

Department of Microbiology



Name	Qualification	Designation	Medical Council Registration	Experience
Dr Karma Doma Bhutia	M.D.Microbiology	Professor	SMC/0653 dated 02/07/2011	Professor since 24/4/2026 Associate Professor (1/02/2021 to 20/03/2026) Assistant Professor (1/10/2016 to 31/01/2021)
Dr Shrijana Gurung	M.D.Microbiology	Associate Professor	SMC/0531	Associate Professor (since 1/01/2023) Assistant Professor (1/09/2013 to 31/12/2023) Senior Resident (11/06/2012 to 31/08/2013)
Dr Tenzing Choden	M.D.Microbiology	Assistant Professor	SMC/0444 dated 16/10/2008	Senior Resident (1/09/2021 to 23/03/2026)
Dr Tashi Pegey Chopphe	M.D.Microbiology	Assistant Professor	SMC/0324 dated 04/06/2007	Senior Resident (1/03/2022 to 26/03/2026)

Dr Yeshi Palden Dophapa	M.D.Microbiology	Senior Resident	SMC/01386	Senior Resident (1/03/2022 to 26/03/2026)
Dr Sunu Hangma Subba	M.D.Microbiology	Senior Resident	SMC/0661 dated 29/02/2024	

Overview :

The Department of Microbiology in Helen Lepcha Sikkim Government Medical College is established in 2026 . The Department is committed to academic activities of teaching undergraduate MBBS students in accordance with the Competency Based Medical Education (CBME) curriculum under the National Medical Commission (NMC)

The curriculum will be delivered by Lectures, tutorials, practicals, small group discussions, etc. as mandated by the NMC. The aim is to develop competent health care professionals who can provide recent advanced diagnostic services and to provide the skills necessary for life long learning to enable proper care of the patients.

Infrastructure in the medical college :

Faculty rooms

Department Library

Seminar Room

Laboratory for practical classes

Museum

Office



Practical laboratory



Research lab



Faculty rooms

Laboratories :

1. Microbiology laboratory / Serology laboratory/Parasitology Lab / Mycology Lab
2. Viral Research and Diagnostic Laboratory (BSL -2 Lab)
3. HIV Testing - State Reference Laboratory (NABL Accredited)
4. ICTC Integrated Counseling and Testing Centre
5. Intermediate Reference Laboratory for Mycobacterium Tuberculosis

Core functions :

The Microbiology department in Sir Thutob Namgyal Memorial (S.T.N.M.) Hospital provides comprehensive microbiological diagnostic services in bacteriology, mycology, parasitology, serology, culture and identification of clinically significant pathogens and antimicrobial susceptibility testing (AST). It plays a central role in infection prevention and control (IPC), antimicrobial stewardship (AMS), healthcare-associated infection (HAI) surveillance, outbreak investigations, environmental microbiological surveillance and promotes compliance with infection prevention practices.

The department prepares hospital antibiograms, monitors antimicrobial resistance trends, and provides guidance on the rational use of antimicrobials. The department also supports disease surveillance and collaborates with state and national public health programmes in the prevention and control of infectious diseases.

Quality and Public Health Facilities

- External Quality Assurance Scheme (EQAS) participation in all laboratory sections
- Internal Quality Control (IQC) programme
- HIV test in NABL-accredited HIV Laboratory
- Participation in the National AMR Surveillance Network (NCDC)

- Participation in the National HAI Surveillance Network (NCDC)
- Participation in the National One Health Programme for Prevention and Control of Zoonotic Diseases
- Hospital Infection Control Committee (HICC) support unit
- Antimicrobial Stewardship Programme

