MAYO CLINIC LABORATORIES

Test Definition: TB1LN

Antimicrobial Susceptibility, Mycobacterium tuberculosis Complex, First Line, Varies

Overview

Useful For

Susceptibility testing of *Mycobacterium tuberculosis* complex isolates growing in pure culture.

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
TB2LN	Susceptibility, Mtb Complex, 2 Line	Yes	No

Additional Tests

Test Id	Reporting Name	Available Separately	Always Performed
STV1	Susceptibility, Mtb Complex, Broth	No, (Bill Only)	Yes
STV2	Susceptibility, Mtb Cx, 2nd Line	No, (Bill Only)	Yes

Testing Algorithm

When this test is ordered, the additional test will always be performed and charged separately.

If resistance to a first line antimicrobial agent is detected, reflex testing of second line agents will be performed and charged.

Special Instructions

- Infectious Specimen Shipping Guidelines

Method Name

Broth Dilution at Critical Drug Concentrations

NY State Available

Yes

Specimen

Specimen Type

Varies

Ordering Guidance

If testing for the first-line agent pyrazinamide is desired, order MTBPZ/*Mycobacterium tuberculosis* Complex, Pyrazinamide Resistance by pncA DNA Sequencing, Varies.

Additional Testing Requirements

If organism identification is not provided, CTB / Mycobacteria and *Nocardia* Culture, Varies or CTBID / Culture Referred for Identification, *Mycobacterium* and *Nocardia*, Varies **must also** be ordered and will be charged separately.

Shipping Instructions

1. See Infectious Specimen Shipping Guidelines in Special Instructions.
2. Place specimen in a large infectious container (T146) and label as an etiologic agent/infectious substance.

Necessary Information

Specimen source and suspected organism identification are required.

Specimen Required

Specimen Type: Organism
Supplies: Infectious Container, Large (T146)
Container/Tube: Middlebrook 7H10 agar slant
Specimen Volume: Isolate
Collection Instructions: Organism must be in pure culture, actively growing.

Forms

If not ordering electronically, complete, print, and send a Microbiology Test Request (T244) with the specimen.

Reject Due To

Agar plate	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Varies	Ambient (preferred)		
	Refrigerated		

Clinical & Interpretive

Clinical Information

Initial treatment regimens for *Mycobacterium tuberculosis* complex often include isoniazid, rifampin, ethambutol, and pyrazinamide. Susceptibility testing of *M tuberculosis* complex isolates against these antimycobacterial agents is a key component of patient management.

The Clinical Laboratory Standards Institute (CLSI) provides consensus protocols for the methods, antimycobacterial agents, and critical concentrations of each agent to be tested to permit standardized interpretation of *M tuberculosis*

complex susceptibility test results.

This test uses an US Food and Drug Administration cleared commercial system for rapid broth susceptibility testing of *M tuberculosis* complex and assesses resistance to antimycobacterial drugs at the CLSI-recommended critical concentrations.

Reference Values
Results are reported as susceptible or resistant.

Interpretation
Mycobacterium tuberculosis complex isolates are reported as susceptible or resistant to the aforementioned drugs at the critical concentrations.

Some experts believe that patients infected with strains exhibiting resistance to low levels of isoniazid but not exhibiting resistance to high levels may benefit from continuing therapy with this agent. A specialist in the treatment of tuberculosis should be consulted concerning the appropriate therapeutic regimen and dosages.

Cautions
Isolates not received in pure culture may have delayed results because isolation is required prior to testing.

Clinical Reference
1. Nahid P, Mase SR, Migliori GB, et al. Treatment of Drug-Resistant Tuberculosis. An Official ATS/CDC/ERS/IDSA Clinical Practice Guideline [published correction appears in Am J Respir Crit Care Med. 2020 Feb 15;201(4):500-501
2. Clinical and Laboratory Standards Institute (CLSI). Susceptibility Testing of Mycobacteria, Nocardia spp., and Other Aerobic Actinomycetes. 3rd ed. CLSI standard M24. CLSI; 2018
3. Clinical and Laboratory Standards Institute (CLSI). Performance Standards for Susceptibility Testing of Mycobacteria, Nocardia spp., and Other Aerobic Actinomycetes. 2nd ed. CLSI supplement M24S. CLSI; 2023

Performance

Method Description
This test method is based on growth or absence of growth of *Mycobacterium tuberculosis* complex isolates in broth cultures containing critical concentrations of the antimycobacterial agents isoniazid, rifampin, and ethambutol. The FDA-cleared platform BACTEC MGIT 960 (Becton Dickinson) is used.(Brown-Elliott, BA, Cirillo DM, Musser KA, Rowlinson M-C. Susceptibility Test Methods: Mycobacteria, Nocardia, and Other Actinomycetes. In: Carroll KC, Pfaller MA, eds. Manual of Clinical Microbiology, 13th Edition. ASM Press, 2023)

The BACTEC MGIT 960 platform measures fluorescence in a Mycobacterial Growth Indicator Tube (MGIT) containing an *M tuberculosis* complex isolate in the presence of critical concentrations of an antimycobacterial agent. Antimycobacterial agents tested are isoniazid, rifampin, and ethambutol. (Package insert: BACTEC MGIT 960 SIRE Kit, BD Diagnostics, 2016)

PDF Report

No

Day(s) Performed
Monday through Sunday

Report Available
10 to 21 days

Specimen Retention Time
1 year

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information
87188 x 3-Antimicrobial Susceptibility, *Mycobacterium tuberculosis* Complex, Broth Method

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
TB1LN	Susceptibility, Mtb Complex, 1 Line	29579-0

Result ID	Test Result Name	Result LOINC® Value
TB1LN	Susceptibility, Mtb Complex, 1 Line	29579-0