

## **CERTIFICATE PROGRAM IN MOLECULAR BIOTECHNOLOGY**

The overall goal of the **CERTIFICATE PROGRAM IN MOLECULAR BIOTECHNOLOGY** training program in molecular biotechnology can lead to a multitude of careers in botany, genetics, medicine and biotechnology. While entry-level positions can be achieved with a bachelor's degree, greater levels of education afford more opportunities - specifically with regards to research and teaching opportunities.

### **SCOPE OF THE TRAINING -**

- **Research**
- **Molecular Diagnostics**
- **Industry - Food & Beverage , Pharmaceuticals , Herbal , Nutraceuticals etc.**
- **Forensic labs**

### **TRAINING SYLLABUS**

#### **UNIT – 1 Lab Safety Procedures**

**Basics of Genetic Engineering , Lab safety and Procedures , Record Maintenance, Handling of Equipments , Sterilization Techniques , Preparation of Chemical & Reagents**

**Discussion of ethical, legal, and social issues involved in molecular biotechnology.**

#### **UNIT – 2 Extraction , Quantification and Purification of DNA , RNA , mRNA, cDNA**

**Extraction of Nucleic Acid - Both DNA & RNA ( Protocol optimized by Chemgeneics Research Foundation )**

**Quantitative & Qualitative Analysis of Nucleic Acid - DNA & RNA Electrophoresis , Gel Docking or imaging .**

**Quantitative analysis by spectrometer – For DNA – Measure Absorbance at 260 & 280 nm**

**For RNA – Quantitative Analysis by Orisinol Method**

**mRNA Purification & cDNA Preparation**

#### **UNIT 3 - Bioinformatics Tools & Techniques**

**Primer Designing, Vectors , Selection of Restriction Sites, Virtual PCR, Bioinformatics tools & Techniques .**

#### **UNIT 4 - Re- Combinant DNA Technology:**

Isolation of pUC18 plasmid from TOP10-pUC18 E coli cells , Restriction digestion of pUC 18 and  $\lambda$  DNA , Purifying pUC18/Hind III/ EcoR I digest by gel elution , Ligating the linearized plasmid -pUC18 and the insert  $\lambda$ -DNA. , Preparation of competent cells , Transformation of TOP10 cells with the pUC18- $\lambda$ DNA ligated product

**Colony PCR :** To amplify the inserted  $\lambda$ DNA digest in pUC18 vector

#### **UNIT 5 – CDNA Library Construction:**

**Extraction of RNA , Purification of mRNA through Oligo-dT Column Chromatography, cDNA Construction , Incorporation of cDNA into a vector , Cloning of cDNAs**

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#### **Facilities Required For All Units :**

Refrigerated Centrifuge , High Speed Refrigerated Centrifuge , DNA Speedvac Concentrator , Spectrophotometer ,Vortex Mixer , Dry Bath , Water Bath , Electrophoresis , Power Supply , Bio- safety Cabinet for RNA handling , Gel Documentation System . Thermocycler , Gradient Thermocycler , PCR Cabinet , PCR pipettes , Ice Flakes , Electrophoresis , Gel Documentation , Vectors and Restriction Endo - nucleases etc.

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**Research Elective For Project Work :** Participants may choose one area of interest for project work.

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### **INFORMATION TO APPLY FOR THE PROGRAM**

#### **WHO MAY JOIN ?**

Students From Biotechnology , Microbiology , Biochemistry , Life Science , Chemistry , Pharmacy , Forensic Science , Food Science etc.

**SELECTION CRITERIA :** First come first serve

**FEE FOR TRAINING PROGRAM : USD 800**

**DURATION - 10 to 15 Days ( Timing 8.00 AM to 8 P. M )**

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## **APPROVAL OF THE TRAINING PROGRAM :**

**This training program is designed and approved by the organization Scientific Advisory Committee.**

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## **HOW TO APPLY –**

### **Details of Documents :**

1. Any identity proof along with University / College Identity Card
2. Valid Passport
3. Recommendation letter from Head of the Institution
4. Filled Registration form of Allele Life Sciences (P) Ltd with photograph
5. Registration fee will be USD 50
6. Registration fee will be paid through On Line Transfer :

### **For Details for on line Payment :**

Kindly write us for bank Details For On Line Transfer at : [allelelifesciences@gmail.com](mailto:allelelifesciences@gmail.com)

**For on Line Registration Send scan copy of all documents at : [allelelifesciences@gmail.com](mailto:allelelifesciences@gmail.com)**

**Note : Kindly send the receipt of the registration fee along with scan documents.**

**TNote :** We will send confirmation at your email address withi 7 days.

**For Any other query mail at : [allelelifesciences@gmail.com](mailto:allelelifesciences@gmail.com) or Call at - +91-9818185162**

**Registration Form is Given at nest page**

Photograph

## Registration Form

**Name of Training Program :**

**Expected Date of Joining :**

**Candidate Details :**

Name: Mr./Ms. \_\_\_\_\_

Father's Name: \_\_\_\_\_

Address : \_\_\_\_\_

Contact No. : \_\_\_\_\_ Mobile No.: \_\_\_\_\_

Email: \_\_\_\_\_

Institution -

Qualification -

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**Terms & Conditions :**

1. The admission to training / internship programs will be confirmed after the payment of registration fee along with documents.
2. The registration fee deposited is completely non refundable.
3. The industrial training fee includes the cost of chemical , reagents and study material costs.
4. I will deposit the service charges as decided by the company at the time of joining date of training program.
5. Students have to bear their own boarding/lodging /conveyance charges. We facilitate students in finding proper paying guest arrangements.
6. The trainees will have to bring their own lab coat and wear them all the time in the campus.
7. Trainees are selected on first come first serve basis
8. Trainees will maintain adequate discipline inside the lab premises.

### DECLARATION

I \_\_\_\_\_ from \_\_\_\_\_

hereby declare that all statement/information given in the application form are true to the best of my knowledge and belief . I will strictly abide by the norms/lab etiquette during the training

Signature

Place: \_\_\_\_\_

Date: \_\_\_\_\_

**For office use only**