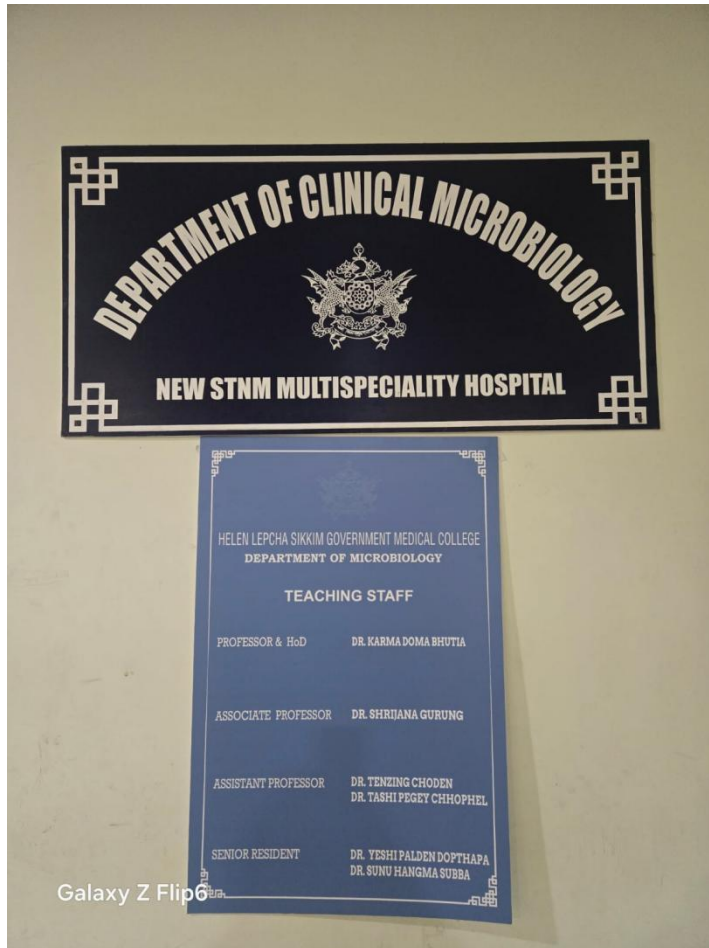
Infrastructure in Microbiology Laboratory:

- Reception and Sample Collection Area
- Bacteriology Laboratory
- Mycology Laboratory
- Parasitology Laboratory
- Serology Laboratory
- Media Preparation Room
- Sterilization Room
- Washing and Glassware Room
- Autoclave Room
- Biosafety Level-2 (BSL-2) Laboratory
- HIV Laboratory (NABL Accredited)
- Faculty Rooms
- Training Hall
- Store Room

Major Equipment

- Class II Biosafety Cabinets
- BOD Incubator
- Hot Air Oven
- Autoclaves
- Automated Blood Culture System
- Automated Microbial Identification and Antimicrobial Susceptibility Testing System (e.g., BD Phoenix,)
- ELISA Reader and Washer
- Binocular Microscopes
- Standard Bench-top Centrifuge
- Water Purification System
- pH Meter
- Analytical Balance

- Deep Freezer
- Refrigerator
- Water Bath
- Vortex Mixer



Virology Laboratory

The Virology Laboratory is a specialized diagnostic and research facility dedicated to the detection, monitoring, and study of viral infections. Designated as an ICMR–Viral Research and Diagnostic Laboratory (ICMR-VRDL), the laboratory plays a significant role in strengthening India's viral diagnostic capacity, surveillance network, outbreak preparedness, and research initiatives. Equipped with molecular and serological diagnostic technologies, Real-Time Polymerase Chain Reaction (RT-PCR), ELISA, ELFA, rapid antigen and antibody tests, and Next Generation Sequencing the laboratory plays a vital role in the diagnosis and monitoring of infections such as Dengue, Chikungunya, Influenza, COVID-19, Human Papillomavirus (HPV), Cytomegalovirus (CMV), Epstein–Barr Virus (EBV), Herpes Simplex Virus (HSV), and other emerging and re-emerging viral pathogens.

Designed in accordance with Biosafety Level-2 (BSL-2) guidelines, the laboratory adheres to stringent biosafety and biosecurity practices. Standard Operating Procedures (SOPs), Internal Quality Control (IQC), External Quality Assurance Programmes (EQAS), equipment calibration, and preventive maintenance ensure reliable, accurate, and reproducible laboratory results. The laboratory strives to meet the quality management requirements of NABL (ISO 15189) and other applicable national standards.

The laboratory provides rapid laboratory support during outbreaks, assists in confirmation of suspected viral infections, and collaborates with clinicians and public health authorities in epidemiological investigations and disease containment activities.

The laboratory is actively engaged in research and innovation. It participates in multicentric research projects sponsored by the Indian Council of Medical Research (ICMR) and collaborates with national research institutions to generate evidence that supports improved diagnostics, surveillance, and patient management. In addition, the laboratory undertakes in-house research projects under the ICMR-VRDL programme, focusing on viral epidemiology, molecular characterization of viral pathogens, diagnostic assay evaluation, emerging infectious diseases, and public health priorities.

