

**Multidisciplinary Research Unit**  
**Guru Gobind Singh Medical College & Hospital**  
**Baba Farid University of Health Sciences, Faridkot (151203), Punjab, India**  
(Faciliated by Department of Health Research, Ministry of Health and Family Welfare)

Multidisciplinary Research Unit (MRU) has been established in Guru Gobind Singh medical College, Faridkot since 2016 and has been extended for the period of 5 years as per 15<sup>th</sup> Finance Commission Period (2021-22 to 2025-26). The MRU facility is for fulfilling a long pending demand to extend the scope of research and entirely to conduct research in various disciplines of health sciences with a special focus on patient care in non-communicable diseases.

Major objective of this research unit is to provide diverse research options to research scholars and post-graduate students so that they may conduct research in the areas of their choice within their premises itself. Furthermore, scientists at MRU will conduct mission oriented medical research and investigate various aspects of the basic biomedical sciences as well as specific diseases.

**MISSION of MRU**

- Encourage and strengthen an environment of research in medical colleges;
- Bridge the gap in the infrastructure to improve the health research and health services;
- To ensure the geographical spread of health research infrastructure, in Medical Colleges and other nearby institutions;
- To improve the overall research status by creating evidence-based application of diagnostic procedures/processes/methods;
- To further educate and train young scientists and physicians;
- To facilitate the exchange of information and to promote multicentric projects;
- To provide human resources of right caliber to for helping Medical/Dental/Nursing/Paramedical/Physiotherapy faculties to upgrade level of research;
- To develop a pool research facility for medical as well as other constituent colleges under BFUHS umbrella;
- To conduct and facilitate conferences seminars and workshop on various aspects of medical education and research.
- To promote writing various research proposal and avail various intramural as well as extramural fundings such as MRU contingency sanctioned by Department of Health Research, Ministry of Health and Family Welfare, Govt. of India.
- To review and assess the research project as well as their progress by Research Advisory Committee as per DHR rules.

To secure the effectiveness and assured future success, MRU intends to focus on several major, mission-oriented target areas of research. Hence various Research Laboratories have been established in MRU.

### Staff available at MRU

Post Available	Name of Faculty	Specialization
<b>Nodal Officer</b>	Dr. Gitanjali	Professor and Head Biochemistry
<b>Co- Nodal Officer</b>	Dr. Sulena	Associate professor, Division of Neurology
<b>Scientist-II</b>	Dr. Malika Arora	Expert in Molecular Biology and Cell culture
<b>Scientist-I</b>	VACANT (filled Shortly)	
<b>Lab Technician</b>	Ms. Disha Sharma	Expert in Molecular Biology
<b>Lab Technician</b>	Ms. Nimerpreet Kaur	Expert in Molecular Biology
<b>Lab Assistant</b>	VACANT (filled Shortly)	

### Committees in place at MRU

1. Technical committee- For MRU procurement
2. Research Advisory Committee (RAC)- for MRU as per ICMR/DHR norms
3. Institutional Biosafety Committee (IBSC) –Registered with Department of Biotechnology, Govt of India.
4. Institutional Ethical Committee (IEC)- Registered with Drug Controller General of India, CDSCO, New Delhi.
5. Approval of DSIR for custom duty exemption: Certified from Department of Scientific and Industrial Research (DSIR) for custom duty Exemption

### Research Advisory Committee (RAC)- for MRU as per ICMR/DHR norms

S. No	Designation in RAC	Name, designation and Organization
1	Chairperson	<ul style="list-style-type: none"> <li>• Dr. Meenu Singh, Professor and Head, Department of Pediatric Pulmonology and Telemedicine, PGI Chandigarh</li> </ul>
2	Co-Chairperson	<ul style="list-style-type: none"> <li>• Dr. Vinod Garg, Dean, Centre For Environmental Science And Technology, Central University of Punjab, Bathinda</li> </ul>
3	ICMR Nominee	<ul style="list-style-type: none"> <li>• A) Dr. Ashoo Grover, Scientist-E, Indian Council Medical Research, New Delhi</li> <li>• B) Dr. Tanu Anand , Scientist-D, Indian Council Medical Research, New Delhi</li> </ul>
4	Expert from NCD's	<ul style="list-style-type: none"> <li>• Dr. Rajeev Sharma, Principal, GGSMCH, Faridkot.</li> <li>• Dr. Ravinder Garg, Professor and Head, Department of Medicine, GGSMCH, Faridkot.</li> <li>• Dr. Shashi Kant, Professor and Head, Department of Pediatrics, GGSMCH, Faridkot.</li> <li>• Dr. C.S. Gautam, Professor and Head, Department of Pharmacology, GMCH, Chandigarh.</li> </ul>
5	State Health Department	<ul style="list-style-type: none"> <li>• Dr. Chander Shekhar Kakkar, Senior Medical Officer (SMO), Faridkot</li> </ul>
6.	Co-Nodal Officer	<ul style="list-style-type: none"> <li>• Dr. Sulena, Associate Professor, Department of Neurology, GGSMCH, Faridkot.</li> </ul>
7.	Member Secretary/Nodal Officer	<ul style="list-style-type: none"> <li>• Dr. Gitanjali, Department of Biochemistry, GGSMCH, Faridkot.</li> </ul>



