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**Title:** Line probe assay (LiPA) based rapid detection of multiple drug resistant (MDR) mycobacterium tuberculosis (MTB)

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**Body:** Objective: Rapid confirmation of diagnosis of MTB and MDR-MTB in clinical samples by Line probe assays based on Reverse DNA hybridization(RDH) Methods: RDH is useful for detection of mutations related to drug resistance in Mycobacterium tuberculosis. The sample size of 50 AFB staining positive sputum samples taken was tested. Of these 30% were cases known to be MDR cases as detected from culture tests and 70% were fresh smear positive cases on treatment for TB. The Line probe assays were developed to cover common drug resistant mutations with rifampicin, INH, and aminoglycosides. The genes probed were rpoB, inhA, katG, gyrA, rrs, eis, the MTB complex and NTM. The end point was detected was by avidin biotin labeled nested PCR products from patient sputum samples. RESULTS: All the 50 smear positive samples were detected as MTB or NTM positive by the LIPA assay. All the known MDR cases showed drug resistance related mutations in the LIPA. About 30% had mutations in the gyrase gene and all were observed in clinically known MDR cases; 46% of mutations were seen in the rpo gene and 56 % in the katG region. The efficacy of the line probe when related to culture tests was greater than 90%.

CONCLUSION: The LIPA assay relates well with both MTB mycobacterial presence and Drug resistance.

References: Morgan M, Kalantri S, Flores L, Pai M.A:commercial line probe assay for the rapid detection of rifampicin in Mycobacterium tuberculosis: a systematic review and meta-analysis. BMC Infect Dis. 2005 Jul 28;5:62. Review.