

Training in Functional Genomics – Real Time PCR & Microarray

The overall goal of the **Internship in Functional Genomics** experiments integrate information from various molecular methodologies to gain an understanding of how DNA sequence is translated into complex information in a cell (DNA → RNA → Proteins → biological process)

Recent advancements in DNA sequencing have made enormous contributions to understanding the biology of life forms. Reduced cost and increased speed of DNA sequencing have led to rapid growth of genomics.

Studies performed using microarrays and high through output technologies produce massive amounts of data. These data can help us to gain insights into underlying biological processes only if they are carefully recorded and stored in databases

SCOPE OF THE TRAINING -

Drug Discovery : The role of functional genomics in modern drug discovery is to prioritize these targets and to translate that knowledge into rational and reliable drug discovery.

Cancer Research : Integration of functional and genomics screening reveals clinically actionable genetic traits of cancer.

Industrial Applications - Mass production of proteins can be produced by growing the transformed organism in bioreactors .

TRAINING SYLLABUS

UNIT – 1

Basics of Functional Genomics , Applications, SNP Genotyping, Genetic Expression, Exon Analysis, miRNA Expression Profiling, Transcriptome Analysis

Discussion of ethical, legal, and social issues involved in genetic engineering

UNIT – 2

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 Orisinal Method

cDNA Construction

Purification of mRNA from total RNA , first strand cDNA synthesis or construction of cDNA

Facilities Required For Unit – 2 :

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 . OligodT Purification Column for mRNA etc.

UNIT 3 - PCR application in Gene Expression Profiling :

PCR and its Optimization, Thermostable DNA Polymerases; Amplification of Genomic DNA and cDNA; use for RNA Amplification and mRNA Quantitation; Probes and Primers; Synthesis and Labeling; Research Applications, DNA Polymorphisms, Screening of Libraries .

Facilities Required - Thermo-Cycler , Gradient Thermo Cycler , PCR Cabinet , PCR pipettes etc.

UNIT 4 - Real Time PCR & Applications :

Introduction of Real Time PCR , Real-time PCR reaction setup , Analysis of SYBR Green real-time PCR results: , Troubleshooting of real-time PCR reactions .

Facilities Required for Unit – 4 : Real Time PCR , PCR Cabinet , PCR pipettes , Ice Flakes , Electrophoresis , Gel Documentation etc.

UNIT 5 – Introduction of Microarray Plateform

Function and application of Microarray Scanner, Fluidics Station, Hybridization and Control of Instrument through software. Application and selection of gene array .

Facilities Required for Unit – 5 : Gene Array Scanner , Fluidics Station (for Wash of Array) , Hybridization Oven (for Hybridization of Probes) , Gene Array or Chip , Control Software .

UNIT 6 – cDNA Synthesis Hybridization and Labeling

Isolation of total RNA; purification and quantitation of mRNA; fluorescent labeling of cDNA; Hybridization of cDNA to DNA arrays.

Note : Although we will provide exposure to the Affymatrix Platform yet the running cost of microarray is expensive for training purpose. For this purpose we will only provide demonstration with used array on the same platform.

UNIT 6 – Basics of Handling the Micoarray and Sequencing Data.

Facilities Required for Unit – 6: As given in unit – 5 for performing experiment & Data analysis software.

Research Elective For Project Work : Participants may choose one area of interest -

- **Gene Expression Analysis with PCR or Real Time PCR**
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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 : Rs 12,000 / - (For 30 Days Training)
Rs 14,000 /- (For 45 Days Training + Project Work)

APPROVAL OF THE TRAINING PROGRAM :

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

HOW TO APPLY –

Details of Documents :

1. Any identity proof along with University / College Identity Card
2. Filled Registration form of **Allele Life Sciences Pvt. Ltd.** with photograph
2. Registration fee will be Rs 1000 / -
3. Registration fee may be paid through cheque / Demand Draft or On Line Transfer :

Cheque or Demand Draft will be in favor of “ **Allele Life Sciences Pvt. Ltd.** “ payable at Noida or Service Branch

Details for on line Payment :

Kindly write us for bank or UPI Details at : allelelifesciences@gmail.com

For on Line Registration Send scan copy of all documents at : allelelifesciences@gmail.com

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

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

Allele Life Sciences Pvt. Ltd.

C - 59 , Sector - 10 , Noida

Uttar Pradesh - 201301 , IN

Ph.No : + 91-9891179928

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

For Any other query mail at : allelelifesciences@gmail.com or Call at – 09891179928

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 -

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