, or populations of immunocompromised or immunosuppressed patients.

**CLINICAL UTILITY**

The ARCHITECT Anti-HCV assay is for the detection of antibodies to the hepatitis C virus (HCV). HCV is a bloodborne virus. Serological studies employing enzyme immunoassays (EIAs) for detection of antibodies to recombinant antigens of HCV have established HCV as the cause of most bloodborne as well as community-acquired non-A, non-B hepatitis.

The presence of anti-HCV indicates that an individual may have been infected with HCV, may harbor infectious HCV, and/or may be capable of transmitting HCV infection. Although the majority of infected individuals may be asymptomatic, HCV infection may develop into chronic hepatitis, cirrhosis, and/or increased risk of hepatocellular carcinoma.

**METHODOLOGY**

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

**SPECIMEN INFORMATION**

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| --- | --- | --- | --- |
| **Sample Type** | **Tube Color(s)**  **Anticoagulants** | **Minimum Volume** | **Stability** |
| Serum | Glass or plastic:  Serum  Serum separator | Priority: 70 mcL  ≤ 3 hrs on board:  150 mcL | 3 days at RT  7 days at 2-8oC  Store at -20oC |

**SPECIAL INSTRUCTIONS AND STORAGE**

Mix thawed specimens thoroughly by low speed vortexing or by inverting 10 times. Visually inspect the specimens. To ensure consistency in results, specimens must be transferred to a centrifuge tube and centrifuged at > 10,000 RCF (Relative Centrifugal Force) for 10 minutes before testing if they contain fibrin, red blood cells, or other particulate matter, or they were frozen and thawed.

Specimens may be stored on or off the clot, red blood cells, or separator gel for up to 3 days at room temperature (study performed at 20 to 23°C) or up to 7 days at 2-8°C. If testing will be delayed more than 3 days for specimens stored at room temperature or more than 7 days for specimens stored at 2-8°C, remove serum from the clot, red blood cells, or separator gel and store at -20°C or colder. Avoid more than three freeze/thaw cycles.

**SPECIMEN LIMITATIONS**

Do not use the following:

* Heat-inactivated specimens
* Pooled specimens
* Hemolyzed specimens
* Obvious microbial contamination
* Cadaveric specimens
* Body fluids other than serum or plasma

**REAGENTS**

Reagent Kit No. 1L79. HCV antigen (recombinant *Escherichia coli*, recombinant yeast) coated microparticles. Murine anti-human IgG/IgM acridinium-labeled conjugate. Anti-HCV assay diluent.

Do not use reagents beyond the expiration date. Do not pool reagents within a reagent kit or between reagent kits. Before loading the ARCHITECT Anti-HCV Reagent Kit on the system for the first time, the microparticle bottle requires mixing to resuspend microparticles. Invert the microparticle bottle 30 times. Visually inspect the bottle to ensure microparticles are resuspended. If microparticles are still adhered to the bottle, continue to invert the bottle until the microparticles have been completely resuspended.

Septums MUST be used to prevent reagent evaporation and contamination and to ensure reagent integrity. To avoid contamination, wear clean gloves when placing a septum on an uncapped reagent bottle. When handling conjugate vials, change gloves that have contacted human serum, since introduction of human IgG/IgM will result in a neutralized conjugate. Once a septum has been placed on the reagent bottle, do not invert the bottle as this will result in reagent leakage and may compromise assay results. Over time, residual liquids may dry on the septum surface. These are typically dried salts and have no effect on assay efficacy.

The ARCHITECT Anti-HCV Reagent Kit must be stored at 2-8°C in an upright position and may be used immediately after removal from 2-8°C storage. The kit may be stored on board the ARCHITECT *i* System for a maximum of 30 days. If reagents are removed from the system, store them at 2-8°C (with septums and replacement caps) in an upright position. For reagents stored off the system, it is recommended that they be stored in their original trays and boxes to ensure they remain upright. If the microparticle bottle does not remain upright (with a septum installed) while in refrigerated storage off the system, the reagent kit must be discarded.

**CALIBRATION**

To perform a calibration, test ARCHITECT Anti-HCV Calibrator 1 in triplicate. The calibrator should be priority loaded. A single sample of each control level must be tested to evaluate the assay calibration.

Once an ARCHITECT Anti-HCV calibration is accepted and stored, all subsequent samples may be tested without further calibration unless:

* A reagent kit with a new lot number is used.
* Controls are out of range.

Hold the bottles vertically and dispense 5 drops of calibrator into each respective sample cup.