The Virology Laboratory also contributes to national disease surveillance programmes, continuing medical education for healthcare professionals, and capacity building in diagnostic virology.

Facilities and Services

- Designated ICMR–Viral Research and Diagnostic Laboratory (ICMR-VRDL)
- Real-Time PCR (RT-PCR) for qualitative and quantitative viral detection
- ELISA and ELFA viral serology for diagnosis and disease monitoring
- Biosafety Level-2 (BSL-2) compliant laboratory infrastructure
- Internal Quality Control (IQC) and External Quality Assurance (EQAS)
- Standardized laboratory reporting and quality management systems
- Viral outbreak investigation and laboratory support for public health emergencies
- Participation in national viral surveillance programmes
- Multicentric ICMR research projects and collaborative studies
- In-house research under the ICMR-VRDL programme



Intermediate Reference Laboratory for Mycobacterium Tuberculosis

It is a state level nodal reference laboratory under the National Tuberculosis Elimination Programme (NTEP) . Its core functions are Culture and Drug susceptibility Testing for Mycobacterium Tuberculosis for first line drugs Rifampicin , Isoniazid, Ethambutol, Pyrazinamide, and second line drugs like Fluoroquinolones, Second line injectables Kanamycin, Amikacin, Capreomycin, and Linezolid . IRL also detects Drug resistance to MTB by advanced molecular tools like Line Probe assay ,first line and second line to diagnose resistance to first and second line drugs.

IRL adheres to stringent bio-safety precautions, the equipments are well calibrated annually and follows standard operating procedures (SOPs) under the NTEP, Central TB Division.

IRL takes External quality assurance and supervision by conducting annual evaluation visits to district and peripheral laboratories in the state .It conducts proficiency testing for Senior TB Laboratory supervisors (STLS). IRL conducts random blinded re checking of slides sent from the peripheral laboratories in the state.

Capacity building and training of the Laboratory technicians and Senior TB Laboratory Supervisors by IRL as it hosts numerous trainings on recent advanced diagnostic modalities, bio safety etc. for field staff and laboratory technicians.

In Surveillance, IRL compiles monthly TrueNAT, CBNAAT and Annexure M indicators and sends it to National Reference Laboratory and Central TB Division.

It takes part in various multicentric projects and clinical trials like Assessment of comparative performance (efficacy and safety) of C- TB with Quantiferon TB gold plus & 2 T.U. Tuberculin PPD RT 23 in Tube for detection of TB infection in general and key population. Cy-TB has now been taken up by NTEP as a routine test for diagnosis of latent TB Infection.

NTM Project : Development of molecular method for diagnosis of Non Tuberculosis Mycobacterium (NTM) and drug resistance monitoring in clinical specimen of north and north east India.

IRL also conducts various research in areas like Extra pulmonary Tuberculosis (EPTB), Interferon Gamma Release Assay (IGRA), etc.

IRL Gangtok is the first ECHO hub in India in May 2021 to start non clinical echo sessions. Till date IRL has conducted over 55 echo sessions, these sessions are conducted monthly and the participants are from District and PHC laboratories staff, DTOs, Medical Officers, STLS and Lab Technicians. A letter of appreciation was received from ECHO in the year 2022.

Infrastructure in IRL:

1. Molecular line probe assay laboratory : DNA extraction room, Amplification room and Hybridization room.
2. BSL 3 Laboratory , Negative pressure room with air handling unit (AHU)
3. Walk in cold room
4. Walk in Incubator
5. Media room
6. Sterilisation room
7. Washing and cleaning room
8. Refrigerator room
9. IGRA room
10. DEO Data entry operator room
11. Training hall
12. Faculty rooms/ Staff room
13. Store room

Equipments :

1. Bio safety cabinets
2. MGIT Mycobacterium Growth Indicator Tube
3. Thermocycler
4. GT BLot
5. Twincubator
6. PCR work station
7. Autoclaves , horizontal and vertical
8. Serum Inspissator
9. Distillation plant
10. Analytical balance

- 11. Orbital Incubator shaker
- 12. ELISA reader and washer



Bio safety level 3 laboratory



Amplification room



Hybridization room





Dr Karma Doma Bhutia

Professor & HOD

Department of Microbiology

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