



Central Molecular Research Laboratory (CMRL)

Microbiology Department

Molecular Research Training Program

Central Molecular Research Laboratory (CMRL): Central Molecular Research Laboratory (CMRL) at Shri Guru Ram Rai Institute of Medical & Health Sciences, Patel Nagar, Dehradun is equipped with novel facilities for Molecular Diagnosis of the Infectious Diseases, Autoimmune Disorders, Cancer Markers, Molecular Immunology and Cellular and Molecular Research work. CMRL is providing a range of NABL approved and IVD quality assured Molecular Diagnostic tests for patients and customized teaching and training modules with world class infrastructure, latest technologies and expertise to Medical Faculty and Life Sciences Students not from India but from different parts of the Globe. Recent trends in Medical Sciences need the mutual collaborative association between clinicians and biomedical specialists to train new generation for the better management and treatment of the diseases and to harness the technology for the betterment of the suffering humanity. CMRL is well equipped with latest version of Gradient Conventional thermal cyclers which includes; Veriti®96-Well PCR Machine (USA), E-Gel® Imager Gel Documentation System with UV Light Base (USA), Bench Top®Geno Bioscience Thermal Cycler (Germany), Rotor Gene Real Time PCR (Germany), High speed Cooling centrifuge, Dry Heating Blocks, Digital Water Baths, Fully automatic(USA)Systems for Viral Nucleic Acid Extraction, ELISA Reader, -20C and -80C refrigerators etc. The unit is being utilized for the Molecular characterization of clinically relevant infectious agents like SARS CoV-2, Swine flu (H1N1) Human Papilloma Virus (HPV), Hepatitis B Virus (HBV), Hepatitis C virus (HCV), Human Immuno Deficiency Virus-1 (HIV-1), Chlamydia trachomatis, Neisseria gonorrhoea, Mycobacterium tuberculosis complex, Atypical Mycobacteria, Bacterial Meningitis/Neuropathogenic Bacteria Panel (Mycobacterium Tuberculosis, Neisseria meningitidis, Haemophilus influenza & Streptococcus pneumonia), Viral Meningitis/Neuropathogenic Viruses Panel [Human Enteroviruses {Polioviruses, Coxsackie virus (groups A and B), and Echoviruses}, Herpes Simplex Virus 1 & 2, Cytomegala Virus (CMV), Epstein Bar Virus (EBV) and Varicella zoster virus]. CMRL is attached with its own Hospital (Shri Mahant Indires Hospital) and is conducting

many Research Projects, Contract Projects thus, significantly benefiting clinicians and patients.



*"Cellular and
Molecular Medicine
A new Era of Prognosis"*

-Shri Mahant Devendra Dass Ji Maharaj
Chairman
Governing Council
Shri Guru Ram Rai Education Mission &
Founder
SGRR University

Shri Guru Ram Rai Education
Mission

**A Hub for Excellence in
Education, Research &
Healthcare**



MOLECULAR RESEARCH ORIENTED TRAINING PROGRAMS AT CMRL

PROGRAM OVERVIEW

- All the modules are designed as per student's requirements so as to provide a holistic training in conventional & advanced diagnostic microbiology.
- You can choose one module so that you can gain maximum knowledge in minimum duration and get hands-on individual exposure.
- A Training Certificate (approved) will be issued after successful completion of training program.
- The verification of the certificate will be provided for life. if you apply for further studies or job (India or
- Abroad) in and from the date of issue of certificate.

SALIENT FEATURES OF TRAINING PROGRAMS

A) TECHNICAL EXPOSURE

Modular Approach: Recognizing the wide spectrum of needs of the prospective trainees, Central Molecular Research Laboratory imparts training with different lengths and contents, ranging from 2 weeks to 06 months.

Two PHASE Training: The first phase begins with the one week training rotation on each workstation, which includes demonstration of different techniques. An additional one week training (based on project duration)



on the same stations will be given to provide more exposure, as felt by the Technical Review committee (TRC) of the Institute. The second phase

begins with the regrouping of the trainees as per the assessment reports and interests of the candidates followed by distribution of Project topics. The second phase allow the trainees to full blown hands on training experience, under the supervision of the trainers, followed by project distribution.

Skill Development: 90% practical demonstration, making young students competent to fit in the competitive world as the demand of current scenario.

