MAYO CLINIC LABORATORIES

Test Definition: SAFB

Acid-Fast Smear for Mycobacterium, Varies

Overview

Useful For
Detection of acid-fast bacilli in clinical samples

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
TBT	Concentration, Mycobacteria	No, (Bill Only)	No
TISSR	Tissue Processing	No, (Bill Only)	No

Testing Algorithm
When this test is ordered, the reflex tests may be performed at an additional charge.

For more information see Meningitis/Encephalitis Panel Algorithm

Special Instructions
- Meningitis/Encephalitis Panel Algorithm

Method Name
Auramine-Rhodamine Stain

NY State Available
Yes

Specimen

Specimen Type
Varies

Ordering Guidance
For the preferred test for rapid, direct detection of *Mycobacterium tuberculosis* from clinical specimens, order MTBXS/ *Mycobacterium tuberculosis* Complex, Molecular Detection and Rifampin Resistance, PCR, Sputum. For all other sources, order MTBRP / *Mycobacterium tuberculosis* Complex, Molecular Detection, PCR, Varies.

Necessary Information
Specimen source is required.

Specimen Required
Submit only 1 of the following specimens:

Preferred:

Specimen Type: Body fluid
Container/Tube: Sterile container
Specimen Volume: 1 mL
Collection Information: Saliva is **not acceptable**.
Additional Information: If a mycobacterial culture is also requested, collect 1.5 mL.

Specimen Type: Bone marrow
Container/Tube: Sterile container or green top (lithium heparin)
Specimen Volume: Entire collection
Collection Instructions:
1. Invert several times to mix bone marrow.
2. Send bone marrow specimen in original tube. **Do not aliquot.**

Specimen Type: Gastric washing
Container/Tube: Sterile container
Specimen Volume: 10 mL
Collection Instructions: Neutralize specimen within 4 hours of collection with 100 mg of sodium carbonate per 5 to 10 mL of gastric wash.

Specimen Type: Respiratory
Sources: Bronchoalveolar lavage fluid, bronchial washing, sputum
Container/Tube: Sterile container
Specimen Volume: 3 mL
Collection Instructions: Collect 3 respiratory specimens for acid-fast smears and culture in patients with clinical and chest X-ray findings compatible with tuberculosis. 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 Type: Feces
Supplies: Stool Collection Kit, Random (T635)
Container/Tube: Sterile container
Specimen Volume: 5 to10 g

Specimen Type: Tissue
Container/Tube: Sterile container
Specimen Volume: 5 to10 mm
Collection Instructions: Collect a fresh, unfixed tissue specimen. Fixed tissue is **not acceptable**.

Specimen Type: Urine
Container/Tube: Sterile container
Specimen Volume: 2 mL
Collection Instructions: Collect a random urine specimen.

Acceptable:

Fresh tissue or body fluid are preferred over a swab specimen. Recovery of mycobacteria from swabs is generally very low yield. Only submit a swab specimen if tissue biopsy or fluid aspiration is not possible.

Specimen Type: Swab
Supplies: BD E-swab (T853)
Sources: Surgically collected wound, tissue, or body fluid
Container/Tube: Sterile, screw-capped tube containing Liquid Amies Medium with flocked swab (eg, E-swab)
Specimen Volume: Flocked swab in 1 mL of Liquid Amies Medium
Collection Instructions:
1. Before collecting specimen, wipe away any excessive amount of secretion and discharge, if appropriate.
2. Obtain secretions or fluid from source with sterile flocked swab. **Paranasal sinus collections must use a nasopharyngeal flocked swab.**
3. Place flocked swab in sterile, screw-capped tube containing 1 mL of Liquid Amies Medium.
4. If smear and culture are requested or both a bacterial culture and mycobacterial culture are requested, collect a second swab to maximize test sensitivity. Submit each swab in a separate sterile, screw-capped tube with 1 mL of Liquid Amies Medium.
Additional Information: Swabs from the following sources are **not acceptable**: respiratory fluid (eg, sputum), nasal, sinus, outer ear, mouth, throat, or scalp. Surgically collected inner ear swabs **are** acceptable.

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
-Microbiology Test Request (T244)
-General Request (T239)

Specimen Minimum Volume

See Specimen Required

Reject Due To

Specimen in viral transport medium (including but not limited to M4, M5, BD viral transport media, thioglycolate broth) Wood shaft, charcoal or gel swab Prepared slide, glass slide,	Reject

microscope slide Boric acid tube Culture transport swabs (eg, Culturette)	

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

Mycobacterium tuberculosis is a leading infectious disease cause of death worldwide. The Centers for Disease Control and Prevention has reported a rise in the incidence of tuberculosis associated with AIDS, foreign-born cases, and increased transmission in high-risk populations. There has also been a rise in the number of *M tuberculosis* strains that exhibit resistance to one or more antituberculosis drugs. The public health implications of these facts are considerable. Because *M tuberculosis* is readily spread by airborne particles, rapid diagnosis and isolation of infected persons is important. Nontuberculous mycobacteria infections also cause significant morbidity and mortality in humans, particularly in immunocompromised persons. Detection of acid-fast bacilli in sputum and other specimens allows rapid identification of individuals who are likely to be infected with mycobacteria while definitive diagnosis and treatment are pursued.

Reference Values

Negative (reported as positive or negative)

Interpretation

Patients whose sputum samples are identified as acid-fast positive should be considered potentially infected with *Mycobacterium tuberculosis*, pending definitive diagnosis by molecular methods or mycobacterial culture.

Cautions

Artifacts may exhibit nonspecific fluorescence and be confused with organisms.

Clinical Reference

1. Daley CL, Iaccarino JM, Lange C, et al. Treatment of nontuberculous mycobacterial pulmonary disease: An official ATS/ERS/ESCMID/IDSA clinical practice guideline [published correction appears in Clin Infect Dis. 2020 Dec 31;71(11):3023. doi:10.1093/cid/ciaa1062]. Clin Infect Dis. 2020;71(4):e1-e36. doi:10.1093/cid/ciaa241

2. 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. doi:10.1164/rccm.v201erratum2]. Am J Respir Crit Care Med. 2019;200(10):e93-e142. doi:10.1164/rccm.201909-1874ST

Performance

Method Description
Auramine-rhodamine fluorochrome stain prepared and read with fluorescent microscope.(Martin I, Pfyffer GE, Parrish N: Mycobacterium: General Characteristics, Laboratory Processing, Staining, Isolation and Detection Procedures. In: Carroll KC, Pfaller MA, Pritt BS, et al. Manual of Clinical Microbiology. 13th ed. ASM Press; 2023)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
1 day

Specimen Retention Time
3 to 7 days

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
87206
87176-Tissue processing (if appropriate)
87015-Mycobacteria culture, concentration (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
SAFB	Acid Fast Smear For Mycobacterium	676-7

Test Definition: SAFB

Acid-Fast Smear for Mycobacterium, Varies

Result ID	Test Result Name	Result LOINC® Value
SAFB	Acid Fast Smear For Mycobacterium	676-7