



New Eastern Equine Encephalitis Assay

Eastern Equine Encephalitis (EEE) is endemic in North America and the Caribbean. Human infection is most often acquired through the bite of *Aedes*, *Coquillattidia*, and *Culex* mosquitos. The life cycle is maintained in birds with humans and horses being considered dead end hosts. EEE is an infrequent disease that primarily causes severe disease in persons over 50 and under 15 years old. Most people have no or mild symptoms. Severe disease has an abrupt onset and is characterized by chills, fever, malaise, arthralgia, and myalgia. The incubation period for EEE ranges from 4 to 10 days, and the illness typically lasts 1 to 2 weeks. About 4-5% of human infections result in severe disease, and the case fatality rate for severe disease ranges from 30-70%. Of those who recover, many are left with disabling and progressive mental and physical sequelae, which can range from minimal brain dysfunction to severe intellectual impairment. Many patients with severe sequelae die within a few years.

On Sept. 1, 2020 WSLH will switch testing for EEE infection to the EEE microsphere immunoassay (MIA) assay developed by CDC. This test employs a set of microspheres coupled to a single alphavirus group I-reactive monoclonal antibody, which is used to capture EEE antigen. Immunoglobulin G-depleted serum and non-depleted CSF are evaluated for IgM antibodies to the viral antigens presented by the microspheres. Data is captured using the Bio-Plex™ 200 System via fluorescent conjugated anti-IgM antibody. Compared to the previous EEE MAC-ELISA assay used at WSLH, the new EEE MIA assay has improved specificity for EEE antibodies and uses less volume of CSF. The MIA test methodology was developed at the CDC and validated at WSLH. It has not been cleared or approved by the U.S. Food and Drug Administration.

Test Information:

- **Test name:** Eastern Equine Encephalitis IgM Antibody
- **Test code:** SS02291
- **CPT code:** 86652
- **Price:** \$80
- **Test method:** Microsphere Immunoassay (MIA)
- **Acceptable specimen types:** 1-3 mL serum or 8.5 mL SST vacutainer tube, no additives; CSF, minimum 2 mL. CSF must be accompanied by a serum specimen.
- **Specimen handling:** Specimens should be stored at 2-8C, transported with a frozen cool pack, and should be received within 48 hours of collection. If specimens will not be tested for 3 or more days, they should be frozen at -20°C until ready for shipment and shipped on dry ice.
- **Turn-around time:** 2-8 days, performed weekly
- **Limitations:** Cross-reaction may occur between arboviruses. A negative result on a single acute phase specimen does not rule out infection, as the specimen may have been obtained prior to the development of an antibody response.
- **Possible Results:** Negative, Presumptive Positive, or Nonspecific.
- **Additional testing:** All Presumptive Positive and Nonspecific specimen will be automatically forwarded (fee exempt) to CDC for additional testing. Testing for Enterovirus PCR, HSV, or other individual arboviral agents (LAC, WNV, SLE) is recommended.

Reference: Eastern Equine Encephalitis. *Centers for Disease Control and Prevention*, www.cdc.gov/easternequineencephalitis/index.html.

