## NLM AIDSLINE

## Application of the polymerase chain reaction to HIV diagnostics.

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OBJECTIVE: Optimization of the polymerase chain reaction (PCR) method for reliable detection of HIV-1 provirus in DNA isolated from peripheral blood mononuclear cells of persons seronegative and seropositive to HIV-1, persons with indeterminate results in Western blot and persons belonging to high risk groups. METHODS: The selection of most suitable outward and nested primer pairs was performed by a developed computer program according to a number of optimization criteria. RESULTS: Two-step PCR using the optimal outward and nested primer pairs that amplify 250 and 100 base pairs sequences in the GAG region of HIV-1 permitted to decrease the possible false priming and the amplification of nonspecific sequences and helped to avoid false positive results. CONCLUSION: The computer program allowed to choose the best primer pairs for nested PCR amplification of HIV-1 target sequences and thus to increase the specificity of PCR for HIV diagnostics.

Acquired Immunodeficiency Syndrome/\*DIAGNOSIS/EPIDEMIOLOGY Blotting, Western/METHODS DNA, Viral/\*BLOOD/GENETICS/ISOLATION & PURIF False Positive Reactions Human HIV-1/GENETICS/\*ISOLATION & PURIF Polymerase Chain Reaction/\*METHODS Risk Factors Software ABSTRACT

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