

- Title** MOLECULAR LINE PROBE ASSAY IN THE DETECTION OF ANTIBIOTIC RESISTANCE IN LEPROSY PATIENTS
- Agency** HTA Malaysia, Health Technology Assessment Section, Medical Development Division, Ministry of Health Malaysia  
Level 4, Block E1, Parcel E, Presint 1,  
Federal Government Administrative Center, 62590 Putrajaya, Malaysia  
Tel: +603 88831229, Fax: +603 88831230; htamalaysia@moh.gov.my, www.moh.gov.my
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[http://www.moh.gov.my/index.php/database\\_stores/store\\_view\\_page/30/277](http://www.moh.gov.my/index.php/database_stores/store_view_page/30/277)

**Aim**

To evaluate the evidence on effectiveness, safety and cost-effectiveness of Molecular Line Probe Assay (MLPA), compared to Mouse Footpad Inoculation test (MFP), in detecting antibiotic resistance among leprosy patients.

**Conclusions and results**

One feasibility study evaluated the performance of DNA probe assay by comparing its results on 120 *Mycobacterium leprae* strains, which were previously studied for resistance against the reference drug using Mouse Footpad Inoculation (MFP) test and for mutations in the gene regions by polymerase chain reaction (PCR) sequencing. The test sensitivity for detecting *M. leprae* was 100%. It was also found to be 100% concordant with DNA sequencing and the MFP assay for DRDRs encoding most of the major mutations in *rpoB*, *folP1* and *gyrA*. For the susceptible strains, concordance was 98.3% when two strains showing a mutation at the codon 447 that does not induce Rifampicin resistance in *M. leprae*.

There was no retrievable evidence that evaluate the safety and cost-effectiveness of MLPA, in detecting antibiotic resistance among Leprosy patients. The MLPA test is also claimed to be less burdensome and is capable of producing more rapid results than MFP.

In conclusion, there was limited fair level of retrievable evidence that evaluated the effectiveness of MLPA compared to MFP test, in detecting antibiotic resistance among leprosy patients. The test in the retrieved evidence revealed good performance in detecting mutations in three specific genes responsible for resistance towards three antibiotics; Dapsone, Rifampicin and Ofloxacin but not to Clofazimine, which is one of the drug used as first-line MDT in Malaysia.

**Recommendations (if any)**

MLPA test may have potential to be used for detecting antibiotic resistance in leprosy patients. However, more high quality evidence is needed.

**Methods**

Electronic databases were searched through the Ovid interface; MEDLINE(R) In-Process and Other Non-Indexed Citations and Ovid MEDLINE (R) 1946 to present, EBM Reviews – Cochrane Central Registered of Controlled Trials – July 2015, EBM Reviews – Database of Abstracts of Review of Effects – 2nd Quarter 2015, EBM Reviews – Cochrane Database of Systematic Reviews – 2005 to July 2015, EBM Reviews – Health Technology Assessment – 3rd Quarter 2015, EBM Reviews - NHS Economic Evaluation Database – 2nd Quarter 2015. Other databases used include PubMed and Embase. Search was also conducted through some official websites such as World Health Organisation (WHO) and INAHTA. Additional articles retrieved from reviewing the references of retrieved articles.

**Further research/reviews required**

More high quality evidence is required particularly that assess resistance towards Clofazimine, which is one of the antibiotic currently being used as first-line MDT in Malaysia.

**Written by**

Dr. Syaquirah Akmal, MaHTAS, Malaysia