
Overview

Useful For

Aiding 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

No

Specimen

Specimen Type

CSF

Ordering Guidance

This assay detects only St. Louis virus. 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

Specimen Volume: 0.8 mL

Forms

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

Reject Due To

Gross hemolysis OK

Gross lipemia OK

Specimen Minimum Volume

0.70 mL

Specimen Stability Information

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

Clinical & Interpretive**Clinical Information**

Since 1933, outbreaks of St. Louis encephalitis (SLE) have involved the western United States, Texas, the Ohio-Mississippi Valley, and Florida. The vector of transmission is the mosquito. Peak incidence occurs in summer and early autumn. Disease onset is characterized by generalized malaise, fever, chills, headache, drowsiness, nausea, and sore throat or cough followed in 1 to 4 days by 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.

Infections with arboviruses, including SLE, 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. SLE tends to produce the most severe clinical infections in older 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.

Since cross-reactivity with dengue fever virus does occur with St. Louis encephalitis antigens, and, therefore, cannot be differentiated further, the specific virus responsible for positive results may be deduced by the travel history of the patient, along with available medical and epidemiological data, unless the virus can be isolated.

Clinical Reference

1. Gonzalez-Scarano F, Nathanson N: Bunyaviruses. In: Fields BM, Knipe DM, eds. *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;55:156-160
3. Tsai TF: Arboviruses. In: Murray PR, Baron EF, 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**

Dilutions of cerebrospinal fluid (CSF) are prepared and allowed to react with substrate cells infected with appropriate arbovirus. If antibodies to this virus are present in the CSF 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 EF, Pfaller MA, et al, eds. *Manual of Clinical Microbiology*. 7th ed. ASM Press, 1999, pp 1107-1124; Beaty 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; Beckham JD, 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 was developed, and its performance characteristics 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

86653 x 2

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
STLPC	St. Louis Enceph Ab Panel, CSF	96254-8

Result ID	Reporting Name	LOINC®
26367	St. Louis Enceph Ab, IgG, CSF	21509-5
26368	St. Louis Enceph Ab, IgM, CSF	21510-3