GENETIC ASSAYS
A Molecular Diagnostics Laboratory

AdV Adenovirus DNA by PCR - Quantitative

GA Test Code	**3701**
Method	Quantitative Real-Time Polymerase Chain Reaction (qPCR)
Specimens	**Whole Blood (ACD or EDTA)**: 5.0 mL (3.0 mL), ambient (4 days), refrigerated (7 days). **Bronchial Washings**: 3.0 mL (1.0 mL), refrigerated (7 days). **Plasma (ACD, EDTA, or PPT)**: 3.0 mL (1.0 mL), separated/centrifuged within 6 hours, refrigerated or frozen *(do not freeze in PPT).* If storing longer than 24 hours, store frozen. **Bone Marrow**: 3.0 mL (2.0 mL), refrigerated (7 days). **Serum**: 2.0 mL (1.0 mL), refrigerated (7 days) or frozen. **CSF**: 1.0 mL (0.2 mL), refrigerated (7 days) or frozen. **Sputum**: 10.0 mL (5.0 mL), refrigerated (7 days). **Swab**: upper respiratory or rectal, ambient. Ship in viral transport medium or sterile saline solution. **Stool**: 4-8 g of feces, screw-cap container, refrigerated (7 days). Do **not** dilute the specimen or use preservatives. **Urine**: 10.0 mL (5.0 mL), refrigerated (7 days).
Causes for Rejection	Quantity not sufficient (QNS) for analysis; time and/or temperature instructions not followed; blood in heparin; plasma frozen in PPT.
Reference Range	Not Detected (<100 copies/mL)
Quantitative Range	100 to 1.0 x 10^{10} Adenovirus DNA copies/mL
Turnaround Time	Same or Next Day
CPT Code	87799

Description

This test was developed and its performance characteristics determined by Genetic Assays. It has not been cleared nor approved by the U.S. FDA. The FDA has determined that such clearance or approval is not necessary. This test is used for clinical purposes. It should not be regarded as investigational or for research. Genetic Assays is certified under CLIA as qualified to perform high-complexity testing. Adenovirus (AdV) DNA quantification is based upon the real-time PCR amplification and detection of AdV genomic DNA. A patient value of less than 100 AdV DNA copies/mL indicates that the viral load is below the quantitative limit of this assay, but does not indicate that the patient is not infected with AdV.

Clinical Utility

Utilization of this assay allows for early, rapid and sensitive detection of AdV infection, including the rare serotype 14, an emerging cause of severe community-acquired pneumonia. Moreover, AdV viral load monitoring measures the efficacy of antiviral therapy and is helpful in differentiating it from other conditions such as cytomegalovirus (CMV).

AdV infection can result in high morbidity and mortality for immunocompromised patients, including organ and bone marrow transplant (BMT) recipients and HIV patients. AdV DNA is detected in 6-27% of BMT recipients, with more frequent occurrence in pediatric BMT patients.

AdV respiratory infections commonly afflict children in day care facilities, military recruits and individuals in hospitals. For immunocompetent patients, particularly children, AdV infections are generally self-limited, but have been associated with severe lower respiratory infection and high morbidity and mortality. The chance of identifying the virus is best within the first three days of onset of illness.

Leruez-Ville, et al. Quantitative PCR and Adenoviral Disease. *Clinical Infectious Diseases* 2004; 38: 45-52.

Echavarria, et al. Use of PCR To Demonstrate Presence of Adenovirus Species B, C, or F as Well as Coinfection with Two Adenovirus Species in Children with Flu-Like Symptoms. *Journal of Clinical Microbiology* Feb. 2006: 625-627.