
Lab Dept: Microbiology

Test Name: **LEGIONELLA CULTURE**

General Information

Lab Order Codes: LEGC

Synonyms: Culture, Legionella pneumophila

CPT Codes: 87081 – Culture, presumptive, pathogenic organisms, screening only
87077 – Aerobic isolate, additional methods required for definitive identification of isolates

Test Includes: Culture for *Legionella pneumophila*

Logistics

Test Indications: This test isolates, detects, and identifies *Legionella* spp. from clinical specimens for diagnostic and surveillance purposes.

Lab Testing Sections: Microbiology

Referred to: Minnesota Department of Health (MDH Test Code: LEGCU)

Phone Numbers: MIN Lab: 612-813-5866

STP Lab: 651-220-6555

Test Availability: Daily, 24 hours

Turnaround Time: Positive results are usually generated between 2 - 5 days. Negative cultures are final at 14 days.

Special Instructions: **Specimen site** and **date/time of collection** are required for processing.

Specimen

Specimen Type: Bronchoalveolar lavage (BAL), bronchial aspirates, bronchial washings, lung biopsy, pleural fluid, or sputum. See MDH catalog for other options.

Urine is NOT acceptable.

Container: Sterile container

Volume: At least 1 mL fluid (minimum 200 uL)

Collection: **Bronchoscopy:**

1. Specimen obtained by physician through the biopsy channel of the bronchoscope.
2. Transfer specimen into a luki tube.
3. Transport to laboratory within 30 minutes of collection.

Lung Aspirates, Pleural Fluid:

1. Disinfect overlying skin with 2% tincture of iodine.
2. Obtain specimen via percutaneous needle aspiration or surgery.
3. Place in sterile container.
4. Transport to the Microbiology Laboratory immediately at room temperature.

Lung Biopsy:

1. Any visible amount.
2. Submit in sterile container without formalin.
3. Lab Staff: Add a few drops of sterile saline to prevent drying.

Sputum (Expectorate):

1. Collect early morning specimen under the direct supervision of a nurse or a physician.
2. Have patient rinse or gargle with water to remove superficial flora.
3. Instruct patient to cough deeply to produce a lower respiratory specimen.
4. **Do not submit saliva.**

Sputum (Induced):

1. Have patient rinse mouth with water after brushing gums and tongue.
2. With the aid of a nebulizer, have patients inhale ~25 mL of 3 to 10% sterile saline.
3. Collect the induced sputum in a sterile container.

Transport/Storage: Transport to the Microbiology Laboratory immediately at room temperature. **Refrigerate** once in the lab.

Special Processing: Lab Staff: Transport specimen in the original sterile container at refrigerated temperatures. Frozen specimens are also acceptable.

Sample Rejection: Urine; Throat and nasopharyngeal specimens; specimen not submitted in appropriate transport container; improperly labeled specimen; insufficient volume; external contamination. If an unacceptable specimen is received, the physician or nursing station will be notified and another specimen will be requested before the specimen is discarded.

Interpretive

Reference Range:	No <i>Legionella pneumophila</i> isolated.
Alert Values:	The physician will be notified of positive results.
Limitations:	Sputum (expectorated), tracheal aspirates, and other specimens having normal respiratory flora are subject to bacterial overgrowth and may mask growth of <i>Legionella</i> . Sensitivity of cultures is relatively low (50% to 80%), however, specificity approaches 100%.
Methodology:	16S Sanger sequencing, Culture, Fluorescent antibody stain, MALDI-TOF (matrix-assisted laser desorption ionization-time of flight) mass spectrometry, Real-time PCR
Additional Information:	The family, <i>Legionellaceae</i> , are ubiquitous, gram-negative, motile, fastidious, aerobic bacilli. Disease outbreaks have been associated with exposure of susceptible individuals to water sources in which legionellae have grown. <i>Legionella</i> sp. cause respiratory illness manifested primarily by pneumonia or Pontiac fever, a non-pneumonic, influenza-like illness. Sputum characterized by acute inflammatory features, without a classical pattern of bacteria, may represent <i>Legionella</i> , influenza, or respiratory syncytial virus.
References:	MDH test catalog February 2025 Cook, JH, and M Pezzlo (1992). Specimen receipt and accessioning. Section 1. Aerobic bacteriology, 1.2.1-4. In HD Isenberg (ed) Clinical Microbiology Procedures Handbook. American Society for Microbiology, Washington DC Miller, J Michael (1999) A Guide To Specimen Management in Clinical Microbiology, American Society for Microbiology, Washington DC Miller, J Michael, and HT Holmes (1999) Specimen Collection, Transport, and Storage In PR Murray et al, (ed), Manual of Clinical Microbiology, 7 th edition, American Society for Microbiology, Washington DC, pp 33-104
Test Updates:	6/2/2014: DFA no longer performed as part of this test. 2/3/2025: Updated methodology, specimens, volume requirements, transport temperature, MDH test code.