

## Optimization of PCR-ELISA in Detection of Human *Cytomegalovirus* Infection

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**Abstract**

**Background and Objective:** Human *Cytomegalovirus* (CMV) is an important cause of congenital viral infection that can lead to serious diseases and complications in infants. Application of rapid, sensitive, and specific HCMV detection methods is necessary for congenital infection detection. We aimed to optimize the use of PCR and ELISA for detection of HCMV in infants.

**Material and Methods:** PCR-ELISA was performed by using specific primers and probe for detection of the HCMV glycoprotein B gene. First, the extracted DNA from urine samples and controls were labeled by digoxigenin during DIG-labeling PCR. After that, Biotin-labeled probe captured the DIG-labeled PCR products. The probe-PCR product hybrid is immobilized on a streptavidin-coated Microtiter plate, and detection was confirmed by peroxidase-conjugated anti-digoxigenin antibody, and calorimetric substrate.

**Results:** The clinical Human CMV strains isolated from 16 patients were detected by this method. The optimized PCR-ELISA method was able to detect less than 100 copies of HCMV genome. There was no non-specific reaction.

**Conclusion:** PCR-ELISA can be applied as a sensitive, specific and reliable method for Semi-quantitative CMV detection in clinical samples.

**Keywords:** *Cytomegalovirus*, Glycoprotein B, PCR-ELISA, Semi-Quantitative