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MAYO CLINIC LABORATORIES

Test Definition: CFCTB

Mycobacteria and Nocardia Culture, Cystic Fibrosis, Varies

Overview

Useful For

Detection and identification of nontuberculous *Mycobacterium* species from respiratory specimens of patients with cystic fibrosis

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
ISMY	ID by 16S Sequencing	No, (Bill Only)	No
RMALM	Id MALDI-TOF Mass Spec AFB	No, (Bill Only)	No
RTBSP	Id, Mtb Speciation, PCR	No, (Bill Only)	No
TBT	Concentration, Mycobacteria	No, (Bill Only)	No
TISSR	Tissue Processing	No, (Bill Only)	No
LCTB	Id, MTB complex Rapid PCR	No, (Bill Only)	No

Testing Algorithm

When this test is ordered, a reflex test may be performed at an additional charge.

Method Name

Automated Detection of Positive Cultures followed by Organism Identification /DNA Sequencing/Matrix Assisted Laser Desorption/Ionization Time-of-Flight (MALDI-TOF) Mass Spectrometry

NY State Available

No

Specimen

Specimen Type

Varies

Ordering Guidance

If the patient does not have cystic fibrosis, chronic obstructive pulmonary disease, or bronchiectasis, routine mycobacterial culture should be ordered, see CTB / Mycobacteria and *Nocardia* Culture, Varies.

Necessary Information

1. Specimen source (anatomical body site) **is required.**

2. Alert the laboratory if *Mycobacterium genavense* is suspected, as this species requires addition of mycobactin J to the

culture medium for optimal growth and recovery.

Specimen Required

Specimen Type: Respiratory fluid
Sources: Bronchoalveolar lavage fluid, bronchial washing, sputum (saliva is **not acceptable**)
Container/Tube: Sterile container
Specimen Volume: 3 to 5 mL
Collection Instructions:
1. Collect 3 separate respiratory specimens for acid-fast smears and culture in patients with clinical and chest X-ray findings compatible with tuberculosis.
2. These 3 specimens should be collected at 8 to 24-hour intervals (24 hours when possible) and should include at least 1 first-morning specimen.

Specimen Minimum Volume

See Specimen Required

Reject Due To

Sources other than respiratory specimens, including blood, serum or fixed tissue	Reject
Environmental sources	Reject
Boric acid tubes	Reject
Saliva	Reject
Specimen in viral transport medium (including but not limited to M4, M5, BD viral transport media, thioglycolate broth)	Reject
Swabs (any type, source, or transport system)	Reject

Petri dish	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Varies	Refrigerated (preferred)	7 days	
	Ambient	7 days	

Clinical & Interpretive

Clinical Information

This culture combines a traditional mycobacterial culture with an additional plate medium called NTM (nontuberculous mycobacteria) Elite agar, which enhances recovery of nontuberculous mycobacteria from respiratory specimens of patients with cystic fibrosis or other chronic pulmonary infections such as chronic obstructive pulmonary disease or bronchiectasis.

Reference Values

Negative

Interpretation

A final negative report is issued after 42 days of incubation.

Positive cultures are reported as soon as detected.

Cautions

Recovery of mycobacteria is dependent on the number of organisms present in the specimen, specimen collection methods, methods of processing, and patient factors such as use of anti-mycobacteria therapy.

Clinical Reference

1. Martin I, Pfyffer GE, Parrish N: Mycobacterium: General characteristics, laboratory detection and staining procedures. In: Carroll KC, Pfaller MA, Landry ML, et al, eds. Manual of Clinical Microbiology. 12th ed. Vol 1. ASM Press; 2011:472-502

2. Caldwell M, Tisdale J, Khare R. Improved recovery of nontuberculous mycobacteria in culture with adjunctive use of a selective agar. J Clin Microbiol. 2024;62(3):e0167823. doi:10.1128/jcm.01678-23

3. Broncano-Lavado A, Barrado L, Lopez-Roa P, et al. Clinical evaluation of nontuberculous mycobacteria (NTM) elite agar, a new medium for the isolation of NTM: a multicenter study. J Clin Microbiol. 2023;61(4):e0003623. doi:10.1128/jcm.00036-23

Performance

Method Description

The BACTEC MGIT 960 System is a broth system designed for the rapid detection of mycobacteria in clinical specimens.

Mycobacteria growth indicator tubes (MGITs) are incubated for up to 42 days and growth is evaluated with mycobacteria identified as soon as an MGIT signals positive on the instrument.

In addition to the MGIT tube, Middlebrook 7H10/7H10S agar biplates and an NTM Elite agar plate is inoculated and incubated at 37 degrees C for 42 days. Growth from positive MGITs or agar plates is identified using a variety of techniques as appropriate including rapid polymerase chain reaction, matrix assisted laser desorption ionization-time of flight (MALDI-TOF) mass spectrometry, or 500 base pair 16S rRNA gene sequencing.(Plongla R, Preece CL, Perry JD, Gilligan PH. Evaluation of RGM medium for isolation of nontuberculous mycobacteria from respiratory samples from patients with cystic fibrosis in the United States. J Clin Microbiol. 2017;55[5]:1469-1477. doi:10.1128/JCM.02423-16; Stephenson D, Perry A, Appleby MR, et al. An evaluation of methods for the isolation of nontuberculous mycobacteria from patients with cystic fibrosis, bronchiectasis and patients assessed for lung transplantation. BMC Pulm Med. 2019;19[1]:19. Published 2019 Jan 21. doi:10.1186/s12890-019-0781-2)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
42 to 45 days

Specimen Retention Time
Raw specimen: 3 to 7 days; Isolates from positive cultures: 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
87116-Mycobacterial Culture
87015-Mycobacteria Culture, Concentration (if appropriate)
87118-Id MALDI-TOF Mass Spec AFB (if appropriate)
87150-Id, Mtb Speciation, PCR (if appropriate)

87153-Mycobacteria Identification by Sequencing (if appropriate)
87176-Tissue Processing (if appropriate)
87150- Id, MTB complex Rapid PCR (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CFCTB	Mycobacterial Culture, Cystic Fibro	543-9

Result ID	Test Result Name	Result LOINC® Value
CFCTB	Mycobacterial Culture, Cystic Fibro	543-9