



CMV

Cytomegalovirus DNA by PCR - Quantitative

GA Test Code	3702
Method	Real-Time Polymerase Chain Reaction (PCR) – Viral Load Monitoring
Specimens	Urine: 10.0 (5.0) mL, refrigerated (7 days). CSF: 1.0 (0.2) mL, refrigerated (7 days) or frozen. Swab (e.g. newborn saliva, or from any other site): Collect sample and place entire swab in 2.0 mL saline or viral transport media in a sterile screw top tube. Do not use calcium alginate or wood shafted swab. Ship ambient up to 14 days. Whole Blood (ACD or EDTA): 5.0 (3.0) mL, ambient (4 days), refrigerated (7 days). Plasma (ACD, EDTA, or PPT): 3.0 (1.0) mL, separated/centrifuged within 6 hours, refrigerated or frozen (<i>do not freeze in PPT</i>). If storing longer than 24 hours, store frozen. Fluid (e.g. amniotic, peritoneal, pleural): 2.0 (1.0) mL, ambient (4 days). Bronchial Washings: 3.0 (1.0) mL, refrigerated (7 days). Sputum: 10.0 mL (5.0 mL), refrigerated (7 days). Stool: 4-8 g of feces, screw-cap container, refrigerated (7 days). Do not dilute the specimen or use preservatives. Other Samples: Please contact GA for questions about other specimens.
Causes for Rejection	Quantity not sufficient (QNS) for analysis; time and/or temperature instructions not followed; blood in heparin; plasma frozen in PPT; calcium alginate or wood shafted swab; no swab in tube and/or received ambient after 14 days.
Reference Range	No CMV DNA Detected
Detection Range	200 to 1.0 x 10 ¹⁰ CMV DNA copies/mL
Turnaround Time	Same or Next Day
CPT Code	87497

Description

Cytomegalovirus (CMV) DNA is detected by a real-time PCR assay utilizing PCR primers directed against viral sequences found in the US17 region of the CMV genome. A patient value of less than 200 CMV DNA copies/mL indicates that the patient's viral load is below the quantitative limit of this assay, but does not indicate that the patient is not infected with CMV.

Clinical Utility

CMV is a commonly found virus that threatens immunocompromised patients including neonates, transplant recipients, oncology patients and patients with AIDS. Commonly seen manifestations of a CMV infection include: encephalitis, retinitis, colitis, hepatitis, adrenalitis, polyradiculopathy, and esophagitis. Every year, 1 in 150 children is born with congenital CMV infection, resulting in possible hearing loss. Studies have shown that using a real-time PCR assay to screen newborn saliva for CMV yielded at least 97.4% sensitivity and 99.9% specificity when compared to culture. CMV-infected babies can be monitored closely for hearing loss, with support services made available as necessary. CMV is the major viral pathogen that causes death after renal transplantation. The use of PCR has been found to detect CMV infection at a much higher rate in renal allograft cases, thus resulting in improved patient management.

Liapis, et al. CMV infection of the renal allograft is much more common than pathology indicates: a retrospective analysis of qualitative and quantitative buffy coat CMV-PCR, renal biopsy pathology and tissue CMV-PCR. *Nephrol Dial Transplant* 2003; 18:397-402.

Jones RN, Neale ML, Beattie B. Development and Application of a PCR-Based Method Including Internal Control for Diagnosis of Congenital Cytomegalovirus Infection. *J Clin Microbiol* 2000 Jan;38(1):1-6.

PCR is performed pursuant to a license agreement with Roche Molecular Systems, Inc.

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