LAB NEWS

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Clinical Virology Laboratory Newsletter

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Human Metapneumovirus RT-PCR Test Now Available at YNHH

Human metapneumovirus (HMPV), a previously unrecognized member of the paramyxovirus family, was first reported in 2001 in Nature Medicine in children in the Netherlands (1). Subsequent studies found HMPV to be a common viral pathogen in North America and in New Haven (2-6). HMPV has been found to be a leading cause of respiratory tract infection early in life, with a spectrum of disease similar to RSV. By the age of 5 years, virtually all children have been exposed to HMPV. However, as with respiratory syncytial and parainfluenza viruses, re-infections occur in older children and adults. In hospitalized patients, lower respiratory tract disease due to HMPV is more likely in patients over 65, persons with asthma, and the immunosuppressed.

Clinical manifestations include URI, bronchiolitis, bronchospasm, bronchitis, and pneumonia.
Seasonality: The peak of virus circulation in temperate zones is winter to early spring.

Sample: Acceptable samples include nasopharyngeal (NP) swab, NP aspirate, NP wash; sputum; BAL.
NOTE: Submit a separate sample when requesting HMPV RT-PCR.
Test method: Real-time TaqMan RT-PCR protocol (2, 6), provided by CDC and validated at YNHH.
Test Availability: Test performed once a day, Monday-Friday, if sample received by 8 AM.
Time to result: Generally within one working day, excluding weekends and holidays (when staffing is limited and molecular tests are not performed).
When to order: HMPV PCR should NOT be used as a routine screening test. It should be limited to a) hospitalized patients, b) with respiratory symptoms suggestive of viral infection, AND c) a negative Respiratory Screen DFA.
How to order: Order in CCSS under Virology Testing. HMPV RT-PCR will be listed as a test choice under respiratory sample types. It is anticipated that HMPV RT-PCR will be available for clinical diagnosis beginning Monday, December 13, 2004.

References

1. Van den Hoogen BG, et al. A newly discovered human pneumovirus isolated form young children with respiratory tract disease. Nature Medicine 7:719-724, 2001.
2. Boivin G et al. Virological features and clinical manifestations associated with human metapneumovirus: A new paramyxovirus responsible for acute respiratory-tract infections in all age groups. J Infect Dis 186:1330-1334, 2002.
3. Esper F, et al. A one year experience with human metapneumovirus in children less than 5 years old. J Infect Dis 189:1388-1396, 2004.
4. Williams JV, et al. Human metapneumovirus and lower respiratory tract disease in otherwise healthy infants and children. N Engl J Med 350:443-450, 2004.
5. Martinello RA, et al. Identification of human metapneumovirus in individuals with exacerbations of chronic obstructive pulmona disease. Poster presentation, ICAAC, Boston, MA, October 1, 2004
6. Landry ML, et al. Detection of human metapneumovirus in clinical samples by immunofluorescence and shell vial centrifugation culture in three different cell lines. J Clin Microbiol (in press)

Clinical Virology Laboratory: Summary of Viruses Detected, Jan-Dec 2003

Viruses Cultured	No. positive	Viral Antigen Tests[a]	No. positive
Adenovirus	43	Adenovirus DFA	63
Polyoma BK virus	3	CMV antigenemia	327
Cytomegalovirus	53	Herpes simplex DFA	214
Enterovirus	40	Influenza A DFA	1096
Herpes simplex type 1	48	Influenza B DFA	71
Herpes simplex type 2	28	Parainfluenza DFA	184
Herpes simplex, untyped	1	Respiratory syncytial DFA	613
Influenza A	14	Rotavirus (ELISA)	129
Influenza B	8	Varicella zoster DFA	56
Parainfluenza type 1	5	**Total antigen positive:**	**2753**
Parainfluenza type 2	6		
Parainfluenza type 3	4	**Molecular tests**	**No. positive**
Parainfluenza type 4	1	HIV RNA RT-PCR[b]	1510
Respiratory syncytial	2	Ultrasensitive HIV PCR[b]	1306
Rhinovirus	43	HIV DNA PCR[b]	1
Varicella zoster	0	Hepatitis C RT-PCR[b]	530
Total virus isolates:	**299**	Hepatitis B DNA PCR[b]	108
		HSV DNA PCR[c]	12
	No. positive	VZV DNA PCR[c]	5
***C. difficile* cytotoxin**	**367**	CMV DNA PCR[c]	0
		Enterovirus RNA NASBA[d]	33
		Total Molecular positive	**3505**

a, Direct immunofluorescence (DFA) is used to detect all viral antigens except rotavirus.
b, Roche Amplicor Monitor assays
c, In-house methods
d, BioMerieux NASBA Basic Kit used in setting up assay

Other molecular tests performed in the Clinical Virology Laboratory:
HCV genotyping by LiPA has been performed at YNHH Clinical Virology Laboratory since October 2001. HBV DNA PCR, HIV DNA PCR and CMV DNA PCR were brought in-house in 2003.

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