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

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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 $1 \times 10^{-1} \mu\text{g}/\mu\text{l}$ or $100 \text{ ng}/\mu\text{l}$ to twelfth dilution $1 \times 10^{-12} \mu\text{g}/\mu\text{l}$ or $1 \text{ ag}/\mu\text{l}$. 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 $1 \times 10^{-9} \mu\text{g}/\mu\text{l}$ or $1 \text{ fg}/\mu\text{l}$, similarly it was $1 \times 10^{-10} \mu\text{g}/\mu\text{l}$ or $100 \text{ ag}/\mu\text{l}$ 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.

Speaker 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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