

**Laboratory Preparedness and Response Branch
Biological Response Section**

**Specimen Requirements for Real-Time (TaqMan®) RT-PCR Assay for the
Detection of Measles Virus RNA in Clinical Samples**

Methodology:	Measles virus Real-time (rti) RT-PCR
Performed:	The real-time (rti) Reverse-Transcriptase Polymerase Chain Reaction (RT-PCR) TaqMan® Assay is a CDC-developed test to detect the N gene of the measles virus. Confirmatory testing may be performed at the CDC.
Criteria for testing:	Clinical signs and symptoms compatible with measles and/or specimens meeting the case definition set by the Disease Investigation Branch (DIB) of the Disease Outbreak Control Division (DOCD) of the Department of Health.
Turn-Around-Time:	Results are reported 1-2 working days after approval by DIB and receipt of specimen(s).
Specimen type required:	<p>Throat (oropharyngeal), nasal or nasopharyngeal (NP) swabs are the preferred specimens for measles real-time RT-PCR. Specimens must be collected on the first day of rash through the 3 days following onset of rash. Place the swab in Viral Transport Medium (VTM).</p> <p>Urine samples collected >4 days after onset of symptoms may also be submitted. Collect a minimum of 10-50 ml of urine in a sterile cup for testing. Centrifuge urine at 2500 x g for fifteen (15) minutes at 4°C. Re-suspend the sediment in 2 ml of VTM. Store urine sediment in VTM at 4°C and if possible, ship within 24 hours.</p>
Specimen storage and transport:	<p>Use only Dacron® tip swabs with an aluminum or plastic shaft. Calcium alginate swabs or cotton swabs with wooden sticks are unacceptable because they may cause PCR inhibition and may contain substances that may inactivate or may be toxic.</p> <p>Swabs must be collected in VTM and maintained at 2-8 °C and shipped on cold packs within 24 hours. If there is a delay in shipment (2-3 days from the time of collection), store the sample at 4°C and ship on cold packs or blue ice. Indicate the number of days the specimen was stored at 4°C</p>

Ship urine in VTM (processed as indicated above) on cold packs (i.e. 4°C) within 24 hours. If there is a delay in shipment, store in -70°C freezer and ship on dry ice.

Follow packing and shipping instructions of the U.S. Department of Transportation (U.S. DOT), and the International Air Transport Association (IATA) for Biological Substance, Category B.

Specimen submission: Submitters: Clinical Laboratories and Epidemiology Specialists of the DIB.

Notification of DIB and the laboratory is requested prior to the submission of specimens.

Criteria for rejection:

- Specimen is received in a container that is leaking.
- Specimen is not collected in a proper container or special handling instruction is not followed.
- Uncentrifuged urine and sediment is not suspended in VTM.
- Urine specimen collected ≤ 4 days after onset of symptoms.
- Viral transport media is expired.
- Use of improper swab or swab not in viral transport medium.
- Specimen is not received at 4°C or packed in blue ice.
- Specimen quantity is insufficient to perform the tests.
- Unlabeled or incomplete specimen labeling and documentation; Submitter will be notified to provide correct information and corrected State Laboratory Division (SLD) Form 81.3.
- Specimen label does not match the requisition.

Stability: All specimens must be refrigerated at 2-8°C immediately after collection. If the specimen cannot be transported to the SLD within 48 hours after collection, it should be frozen at -20°C or lower. If -20°C or lower freezers are not available, keep the sample at 2-8°C. Avoid repeated freeze-thaw cycles. Frozen samples should be shipped on dry ice.

Requisition Form: Each specimen submitted must have a completed SLD Form 81.3. Submitter is responsible for completing SLD Form 81.3 including but not limited to the following information: at least two patient unique identifiers, date of

onset of illness, signs and symptoms, travel history, immunization history, test(s) requested, name and address of submitter.

Requisition forms shall be placed in a separate bag and shall not be packed with the specimen(s).

Normal Value: No Measles Virus Nucleic Acid Detected

Result Notification: Laboratory results are reported to the submitters by electronic reporting system or via fax. Laboratory reports for the DIB of the DOH DOCD will be posted to the DOCD SharePoint.

Test performed at: Biological Response Section (BRS)
Laboratory Preparedness and Response Branch (LPRB)
State Laboratories Division
Department of Health
2725 Waimano Home Road
Pearl City, Hawaii 96782

Contact: Remedios Gose at (808) 453-5993 or (808) 554-9992 or Cheryl Daquip at (808) 453-5984 or (808) 453-6641

Reviewed By:

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Laboratory Preparedness and Response Branch Chief

12/4/19
Date

Approved By:

Edward P. Desmond
Edward Desmond, Ph.D.
Administrator, State Laboratories Division

12/4/2019
Date