



Fellowship in Clinical and Molecular Microbiology
at Tata Medical Center, Kolkata, India <https://tmckolkata.com/in/>

How can I apply?

- Please apply online using the hospital portal and/or email by 28th February 2025
- <https://tmckolkata.com/apps/hrd/careers.php>
- To may also email your application to: Mr. Suvasish Mukherjee, Head-Human Resources, Tata Medical Center, 14 MAR (EW), New Town, Kolkata – 700160. West Bengal, India. Email – suvashish.mukherjee@tmckolkata.com

For enquiries please contact: sanjay.bhattacharya@tmckolkata.com or gaurav.goel@tmckolkata.com

Frequently Asked Questions (FAQs) about the Clinical and Molecular Microbiology Fellowship program at Tata Medical Center in Kolkata, India:

What is Clinical Microbiology and how is it different from laboratory based diagnostic microbiology?

- Clinical Microbiology includes:
 - Diagnostic Microbiology and Diagnostic Stewardship
 - Antimicrobial stewardship
 - Hospital Infection Prevention and Control

What is Molecular Microbiology?

- Laboratory Microbiology involves diagnosis of bacterial, viral, fungal and parasitic infections using molecular techniques such as PCR, DNA sequencing and others.
- Because of the rapidity, high sensitivity and specificity of molecular microbiology techniques it is has emerged as an important diagnostic tool in medical microbiology

Who should apply for the Fellowship in Clinical and Molecular Microbiology?

- Medical microbiologists who after post-graduation/ senior residency/ middle level career would like to gain additional knowledge and skills in antimicrobial stewardship, hospital infection control, diagnostic stewardship and molecular techniques in medical microbiology
- Essential qualifications: MBBS plus MD/DNB in Microbiology
- A valid medical registration
- The Fellowship is open to international candidates with training and qualifications in Clinical Microbiology. International candidates need to register with National Medical Commission: <https://www.nmc.org.in/information-desk/download-application-forms-nmc/>

What is the duration of this fellowship course?

- **The fellowship is for two years (24 months)**

How is the fellow going to be evaluated during the course?

- **There is going to be two written and viva examinations at the end of each year**
Progression from year 1 to year 2 will depend on:
 - **Exam performance**
 - **Performance during routine duty**

What is the fellow expected to learn during the two years training?

- **Diagnostic stewardship**
- **Antimicrobial stewardship**
- **Infection Prevention and Control**
- **Molecular techniques in Diagnostic Microbiology**
- **Infections in bone-marrow transplant settings- diagnosis/ management**
- **Communication skills**
- **Management skills**
- **Biosafety**
- **Quality control and quality management systems**

What are the facilities available for training?

- **Tata Medical Center is a 437 bed oncology hospital**
- **It has state of the art diagnostic and clinical care facilities in Clinical Hematology, Medical Oncology, Pediatric Oncology, Surgical Oncology, Radiation Oncology, Palliative Care, Nuclear Medicine, Radio-diagnosis, Endoscopy services, Laboratory Sciences Services (Hematology, Cytogenetics, Molecular Genetics, Histopathology, Biochemistry, Clinical Pathology, Flow Cytometry, HLA typing)**
- **Microbiology department has the following sections:**
 - **Bacteriology**
 - **Virology**
 - **Serology**
 - **Parasitology**
 - **Mycology**
 - **Mycobacteriology**
 - **Environmental Microbiology**
- **HIS (Hospital Information System) and LIS (Laboratory Information Systems) developed by the Tata Consultancy Services**

The fellow can learn about the following equipment/systems/ procedures in Diagnostic Microbiology:

- **BactAlert system for automated blood culture and Mycobacterial culture**
- **Vitek system for automated bacterial and yeast identification and antimicrobial susceptibility testing**
- **Type II A2 biosafety cabinets and laminar air flow cabinets**

- **Broth Micro-dilution Testing system- for colistin and antifungal susceptibility**
- **Direct Susceptibility test from positive blood cultures**
- **LED fluorescence microscope and compound light microscope**
- **Lyophilizer, minus 80°C freezer and minus 20°C freezer**

What facilities are there for Molecular Microbiology?

- **Automated nucleic acid extraction systems**
- **Refrigerated centrifuge**
- **Nanodrop, spectrophotometer, Qubit fluorometer, TapeStation, Ion Chef for sample preparation in next generation sequencing**
- **End point PCR systems**
- **Gel electrophoresis and gel documentation systems**
- **Real-time PCR systems**
- **Isothermal amplification system: Abbott ID Now**
- **CBNAAT systems: Qiasat, BioFire, GeneXpert**
- **Hybrid Capture Assay system**
- **Digital Droplet PCR system**
- **Sanger sequencer: ABI 3500**
- **Next generation sequencers: MiSeq (illumina), Ion Gene Studio S5, Ion Torrent PGM**

How is Clinical Microbiology and Infection Prevention and Control training imparted to fellows?

- **Ward rounds including patient assessment at bed side**
- **Positive blood culture communication and clinical liaison**
- **AMSP and diagnostic stewardship ward rounds in Intensive Care Unit**
- **Patient referrals to Clinical Microbiology and Infectious Diseases**

What are the common infectious diseases/ clinical syndromes encountered in this training center?

- **Meningitis- encephalitis syndrome**
- **Respiratory Tract infection**
- **Blood stream infection**
- **Gastro-intestinal infection**
- **Intra-abdominal infection**
- **Skin and soft tissue infection**
- **Urinary Tract infection**
- **Vector borne diseases:**
 - **Malaria**
 - **Dengue**
- **HIV/AIDS**
- **Viral exanthems and enanthems**
- **Viral hepatitis**
- **Sepsis**
- **Healthcare Associated Infections**

- **Sexually Transmitted Diseases: including those due to Human Papilloma Virus infections**
- **Infections associated with Bone Marrow Transplantation**

What are the various types of molecular tests available in the Microbiology department?