**MRU, GGSMCH central instrumentation lab**



**MRU, GGSMCH Cell Culture Lab**



**MRU, GGSMCH molecular biology lab (Real Time PCR)**



**Research Scientists I & II, MRU, GGSMCH working in central storage lab**



**MRU, GGSMCH Central instrumentation lab**



MRU, GGSMCH Electrophoresis Unit



MRU, GGSMCH Gel Documentation Lab



MRU, GGSMCH Gradient PCR and Dual PCR Lab



**MRU, GGSMCH ELISA Reader and Washer Lab**



**MRU, GGSMCH Microbial Culture Facility**

### Equipments Inducted in MRU

<p><b><u>Molecular Biology Facility</u></b></p>	<ul style="list-style-type: none"> <li>• Nucleic Acid Extraction (Manual)</li> <li>• Electrophoresis -DNA</li> <li>• SDS-PAGE facility- Proteins</li> <li>• Gel Doc for captures/quantification</li> <li>• Dry Bath And mixer</li> </ul>	<p><b><u>Cell Culture Facility</u></b></p>	<ul style="list-style-type: none"> <li>• Bio safety cabinet class-II A-2</li> <li>• CO2 Incubator</li> <li>• Inverted microscope for observing live cultures</li> <li>• Centrifuge for cell culture (Refrigerated Table Top Centrifuge)</li> </ul>
<p><b><u>Genomics Facility</u></b></p>	<ul style="list-style-type: none"> <li>• 2-D Gradient PCR</li> <li>• Real Time PCR</li> <li>• Dual PCR</li> <li>• Nanodrop</li> <li>• Ultra pure water purification system</li> </ul>	<p><b><u>Preservation facility</u></b></p>	<ul style="list-style-type: none"> <li>• Minus 20 Deep freezer</li> <li>• Cryocube minus 80 degree ultralow temperature</li> <li>• Liquid nitrogen chamber</li> <li>• Vacuum concentrator</li> </ul>
<p><b><u>ELISA Facility</u></b></p>	<ul style="list-style-type: none"> <li>• ELISA reader</li> <li>• ELISA washer</li> </ul>	<p><b><u>General microbial culture facility</u></b></p>	<ul style="list-style-type: none"> <li>• Dedicated aseptic wing for microbial cultures</li> <li>• Vacuum concentrator</li> <li>• Orbital shaker incubator</li> <li>• Autoclaving section</li> </ul>

### Equipments to be Inducted in MRU

- High Performance Liquid Chromatography (HPLC)
- Inverted Fluorescent microscope
- Gas chromatography–mass spectrometry (GC-MS)
- Ultrasonicator
- Liquid Handling Station etc.

### Major functions of MRU:

1. To promote and encourage quality medical research in the Medical Colleges/Institutions.
2. To involve maximum departments (clinical as well as non clinical) in quality research either singly or in collaborations.
3. To constitute local research advisory committees for identifying the research priorities and projects.
4. To support finances required for research in non-communicable diseases and other need-based research as recommended by the Local Research Advisory Committee.

**List of projects approved by RAC for financial assistance from MRU grant provided by  
Department of Health Research (DHR), Govt. of India.**

No.	Title of projects	Grant sanctioned
1.	To evaluate correlation between Plasminogen activator inhibitor-1 (PAI-1) and oxidative stress in patients of Metabolic syndrome (MetS) <b>Dr. Gitanjali, Dept. of Biochemistry</b>	
2.	Assessment of organic volatile impurities in hepato-protective formulations in the market <b>Dr. Vikas Gupta, University Center of Excellence in Research, MRU</b>	
3.	Assessment of inflammation in obesity and its effect on insulin resistance, thyroid dysfunction and outcome of obesity <b>Dr. Rupinderjeet Kaur, Dept. of Medicine</b>	
4.	A prospective hospital based stroke registry: characterization of socio-economic status, risk factors, management and outcome using WHO stepwise approach for stroke surveillance <b>Dr. Sulena, Division of Neurology, Dept. of Medicine</b>	
5.	Applications of 16s rDNA sequencing for safety assessment of marketed probiotic formulations <b>Dr. Malika Arora, Scientist-I, MRU</b>	
6.	Patient Health Literacy And Information (PAHELI) <b>Dr. Paramdeep Singh, Dept. of Radiodiagnosis</b>	
7.	Quantification of growth factors in PRP and its implication in osteoarthritis knee <b>Dr. Neeu Kukkar, Dept. of IHBT (Blood bank)</b>	
8.	Prognostic role of Cystatin C and Homocysteine in predicting short term and long term outcomes in Acute Coronary Syndrome patients undergoing Percutaneous Coronary Intervention <b>Dr. Sumit Kumar, Dept. of Medicine</b>	
9.	Assessment of Compliance level of ICH Guidelines for Benzene Content in Marketed Ayurvedic Formulations <b>Dr. Mukesh Maithani, Scientist-II, MRU</b>	
10.	Genetic and pharmacogenetic study in stroke Dr. Anjana Munshi, Department of Human Genetics and Molecular Medicine, Central University of Punjab, Bathinda <b>Co-PI: Dr. Sulena, Division of Neurology, Dept. of Medicine</b>	

