**Test Name: Respiratory Viral Panel by Multiplex PCR**

## Lab Order Code: RVP

# 

**Synonyms:** Viral respiratory panel by PCR

PCR viral respiratory panel

**CPT Codes:** 87633

**Test Includes:** Detection ofInfluenza 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

##### Logistics

Lab Testing Section: Molecular Diagnostics, Mpls campus only

Phone Number: 612-813-7103

**Test Availability:** Daily, batched once per day

Turnaround Time: 24 – 48 h

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

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 - 2 ml if sterile saline until it occludes the nostril.
3. Collect specimen (minimum: 1 ml) 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.

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 Apply suction as catheter is withdrawn.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.

If specimen cannot be transported to the laboratory immediately, place 1 - 2 ml of specimen in viral transport media (VTM) and refrigerate

NP swabs (2)

1. Carefully insert a flexible-shaft dacron swab containing a dry tip into the nasopharyngeal cavity until resistance is encountered.
2. Rotate the swab slowly on the nasopharyngeal membrane for 5 – 10 s to absorb secretions.
3. Remove the swab, place in swab transport medium and send to the lab immediately.

If specimen cannot be transported to the laboratory immediately, cut swabs into viral transport media (VTM) and refrigerate.

Bronchoscopy

1. Specimen obtained by physician through the biopsy channel of the bronchoscope.
2. 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 patient’s caregiver will be notified and another specimen will be requested before the specimen is discarded.

Interpretive

Reference Range: Negative: No virus detected

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

1. 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, ww.genmarkdx.com
2. Shane C. McAllister, Schleiss, M.R., Arbefeville, S., et al, Epidemic 2014 Enterovirus D68 Cross-Reacts with Human Rhinovirus on a Respiratory Molecular Diagnostic Platform, PLOS ONE| DOI: 10.13/journal.pone.0118529 March 23, 2015
3. Miller, J. Michael, A Guide To *Specimen Management in Clinical Microbiology,* 1999, American Society for Microbiology, Washington, D.C, pg 100.
4. 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.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Approval** | | | | | | | | | | | | | |
|  | Approved by | | | | | **Signature** | | | | | **Date** | | |
| Tim Casey, MD | | | | | T. Casey, MD | | | | | 5.8.15 | | |
|  | Patricia Ackerman, Technical Specialist | | | | | Pat Ackerman, TS | | | | | 5.8.15 | | |
| **Annual Review** | | | | | | | | | | | | | |
|  | Reviewed by | | **Signature** | | | | **Date** | | Reviewed by | **Signature** | | | **Date** |
| P Ackerman | | PA | | | | 5.8.15 | |  |  | | |  |
|  | |  | | | |  | |  |  | | |  |
| Historical Record | | | | | | | |  | | | | | |
|  | **Version** | **Written/Revised by:** | | **Effective Date:** | | | | **Summary of Revisions** | | | | | |
| 1 | P. Ackerman | | 5.9.15 | | | | Initial Version | | | | | |
|  |  | |  | | | |  | | | | | |
|  |  | |  | | | |  | | | | | |
| Distribution | | | | | | | |  | | | | | |
|  | Location | | | | **#Copies** | | | Location | | | | **#Copies** | |
|  | Molecular Diagnostics rm B422 | | | | 1 | | | G drive: MolecularBiology Procedure Manual | | | | 1 | |