



**MGM SCHOOL OF BIOMEDICAL SCIENCES, NAVI MUMBAI**

**(A constituent unit of MGM INSTITUTE OF HEALTH SCIENCES)**

(Deemed University u/s 3 of UGC Act 1956)

Grade "A++" Accredited by NAAC

Sector 1, Kamothe Navi Mumbai-410209, Tel.No.:022-27437631,27432890

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Date: 23.02.2022

## **Event report for Faculty Development Programme for Recent Diagnostic Advances in Molecular Biology Based Assays**

### **Overall Objectives:**

To familiarize staff members with recent trends in molecular biology based diagnostic assays.

To inculcate the value of research driven critical thinking in the field of diagnostics

**Duration:** 2 weeks

**Dates:** 07.02.2022 to 19.02.2022

**Target Audience:** Faculty members from life sciences, biotechnology, and medical fields.

### **Time Line of the workshop**

**Program Overview:** The Faculty Development Program on Recent Diagnostic Advances in Molecular Biology-Based Assays was conducted over a span of two weeks for total of 07 Participants, aimed at equipping participants with comprehensive knowledge and practical skills related to Polymerase Chain Reaction (PCR), Enzyme-Linked Immunosorbent Assay (ELISA), GeneXpert, and Flow Cytometry applications for HIV and TB diagnosis. The program provided a platform for educators to enhance their expertise, enabling them to effectively educate students about the latest advancements in molecular diagnostics.

### **Core Objectives:**

1. To provide an in-depth understanding of molecular biology-based diagnostic techniques.

2. To familiarize participants with the principles, applications, and interpretations of PCR, ELISA, GeneXpert, and Flow Cytometer.
3. To enable participants to design effective teaching modules for students in line with recent advancements.
4. To encourage networking and collaboration among educators in related fields.

**Topics Covered:**

**Week 1: Day 1-2: Introduction to Molecular Diagnostics**

- Overview of molecular diagnostic techniques.
- Importance of accurate and rapid diagnostics in HIV and TB management.
- Basics of nucleic acids and their relevance in diagnostics.

**Day 3-4: Polymerase Chain Reaction (PCR)**

- Principles of PCR amplification.
- Types of PCR: conventional, real-time, and reverse transcription PCR.
- Applications in HIV and TB diagnosis.
- Hands-on lab session: DNA extraction and PCR setup.

**Day 5-6: Enzyme-Linked Immunosorbent Assay (ELISA)**

- Understanding the ELISA principle.
- Types of ELISA: direct, indirect, sandwich, and competitive.
- Detection methods and applications in HIV and TB serology.
- Practical demonstration: ELISA plate coating and detection.

**Week 2: Day 7-8: GeneXpert Technology**

- Introduction to GeneXpert system.
- Cartridge-based molecular diagnostics.



- Role in rapid and simultaneous detection of HIV and TB.
- Interpreting GeneXpert results.

*Day 9-10: Flow Cytometry in HIV and TB Diagnosis*

- Fundamentals of flow cytometry.
- Immunophenotyping and its significance.
- Detecting HIV/TB-specific biomarkers using flow cytometry.
- Data analysis and result interpretation.

*Day 11-12: Case Studies and Best Practices*

- Review of real-world case studies involving the covered assays.
- Integrating molecular diagnostics into clinical practice.
- Addressing challenges and troubleshooting.

*Day 13-14: Curriculum Design and Teaching Strategies*

- Designing effective teaching modules for students.
- Incorporating hands-on practical sessions.
- Assessment methods for evaluating students' understanding.
- Sharing participants' designed modules and feedback.

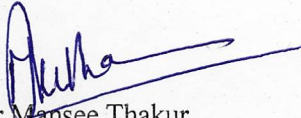
**Outcomes:** Participants demonstrated enhanced understanding and proficiency in PCR, ELISA, GeneXpert, and Flow Cytometry techniques for HIV and TB diagnosis. They developed teaching modules that integrate the latest advancements, ensuring effective knowledge transfer to students. The program also fostered collaboration among educators, facilitating the exchange of ideas and experiences.

**Conclusion:** The two-week Faculty Development Program on Recent Diagnostic Advances in Molecular Biology-Based Assays successfully equipped participants with the skills and knowledge necessary to impart up-to-date education in the field of molecular diagnostics for HIV and TB. The covered topics, hands-on sessions, and collaborative environment ensured the program's

overall effectiveness. Participants left with a strengthened ability to educate future professionals in the rapidly evolving landscape of diagnostic molecular biology.

Post completion of the course feedback from the participants were taken for assessment of the mode of conduction of the course.

Report Prepared by:



Dr. Mansee Thakur,  
FDP Coordinator,  
HOD - Medical Biotechnology,



**Director**  
MGM School of Biomedical Sciences  
MGM Institute of Health Sciences  
Kamothe, Navi Mumbai- 410 209, India





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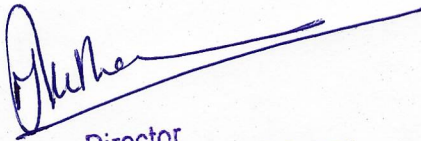
**Date: 23.02.2022**

### **List of Attendees**

<b>Sr.No</b>	<b>Name</b>	<b>Designation</b>	<b>Department</b>
1	Dr.Priyanka Parikh	Assistant Professor	Clinical Nutrition, MGM SBS
2	Dr.Himanshu Gupta	Assistant Professor	Medical Biotechnology, MGM SBS
3	Mr. Yogesh Patil	Tutor	Medical Biotechnology, MGM SBS
4	Mr.Subodh Rahate	Tutor	MGM SBS
5	Ms.Rafiya Sangameshwari	Tutor	MGM SBS
6	Dr.Neelam Yerram	Tutor	MGM SBS
7	Ms.Anamika Chalwadi	Tutor	MGM SBS

