

Virology Collection & Transport Guide

Overview

Focus Diagnostics offers comprehensive viral cultures as well as culture (conventional and rapid) for specific viruses. When a routine comprehensive culture is requested, attempts will be made to isolate culturable viruses. The different substrates for viral isolation include up to six different cell lines. Not all cell lines will be included in all cases; determining factors include season of the year, patient history, and current epidemiology relevant to the area of the country from which the specimen originated. Specific viral cultures are performed for HSV, CMV, and VZV. Also, many techniques for rapid diagnosis of viral infections have been developed for routine laboratory application.

Test Request Information

The Virology Laboratory requests that as much information as possible be provided. This should include: source, date collected, date of onset of symptoms, and the clinical background, including antiviral therapy. It is especially important to advise us when Poxvirus, Rubella, Measles, Rhinoviruses or Arboviruses are suspected.

Collection Time and Viral Recovery

Specimens should be collected early in the acute phase of infection. Herpes Simplex virus and Varicella-Zoster virus may not be recovered from lesions beyond 5 days after onset of clinical manifestations of disease. Respiratory viruses are recovered during the 3-7 day viral shedding period following infection. Isolation of an enterovirus (Coxsackie virus, Echovirus) from the CSF is most productive within 2-3 days after onset of the CNS manifestations.

Reporting

The availability of preliminary and final reports varies according to the type of culture. Preliminary negative reports on routine virus cultures are sent out after two weeks; final negative reports are sent out at the end of three weeks. Herpes simplex rapid culture reports are reported routinely after a 48 hour test procedure. For further information see Herpes Simplex Virus Rapid Culture, Focus Unit Code 81095. Rapid cultures for CMV are stained for presence of the immediate-early nuclear antigen, as described under Cytomegalovirus Rapid Culture, Focus Unit Code 81065, and reported in 48 hours. Rapid cultures for Influenza viruses (Focus Unit Code 51758) and Respiratory viruses (Focus Unit Code 51743) are reported routinely after a 36 hour and 72 hour test procedure, respectively. Rapid cultures for Varicella-Zoster Virus, Focus Unit Code 82133, are reported in 96 hours.

Collection, Transportation and Storage Guidelines

- Most viral specimens should be held at 2-8°C rather than frozen for short term (<48 hours) transit and storage. For delays exceeding 48 hours, freeze viral specimens at -70°C or below. Do not freeze at -20°C.
- Sterile body fluids such as cerebrospinal fluid do not require any transport medium and should not be diluted.
- Many suitable holding media for use with swabs and washings are commercially available as an immediate alternative to in-house transport media.
- Avoid using calcium alginate swabs when collecting specimens for Herpes and Chlamydia cultures. The fibers may inactivate these agents.
- Avoid any wooden shafted swabs, which may be inhibitory to viruses.
- It is usually not possible to isolate Arboviruses from clinical specimens. In such cases serological studies are helpful.
- **Chlamydial specimens** should be held at 2-8° C for short term (<48 hours) transit and storage. For delays exceeding 48 hours, freeze at -70° C or below.

