

# Internship in Genetic Engineering / Gene Cloning

**Bridging Gap Between Industry & Academia**



The overall goal of the **Internship in Gene Cloning & Expression** training program is to provide the trainee with the skills they will need to provide appropriate cloning & expression technique for Cutting a piece of DNA from one organism and inserting it into a vector where it can be replicated by a host organism.

**The trainee** will also be prepared to describe indications for procedures used in cloning and sub-cloning techniques.

## OBJECTIVES :

- To develop the skill with latest technologies used in Genomics Research
- Lab facility with dedicated scientific advisory and research assistants
- Documentation of all experimental work
- Data Handling and interpretation

1

### GENE CLONING

Hands on learning experience on rDNA Technology

2

### GENE EXPRESSION

Process Development of Gene of Interest Cloning & Expression

3

### cDNA LIBRARY

Important genomics tool for research and product development

## CLONING

### Plasmid Preparation



### rDNA Technology



### Colony PCR Analysis



### cDNA Library

### Bioinformatics

### Data Analysis

### Biotech Product

## **UNITS TO BE COVERED : - All Units are compulsory For Training in Genomics & Molecular Biology**

### **Unit – 1 : Basics of Genetic Engineering**

Basics of Genetic Engineering , Lab safety and Procedures , Record Maintenance, Handling of Equipments , Sterilisation Techniques , Preparation of Chemical & Reagents , **Discussion of ethical, legal, and social issues involved in genetic engineering**

### **Unit II Nucleic Acid Extraction, Quantitation of Nucleic Acid Integrity**

Extraction of both DNA & RNA , Qualitative analysis by electrophoresis, gel Docking and image analysis. Quantitative / DIN or RIN Analysis by Spectrophotometer/ Nano Drop/ Bio-Analyser.

### **Unit III - Bioinformatics**

Primer Designing, Vectors , Selection of Restriction Sites, Virtual PCR, Bioinformatics tools & Techniques, Gel Analysis Software, Real Time PCR Primer Design, Q-PCR Data Handling, Sequence Data Analysis .

### **Unit II - Construction of Plasmids as Vector**

Extraction of both DNA & RNA , Qualitative analysis by electrophoresis, gel Docking and image

### **Unit IV - r-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 linearised 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 V - cDNA Library**

PCR and its Optimisation, Thermostable DNA Polymerases; Amplification of Genomic DNA and cDNA; use for RNA Amplification and mRNA Quantitation; Probes and Primers; Introduction of Real Time PCR , Real-time PCR reaction setup , Analysis of SYBR Green real-time PCR results: , Troubleshooting of real-time PCR reactions, Basics of Microarray.

### **Unit VI - Genetic Engineered Clone Confirmatory Assay**

#### **PROJECT WORK :**

We will provide a project work of your interested area, our assigned projects will be on product development, basic research and novel idea . **We do respect and welcome all feasible ideas** suggested by you for technology development in life science research.

#### **TECHNIQUES COVERED IN THIS PROGRAM :**

Nucleic Acid Extraction ,Optimisation, Electrophoresis, Imaging and Data Analysis, DIN/RIN Quantitative Analysis , Advance Bioinformatics tools and softwares, PCR & Real Time PCR Assay Development and Data Analysis, rDNA Technology, cDNA Construction, rDNA Technology, Plasmid Preparation

#### **BENEFITS OF THE TRAINING PROGRAM :**

1. Research & Development in Bio-Pharmaceutical, Human Genetics, Plant Biotechnology etc.
2. Important tool for Biotechnology Product Development
3. Doctoral Research
4. Bridging Gap in Academic Program
5. Boost your confidence

## INFORMATION TO APPLY FOR THE PROGRAM

### WHO MAY JOIN :-

Any enthusiast and dedicated learner from life science, biotechnology, chemistry or applied sciences

### SELECTION CRITERIA:-

First come first serve basis



### TRAINING FEE :

Rs 10,000 / - For 30 Days Training & Rs 12,000 /-For 45 Days ( Training + Project Work )

### HOW TO APPLY –

#### Details of Documents :

1. Any identity proof along with University / College Identity Card
2. Filled **Registration form** with photograph ( Given in Brochure )
2. Registration fee will be Rs 1000 / - paid through cheque or on line payment

#### How to pay Registration Fee :

1. Cheque will be in favour of **Allele Life Sciences Private Limited**
2. **For on line payment detail send request at : [allelelifesciences@gmail.com](mailto:allelelifesciences@gmail.com)**

#### How to send document :

**Those who pay through cheque send all documents at following address :**

#### **Allele Life Sciences Pvt. Ltd.**

C - 59 , Sector - 10 , Noida  
Uttar Pradesh - 201301 , IN  
Ph.No : + 91-9891179928

**Those who opt on Line registration send scan copy of all documents and receipt of online payment at : [allelelifesciences@gmail.com](mailto:allelelifesciences@gmail.com)**

**Note :** We will send confirmation within specified time. If not received send a reminder mail.

**For Any other query mail at : [allelelifesciences@gmail.com](mailto:allelelifesciences@gmail.com) or WhatsApp - 9891179928**

**Registration Form is Given at next page**



## Registration Form

**Name of Training Program :**

**Expected Date of Joining :**

**Candidate Details :**

**Name:** .....

**Father's Name:** .....

**Address :** .....

**Contact No :** .....

**Email:** .....

**Institution :** .....

**Qualification :** .....

### 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**