**QUALITY CONTROL**

The recommended control requirement for the ARCHITECT Anti-HCV assay is that a single sample of each control level be tested once every 24 hours each day of use. Additional controls may be tested in conformance with local, state, and/or federal regulations or accreditation requirements and your laboratory’s quality control policy. **See Appendix CH03-101 B for Quality Control Quick Guide**

**PROCEDURE**

Before loading the ARCHITECT Anti-HCV Reagent Kit on the system for the first time, the microparticle bottle requires mixing to resuspend microparticles that may have settled during shipment. Load the ARCHITECT Anti-HCV Reagent Kit.

Priority: 70 mcL for the first anti-HCV test plus 20 mcL for each additional anti-HCV test from the same sample cup.

≤ 3 hours onboard: 150 mcL for the first anti-HCV test plus 20 mcL for each additional anti-HCV test from the same sample cup.

Load samples. Press RUN.

**LIMITATIONS OF PROCEDURE**

Current methods for the detection of antibodies to HCV may not detect all infected individuals. A nonreactive test result does not exclude the possibility of exposure to HCV.

Immunocompromised patients who have HCV may produce levels of antibody below the sensitivity of this assay and may not be detected as positive.

The affinity or avidity differences of anti-human IgG/IgM for anti-HCV have not been determined with this assay. Therefore, there may not be a demonstration of a significant increase in antibody level between acute and convalescent specimens for a patient in the late acute stage of infection when IgM antibodies are decreasing.

Assay performance characteristics have not been established for newborns, infants, children, or populations of immunocompromised or immunosuppressed patients.

Heterophilic antibodies in human serum can react with reagent immunoglobulins, interfering with *in vitro* immunoassays. Patients routinely exposed to animals or to animal serum products can be prone to this interference and anomalous values may be observed.

**SENSITIVITY**

Refer to package insert for Sensitivity.

**ANALYTE SPECS**

Refer to package insert for Specific Performance Characteristics:

* Specificity
* Precision
* Interfering Substances

**DILUTION**

Specimens cannot be diluted for the ARCHITECT Anti-HCV assay.

**UNIT OF MEASURE**

S/CO

**RESULTS**

|  |  |  |  |
| --- | --- | --- | --- |
| Initial Architect Anti-HCV Results | | | |
| Initial Results  S/Co | Instrument Flag | Interpretation | Retest Procedure |
| > 1.00 | Reactive | Positive | No Retest Required |
| 0.80 to 0.99 | Greyzone | Equivocal | Retest in duplicate |
| 0.00 to 0.79 | Nonreactive | Negative | No Retest Required |

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| --- | --- | --- | --- |
| **Architect Anti-HCV Results** | | | |
| **Initial results** | **Retest Results** | **Result** | **Interpretation** |
| Reactive | No retest required | See Comment | Preliminary positive for Hep C antibody. HCV RNA PCR test is recommended for confirmation of viral infection. |
| Grayzone | Both of the duplicate retests are reactive  One or both of the duplicate retests are repeatedly in the grayzone or one retest is reactive and the other is nonreactive.  Both of the duplicates are nonreactive. | See Comment  Equivocal  Negative | Preliminary positive for Hep C antibody. HCV RNA PCR test is recommended.  Antibodies To HCV may or may not be present, another specimen should be obtained from the individual for further testing.  Antibodies to HCV not detected, does not exclude the possibility of exposure to HCV |
| Nonreactive | No Retest Required | Negative | Antibodies to HCV/ not detected, does not exclude the possibility of exposure to HCV. |

**See Appendix CH03-101 A for Interpretation Results**

**Reporting Results**

Results are interfaced to LIS and verified by the tech. Refer to reference Range Grid.

**Note: Upon receiving a preliminary positive HCV test reading, the preliminary positive result is to be phoned to the primary care provider. Document with results called to and read back by. If the physician wants to confirm the Hep C AB an order for HCV RNA PCR should be placed.**

**A lavender top tube will be tested in Micro for the preliminary Positive HCV.**

**Presumptive Positives do not need to be called to the ED. The Infectious Disease Department will follow up on any presumptive positives for ED patients. All other locations need to be called.**

**Approval Signatures:**

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| --- | --- | --- |
| **Date** | **Printed Name** | **Signature** |
| 8/12/2016 | Jennifer Lore, MFS, MT  Chemistry Supervisor |  |
| 8/12/2016 | Nancy A. Young, M.D., FCAP Medical Director |  |

**History Review**

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| **Date Reviewed** | **Reviewed By** | **Revisions** |
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