MAYO CLINIC LABORATORIES

Test Definition: LEBV

Epstein-Barr Virus (EBV), Molecular Detection, PCR, Varies

Overview

Useful For

Rapid qualitative detection of Epstein-Barr virus (EBV) DNA in specimens

Diagnosis of disease due to EBV

This test **should not be used** to screen asymptomatic patients.

Method Name

Real-Time Polymerase Chain Reaction (PCR)/DNA Probe Hybridization

NY State Available

No

Specimen

Specimen Type

Varies

Necessary Information

Specimen source is required.

Specimen Required

Submit only 1 of the following specimens:

Specimen Type: Body fluid
Sources: Spinal, peritoneal, ascites, pericardial, pleural, thoracentesis, amniotic, or ocular
Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Container/Tube:
Preferred: Sterile, screw cap, 5-mL aliquot tube
Acceptable: Sterile container
Specimen Volume: 0.5 mL
Collection Instructions: Do not centrifuge.

Specimen Type: Respiratory fluid
Sources: Bronchial washing, bronchoalveolar lavage, nasopharyngeal aspirate or washing, sputum, or tracheal aspirate
Supplies: Sarstedt Aliquot Tube, 5 mL
Container/Tube:
Preferred: Sterile, screw cap, 5-mL aliquot tube

Acceptable: Sterile container
Specimen Volume: 1.5 mL
Collection Instructions: Do not centrifuge.

Specimen Type: Swab
Sources: Eye and upper respiratory (nasal, throat)
Supplies:
-Culturette (BBL Culture Swab) (T092)
-M4-RT (T605)
Container/Tube: Multimicrobe media (M4-RT) and Eswabs
Collection Instructions: Place swab back into multimicrobe media (M4-RT, M4 or M5)

Specimen Type: Bone marrow
Container/Tube: Lavender top (EDTA)
Specimen Volume: 0.5 mL
Additional Information: Clotted specimens will be rejected.

Specimen Type: Tissue
Sources: Brain, colon, kidney, liver, lung, cornea, etc.
Supplies: M4-RT (T605)
Container/Tube:
Preferred: Multimicrobe medium (M4-RT)
Acceptable: Sterile container containing 1 to 2 mL of sterile saline or multimicrobe medium (M4-RT, M4 or M5)
Specimen Volume: Entire collection
Collection Instructions: Submit only fresh tissue

Specimen Minimum Volume

Fluids: 0.3 mL; Respiratory Specimens: 1 mL; Tissue: 2 x 2-mm biopsy; Swab: See Specimen Required

Reject Due To

Calcium alginate-tipped swab Wood swab Transport swab containing gel Formalin-fixed and paraffin-embedded tissues Heat inactivated specimens	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Varies	Refrigerated (preferred)	7 days	
	Frozen	7 days	

Clinical & Interpretive

Clinical Information

Epstein-Barr virus (EBV) is the causative agent of infectious mononucleosis, Burkitt lymphoma, and in Southern China, nasopharyngeal carcinoma. EBV-associated central nervous system (CNS) disease is most frequently associated with primary CNS lymphoma in patients with AIDS. In addition, CNS infection associated with the detection of EBV DNA can be seen in immunocompetent patients.

Reference Values

Negative
Reference values apply to all ages.

Interpretation

Detection of Epstein-Barr virus (EBV) DNA in cerebrospinal fluid (CSF) supports the clinical diagnosis of central nervous system (CNS) disease due to the virus. EBV DNA is not detected in CSF from patients without CNS disease caused by this virus.

Cautions

A negative result does not eliminate the possibility of Epstein-Barr virus (EBV) infection of the central nervous system.

This assay may detect viremia or viral shedding in asymptomatic individuals. However, this assay is only to be used for patients with a clinical history and symptoms consistent with EBV infection and must be interpreted in the context of the clinical picture.

Clinical Reference

1. Allen UD, Preiksaitis JK. AST Infectious Diseases Community of Practice. Post-transplant lymphoproliferative disorders, Epstein-Barr virus infection, and disease in solid organ transplantation: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019;33(9):e13652. doi:10.1111/ctr.13652
2. Nowalk A, Green M. Epstein-Barr Virus. Microbiol Spectr. 2016;4(3). doi:10.1128/microbiolspec.DMIH2-0011-2015
3. AbuSalah MAH, Gan SH, Al-Hatamleh MAI, Irekeola AA, Shueb RH, Yean Yean C. Recent Advances in Diagnostic Approaches for Epstein-Barr Virus. Pathogens. 2020;9(3):226. doi:10.3390/pathogens9030226

Performance

Method Description

Viral nucleic acid is extracted by the MagNA Pure automated instrument (Roche Applied Science) from clinical specimens. Primers are directed to the target gene (latent membrane protein). The LightCycler instrument amplifies and monitors by fluorescence the development of target nucleic acid sequences after the annealing step during polymerase chain reaction (PCR) cycling. This is an automated PCR system that can rapidly detect (30-40 minutes) amplicon development through stringent air-controlled temperature cycling . The detection of amplified products is based on the fluorescence resonance energy transfer (FRET) principle. For FRET product detection, a hybridization probe with a donor fluorophore, fluorescein, on the 3' end is excited by an external light source and emits light that is absorbed by a second hybridization probe with an acceptor fluorophore, LC-Red 640, at the 5' end. The acceptor fluorophore then emits a light of a different wavelength that can be measured with a signal that is proportional to the amount of specific PCR product. Melting curve analysis is performed following PCR amplification. Starting at 45 degrees C, the temperature in the thermal chamber is slowly raised to 80 degrees C and the fluorescence is measured at frequent intervals. Analysis of the PCR amplification and probe melting curves is accomplished through the use of LightCycler software.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Monday through Saturday

Report Available

2 to 3 days

Specimen Retention Time

14 days

Performing Laboratory Location

Jacksonville

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

This test was developed using an analyte specific reagent. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

87798

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
LEBV	Epstein-Barr Virus PCR	23858-4

Result ID	Test Result Name	Result LOINC® Value
SRC67	Specimen Source	31208-2
81239	Epstein-Barr Virus PCR	23858-4