MAYO CLINIC LABORATORIES

Test Definition: STLP

St. Louis Encephalitis Antibody, IgG and IgM, Serum

Overview

Useful For
Aiding in the diagnosis of St. Louis encephalitis using serum 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
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
Supplies: Sarstedt Aliquot Tube 5 mL (T914)
Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 0.5 mL
Collection Instructions: Centrifuge and aliquot serum into plastic vial.

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

Specimen Minimum Volume

0.25 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject

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, Rhodes KH, Groover RV, Smith TF. Etiology and outcome in 42 children with acute nonbacterial meningoencephalitis. Mayo Clin Proc. 1980;55(3):156-160
3. Tsai TF. Arboviruses. In: Murray PR, Baron EJ, Pfaller MA, et al, eds. Manual of Clinical Microbiology. 7th ed. American Society for Microbiology; 1999:1107-1124
4. Calisher CH. Medically important arboviruses of the United States and Canada. Clin Microbiol Rev. 1994;7(1):89-116
5. Diaz A, Coffey LL, Burkett-Cadena N, Day JF. 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

The indirect immunofluorescent antibody (IFA) assay is a 2-stage "sandwich" procedure. In the first stage, the patient serum 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 serum 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. 03, 02/17/2023)

PDF Report

No

Day(s) Performed

Monday through Friday (May through October)

Monday, Wednesday, Friday (November through April)

Report Available
Same day/1 to 4 days

Specimen Retention Time
2 weeks

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Superior Drive

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 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

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
STLP	St. Louis Enceph Ab, IgG and IgM, S	96255-5

Result ID	Test Result Name	Result LOINC® Value
8182	St. Louis Enceph Ab, IgG, S	In Process
87268	St. Louis Enceph Ab, IgM, S	In Process