## Programmes conducted by MRU

### **Orientation Programme for Faculty**

MRU planned to provide orientation programme for getting maximum benefits from the facilities available at Multidisciplinary Research Unit as well as for designing quality research proposals. The orientation programme was carried out in a phased manner. In the first phase, all the professors in the department were invited followed by associate professors and assistant professors in the consecutive phases respectively. Some of the highlights of the orientation programme are as follows:



**Orientation Programme with Faculty**



**One to one interaction in orientation Programme with Faculty**



**Orientation Programme with Faculty**

### **Capacity building programs run by MRU, GGSMCH, Faridkot**

MRU is conducting short term training program for faculty and students of the region. The training is altogether free of cost for the in house candidates whereas different training modules are available for the outsiders on the payment basis which is as follows:

S. No.	Training Module	Fee Structure in INR
1.	10 Days	3000
2.	30 Days	10000
3.	180 Days	30000

### **Training programme for In house students**

MRU has organized in-house training to all the young minds on priority free of cost so that the researchers of various departments may collaborate, communicate and be accountable. Training program was designed to support the knowledge and skill development of graduates/post-graduate students as well all the students enrolled in the paramedical courses. Students were provided with training (theory and practical) to support the development of knowledge and skills needed to perform **various Molecular and biochemical techniques, cell culture techniques** etc. Total 18 candidates from various departments such as Psychiatry, Pharmacology, Anesthesia, Biochemistry, Microbiology, Anatomy and Physiology, Herbal drug technology etc have joined the training programme. A glimpse of the training programme is as follows:



**Training Programme candidates at MRU**



**Training Programme candidates at MRU**



**Training Programme candidates at MRU**



**Handling Molecular techniques in Training Programme at MRU**



**Handling Molecular techniques in Training Programme at MRU**

# FEEDBACKS AT MRU

**FEEDBACK FORM**

Name: Kanwaljeet Datta Qualification: BSc (A.P.B)  
 Course enrolled: BSc Physiology Department: Physiology.

- Did the course meet your expectations? Why? Why not?  
 Yes, it was above my expectations, because this training is helpful how we choose topics for research.
- What additional learning modules would you like to see included in the course?  
 Additional learning module is that, we selected any topic for research study which is not necessary that we select in our field.
- Do you plan to motivate your co-workers FOR training in this area? Why? Why not?  
 Yes I motivate my co-workers for training in this area because MRU department have lots of better talent that students don't know about this area.
- How do you think the course could have been improved?  
 That is I think some recommendation because now nothing is left in this training.
- "How would you rate the pace of learning on the course?" (Single-choice: Slow, Medium, Fast, Don't know)  
 Fast.
- How engaging was the course instructor?" (Rating out of 5 stars) your nature and behaviour really  
 \*\*\*\*\* mom starts and elaborate it was really outstanding.
- "Did the course delivery meet your expectations?" (Rating out of 5 stars)  
 \*\*\*\*\* Fantastic
- "Was the content clearly presented?" (Yes/no)  
 Yes.
- "Did the course have a clear structure?" (Yes/no)  
 Yes
- "Did you find any aspect of the course unclear or confusing? Please elaborate."  
 Nothing is unclear all things are excellent.

Any recommendations for future: No. want [teacher or mentor since Dr. Manisha maam i never have seen now you are very nice if was my first time that i am being part of your training.]

Signature of the candidate  
Kanwaljeet Datta

**FEEDBACK FORM**

Name: SURANSHI SINGH DINGRA Qualification: MSc, Postgraduate Anaesthesia  
 Course enrolled: Postgraduate MD Anaesthesia Department: Anaesthesia

- Did the course meet your expectations? Why? Why not? Yes, It was a very informative course about the practical aspects of the techniques used in molecular biology.
- What additional learning modules would you like to see included in the course?  
A Module on application of these research methodologies in current clinical practice
- Do you plan to motivate your co-workers FOR training in this area? Why? Why not?  
 Yes.
- How do you think the course could have been improved?  
By giving the candidates more time for individual hands on practice of the techniques.
- "How would you rate the pace of learning on the course?" (Single-choice: Slow, Medium, Fast, Don't know)  
 Medium.
- How engaging was the course instructor?" (Rating out of 5 stars)  
 5
- "Did the course delivery meet your expectations?" (Rating out of 5 stars)  
 5
- "Was the content clearly presented?" (Yes/no)  
 Yes
- "Did the course have a clear structure?" (Yes/no)  
 Yes
- "Did you find any aspect of the course unclear or confusing? Please elaborate."  
 None.

Any recommendations for future: It would be great if the candidates get to discuss their course a few months later and share their stories about the application of these techniques made in their respective fields of life.

Signature of the candidate