

## Cytomegalovirus (CMV) DNA determination using quantitative PCR

### Clinical signs

In an infection, the human Cytomegalovirus (CMV) can be detected in blood, urine, tissue and in virtually all body secretions. Orally, parenteral, sexual, intrauterine or perinatal transmission may occur. The primary infection is usually asymptomatic. Only rarely will it present as a mononucleosis-like syndrome with fever, hepatitis, and lymph node swelling. The virus persists in the body. Infection during pregnancy can lead to fetopathy. Severe illness has been observed after reactivation of the latent virus in immunosuppressed patients.

### Methods

When using real-time, quantitative PCR for CMV detection, specific regions of the pathogen genome are amplified and detected using fluorescent dyes. The dyes are usually linked to oligonucleotide probes, which specifically bind to the PCR amplicon. The detection of fluorescence intensities during real-time PCR allows the identification and quantification of products without having to reopen the sample tubes after PCR. This eliminates the risk of carryover contamination. The method is particularly suitable for emergency diagnostic tests, as evaluation is already possible during the analysis (online). The sensitivity of the method is comparable to our previously used qualitative method. With our standard protocol, the lower detection limit is nearly 110 IU/ml. The results are provided as quantitative result, and either as non-detectable/negative (no evidence of viral DNA) or with the measured value as IU/ml (with positive test). This allows for a

more sensitive detection of viraemia in the early stages of an acute infection, for improved differentiation of an underlying chronic CMV infection, as well as for monitoring under antiviral treatment. The specificity of the method is ensured primarily by the selection of primers and probes and by selecting more stringent response conditions.

### Materials

For this diagnostic test, the following materials are suitable: EDTA blood/plasma **at least 2 ml EDTA blood**

Please use a separate blood tube for molecular testing.

Urine, cerebrospinal fluid, biopsy material, amniotic fluid **at least 2 ml**

### Shipping

Samples should be shipped to the laboratory at room temperature within 24 hours.

At the practice, samples should be stored at 4-8 °C.

### Invoicing

The test can be invoiced to private health insurance funds. The CMV PCR can only be invoiced to statutory health insurance funds in case of immunosuppression. (Please specify exemption code)

### Literature

Berger A and Preiser W. Viral genome quantification as a tool for improving patient management: the example of HIV, HBV, HCV and CMV. *Journal of antimicrobial Chemotherapy* 49;719-721, 2002

**Do you have questions? Our serviceteam will be happy to support you: +49 (0)30 770 01-220.**