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भारतीय आयुर्विज्ञान अनुसंधान परिषद
स्वास्थ्य अनुसंधान विभाग, स्वास्थ्य और परिवार
कल्याण मंत्रालय, भारत सरकार

Indian Council of Medical Research
Department of Health Research, Ministry of Health
and Family Welfare, Government of India

Date: 08/04/2020

Applications invited from Government & Private Medical Colleges for setting up COVID-19 testing facility:

ICMR invites applications from all Government and Private Medical Colleges for establishing a COVID-19 testing facility. All Medical Colleges with following infrastructure and expertise may apply:

- i. Availability of a BSL-2 level laboratory facility including a molecular biology setup for virological diagnosis and a functioning and calibrated Biosafety cabinet type 2A/2B in the laboratory.
- ii. Availability of cold centrifuge/microfuge for RNA extraction
- iii. Availability of a functioning and calibrated real-time PCR machine.
- iv. Staff Requirements:
 - A. Availability of following minimum staff:
 - Medical Microbiologists – 1 or more with experience of work in Molecular Virology.
 - Technicians – At least 4-6 (2-3/shift) with relevant experience of work in Molecular Virology.
 - Multi-Task Staff – 1 or more for washing / cleaning
 - B. Desired expertise of the staff:
 - Good understanding of laboratory biosafety and biosecurity, trained for handling respiratory samples for viral diagnosis, RNA extraction and real-time PCR.
 - Experience of work in virology and handling clinical specimens, especially respiratory samples.
- v. A robust Institutional policy on biomedical waste management of human origin.
- vi. Well defined arrangement for segregation and discarding of biomedical waste.

Additionally, for all applicants from Private Medical Colleges, it is essential to submit a copy of the NABL accreditation certificate and scope of accreditation for real-time PCR for RNA viruses.

Separate information should be provided on each of the above component (i to viii).

Detailed guidance on requirements for infrastructure and consumables for real-time RT- PCR Laboratory are placed at Annexure 2.

Interested Medical Colleges may apply to:

Dr. Nivedita Gupta

Scientist F

Division of Epidemiology & Communicable Diseases

Indian Council of Medical Research, Ansari Nagar, New Delhi

Applications should be accompanied with pictures of the laboratory infrastructure covering points i to iii and vi separately.

All applications should be submitted by email at: jitunarayan@gmail.com, salajrana05@icmr.gov.in



EQUIPMENT AND CONSUMABLE REQUIREMENTS FOR SETTING UP A REAL TIME PCR TESTING FACILITY

On-site requirements of existing functional equipment

- Biosafety cabinet (BSC) class 2A (calibrated)
- -20 °C deep freezer with UPS, for storage of reagents (primers/ probes/ positive controls)
- -80°C deep freezer with UPS, for storage of aliquoted samples/ viral RNA in cryovials
- 4°C refrigerator (for storage of viral transport medium, and for short term storage of samples and extracted RNA)
- UPS (2 nos., 2KVA each, with 2 hours back-up, for real time PCR instrument and nucleic acid extraction systems – if not available, then to be carried); and confirm about power backup for the two deep freezers (check about duration of power outages, if any)
- Real-time PCR machine
- Microcentrifuge / Refrigerated Centrifuge

Required equipment and consumables

- I. For sample collection:**
 - a. Personal protective equipment (PPE)**
 - b. Viral Transport Medium (VTM)**
 - c. Flocked Dacron swabs** (2 swabs/ sample collection from 1 patient)
- II. During processing**
 - a. Biosafety cabinet class IIA/ IIB**
 - b. Personal protective equipment:** N95 masks, coveralls (protective against blood and body fluids), nitrile gloves, shoe cover, head cover
 - c. Vortex mixer**
 - d. Microcentrifuge (Cold centrifuge)**
 - e. Cryovials (2 ml)**
 - f. Cryobox**
 - g. Pipette aid**
 - h. Disposable plastic pipettes**
 - i. Spirit lamp**
 - j. Forceps** (if no spirit lamp, then disposable forceps for each sample)
 - k. 70 % ethanol** (also required for next stage, i.e., extraction)
 - l. 1% sodium hypochlorite** (4% stock, to be freshly reconstituted daily to 1% with water)
 - m. Discarding jars**
 - n. Biomedical waste disposal (BMW) bags** (with ties for sealing; preferably autoclavable, if discarding autoclave is available/ used locally) and bins
 - o. Iceboxes with gel packs or regular ice supply** in laboratory (from icemaker)
 - p. Tube rack** (15 ml tubes)



- q. For tube / cryovial labelling - Marker pens, cellotape, or label printouts (printer with label maker)

III. Nucleic acid extraction

- Manual extraction using kits for Viral RNA extraction: Viral RNA mini kits (Qiagen) or other viral RNA extraction kits for manual extraction
- 1.7 ml Eppendorf tubes (separate ones also required for next step)
- Cryovial/ Eppendorf tube rack (separate ones also required for next step)
- Microcentrifuge (small equipment)
- Micropipettes- 100-1000ul, 20-200ul (additional separate micropipettes of required volumes also listed for next stage, i.e. real time PCR)
- Filter barrier tips: 1000ul, 200ul
- Tissue rolls
- Hand sanitizers
- Biohazard labels

IV. Real time PCR

- **Real time PCR machine (open system)** – calibrated for the fluorophore dyes which are present on the probes
- **Reagents for setting up Real-time**
 - PCR primers and probes specific for SARS-CoV2 targets
 - PCR master mix reagents (e.g., Thermo Fisher/ Invitrogen AgPath/ Superscript III Platinum real time PCR reagents) with buffer and enzyme
- **PCR reagents**
 - **Primers for E gene screening and**
 - **Probes for E gene screening and RDRP/ ORF 1b targets**
 - **PCR Buffer and enzyme mix**
 - **Positive control**
- PCR workstations – 1 for mastermix preparation; 1 for RNA addition
- Cryovial racks
- PCR tubes/ PCR plates
- PCR plate adhesive seals and plate sealer
- Micropipettes- 0.5-10ul (2 nos., 1 for PCR master mix and 1 for RNA addition), 2-20ul, 20-200ul
- Filter barrier tips – 10ul, 20ul, 200ul
- Microspin (small equipment)
- Plate centrifuge (small equipment)
- Electronic micropipette (optional small equipment, but convenient and reduces time duration of testing)
- Nuclease free water - for PCR
- RNaseP