MAYO CLINIC LABORATORIES

Test Definition: WEEPC

Western Equine Encephalitis Antibody Panel, IgG and IgM, Spinal Fluid

Overview

Useful For

Aiding in the diagnosis of Western equine encephalitis using spinal fluid specimens

Testing Algorithm

For more information see Mosquito-borne Disease Laboratory Testing.

Special Instructions

- Mosquito-borne Disease Laboratory Testing

Method Name

Immunofluorescence Assay (IFA)

NY State Available

No

Specimen

Specimen Type

CSF

Ordering Guidance

This assay detects Western equine antibodies only. For a complete arbovirus panel, order ABOPC / Arbovirus Antibody Panel, IgG and IgM, Spinal Fluid.

New York State clients: This test is not available for specimens originating in New York.

Specimen Required

Container/Tube: Sterile vial
Preferred: Vial number 1
Acceptable: Any vial
Specimen Volume: 0.8 mL

Forms

If not ordering electronically, complete, print, and send Infectious Disease Serology Test Request (T916) with the specimen.

Specimen Minimum Volume

0.7 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
CSF	Refrigerated (preferred)	14 days	
	Frozen	14 days	

Clinical & Interpretive

Clinical Information

The virus that causes Western equine encephalitis (WEE) is widely distributed throughout the United States and Canada; disease occurs almost exclusively in the western states and Canadian provinces. The relative absence of the disease in the eastern United States probably reflects a paucity of the vector mosquito species, *Culex tarsalis*, and, possibly, a lower pathogenicity of local virus strains.

The disease usually begins suddenly with malaise, fever, and headache, often with nausea and vomiting. Vertigo, photophobia, sore throat, respiratory symptoms, abdominal pain, and myalgia are also common. Over a few days, the headache intensifies; drowsiness and restlessness may merge into a coma in severe cases. The onset may be more abrupt in infants and children than for adults. WEE should be suspected in any case of febrile central nervous system (CNS) disease from an endemic area. Infants are highly susceptible to CNS disease, and about 20% of cases are patients under 1 year of age. There is an excess of male patients with WEE clinical encephalitis, averaging about twice the number of infections detected in female patients. After recovery from the acute disease, patients may require several months to 2 years to overcome the fatigue, headache, and irritability. Infants and children are at a higher risk of permanent brain damage after recovery than adults.

Infections with arboviruses can occur at any age. The age distribution depends on the degree of exposure to the particular transmitting arthropod relating to age, sex, and occupational, vocational, and recreational habits of the individuals. Once humans have been infected, the severity of the host response may be influenced by age. WEE tends to produce the most severe clinical infections in young persons.

Reference Values

IgG: <1:1
IgM: <1:1
Reference values apply to all ages.

Interpretation

Detection of organism-specific antibodies in the cerebrospinal fluid (CSF) may suggest central nervous system (CNS)

infection. However, these results are unable to distinguish between intrathecal antibodies and serum antibodies introduced into the CSF at the time of lumbar puncture or from a breakdown in the blood-brain barrier. The results should be interpreted with other laboratory and clinical data prior to a diagnosis of CNS infection.

Cautions

All results must be correlated with clinical history and other data available to the attending physician.

False-positive results may be caused by breakdown of the blood-brain barrier, or by the introduction of blood into the cerebrospinal fluid at collection.

Western equine encephalitis and Eastern equine encephalitis viruses show some cross-reactivity; however, antibody response to the infecting virus is typically at least 8-fold higher.

Clinical Reference

1. Markoff L: Alphaviruses (Chikungunya, Eastern equine encephalitis). In: Bennett JE, Dolin R, Blaser MJ, eds. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 9th ed. Elsevier; 2020:1997-20062
2. Piantadosi A, Kanjilal S: Diagnostic approach for arboviral infections in the United States. J Clin Microbiol. 2020 Nov 18;58(12):e01926-19. doi: 10.1128/JCM.01926-19

Performance

Method Description

The indirect immunofluorescent antibody (IFA) assay is a 2-stage “sandwich” procedure. In the first stage, the patient cerebrospinal fluid (CSF) is diluted in Pretreatment Diluent for IgM and phosphate buffered saline (PBS) for IgG, added to appropriate slide wells in contact with the substrate, and incubated. Following incubation, the slide is washed in PBS, which removes unbound CSF antibodies. In the second stage, each antigen well is overlaid with fluorescein-labeled antibody to IgM and IgG. The slide is incubated allowing antigen-antibody complexes to react with the fluorescein-labeled anti-IgM and anti-IgG. After the slide is washed, dried, and mounted, it is examined using fluorescence microscopy. Positive reactions appear as cells exhibiting bright apple-green cytoplasmic fluorescence against a background of red negative control cells. Semi-quantitative endpoint titers are obtained by testing serial dilutions of positive specimens. (Package inserts: Arbovirus IFA IgM and Arbovirus IFA IgG Instructions for Use. Focus Diagnostics; Rev 02, 05/01/2018)

PDF Report

No

Day(s) Performed

May through October: Monday through Friday
November through April: Monday, Wednesday, Friday

Report Available

Same day/1 to 4 days

Specimen Retention Time
2 weeks

Performing Laboratory Location
Rochester

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 and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
86654 x 2

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
WEEPC	West Equine Enceph Ab Panel, CSF	69036-2

Result ID	Test Result Name	Result LOINC® Value
26371	West Equine Enceph Ab, IgG, CSF	9315-3
26372	West Equine Enceph Ab, IgM, CSF	9316-1