Virology Specimen Selection

<i>Disease</i>	<i>Associated Viruses</i>	<i>Recommended Specimen</i>
Congenital and Neonatal Infections	Rubella Cytomegalovirus Herpes Simplex Virus Enterovirus Varicella-Zoster Virus	CSF, throat, urine Urine, throat, blood, tissue, CSF CSF, throat, brain biopsy, vesicle CSF, throat, stool, brain biopsy, autopsy Vesicle, throat
Conjunctivitis and Corneal Lesions	Adenovirus Cytomegalovirus Enterovirus Herpes Simplex Virus Varicella-Zoster Virus	Eye swab Eye swab Eye swab Corneal or conjunctival scrapings Eye swab, corneal or conjunctival scrapings
Encephalopathies Aseptic Meningitis and Encephalitis	Adenovirus Arbovirus Cytomegalovirus Enterovirus Herpes Simplex Virus LCM Measles Mumps Parechovirus Varicella-Zoster Virus	CSF, brain biopsy, blood CSF, brain biopsy, blood Brain biopsy, CSF CSF, throat swab, stool, brain biopsy CSF, brain biopsy, blood Serological testing only CSF, urine CSF, urine CSF, stool CSF, brain biopsy, skin lesions
Exanthems and Enanthems	Enterovirus Herpes Simplex Virus HHV-6 Measles Parvovirus B19 Rubella Varicella-Zoster Virus	Vesicle swab, throat swab, stool Vesicle swab Serology/PCR Blood, throat swab Serology/PCR Throat swab, CSF, urine Scrapings from fresh vesicle
Gastroenteritis	Adenovirus Astrovirus Norovirus Rotavirus	Stool Stool Stool Stool
Genital Infections	Herpes Simplex Virus	Genital swab, vesicle swab, vesicle fluid
Malaise Syndrome	Cytomegalovirus Epstein-Barr Virus	Blood, urine, throat swab Serological testing only
Myocarditis and Pericarditis	Coxsackie B 1-5 Echovirus	Pericardial fluid, throat swab Pericardial fluid, throat swab
Pneumonia	Adenovirus Cytomegalovirus Herpes Simplex Virus human Metapneumovirus Influenza A/B Parainfluenza 1/2/3 RSV SARS Varicella-Zoster Virus	Throat swab, nasopharyngeal (NP), bronchial wash, tissue Urine, throat swab, lung tissue, blood, bronchial wash Throat swab, bronchial wash, lung tissue, oral lesion, blood NP, throat swab, bronchial wash, lung tissue Throat wash, sputum, lung tissue, NP, bronchial wash Throat swab, sputum, lung tissue, NP, bronchial wash NP, bronchial wash, lung tissue NP, throat swab, bronchial wash, lung tissue Lung tissue, bronchial wash, skin lesions, blood
Respiratory Tract Infections	Adenovirus Enterovirus human Metapneumovirus Influenza A/B Parainfluenza 1/2/3 Rhinovirus RSV SARS	NP swab, transtracheal aspirate, throat swab NP swab, throat swab NP, throat swab, bronchial wash, lung tissue NP, throat swab, sputum NP, throat swab NP, throat swab NP swab, aspirate or wash NP, throat swab, bronchial wash, lung tissue

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Virology Collection & Transport by Source

<i>Specimen Source</i>	<i>Collection Procedure</i>	<i>Optimum Transport Procedure</i>
Blood	Collect 1 tube (4-7 mL) of heparinized (green top) or EDTA (purple top) blood.	Room Temperature
Body fluids other than blood or urine	Collect 2-3 mL in a sterile container	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Bone marrow	Collect 2 mL in Heparin or EDTA	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Bronchial wash/brush or alveolar lavages	Collect 2-3 mL and place in viral transport medium	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
CSF	Collect 1mL in a sterile container. Do not dilute in VTM	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Eye swab or scraping	Swab the inflamed conjunctiva or corneal lesions. Place swabs or scrapings in viral transport medium.	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Nasopharyngeal	Collect 2 nasopharyngeal swabs. Place both swabs in viral transport medium.	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Sputum	Collect in a sterile container	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Stool	Collect 1-2 grams of fresh stool	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Swab	Collect on sterile swab and place in viral transport medium. Do not use wooden-shafted swabs or calcium alginate swabs.	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Throat	Collect on sterile swab and place in viral transport medium.	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Tissue	Place in viral transport medium.	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Urine	Collect 5 mL in a sterile container.	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)
Vesicular lesion	Collect the fluid and cellular material from the base of several fresh vesicles. Place in viral transport medium. Do not use calcium alginate swabs or swabs with wooden shafts.	Up to 48 hours at 2-8° C (Refrigerated) Over 48 hours at -70° C (FROZEN)