West Nile Virus IgM
Test Code: 5219249

Performed at multiple locations.

Clinical and Procedure

Clinical Utility

West Nile virus (WNV) is a mosquito-borne flavivirus that primarily infects birds and occasionally infects humans. In addition, WNV infection has occurred among persons who have received blood from infected individuals, and transmission following organ transplant has also been documented.\(^1\)

Laboratory diagnosis is generally accomplished by testing of serum or cerebrospinal fluid (CSF) for WNV-specific IgM antibodies, and are usually detectable 3 to 8 days after onset of illness and persist for 30 to 90 days.\(^2\) If serum is collected within the first 8 days of illness, the absence of detectable WNV-specific IgM does not rule out the diagnosis of infection, and the test may need to be repeated using a sample drawn later in the disease course. The presence of WNV-specific IgM in blood or CSF provides evidence of recent infection, but may also result from cross-reactive antibodies after infection with other flaviviruses or from non-specific reactivity.\(^2\) All positive results should be confirmed by neutralizing antibody testing of acute- and convalescent-phase serum specimens at a state public health laboratory or CDC.

WNV IgG antibodies generally are detected shortly after IgM antibodies and persist for many years following a symptomatic or asymptomatic infection. Therefore, the presence of IgG antibodies alone is only evidence of previous infection and clinically compatible cases with the presence of IgG, but not IgM, should be evaluated for other etiologic agents.


Procedure

Direct ELISA. In the Focus Diagnostics West Nile Virus IgG DxSelect\(^{TM}\) assay, the polystyrene microwells are coated with anti-human antibody specific for IgM (\(\mu\)-chain). Diluted specimen samples and controls are incubated in the wells, and IgM present in the sample binds to the anti-human antibody (IgM specific) in the wells. Non-specific reactants are removed by washing. Recombinant WNV antigen is then added to the wells and incubated; and, if anti-WNV IgM is present in the sample, the WNV antigen binds to the anti-WNV in the well. Unbound WNV antigen is then removed by washing the well, mouse anti-flavivirus conjugated with horseradish peroxidase (HRPO) is then added to the wells and incubated; and, if WNV antigen has been retained in the well by the anti-flavivirus in the sample, the mouse anti-flavivirus HRPO binds to the WNV antigen in the wells. Enzymesubstrate and chromogen are added, and the color is allowed to develop. After adding the Stop Reagent, the resultant color change is ready by a spectrophotometer. The color intensity is compared to the cut-off's to determine if antigen-specific IgM is present in the sample. This test has been cleared or approved for diagnostic use by the U.S. Food and Drug Administration.

Specificity

Positive results are known to occur with persons vaccinated for flaviviruses (e.g., yellow fever, Japanese encephalitis, dengue), with persons infected with other flaviviruses, and with persons previously infected with WNV. Because closely related arboviruses exhibit serologic cross-reactivity, sometimes it may be epidemiologically important to attempt to pinpoint the infecting virus by conducting plaque reduction neutralization tests using an appropriate battery of closely related flaviviruses.

Turnaround Time

Same day (within 8 - 12 hours from receipt of specimen), Monday through Saturday.
Specimen Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Order Code</th>
<th>CPT Code</th>
<th>NY Approved</th>
<th>Volume</th>
<th>Assay Range</th>
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</thead>
<tbody>
<tr>
<td>serum</td>
<td>5219249</td>
<td>86788</td>
<td>Yes</td>
<td>1 mL (min. 50 uL)</td>
<td>Positive, Negative, Equivocal</td>
</tr>
</tbody>
</table>

Special Instructions
- Whole blood should be collected in serum tube, allowed to clot for a minimum of 30 minutes.
- Centrifuge and 1 mL serum removed.
- Serum samples should be frozen immediately (-70°C).
- Ship frozen in dry ice Monday through Friday.

Positive, Negative, Equivocal.

Shipping
Lee's Summit Lab: Ship Monday through Friday. Ship specimens FedEx Priority Overnight® to:

Viracor Eurofins 1001 NW Technology Dr Lee's Summit, MO 64086 Ph: (800) 305-5198

Los Angeles Lab: Ship Monday through Friday. Ship specimens FedEx Priority Overnight® to:

Viracor Eurofins Serology 2100 West 3rd Street, Suite 301 Los Angeles, CA 90057 Ph: (213)229-3654

Label Friday shipments with Saturday delivery. All specimens must be labeled with patients name and collection date. A Viracor Eurofins test requisition form must accompany each specimen. Multiple tests can be run on one specimen.

Causes for Rejection
Hyper-lipemic, heat inactivated, hemolyzed, icteric, and contaminated sera. Specimens that have been stored at ambient temperature. Specimens that have been stored at 2 to 8°C for >2 days. If storage longer than 2 days is needed, samples should be frozen at -20°C or colder. Unless indicated as stored frozen, the specimen will be rejected if the draw date is >2 days from receipt at Viracor Eurofins. Specimens other than those listed in the specimen information.

Disclaimer
Specimens are approved for testing in New York only when indicated in the Specimen Information field above. The CPT codes provided are based on Viracor Eurofins' interpretation of the American Medical Association's Current Procedural Terminology (CPT) codes and are provided for informational purposes only. CPT coding is the sole responsibility of the billing party. Questions regarding coding should be addressed to your local Medicare carrier. Viracor Eurofins assumes no responsibility for billing errors due to reliance on the CPT codes illustrated in this material.

References
4. CDC. Information on Arboviral Encephalitides [online], 2001 July 13,. Available from: http://www.cdc.gov/ncidod/dvbid


