

Human Metapneumovirus (hMPV) Detection by DFA

DIRECT SPECIMEN TESTING FOR HUMAN METAPNEUMOVIRUS BY DFA

Test Highlights

- Direct fluorescent antibody (DFA) staining for detection of hMPV on original specimens.
- Rapid turnaround time, more reliable than respiratory viral culture, and less expensive than PCR.
- No cross-reactivity with other common respiratory viruses.
- Detects hMPV types A1 & A2, B1 & B2.

Clinical Background

- Viral respiratory infections are the most common cause of hospitalization during late fall through early spring for infants, children, and adults. Infections include upper respiratory tract (URT) and lower respiratory tract symptoms (LRT). Patients may present with cough, rhinorrhea, croup, wheezing, and pneumonia.
- Human metapneumovirus is a major cause of LRT infections in the elderly and immunocompromised patients. Primary infections occur within the first two years of life. Symptoms often cannot be distinguished from other common respiratory viruses, underscoring the importance for establishing a laboratory diagnosis.

Epidemiology

- The seasonality for hMPV has not been well-defined, but infections typically occur between November and May.
- Strains A and B circulate concurrently.
- Reinfections may occur.
- Coinfections with RSV are relatively frequent and appear to worsen the prognosis and morbidity in pediatric bronchitis.
- Coinfections with adenovirus are also common.
- Virus is poorly recovered from culture.

Indications for Ordering

- Patients presenting with upper or lower respiratory tract symptoms when a virologic diagnosis is sought.
- Severe respiratory illness in older adults, immunocompromised patients, or otherwise healthy children.

Additional Ordering Notes

Nasopharyngeal aspirates, washes, and swabs in universal viral transport media are the specimens of choice for the detection of respiratory viruses including hMPV.

Interpretation

- Positive: hMPV detected.
- Negative: hMPV not detected.
- Inadequate: Not enough cells present to give a result based on DFA

Limitations

Accurate detection is dependent upon proper specimen collection, transport, and storage. Viral antigen detection methods do not yield viable virus, as their end products are not suitable if a viral isolate is required.

Methodology

Direct fluorescent antibody staining of direct specimens and observed on a fluorescent microscope.

References

1. Greenhow TL, Weintrub PS. Utility of direct fluorescent antibody testing of nasopharyngeal washes in children with and without respiratory tract illness. *Pediatr Infect Dis J* 2006;25(6):502-6.
2. Reina J, Ferres F, Alcoceba E, Mena A, de Gopegui ER, Figuerola J. Comparison of different cell lines and incubation times in the isolation by the shell vial culture of human metapneumovirus from pediatric respiratory samples. *J Clin Virol* 2007;40(1):46-9.
3. Kaida A, Kubo H, Goto K, Shiomi M, Kohdera U, Iritani N. Co-infection of human metapneumovirus with adenovirus or respiratory syncytial virus among children in Japan. *Microbiol Immunol* 2007;51(7):679-83.
4. Chung JY, Han TH, Kim SW, Kim CK, Hwang ES. Detection of viruses identified recently in children with acute wheezing. *J Med Virol* 2007;79(8):1238-43.
5. Robinson JL, Lee BE, Bastien N, Li Y. Seasonality and clinical features of human metapneumovirus infection in children in Northern Alberta. *J Med Virol* 2005;76(1):98-105.
6. van den Hoogen BG, Osterhaus DM, Fouchier RA. Clinical impact and diagnosis of human metapneumovirus infection. *Pediatr Infect Dis J* 2004;23(1 Suppl):S25-32. Review.

Test Information

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For specific collection, transport, and testing information, refer to the ARUP Web site at www.aruplab.com.

For information on test selection, ordering, and interpretation, refer to ARUP Consult® at www.arupconsult.com.