PCR amplification of genomic *Mycobacterium leprae* DNA by using different gene targets

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Abstract

Several attempts have been made to establish a diagnostic test for leprosy since decades. None of these assays could diagnose more than 60% of PB cases or early cases of leprosy. The present study was attempted to develop a diagnostic test using *M. leprae* specific PCR in clinical samples. The study was aimed to detect *M. leprae* genomic DNA by using two different gene targets. Standardization for sensitivity of PCR for two genes was performed with standard genomic DNA of *M. leprae* strain NHDP-63. The standard DNA was serially diluted in 1:10 ratio up to 12 dilutions in decreasing concentrations. The DNA concentration of first dilution was $1x10^{-1}$ µg/µl or 100 ng/µl to 12^{th} dilution $1x10^{-12}$ µg/µl or 1 αg/µl. PCR amplification using two gene targets of *M. leprae* namely repetitive element *rlep* and *16S rRNA* were performed with the same. PCR amplification for *rlep* gene was positive up to concentration of $1x10^{-9}$ µg/µl or 1 fg/µl, similarly it was $1x10^{-10}$ µg/µl or 100 αg/µl for *16S rRNA* gene target. The sensitivity has been tested with clinical samples of leprosy patients and positivity of result was found 66.0% in case of *rlep* whereas it was 82.0% for *16S rRNA* gene. In present study, PCR positivity for *rlep* and *16S rRNA* gene were found efficient in the clinical samples and these gene targets can be further considered to develop a diagnostic tool for detection of sub clinical leprosy.

Biography

Vinay Kumar Pathak has completed his MSc Biotechnology from Guru Nanak Dev University. Currently, he is pursuing his PhD at Stanley Browne Laboratory, The Leprosy Mission Community Hospital, Delhi. He is working as Senior Research fellow and has published one paper in a reputed journal.

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