

## How to Apply

This training programme is exclusively designed for UG, PG, PhD scholars, Post-Doctoral researchers, Young Professionals, SRFs, and JRFs who are keen to enhance their practical skills in molecular biology and genome editing.

All interested participants are requested to register using the following link: <https://forms.gle/MxMD7MS7DY8enpP67>.

The registration fee must be paid to the bank account details provided in the registration form. Participants are required to upload the payment receipt in the form itself. The last date for registration is 10<sup>th</sup> September, 2025.

Please note that limited seats are available and will be allotted on a first-come, first-serve basis.

## How to Reach CIRCOT

From Airport (Domestic) : 10 KM

From Airport (International) : 12 KM

Nearest Railway Station: :Dadar (1.7 KM)

Nearest Bus Stop: Kapol Nivas on Dr. B. R. Ambedkar Road, Matunga (E)

Landmark : Five Garden

## Organizers

Programme Director :Dr. S. K. Shukla (Director, ICAR-CIRCOT)

Course Director :Dr. N. Vigneshwaran (Head, CBPD)

Programme Coordinator :Dr. Manoj Kumar (Scientist CBPD)

Programme Co-Coordinator :Dr. Ajinath Dukare (Sr. Scientist, CBPD)

Dr. Kanika Sharma (Scientist, CBPD)

Dr. C. P. D'Souza (ACTO, CBPD)

Resource person :Dr. Sumit Totade (RA, CBPD)

(Genome editing project staff) Ms. Kartiki Kadam (SRF, CBPD)

## Address for correspondence

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Matunga-400019

E-mail: [puniyamanojdr@gmail.com](mailto:puniyamanojdr@gmail.com)

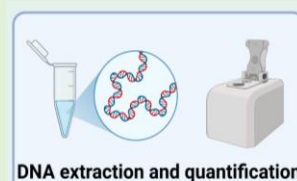
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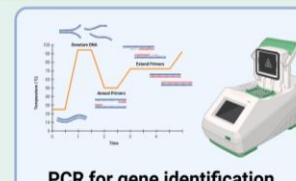
## Hands on Training Programme on



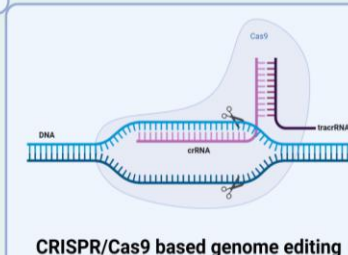
## “Basic Molecular Biology and Genome Editing techniques”



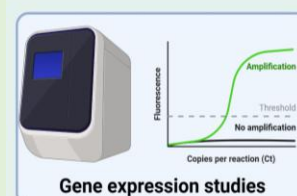
DNA extraction and quantification



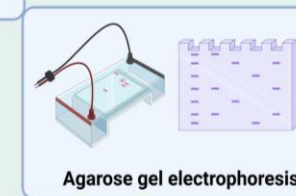
PCR for gene identification



CRISPR/Cas9 based genome editing



Gene expression studies



Agarose gel electrophoresis

September 16-19, 2025

## Organized by

Genome Editing and Biotransformation Centenary Laboratory  
ICAR-Central Institute for Research on Cotton Technology (ICAR-CIRCOT)  
D. A. R. E., Ministry of Agriculture & Farmers Welfare, Govt. of India  
Adenwala Road, Matunga (E), Mumbai-400019.

## Introduction

The ICAR-CIRCOT, located at Matunga in Mumbai, was established in the year 1924. ICAR-CIRCOT, a unit under the Division of Agricultural Engineering of the Indian Council of Agricultural Research (Department of Agricultural Research and Education, Ministry of Agriculture and Farmers Welfare, Government of India) is engaged in the research and development of new technologies for better utilization of cotton and its byproducts with following mandate.

- Basic and strategic research on processing cotton and its agro-residues, development of value-added products and quality assessment .
- Skill development and business incubation services and function as referral laboratory for cotton fibers.

Recently, Genome Editing and Biotransformation Centenary laboratory was established and inaugurated by Honorable Director General, ICAR on 03 Dec, 2024. This facility is dedicated to advancing research in genome editing, synthetic biology, and biotransformation technologies.

## About the Training Programme

This training programme is specifically designed to UG and PG students with practical exposure and theoretical understanding of essential tools and methods used in modern molecular biology laboratories. Genomic DNA and RNA isolation will teach participants how to extract high-quality nucleic acids for downstream application. DNA and RNA quantification ensures sample purity and quantity using spectrophotometric methods. Plasmid extraction focuses on isolating circular DNA from bacteria for cloning and transformation. PCR and primer designing help to amplify specific DNA sequences in an organism using specific primers. Agarose gel electrophoresis is used to visualize nucleic acids and confirm experimental success. cDNA synthesis and real-time PCR allows accurate gene expression analysis in real time. The CRISPR/Cas9 module introduces genome editing by designing guide RNAs and understanding the Cas9 system. Each experiment emphasizes practical skills, troubleshooting, and applications in research. This programme builds a strong foundation in modern molecular biology workflows.

## Objectives

To enable participants to confidently perform, design, troubleshoot, and interpret standard molecular biology experiments.

To introduce the principles, workflow, and basic laboratory approaches of CRISPR/Cas9-based genome editing.

To provide conceptual understanding of core molecular biology techniques such as nucleic acid extraction, PCR, electrophoresis, and gene expression studies.

## Course Content

- ❖ Genomic DNA isolation and quantification
- ❖ RNA isolation and quantification
- ❖ Plasmid extraction
- ❖ PCR and Primer designing
- ❖ Agarose gel electrophoresis
- ❖ cDNA synthesis and Real time PCR
- ❖ CRISPR/Cas9 genome editing

## Facilities Available

- ❖ Thermal cycler
- ❖ Real Time PCR
- ❖ Gel electrophoresis unit
- ❖ Nanodrop
- ❖ Gel Documentation system
- ❖ Automatic DNA extraction system
- ❖ Microbiology and Biochemistry Laboratory

## Date and Venue

September, 16-19, 2025 at Genome Editing and Biotransformation Centenary Laboratory, ICAR-Central Institute for Research on Cotton technology (ICAR-CIRCOT), Adenwala Road, Matunga (E), Mumbai-400019 (Maharashtra)

## Accommodation

Guest House accommodation at ICAR-CIRCOT, is available and shall be provided at standard rate on first come first serve basis on sharing basis.

## Registration Fees

The programme fee is **Rs. 4000 + 18% GST per person**. This includes the course fee, training materials, breakfast and working lunch. Please note that the fee does not cover travel, lodging, conveyance, or any other personal expenses.

Participants are required to make the payment using the bank details provided below. The payment receipt must be uploaded in the registration form available at the following link: <https://forms.gle/MxMD7MS7DY8enpP67>

### Bank details:

Beneficiary name: Director, CIRCOT

Name of the Bank: State Bank of India

Account Number: 10001710244

IFSC Code: SBIN0004114

UPI ID: circot@sbi