Central Laboratory: The students are also rotated in Microbiology Laboratory (SMI Hospital), for learning advance techniques in the field of Microbiology in addition to trained in Molecular tools.

PUBLICATIONS/RESEARCH ORIENTATION

With the consent/approval or agreement, particularly and especially a Ger thoughtful consideration from the Institute's head, guide and authors, projects / thesis work / short term training of the candidate can be published as research paper, article, book, case reports or short communication which will motivate the students for the future research arena.

BIOSAFETY PROVIDED Students are trained in Biosafety Level –II facilities where emphasis is given on highly advanced technical skills with regular visual and audio classes, hands on training, journal clubs and scientific debates etc.



Hands *on* Training

Current and futuristic Tools & Technologies in
Molecular biology

Students are professionally trained to learn all the advance Molecular Diagnostics Investigations during their projects/Dissertation work.

Training programs

Short Term Training/Project work/dissertation

1. **Module –A Basic of Molecular Biology (15 Days)**

- Good laboratory practices (GLP) and Biomedical waste management (BMW)
- Bio-safety
- Micropipette handling (forward and reverse pipetting techniques),
- Basic instrument handling,
- Principal, SOP and application of Types of extraction,
- Composition of buffers,
- Overview of genomic DNA
- Extraction of genomic DNA from Bacteria,
- Electrophoresis, Qualitative Analysis of DNA-Agarose Gel Electrophoresis,



2. **Module-B Tools and Techniques in Molecular & Diagnostic Microbiology (01 Month)**

- Programming for Conventional PCR Technologies,
- Introduction to Nested PCR,
- Introduction to Multiplex PCR,
- Nucleic Acid Amplification Technologies (NAAT).
- Extraction of DNA confirmation and detection by electrophoresis.
- Extraction of RNA confirmation and detection by synthesized cDNA.
- Post amplification technologies, Agarose gel Electrophoresis.
- Basic Immunology Principles (ELISA, Latex Agglutination, Immunofluorescence techniques)
- Basic Microbiology Techniques (Staining & Culture techniques)



3. Module-C Advanced Program in Molecular & Diagnostic Microbiology (2 months)

- All techniques included in Module A&B.
- ELISA
- IMMUNOFLUORESCENCE
- Detection of Infectious markers via molecular methods
- Qualitative detection of specific genes by Real Time PCR.
- Viral load detection using RT PCR
- Detection of Autoimmune disorder specific genes
- Real Time PCR usage by different probes and dyes.
- Other Advanced techniques in Immunology
- Automated culture Techniques
- Quality control & Quality assurance in Molecular & Diagnostic Microbiology



4. Module -D Dissertation /Project work (3-6 months)

- All techniques included in Module A, B&C.
- All dissertation work



Fee Structure

S No.	Module	Duration	Fee
1	A	15 days	₹ 5,000
2	B	1 Month	₹ 10,000
3.	C	45 Days	₹ 14,000
		2 Months	₹ 18,000
4	D	3 Months	₹ 22,000
		4 Months	₹ 25,000
5	E	6 Months	₹ 35,000

Any Query for Training Please Contact
Mobile:+919927115277
Email Id:molecularlabsgrrimhs@gmail.com
For More Details
Log on to

www.sgrrmc.com

General Guidelines for the Trainees

- 1) Students must bring their own Apron/Lab Coat for the training. Scrub/Clean room dresses will be provided by Central Molecular Research Laboratory (CMRL) .
- 2) At the end of the training programs students will be given 02 certificates; a Project training certificate and a CMRL basics and Applied Molecular diagnostics Certificate.
- 3) Registration form is available on our website www.sgrrmc.com
- 4) Working hours of the Laboratory for the trainees will be in between 10am–03 pm (Monday - Friday). Saturday & Sunday will be off for the trainees (or will be working depending on the practicals/demonstration).
- 5) Training fee must be submitted in advance during registration.
- 6) Trainees have to maintain discipline/follow all the biosafety guidelines of the laboratory

Eligibility:

All Life science students, Graduates or post graduates, pursuing or passed out students can apply.

PhD scholars, College faculties, working professionals can also apply.

For Technical Details & Queries :

Contact: Dr. Iva Chandola (In-charge, Central Molecular Research Laboratory)

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