

**Overview**
**Useful For**

Detection of aerobic bacterial pathogens in specimens from patients with cystic fibrosis

**Reflex Tests**

Test ID	Reporting Name	Available Separately	Always Performed
COMM	Identification Commercial Kit	No, (Bill Only)	No
RMALD	Ident by MALDI-TOF mass spec	No, (Bill Only)	No
GID	Bacteria Identification	No, (Bill Only)	No
ISAE	Aerobe Ident by Sequencing	No, (Bill Only)	No
REFID	Additional Identification Procedure	No, (Bill Only)	No
SALS	Serologic Agglut Method 1 Ident	No, (Bill Only)	No
EC	Serologic Agglut Method 2 Ident	No, (Bill Only)	No
SHIG	Serologic Agglut Method 3 Ident	No, (Bill Only)	No
STAP	Identification Staphylococcus	No, (Bill Only)	No
STRP	Identification Streptococcus	No, (Bill Only)	No
SIDC	Ident Serologic Agglut Method 4	No, (Bill Only)	No
PCRID	Identification by PCR	No, (Bill Only)	No

**Testing Algorithm**

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

**Method Name**

ConventionalCultureTechnique

**NY State Available**

Yes

**Specimen**
**Specimen Type**

Varies

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**Advisory Information**

If susceptibilities are also desired, order CFRCS / Bacterial Culture, Cystic Fibrosis with Antimicrobial Susceptibilities, Varies.

**Shipping Instructions**

**Specimen must arrive within 48 hours of collection.**

For more information see [Infectious Specimen Shipping Guidelines](#) in Special Instructions.

**Necessary Information**

**Specimen source is required.**

**Specimen Required**

**Submit only 1 of the following specimens:**

**Preferred:**

**Specimen Type:** Sputum, expectorated or induced

**Container/Tube:** Sterile container

**Specimen Volume:** Entire collection

**Acceptable:**

**Specimen Type:** Bronchial aspirate or washing, bronchoalveolar lavage, endotracheal, or tracheal

**Container/Tube:** Sterile container

**Specimen Volume:** Entire collection

**Specimen Type:** Throat swab

**Supplies:** Culturette (BBL Culture Swab) (T092)

BD E-Swab (T853)

**Container/Tube:** Culture transport swab (Dacron or rayon swab with aluminum or plastic shaft with either Stuart or Amies liquid medium)

**Specimen Volume:** Entire collection

**Specimen Minimum Volume**

2 mL

**Reject Due To**

Dry swab	Reject
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**Specimen Stability Information**

Specimen Type	Temperature	Time
Varies	Refrigerated	48 hours

## Clinical and Interpretive

### Clinical Information

Life expectancy of patients with cystic fibrosis (CF) has increased steadily over the past 50 years, in large part due to improvements in the management of lung disease in this patient population. Still, chronic lung infection is responsible for 75% to 85% of deaths in patients with CF. Appropriate treatment for the causative organism can reduce morbidity and mortality.

The number of microbial species associated with CF lung disease is relatively limited. These include *Pseudomonas aeruginosa* (mucoïd and nonmucoïd), *Staphylococcus aureus*, *Burkholderia cepacia* complex, *Stenotrophomonas maltophilia*, other non-fermenting gram-negative rods, *Haemophilus influenzae*, and *Streptococcus pneumoniae*. Nontuberculous mycobacteria and *Aspergillus* species may also play a role in CF lung disease, in addition to common respiratory viruses. This culture is specifically designed and utilizes conventional and additional selective media (compared to non-CF respiratory cultures) to isolate bacteria commonly associated with pulmonary disease in patients with CF.

In selected centers, lung transplantation is performed on patients with CF. This test is appropriate for lung transplant patients with underlying CF because they can continue to harbor the same types of organisms as they did pretransplantation. Patients with CF may be colonized or chronically infected by these organisms over a long period of time.

### Reference Values

No growth or usual flora

Identification of probable pathogens

### Interpretation

A negative test result is no growth of bacteria or growth of only usual flora. A negative result does not rule out all causes of infectious lung disease (see Cautions).

Organisms associated with lower respiratory tract infections are reported.

For positive test results, pathogenic bacteria are identified. Patients with cystic fibrosis may be colonized or chronically infected by some organisms over a long period of time, therefore, positive results must be interpreted in conjunction with previous findings and the clinical picture to appropriately evaluate results.

### Cautions

When culture of sputum is delayed, successful isolation of bacterial pathogens is less likely, due to the overgrowth of usual oropharyngeal flora.

