MAYO CLINIC LABORATORIES

Test Definition: STLP

St. Louis Enceph Ab, IgG and IgM, S

Overview

Useful For
Aiding in the diagnosis of St. Louis encephalitis

Testing Algorithm
See Mosquito-borne Disease Laboratory Testing in Special Instructions.

Special Instructions
- Mosquito-borne Disease Laboratory Testing

Method Name
Immunofluorescence Assay (IFA)

NY State Available
Yes

Specimen

Specimen Type
Serum

Ordering Guidance
This assay detects only St. Louis virus. For a complete arbovirus panel, order ARBOP / Arbovirus Antibody Panel, IgG and IgM, Serum.

Specimen Required
Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Specimen Volume:0.5 mL

Forms
If not ordering electronically, complete, print, and send a Microbiology Test Request (T244) with the specimen.

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject

Specimen Minimum Volume
0.25 mL

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container

Serum	Refrigerated (preferred)	14 days	
	Frozen	14 days	

Clinical & Interpretive

Clinical Information

The onset of St. Louis encephalitis is characterized by generalized malaise, fever, chilliness, headache, drowsiness, nausea, and sore throat or cough followed in 1 to 4 days by the meningeal and neurologic signs. The severity of illness increases with advancing age; persons over 60 years have the highest frequency of encephalitis. Symptoms of irritability, sleeplessness, depression, memory loss, and headaches can last up to 3 years. Areas of outbreaks since 1933 have involved the western United States, Texas, the Ohio-Mississippi Valley, and Florida. The vector of transmission is the mosquito. Peak incidence of St. Louis encephalitis is associated with summer and early autumn.

Reference Values

IgG: <1:10
IgM: <1:10
Reference values apply to all ages.

Interpretation

In patients infected with the St. Louis encephalitis virus, IgG antibody is generally detectable within 1 to 3 weeks of onset, peaking within 1 to 2 months, and declining slowly thereafter.
IgM class antibody is also reliably detected within 1 to 3 weeks of onset, peaking and rapidly declining within 3 months.
A single serum specimen IgG of 1:10 or greater indicates exposure to the virus. Results from a single serum specimen can differentiate early (acute) infection from past infection with immunity if IgM is positive (suggests acute infection). While a 4-fold or greater rise in IgG antibody titer in acute and convalescent sera indicates recent infection.
Infections with St. Louis encephalitis can occur at any age. The age distribution depends on the degree of exposure to the particular transmitting arthropod relating to age and sex, as well as the occupational, vocational, and recreational habits of the individuals. St. Louis encephalitis tends to produce the most severe clinical infections in older persons.

Cautions

All results must be correlated with clinical history and other data available to the attending physician.
Specimens collected within the first 2 weeks after onset are variably negative for IgG antibody and should not be used to exclude the diagnosis of St. Louis encephalitis (SLE). If SLE is suspected, a second specimen should be collected and tested 10 to 21 days later.
Since cross-reactivity with dengue fever does occur with SLE antigens and, therefore, cannot be differentiated further. The specific virus responsible for such a titer may be deduced by the travel history of the patient, along with available medical and epidemiological data, unless the virus can be isolated.
Usually, when an infection with an arbovirus is suspected, it is too late to isolate the virus or draw serum specimens to detect a rise of antibody titer.

Clinical Reference

1. Gonzalez-Scarano F, Nathanson N: Bunyaviruses. In: Fields BN, Knipe DM, eds. Fields Virology. Vol 1. 2nd ed. Raven Press; 1990: 1195-1228
2. Donat JF, Hable-Rhodes KH, Groover RV, Smith TF: Etiology and outcome in 42 children with acute nonbacterial meningoencephalitis. Mayo Clin Proc. 1980;55:156-160

3. Tsai TF: Arboviruses. In: Murray PR, Baron EJ, Pfaller MA, et al, eds. Manual of Clinical Microbiology. 7th ed. ASM Press; 1999: 1107-1124
4. Calisher CH: Medically important arboviruses of the United States and Canada. Clin Microbiol Rev. 1994;7:89-116
5. Diaz A, Coffey LL, Burkett-Cadena N, et al. Reemergence of St. Louis Encephalitis Virus in the Americas. Emerg Infect Dis. 2018;24(12):2150-2157. doi: 10.3201/eid2412.180372

Performance

Method Description

This test uses indirect immunofluorescence. Dilutions of test sera are prepared and allowed to react with substrate cells infected with St. Louis encephalitis virus. If IgG antibodies to the virus are present in the serum of the patient, an antigen-antibody complex will develop that can be detected by a fluorescein-labeled antibody directed to human globulin.(Tsai TF: Arboviruses. In: Murray PR, Baron EJ, Pfaller MA, et al, eds. Manual of Clinical Microbiology. 7th ed. ASM Press; 1999: 1107-1124; Beatty BJ, Casals J, Brown KL, et al: Indirect fluorescent-antibody technique for serological diagnosis of LaCrosse [California] virus infections. J Clin Microbiol. 1982;15:429-434; Tyler KL: Arbovirus Infections. Continuum. 2015 Dec;21(6):1599-1611. doi: 10.1212/CON.0000000000000240)

PDF Report

No

Specimen Retention Time

2 weeks

Performing Laboratory Location

Rochester

Fees & Codes

Test Classification

This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

86653 x 2