

## Original Paper

# Detection of common mutations causing drug resistance to mycobacterium tuberculosis strains among patients with tuberculosis using line probe assay method

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## Abstract

**Background and Objective:** Drug resistance to tuberculosis and especially multiple drug resistance tuberculosis (MDR-TB) variants are a serious problem in tuberculosis patients and make difficulties in controlling the disease. This study was conducted for detection of common mutations causing drug resistance of mycobacterium tuberculosis strains among tuberculosis patients using line probe assay method.

**Method:** In this descriptive study, fifty four sputum samples of tuberculosis patients were randomly selected in health centers of Mazandaran, northern Iran during 2012. After culturing of sputum samples on Lowenstein-Jensen medium, genomic DNA was extracted from colonies using CTAB method. Molecular analysis of mutations causing resistance to five different antibiotics including Isiniazide, Rifampin, Sterptomycine, Amicasin / Canamycine, Kinolon were performed using long probe assay (LPA) method.

**Results:** Out of 54 sputum samples, three (5.5%), three (5.5%), four (7.4%) were resistance to Kinolon, Amicasin / Canamycine and Sterptomycine, respectively. Mutation in KATG was seen in 2 samples resistant to Isiniazide. Mutation in rpoB 516 was seen in 3 samples resistant to Rifampin. Four samples (7.4%) were resistant to the two anti-tuberculosis antibiotics, while three samples were resistant to Sterptomycine and Kinolon and one sample was resistant to Rifampin and Canamycine.

**Conclusion:** 7.4% of sputum samples were resistant to the two anti- tuberculosis antibiotics. Line probe assay is a rapid and suitable method for detecting tuberculosis drug resistance.

**Keywords:** Tuberculosis, Multiple drug resistance, Long probe assay, Mutation

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