



Test	Acid-Fast Smear and Culture
Test Description	<p>The Acid-Fast Smear and Culture tests involve the screening of fluids and tissues from miscellaneous body sites for the presence of mycobacteria, including <i>Mycobacterium tuberculosis</i> complex.</p> <p>Acid-fast Smears are made after processing the specimen and detects the presence of bacteria with large amounts of lipids in the cell wall. The acid-fast stain is not specific for mycobacteria since other microorganisms can stain positively. The stain cannot differentiate <i>Mycobacterium tuberculosis</i> complex from nontuberculous mycobacteria. If acid-fast bacilli are detected, the number of acid-fast bacilli is graded.</p> <p>Acid-fast Cultures monitor for the growth of mycobacteria over an 8-week period. It is more sensitive than the smear because it can detect very small numbers of mycobacteria in a clinical sample.</p> <p>Mycobacteria that grow on culture media will typically be identified to the species level using Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry (MALDI-TOF-MS).</p> <p>Antibiotic susceptibility testing and genotyping (<i>Mycobacterium tuberculosis</i> complex only) are performed as reflex tests. Antibiotic susceptibility testing for mycobacteria other than <i>Mycobacterium tuberculosis</i> complex is performed by request. These tests require referral to other laboratories.</p>
Acceptable specimens and collection information	<p>Sputum (expectorated or induced)</p> <ul style="list-style-type: none"> • Limit the replicates to 3 specimens collected consecutively in 8- to 24-hour intervals, with at least one being an early morning specimen. Early morning sputum specimen is preferred. • Specimens consisting of saliva only will be rejected. • If induced sputum is collected, label the sterile container "INDUCED". • Do not pool sputum specimens. • Recommended volume: 5–10 mL • Minimum volume: 3 mL <p>Respiratory (lower)</p> <ul style="list-style-type: none"> • Includes bronchioalveolar lavage (BAL), brush or wash, endotracheal aspirate, transtracheal aspirate • Recommended volume: 5–10 mL • Minimum volume: 3 mL



Urine

- First morning clean catch (midstream) urine is preferred.
- 24-hour urine collections (i.e., pooled specimens) are not acceptable.
- Do not use preservatives.
- Use catheterization only if a midstream sample cannot be obtained.
- Replicate specimens should be limited to 1 specimen per day on 3 consecutive days.
- Urine specimens older than 24 hours will have poor recovery and low sensitivity.
- Recommended volume: 40 mL
- Minimum volume: 10–15 mL

CSF

- Minimum volume: 2 mL.

Other sterile body fluids

- Recommended volume: 15 mL.
- Minimum volume: 2 mL.

Abscess aspirate

- Swabs are strongly discouraged unless these are the only specimens available.
- Submit swabs in 2–3 mL sterile non-bacteriostatic saline.
- Swabs submitted in commercial swab transport devices or in transport gel-based medium are not acceptable.
- Recommended volume: 5–15 mL
- Minimum volume: 1 mL.

Tissue

- Do not immerse in saline or other liquids.
- Do not wrap in gauze.
- Specimens fixed in formalin or on a dry swab are not acceptable.
- Recommended quantity: 1 g (smaller quantities can be tested).

Stool

- Do not use holding or transport medium or preservatives.
- Minimum quantity: 1 g

Gastric lavage

- Limit replicates to 1 per day on 3 consecutive days.
- If transport is delayed by more than 4 hours, neutralize the specimen with 100 mg sodium carbonate within 1 hour of collection.



	<ul style="list-style-type: none"> • Maximum volume:15 mL. <p>Blood</p> <ul style="list-style-type: none"> • Whole blood should be collected in a BACTEC Myco/F Lytic tube. • Minimum volume: 5 mL (adults), 1 mL (children) • AFB smears are not performed directly from blood. The minimum acceptable volume is 1 mL. <p><i>Note: Except for blood (which is collected in the BACTEC Myco/F Lytic tube), specimens should be collected in a sterile container. Specimens that have leaked from their collection container or that have less than the minimum acceptable volume will be rejected.</i></p>
Specimen storage	Specimens (except for blood, gastric lavage, and CSF) should be stored refrigerated at 2–8 °C. Unincubated blood in a BACTEC Myco/F Lytic tube should be kept at room temperature or at 35 °C.
Specimen transporting/shipping	<p>Specimens (except for blood, gastric lavage, urine, and CSF), should be transported/shipped refrigerated (ice packs) and received by the laboratory to ensure that processing can occur <u>within 7 days</u> from the time of collection.</p> <p>Blood in a BACTEC Myco/F Lytic tube should be shipped at room temperature and received within 1 day from the time of collection.</p> <p>Gastric lavage specimens should be shipped at ambient temperature. These must be received by the laboratory within 4 hours of collection (non-neutralized) for immediate processing or neutralized with 100 mg sodium carbonate within 1 hour of collection if transport is delayed by more than 4 hours.</p> <p>CSF should be shipped at ambient temperature.</p> <p>Urine specimens should be shipped refrigerated and processed within 24 hours of collection.</p>
CPT code	87015 and 87206 (smear), 87116 (culture)
Test fee	Refer to the posted fee schedule
Result availability (turnaround time)	Smear results are typically reported within 1 business day after specimen receipt. Positive culture results are faxed to submitters upon first detection and identification over the 8-week culture period. Negative specimens require 8 weeks for culturing to be completed. Please allow for at least 1 month for susceptibility testing results after an acid-fast organism is successfully isolated. Time to isolation varies depending on the extent of bacterial contamination in the specimen, the growth characteristics of the organism, and other factors.

Reference: CLSI. 2018. CLSI Guideline M48: Laboratory Detection and Identification of Mycobacteria. 2nd ed. Wayne, PA: Clinical and Laboratory Standards Institute.