Some bacterial agents that cause lower respiratory infections (eg, mycobacteria, *Legionella* species, *Mycoplasma pneumoniae*) are not detected by this assay and require special procedures. If the bacterial culture is negative, clinicians should consider additional testing to detect other bacterial, viral, or fungal agents.

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Results must be interpreted in conjunction with clinical findings and previous culture results.

### Clinical Reference

1. Miller JM, Binnicker MJ, Campbell S, et al: A guide to utilization of the microbiology laboratory for diagnosis of infectious diseases: 2018 Update by the Infectious Diseases Society of America and the American Society for Microbiology. Clin Infect Dis. 2018 Aug 31;67(6):e1-e94. doi: 10.1093/cid/ciy381
2. York MK, Gilligan P, Alby K: Lower respiratory tract cultures. In: Leber AL, ed. Clinical Microbiology Procedures Handbook. Vol 1. 4th ed. ASM Press;. 2016:section 3.11.2
3. LiPuma JJ, Currie BJ, Peacock SJ, VanDamme PAR: Burkholderia, Stenotrophomonas, Ralstonia, Cupriavidus, Pandoraea, Brevundimonas, Comamonas, Delftia, and Acidovorax. In: Carroll KC, Pfaller MC, eds. Manual of Clinical Microbiology. 12th ed. ASM Press; 2019:807-828

### Performance

#### Method Description

Standard media (5% sheep blood, chocolate, and eosin methylene blue [EMB] agar plates) used for respiratory cultures are inoculated. In addition, 2 selective agar plates are utilized to enable isolation of slower growing pathogens that may be easily overgrown by usual flora and the longstanding colonization by *Pseudomonas aeruginosa*. *Burkholderia cepacia* Selective Agar plate is used for the isolation of *Burkholderia cepacia* complex, which includes 9 distinct species. Isolates of *Burkholderia cepacia* will be forwarded to the University of Michigan's CFF Research Testing and Repository for genotyping. There is no additional charge for this shipping/testing. A chromogenic *Staphylococcus aureus* agar is used to enhance the isolation of *Staphylococcus aureus*. Finally, a second chocolate blood agar plate is incubated in an anaerobic atmosphere. The anaerobic atmosphere allows for detection of *Haemophilus* species that may otherwise be overgrown by *Pseudomonas aeruginosa*. Pathogens or possible pathogens are identified using 1 or a combination of the following techniques: commercial identification strips or panels, matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) mass spectrometry, conventional biochemical tests, carbon source utilization, real-time polymerase chain reaction (PCR), and nucleic acid sequencing of the 16S ribosomal RNA (rRNA) gene. (Gilligan P, Alby K, York MK: Respiratory cultures from cystic fibrosis patients. In: Leber AL, eds. Clinical Microbiology Procedures Handbook. Vol 1. 4th ed. ASM Press; 2016:section 3.11.3)

#### PDF Report

No

#### Day(s) and Time(s) Test Performed

Monday through Sunday

#### Analytic Time

5 days

#### Maximum Laboratory Time

12 days

#### Specimen Retention Time

1 day

#### Performing Laboratory Location

Rochester

## Fees and 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 Regional Manager. For assistance, contact [Customer Service](#).

### Test Classification

This test has been cleared, approved or is exempt by the U.S. 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

- 87070-Bacteria, culture, cystic fibrosis, respiratory
- 87077-Identification commercial kit (if appropriate)
- 87077-Ident by MALDI-TOF mass spec (if appropriate)
- 87077-Bacteria Identification (if appropriate)
- 87077-Additional Identification procedure (if appropriate)
- 87077-Identification Staphylococcus (if appropriate)
- 87077-Identification Streptococcus (if appropriate)
- 87147 x 1-3-Serologic agglut method 1 ident (if appropriate)
- 87147-Serologic agglut method 2 ident (if appropriate)
- 87147 x 4-Serologic agglut method 3 ident (if appropriate)
- 87147 x 2-6-Serologic Agglut Method 4 Ident (if appropriate)
- 87153-Aerobe Ident by sequencing (if appropriate)
- 87150-Identification by PCR (if appropriate)

### LOINC® Information

Test ID	Test Order Name	Order LOINC Value
CFRC	Bacterial Culture, Cystic Fibrosis	44798-7

Result ID	Test Result Name	Result LOINC Value
CFRC	Bacterial Culture, Cystic Fibrosis	44798-7