

Test Update

From Your Laboratory Service Provider, PathGroup Labs

Cytomegalovirus DNA by PCR

Qualitative and Quantitative

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Overview

PathGroup Labs is now offering a sensitive and specific polymerase chain reaction (PCR) based technology assay for diagnosis of cytomegalovirus (CMV) infections. CMV infection is a common life-threatening opportunistic infection in immunocompromised patients. CMV is a DNA virus and belongs to Herpesviridae family. Characteristically, most of the members of this family are known for establishing latency, possessing a high prevalence rate, and causing disease in immunologically compromised hosts. Since CMV infections are acquired throughout life, most infections usually develop as a result of CMV reactivation. Primary infection may lead to severe consequences, especially in the neonate, as well as in the transfused, transplanted, or older adult. Primary CMV infection or reactivation of a latent virus is a serious complication of solid organ and allogeneic stem cell transplants. Early diagnosis is important for the control and treatment of infection. CMV viremia is a reliable predictor of disease development. The presence of CMV DNA in a clinical specimen may suggest active infection, reactivated infection, or latent infection without disease. A positive qualitative CMV DNA by PCR cannot distinguish between latent and active CMV disease; however, quantitative CMV DNA by PCR testing gives the clinician a “viral load” value useful for monitoring antiviral therapy and possibly identifying patients at risk for CMV disease. Therefore, CMV DNA quantitation is helpful for determining when an infection becomes active and guiding decision about pre-emptive therapy and/or prophylaxis.

Clinical Utility

- Diagnosis of CMV infection
- Identification of CMV infection prior to clinical symptoms in transplant patients
- Diagnosis of active or reactivated infection in HIV patients
- Assessment of pre-emptive or prophylactic anti-CMV specific antiviral treatment in transplant patients
- Monitoring response to CMV-specific antiviral therapy
- Diagnosis of CMV infection in newborn and other diseases related to CMV infection in immunocompetent patients.

Method: Real-Time Polymerase Chain Reaction (PCR)



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Test Codes:

- **CMVQT (CMV DNA by PCR Quantitative -Viral Load) CPT-87497**
- **CMVQL (CMV DNA by PCR Qualitative) CPT-87496**

Specimen Collection:

- 3-5 mL of plasma collected in EDTA or ACD tubes.
Plasma must be separated within 24 hours of collection.
- 3-5 mL of whole blood collected in EDTA or ACD tube.
Specimen should be received within 24 hour of collection.
- 0.5 mL collected bone marrow in EDTA tube.
Specimen should be stored and shipped refrigerated within 24 hours.

Shipping and Handling: Properly collected and separated specimen into plastic sterile tube should be transported and stored refrigerated within 24 hours of collection.

Reference Ranges: Not Detected.

Turnaround Time: 1-4 days

References:

1. Drew LW. 2007. Laboratory Diagnosis of Cytomegalovirus Infection and Disease in Immunocompromised Patients. *Curr Opin Infect Dis.* 20:4008-411.
2. Boeckh M, Haung M, Ferrenberg J. et al. 2004. Optimization of Quantitative Detection of Cytomegalovirus DNA in Plasma by Real-Time PCR. *J. Clin Microbiol* 42(3):1142-1148.
3. Davila PM, Fortun J, Gutierrez C., et al. 2005. Analysis of a Quantitative PCR Assay for CMV Infection in Liver Transplant Recipients: an Intent to Find the Optimal Cut-Off Value. *J Clin Viro* 33:138-144.