- **Bacteriology:**
 - **mecA gene PCR and spa gene PCR**
 - **van A gene PCR**
 - **carbapenemase resistance gene PCR: NDM-1, OXA-48, KPC, OXA-23/24/58, IMP, VIM**
 - **BioFire (CSF, stool, pneumonia) and Qiastat panel (atypical pneumonia)**
 - **16S rRNA sequencing based ID of bacteria**
- **Virology:**
 - **Respiratory virus PCR (BioFire and Qiastat panel)**
 - **CMV viral load**
 - **HBV and HCV viral load**
 - **HPV detection and genotyping**
 - **BK virus qualitative and quantitative PCR**
 - **HSV and varicella zoster virus PCR**
- **Parasitology:**
 - **Cryptosporidium, Cyclospora, Entamoeba histolytica, Giardia (BioFire panel)**
- **Mycology:**
 - **Pneumocystis jirovecii PCR**
 - **Aspergillus PCR**
 - **Candida PCR**
 - **Candida auris PCR**
 - **Fungal identification by ITS gene sequencing**
- **Mycobacteriology:**
 - **GeneXpert PCR for MTB and rifampicin resistance**
 - **Identification of atypical mycobacteria by 16S/rpoB gene sequencing**

What other special tests are available in the lab?

- **Beta D Glucan assay**
- **Galactomannan antigen ELISA**

What aspects of Infection Prevention and Control training opportunities are there in this fellowship program?

- **Water quality monitoring using TDS meter, digital chlorine meter, microbiology by membrane filtration technology**
- **Air quality monitoring using air particle counter and settle plate method**
- **Healthcare associated infection surveillance**
- **Hospital Infection Control Committee and Infection Control Team meetings**
- **Working with nursing department and infection control nurses**

- Working closely with Occupational health (staff health) services
- Infection Prevention and Control with the following support services:
 - Laundry
 - Central Sterile Supply Department
 - Housekeeping
 - Engineering
 - Food and Beverages
 - Security
 - Customer Care
 - Pharmacy
 - Nutrition
 - Physiotherapy

Who are the trainers in the Clinical and Molecular Microbiology Fellowship program?

- Clinical Microbiologists:
 - Dr. Gaurav Goel: MD, DNB, MNAMS
 - Email: gaurav.goel@tmckolkata.com
 - Dr. Sanjay Bhattacharya, MD, DNB, DipRCPath, FRCPath, CCT (UK)
 - Email: sanjay.bhattacharya@tmckolkata.com
- Infectious Disease Physician:
 - Dr. Soumyadip Chatterji, MD, DM (Infectious Diseases)
 - Email: soumyadip.chatterji@tmckolkata.com

What are the working hours?

- Monday to Friday: 09 AM to 0530 PM
- Saturday: 09 AM to 0230 PM
- Educational/ training sessions start around 8 AM to specified days of the week
- Out of hours duty, Holiday duty and Sunday duties are divided between existing fellows (total three)

What the regular training programs?

- Tuesday 8 -9 AM: BMT case discussion
- Wednesday 0830- 0930 AM: Journal Club
- Friday 0830- 0930 AM: Microbiology Department teaching
- Saturday 0830- 0930 AM: Tata Lecture Series talks (TaLeS)
- Last Saturday of the month: 0830- 0930 AM: Morbidity and mortality review meeting
- Classes for DMLT students
- Classes for MSc students (Molecular Medical Microbiology; Masters in Medical Science and Technology)

What is the daily activity list for the fellow?

- Microscopy: Gram stain, ZN stain, KOH wet mount, CFW wet mount, urine and stool microscopy
- Bacteriology and Mycology: examination of culture plates

- **Communication of positive blood cultures and clinically important preliminary and final results**
- **Laboratory bench round with Microbiology consultant**
- **Participation in teaching training activity**
- **Ward rounds for AMSP or diagnostic stewardship in ICU/HDU/wards**
- **Communication of Infection Control issues**
- **Notification of notifiable diseases**
- **Quality control, validation and authorization of final laboratory results using LIS (Laboratory Information System)**
- **Clinical documentation using HIS (Hospital Information System)**
- **Teaching training DMLT and MSc students in Microbiology**

What are the research and audit opportunities in this fellowship?

- **Fellows would be given one or more research/audit topics which need to be completed within the duration of the fellowship program**
- **Fellows would be provided with guidance to publish their research in national/international journals and present them in scientific conferences**
- **Fellow would be encouraged to attend scientific conferences and training programs within India or abroad and apply for travel grants**
- **For list of research grants received and publications from the department of Microbiology please refer to the departmental webpage in the institute website <https://tmckolkata.com/in/microbiology/>**

Is there any hospital accommodation/travel facility?

- **No> fellows have to make their own accommodation/travel arrangements**
- **There are rentable flats available in nearby places**
- **The hospital is well connected by public and private transport**

What will I get at the end of the fellowship program?

- **You will be given a certificate at the end of successful completion of the fellowship program provided:**
 - **You have passed the examinations**
 - **Completed at least 18 months of the 2-year course**
 - **Completed a training log book**

Is the fellowship recognized by any university?

- **Currently the fellowship is not affiliated to any university**
- **The idea of the fellowship is to provide post graduate training opportunities to doctors in the field of medical microbiology in those areas which are not adequately covered in the current under- graduate or post-graduate curriculum but are essential to the practice of medical microbiology in the modern world**
- **The fellowship is generally accepted as a job experience in private sector hospitals and healthcare providers**
- **International candidates may use this fellowship opportunity to gather experience of managing infections in a tropical country/ cancer hospital.**