
Lab Dept: Microbiology/Virology

Test Name: VIRAL RESPIRATORY CULTURE

General Information

Lab Order Codes: VRSP

Synonyms: Viral Isolation; Respiratory Virus Isolation; Respiratory Viral Culture; Adenovirus Culture; Enterovirus Culture; Parainfluenza Virus Culture; Influenza Virus Culture; Respiratory Syncytial Virus (RSV) Culture; Cytomegalovirus Culture; Poliovirus Culture; Parechovirus Culture

CPT Codes: 87252 – Tissue culture inoculation, observation, and presumptive identification by cytopathic effect
87254 x7 – Centrifuge enhanced (shell vial) technique, includes identification with immunofluorescence stain, each virus

Test Includes: A rapid culture system to detect RSV, influenza types A and B, parainfluenza virus 1-3, and adenovirus. Traditional tube cultures for isolation of cytomegalovirus, coxsackievirus, echovirus, enterovirus, herpes simplex virus, measles, mumps, parainfluenza virus type 4, poliovirus, and rhinovirus.

DO NOT submit specimens for viral culture testing if there is a suspicion of Ebola virus or any viral hemorrhagic fever, avian influenza, Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV), severe acute respiratory syndrome (SARS), or other high risk infectious agents. Contact Infection Prevention and the Minnesota Department of Health for more information and testing options.

NOTE: Test is not recommended for ED and ambulatory patients. In these areas, consider ordering rapid assays and/or Influenza A, B/RSV PCR

Logistics

Lab Testing Sections: Virology

Phone Numbers: MIN Lab: 612-813-5806

STP Lab: 651-220-6555

Test Availability: Daily, 24 hours

Turnaround Time: 1 – 21 days
Positive results are reported when virus is isolated. Negative cultures are held for 21 days.

Special Instructions: Indicate the virus suspected. Requisition must state **specific site** of specimen and **date/time of collection**. Collect specimens early in the course of illness to yield highest viral titers. **Do not use calcium alginate swabs.**

Specimen

Specimen Type: Any respiratory specimen including nasal washes, nasopharyngeal swabs, throat swabs, bronchial washes and aspirates, endotracheal aspirates.

Container: Swab transport system, sterile container, viral transport media (VTM)

Volume: 1 – 2 mL washing/aspirate; 2 nasopharyngeal swabs; 1 throat swab

Collection:**Throat Swab:**

1. Depress the tongue with a tongue depressor so the swab does not touch the tongue.
2. Sample the posterior pharynx, tonsils, and inflamed areas with a sterile swab.
3. Maintain sterility and forward promptly at ambient temperature.
4. If there is a delay in transport of 1 hour or more, place specimen in viral transport media and refrigerate.

Tissue:

1. Submit specimen in a screw-capped, sterile container.
2. Maintain sterility and forward promptly.
3. If there is a delay in transport of 1 hour or more, place specimen in viral transport media and refrigerate.

Nasopharyngeal:

1. Obtain 2 specimens using 2 NP swabs (i.e., MiniTip Culturette).
2. Gently insert swab through nose into posterior nasopharynx.
3. Gently rotate swab slowly for 5 seconds to absorb secretions.
4. Collect a second specimen in the same manner.

Nasopharynx Aspirates:

1. Prepare suction set up on low to medium suction.
2. Wash hands.
3. Put on protective barriers (e.g., gloves, gowns, mask).
4. Place child supine and obtain assistant to hold child during procedures.
5. Attach luki tube to suction tubing and #6 french suction catheter.
6. Insert catheter into nostril and pharynx without applying suction.
7. Apply suction as catheter is withdrawn.
8. If there is a delay in transport of 1 hour or more, place specimen in viral transport media.

Bronchoscopy:

1. 1 – 2 mL of specimen obtained by physician through the biopsy channel of the bronchoscope.
2. Transfer specimen into a luki tube.
3. Transport to the Microbiology lab immediately.

- Special Processing:**
- **NP swabs:** place into VTM. Swabs should remain in the VTM by cutting the wire shafts. Vortex, refrigerate.
 - **Swabs:** place into viral transport media (VTM). Vortex. Extract into VTM by swirling and pressing swab against the inside of the vial, then discard swab. Refrigerate.
 - **Washings/aspirates:** place into VTM, vortex and refrigerate.
 - **Tissue:** place into VTM. Refrigerate.

Transport/Storage:

Onsite collections: Transport to the Laboratory immediately.

Offsite collections: Place specimen into viral transport media and refrigerate. Specimens must be promptly transported to the laboratory with the next available courier, not to exceed 24 hours from the time of collection. However, delayed transport causes delayed test results.

Sample Rejection: Specimen with a transit time exceeding 2 hours after collection without refrigeration; calcium alginate or wooden shaft swabs, dry swabs; improperly labeled specimen; insufficient volume; leaking or non-sterile containers; external contamination. If an unacceptable specimen is received, the physician or nursing station will be notified and another specimen requested before the specimen is discarded.

Interpretive

Reference Range: No virus isolated.

Limitations:

- Failure to isolate virus in culture does not rule out viral infection.
- Isolation of a virus may not be related to the patient's disease.

Methodology: Centrifugation enhanced and conventional cell culture with immunofluorescent detection and identification of viral agents.

References: 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

Forman, MS and A Valsamakis (2011) Specimen Collection, Transport, and Processing: Virology in J Versalovic, et al (ed) Manual of Clinical Microbiology, 11th ed, American Society for Microbiology, Washington DC, pg 1276-1286

Updates:

3/24/2010: CPT Updates
6/25/2015: Added ordering note regarding ED/OP patients.
7/27/2015: Updated info for onsite/offsite collections

