

TML/MSH Microbiology Department Policy & Procedure Manual	Policy # MI/VIR/16/15/v01	Page 1 of 4
Section: Virology Manual	Subject Title: Appendix XV Virus Isolation and Identification of Characteristics	
Issued by: LABORATORY MANAGER	Original Date: March 14, 2001	
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Appendix XV

VIRUS ISOLATION AND IDENTIFICATION CHARACTERISTICS					
Virus	Minimum Cell Lines(s) Required	Method of Detection	Approx. Time to Detection	Typical CPE Appearance	Typical IF Appearance
Adenovirus	Hep-2 x 1 2 weeks	- CPE - Adenovirus DFA Mab	1 - 2 weeks	- rounding, enlarging, clustering, granular - acid media	-nuclear and/or cytoplasmic -may see extracellular fluorescence
	CMK x 1, 5 days CMK x 1, 10 days	-respiratory screen IFA plus specific Mab	5 - 10 days	-poor development of CPE	"
Enterovirus					
Polio	CMK x 1, 2 weeks	-CPE -Poliovirus IFA Mab	1 - 3 days	-small, rounded cells, floating	IFA: Nuclear and/or cytoplasmic
	HHF x 1, 2 weeks	"	"	"	"
	Hep-2 x 1, 2 weeks	"	"	"	"
Coxsackie A	CMK x 1, 2 weeks	+/- CPE difficult to grow	1 - 7 days	-some strains produce CPE, some do not	"
	HHF x 1 2 weeks	+/- CPE	1 - 7 days	"	"
	Hep-2 x 1, 2 weeks	No CPE seen	--	--	--
	Suckling mouse	Signs of illness	3 - 5 days	-required for some types of coxsackie A	--

IF = Immunofluorescence; SV = Shell Vial; CPE = Cytopathic Effect; IFA = Indirect Fluorescent Antibody; DFA = Direct Fluorescent Antibody

Appendix XV (Cont'd)

VIRUS ISOLATION AND IDENTIFICATION CHARACTERISTICS					
Virus	Minimum Cell Lines(s) Required	Method of Detection	Approx. Time to Detection	Typical CPE Appearance	Typical IF Appearance
Coxsackie B	RMK x 1 2 weeks	-CPE -Coxsackie B IFA Mab	4 - 7 days	-teardrop shape	IFA: Nuclear and/or cytoplasmic
	HHF x 1 2 weeks	(+/- CPE)	"	-teardrop shape	"
	Hep 2 x 1, 2 weeks	"	"	-teardrop shape	"
Echovirus	RMK x 1 2 weeks	-CPE -Echovirus IFA Mab	1 - 7 days	-teardrop, rounding	IFA: Nuclear and/or cytoplasmic
	HHF x 1, 2 weeks	"	"	"	"
	Hep-2 x 1, 2 weeks	No CPE	--	--	--
Herpesvirus Family					
Herpes Simplex	HHF x 1 7 days	-CPE -HSV - 1 and 2 DFA Mab	-usually 24-72 hrs. -sometimes longer	-swelling, rounding, refractile	-nuclear & cytoplasmic staining
	MRC-5 (SV) x 2	-HSV-1 and 2 DFA Mab on coverslip	24 hours	-may or may not see CPE	-pale yellow-green staining of cells and periphery
Cytomegalo- virus	HHF x1 3 weeks	-CPE -CMV DFA Mab	1-3 weeks	-small round or elongated foci -spreads slowly -rarely involves entire monolayer	-Early: nuclear -Late: nuclear and cytoplasmic
	MRC-5 (SV)x2 24-48 hours	-CMV IEA IFA Mab on coverslip	24-48 hours	None	-pale matte green nuclear fluorescence inclusion

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Appendix XV (Cont'd)

VIRUS ISOLATION AND IDENTIFICATION CHARACTERISTICS					
Virus	Minimum Cell Lines(s) Required	Method of Detection	Approx. Time to Detection	Typical CPE Appearance	Typical IF Appearance
Varicella Zoster	HHF x 2 weeks	-CPE -VZV DFA Mab	5 days - 3 weeks	-Small foci -Slow -Rounded	-nuclear and cytoplasmic
	MRC-5 (SV) x1 48 hours	-VZV DFA Mab on coverslip	48 hours	-CPE rarely produced by 48 hours	-nuclear and cytoplasmic -Direct Smear: cytoplasmic "halo" appearance
Human Herpes-6	Isolation Not Done				
Influenza A/B	RMK x 1, 5 days RMK x1, 10 days	IFA: Resp. screen and specific Mab	5 - 10 days	-CPE may not be present -cells may appear toxic or -granular, vacuolated	-nuclear and cytoplasmic
Measles	Send to PHL RMK x 1, 2 weeks	CPE	5 - 10 days	-syncytia -giant cells with ring of nuclei -intranuclear inclusions	-cytoplasmic
Mumps	Send to PHL RMK x 1, 2 weeks	Hemadsorp- tion	6 - 8 days	-CPE production not predictable -may see syncytia, cell degeneration	-cytoplasmic
Norwalk	Send Stool to PHL	EM	---	---	---
Para- influenza 1,2,3	RMK x 1, 5 days RMK x 1, 10 days	IFA: Resp. screen & specific Mab	5 - 10 days	- little or none	-cytoplasmic
Parvovirus B19	-serum for to PHL -fluid/tissue for PCR, Virology Lab, St. Joseph's Hospital, Hamilton	---	---	---	---

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Virus	Minimum Cell Lines(s) Required	Method of Detection	Approx. Time to Detection	Typical CPE Appearance	Typical IF Appearance
Rhinovirus	Not Done Send to PHL	---	---	---	---
Rotavirus	Send Stool to PHL	EM	---	---	---
RSV	HEP-2 x 1 2 weeks	CPE RSV DFA Mab	2 - 7 days	-syncytia (Multi-nucleated fused cells)	-cytoplasmic -dense cytoplasmic inclusions
Rubella	Send to PHL Isolation rarely done	(Interference)	---	---	---

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