**Signature of Faculty development programe Coordinator:**

**Signature of Head of the Department:**

  
Director  
MGM School of Biomedical Science  
Kamothe, Navi Mumbai





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## 2 WEEK FACULTY DEVELOPMENT PROGRAM ON RECENT DIAGNOSTICS ADVANCES IN MOLECULAR BIOLOGY BASED ASSAY'S

### CERTIFICATE OF COMPLETION

This is to certify that Mrs. Anamika chaluwadi  
Tutor from MGM School of Biomedical  
Sciences, Navi Mumbai

has actively completed 2 Week Faculty Development Program on "Recent Diagnostic Advances in Molecular Biology Based Assay's" held from 7th to 19th February 2022 organized by Department of Medical Biotechnology, MGM School of Biomedical Sciences, MGMIHS, Kamothe, Navi Mumbai.

Dr. Mansee Thakur,  
HOD Medical Biotechnology,  
Office incharge- CRL,  
Director  
MGM School of Biomedical Sciences,  
Kamothe, Navi Mumbai



Dr. Sameer Pachpute,  
Associate Professor,  
Department of Medical Microbiology,  
MGM Medical College,  
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This is to certify that Dr. Neelam Yeram  
Tutor from MGM School of Biomedical  
Science, Navi Mumbai

has actively completed 2 Week Faculty Development Program on "Recent Diagnostic Advances in Molecular Biology Based Assay's" held from 7th to 19th February 2022 organized by Department of Medical Biotechnology, MGM School of Biomedical Sciences, MGMIHS, Kamothe, Navi Mumbai.

Dr. Mansee Thakur,  
HOD Medical Biotechnology,  
Office incharge- CRL,  
Director  
MGM School of Biomedical Sciences,  
Kamothe, Navi Mumbai



Dr. Sameer Pachpute,  
Associate Professor,  
Department of Medical Microbiology,  
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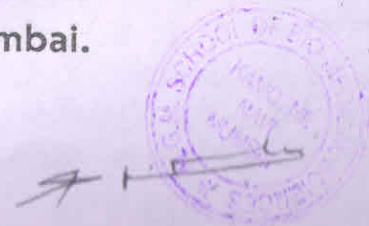
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### CERTIFICATE OF COMPLETION

This is to certify that Dr. Yogesh Patil  
Tutor from Dept: of Medical Biotechnology,  
MGM School of Biomedical Sciences, Navi Mumbai

has actively completed 2 Week Faculty Development Program on "Recent Diagnostic Advances in Molecular Biology Based Assay's" held from 7th to 19th February 2022 organized by Department of Medical Biotechnology, MGM School of Biomedical Sciences, MGMIHS, Kamothe, Navi Mumbai.

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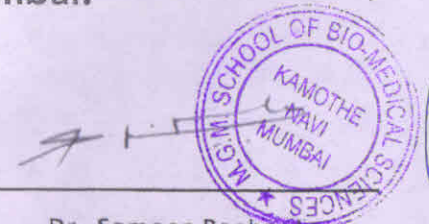
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This is to certify that Mr. Subodh Rahate  
Tutor from MGM School of Biomedical  
Science, Navi Mumbai

has actively completed 2 Week Faculty Development Program on "Recent Diagnostic Advances in Molecular Biology Based Assay's" held from 7th to 19th February 2022 organized by Department of Medical Biotechnology, MGM School of Biomedical Sciences, MGMIHS, Kamothe, Navi Mumbai.

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This is to certify that Dr. Himanshu Gupta  
Asst. Professor from Dept. of Medical Biotechnology,  
MGM School of Biomedical Sciences, Navi Mumbai

has actively completed 2 Week Faculty Development Program on "Recent Diagnostic Advances in Molecular Biology Based Assay's" held from 7th to 19th February 2022 organized by Department of Medical Biotechnology, MGM School of Biomedical Sciences, MGMIHS, Kamothe, Navi Mumbai.

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### CERTIFICATE OF COMPLETION

This is to certify that Dr. Priyanka Pareek  
Assistant Professor from Dept. of Clinical Nutrition,  
MGM School of Biomedical Sciences, Navi Mumbai

has actively completed 2 Week Faculty Development Program on "Recent Diagnostic Advances in Molecular Biology Based Assay's" held from 7th to 19th February 2022 organized by Department of Medical Biotechnology, MGM School of Biomedical Sciences, MGMIHS, Kamothe, Navi Mumbai.

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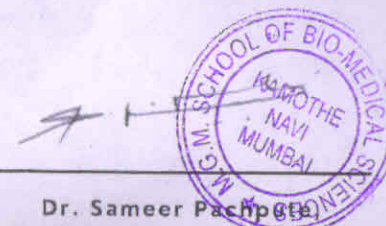
## 2 WEEK FACULTY DEVELOPMENT PROGRAM ON RECENT DIAGNOSTICS ADVANCES IN MOLECULAR BIOLOGY BASED ASSAY'S

### CERTIFICATE OF COMPLETION

This is to certify that Rafiya Sangameshwari  
Lecturer from Dept. of clinical Embryology,  
MGM School of Biomedical Sciences, Navi Mumbai

has actively completed 2 Week Faculty Development Program on "Recent Diagnostic Advances in Molecular Biology Based Assay's" held from 7th to 19th February 2022 organized by Department of Medical Biotechnology, MGM School of Biomedical Sciences, MGMIHS, Kamothe, Navi Mumbai.

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