



Rapid molecular detection of MDR and XDR in raw specimens and cultures

Epidemics of multi-drug resistant and extensively drug resistant TB are now affecting many countries of the world and often times the TB patients who are harboring these drug-resistant strains come to the US. **Rapid detection of patients having drug-resistant TB strains is essential** for selection of an appropriate drug treatment regimen for these patients, as well as timely prevention of transmission of MDR and XDR strains to others.

The Mycobacteriology (TB) lab within the Advanced Diagnostic Laboratories is combining molecular and conventional procedures for rapid and comprehensive assessment of the drug susceptibility patterns of patient's isolates.

Benefits of Rapid Molecular Detection of MDR and XDR:

- Provides an opportunity to obtain preliminary results on drug resistance within 48-72 hours, with subsequent confirmation by conventional methods
- Smear positive raw specimens OR cultures are acceptable*

* *Submission of a raw specimen is the best option for rapid detection of MDR and XDR. If an isolated culture is submitted, it must be a pure culture containing a single mycobacterial species. There will be an additional charge for purification/isolation of cultures containing a non-acid-fast contaminant, or more than one mycobacterial species.*

- MDR-TB is defined as *M. tuberculosis* strains resistant to Rifampin (RMP) and Isoniazid (INH), with or without resistance to other drugs.
- XDR-TB is defined as a strain resistant not only to RMP and INH, but also to any of the quinolones and to any of the 2nd line injectable drugs (Amikacin (AK), Kanamycin (KM), Capreomycin (CM)).

Conventional culture-based methods provide results of drug susceptibility/resistance patterns no sooner than within 3 weeks (if direct testing is used for smear-positive specimens) or up to 2 months for the remaining 50% of patients whose sputum specimens are smear-negative.

The new rapid molecular test first detects genotypic resistance to RMP or INH, or both, as an indication of MDR. If positive, the lab will perform a second assay to determine if the specimen or culture is XDR. This second assay includes detection of genotypic resistance to quinolones, 2nd line injectable drugs (AK, KM, CM), and Ethambutol.

These genotypic tests are part of a complex protocol that includes conventional procedures for identification and drug susceptibility. Results by these rapid tests should be viewed as preliminary, as results based on conventional procedures will follow.

For more information please call 800.550.6227, opt 3 or visit us on the web at NJlabs.org