
Lab Dept: Microbiology/Virology

Test Name: RESPIRATORY VIRAL PANEL BY MULTIPLEX PCR

General Information

Lab Order Codes: RVP

Synonyms: Viral respiratory panel by PCR; PCR viral respiratory panel

CPT Codes: 87633 – Respiratory virus, includes multiplex reverse transcription, when performed, and multiplex amplified probe technique, multiple types or subtypes

Test Includes: Detection of Influenza A (subtypes H1, H3 and 2009 H1N1), Influenza B, human Metapneumovirus, Human Rhinovirus, RSV A and B, Adenovirus B/E, Adenovirus C, Parainfluenza 1, 2, 3, and 4

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

Logistics

Lab Testing Sections: Molecular Diagnostics, Mpls campus only

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, batched once per day

Turnaround Time: 24 – 48 hours

Special Instructions: Requisition must state specific type of specimen and date/time of collection.

Specimen

Specimen Type: Nasal wash, nasal aspirate, 2 NP swabs, bronchoscopy samples, bronchoalveolar lavage (BAL)

Container: Sterile, leakproof sterile container labeled with specimen type and identifying patient information, NP swabs in swab transport media

Draw Volume: 1 – 2 mL washings, aspirates or BAL; 0.5 mL minimum; 2 NP swabs

Collection:**Nasopharyngeal Washings**

1. Tilt patients head back at a 70 ° angle.
2. Insert rubber bulb syringe containing 1.0-2.0ml of sterile saline until it occludes the nostril.
3. Collect specimen (minimum: 1.0ml) with one complete squeeze and release bulb.
4. Repeat in other nostril.
5. Dispense the specimen into a sterile screw cap container and transport to the lab immediately.
6. If specimen cannot be transported to the lab immediately, place 1 – 2 mL of specimen in viral transport media (VTM) and refrigerate.

Nasal Aspiration

1. Prepare suction set up on low to medium suction.
2. Wash hands.
3. Put on protective barriers (e.g., gloves, gown, and mask)
4. Place child supine and obtain assistant to hold child during procedure.
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 Apply suction as catheter is withdrawn.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 necessary, suction 0.5 –1 mL of normal saline through catheter in order to clear the catheter and increase the amount of specimen in the luki tube.
9. Carefully transfer specimen to a screw cap container.
10. If specimen cannot be transported to the laboratory immediately, place 1 -2 mL of specimen in viral transport media (VTM) and refrigerate.

Bronchoscopy

1. Specimen obtained by physician through the biopsy channel of the bronchoscope. Transfer 1 – 2 ml of sample into a sterile container

Transport/Storage:

Transport to the Microbiology Lab immediately to maintain specimen integrity. Specimens are stable up to 7 days refrigerated in viral transport media

Sample Rejection:

Calcium alginate swabs (inhibitory to PCR), sputum, transit time exceeding 1 hour after collection without refrigeration; dry swabs; improperly labeled specimen; insufficient volume; leaking or non-sterile containers. 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:**

Negative: No virus detected

Critical Values:

N/A

Limitations:

- Enterovirus D68 and poliovirus have been observed to cross-react with human rhinovirus due to genetic similarity. If EV D68 and poliovirus are suspected, a viral culture should be performed.
- Adenovirus C has been observed to cross-react with Adenovirus D (serotype 9) and F (serotype 41).
- Live intranasal influenza virus vaccine may cause false positive results for Influenza A, H1, H3, 2009 H1N1, and Influenza B.
- Variant influenza A H3N2 virus (H3N2v) will be detected as seasonal influenza A H3.
- There is a risk of false negatives due to sequence variation in the viral target.
- This assay detects both viable and nonviable virus. Test performance depends on viral load in the specimen and may not correlate with cell culture performed on the same specimen.

Methodology:

Reverse Transcription- Polymerase Chain Reaction (RT-PCR)

References:

eSensor® Respiratory viral Panel, PI1032 REV:D, December 2013, Clinical Micro Sensors, Inc. dba GenMark Diagnostics, Inc., 5964 La Place Court, Carlsbad, CA 92008, 1-800-373-6767, www.genmarkdx.com

Shane C. McAllister, Schleiss, M.R., Arbefeville, S., et al, Epidemic 2014 Enterovirus D68 Cross-React with Human Rhinovirus on a Respiratory Molecular Diagnostic Platform, PLOS ONE| DOI: 10.1371/journal.pone.0118529 March 23, 2015

Miller, J. Michael, A Guide To Specimen Management in Clinical Microbiology, 1999, American Society for Microbiology, Washington, D.C, pg 100

E.J. Baron and R.B. Thompson, Jr., 2011, Specimen Collection, Transport, and Processing: Bacteriology In J. Versalovic, et al., (ed.), Manual of Clinical Microbiology, 11th edition, American Society for Microbiology, Washington, D.C., pg 237

Updates:

6/25/2015: Note added for ordering recommendations.