
Lab Dept: Microbiology/Virology

Test Name: VIRAL RESPIRATORY CULTURE

General Information

Lab Order Codes: VRESP

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 – Centrifuge enhanced (shell vial) technique, includes identification with immunofluorescence stain, each virus (if appropriate)
87176 – Tissue processing (if appropriate)
87253 – Additional testing virus, identification (if appropriate)

Test Includes: All routine viral cultures are inoculated into cell culture tubes for viral detection. The most common specimens received for routine testing include bronchoalveolar lavage, sputum and throat. A rapid (16 hour incubation) shell vial cell culture assay will be inoculated when specimens are designated for herpes simplex virus or cytomegalovirus detection or as appropriate for source indicated.

If enterovirus or hand, foot and mouth disease is suspected, clearly indicate "enterovirus" on request.

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 - Sendouts

Referred to: Mayo Clinical Laboratories (Mayo test: VRESP)

Phone Numbers: MIN Lab: 612-813-5806

STP Lab: 651-220-6555

Test Availability: Daily, 24 hours

Turnaround Time: 1 – 14 days
Positive results are reported when virus is isolated. Negative cultures are held for 14 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, multimicrobe media

Volume: 1 – 2 mL washing/aspirate; 1 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 multimicrobe media and refrigerate.

Tissue:

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

Nasopharyngeal:

1. Obtain 1 specimen using 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. Swab should be placed in multimicrobe media and refrigerated.

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 multimicrobe media and refrigerate.

Bronchoscopy:

1. 1 – 2 mL of specimen obtained by physician through the biopsy channel of the bronchoscope.
2. Transfer specimen into a sterile container.
3. Deliver to lab and store refrigerated.

Special Processing:

- **NP swabs:** place into multimicrobe media. Swabs should remain in the media by cutting the wire shafts. Refrigerate.
- **Swabs:** place into multimicrobe media. Refrigerate.
- **Washings/aspirates:** place into multimicrobe media, refrigerate.
- **Tissue:** place into multimicrobe media. Refrigerate.

Transport/Storage:

Onsite collections: Transport to the Laboratory immediately.

Offsite collections: Place specimen into multimicrobe 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:**

Negative

If positive, a virus is identified.

Note: A positive result indicates that virus was present in the specimen submitted. Clinical correlation is necessary to determine the significance of this finding.

Influenza virus infection is a state-mandated reportable disease.

Negative results may be seen in a number of situations including the absence of viral disease, inability of the virus to grow in culture (examples of organisms not detected by culture include Epstein-Barr virus, rubella virus, and papilloma virus), and nonviable organisms submitted. Para influenza virus type 4 also may not be detected by viral culture.

Limitations:

- Viral isolation depends on the proper collection and transport of the specimen for maximal detection of viruses in the laboratory.
- Some viruses (eg, cytomegalovirus) take up to 2 weeks to grow in cell culture. Molecular tests (ie, real-time PCR) should be used for rapid

diagnosis.

- This test is not useful for viruses that cannot be grown in cell culture.

Methodology:

Cell culture, shell vial assay for Herpes simplex virus or Cytomegalovirus

References:

[Mayo Clinical Laboratories](#) (July 2019)

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

7/16/2019: Testing now referred to Mayo.