

## HANDS ON SKILL DEVELOPMENT TRAINING WORKSHOP

The overall goal of the training program in 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.



### Important Note:

- The Workshop will be of 2 Days ( Full Days )
- The Workshop will be commenced on Every Saturday & Sunday ( August to April )
- We do not conduct any workshop in May, June & July
- Registration is required before 30 Days
- After registration we will assign a date of any workshop of your choice
- Kindly make full payment for the workshop
- Our prime motive is "Bridging Gap Between Industry & Academia"
- Rs 500 / - Discount For a Student Group of Any Institution ( Minimum 10 is required )

NAME OF TRAINING PROGRAM	DURATION	WORKSHOP FEE
Training Workshop on Bio- Separation By HPLC	2 Days	Rs 3,500 / -
Training Workshop on Gas Chromatography	2 Days	Rs 3,500 / -
Training Workshop on PCR	2 Days	Rs 1,500 / -
Training Workshop on Real Time PCR	2 Days	Rs 4,000 / -
Training Workshop on Protein Purification by FPLC	2 Days	Rs 3,500 / -
Training Workshop on 2 - D Electrophoresis	2 Days	Rs 3,500 / -

### WHO MAY JOIN ?

**Indian** Aspirants From Biotechnology , Microbiology , Biochemistry , Life Science , Chemistry , Pharmacy ,Forensic Science , Food Science etc.

## TRAINING WORKSHOP ON BIO-SEPARATION BY HPLC

### Introduction to HPLC

Topics include: Introduction to chromatography and chromatographic process-four modes of chromatography - reversed-phase, normal phase, ion exchange and size exclusion, Instrument operation- each part of an HPLC instrument in detail – including the solvent delivery system, sample injection, connecting tubing and fittings, commonly used detectors

### Method Development Topics include:

Sample solvents, Column selection, Partition coefficient, Mobile phase selection, Gradients, Effect of flow rate, Temperature effects and Sample preparation.

### System Suitability Topics include:

Resolution, Efficiency, Asymmetry, Capacity factor, Selectivity, Signal to noise ratio, Precision and accuracy, System suitability limits and manual calculation of parameters, setting up software to perform system suitability calculations

**Care of the HPLC System and Columns Topics include:** Storing of the HPLC system, Column storage, Changing between mobile phases, Developing a clean-up and shut down method.

**Troubleshooting Topics include:** Order of troubleshooting, Examples of common problems and causes, Practical examples.

**Routine Maintenance Topics include:** Theory AND PRACTICAL maintenance of Pumps, Filters, Injector, and Detector. Module Seven - Hardware / System Validation. Topics include: Hardware validation for pumps, degaussers, auto samplers, column ovens and detectors, and overall system check.

**Method Validation.** Topics include: Accuracy, Precision, Intermediate Precision, Specificity, Detection limit, Quantitation Limit, Linearity, Robustness, Acceptance criteria, Samples with more than one active

## TRAINING WORKSHOP ON GAS CHROMATOGRAPHY

**Introduction to Gas Chromatography Topics include:** The theory of GC, The GC System, Column types and packings, Mobile phases, the chromatogram, Familiarisation with the instrument, Basic Operation

**Method Development Topics include:** Sample solvents, Column selection, Partition coefficient, Mobile phase selection, Gradients, Effect of flow rate, Temperature effects and Sample preparation

**System Suitability Topics include:** Resolution, Efficiency, Asymmetry, Capacity factor, Selectivity, Signal to noise ratio, Precision and accuracy, System suitability limits and manual calculation of parameters, setting up software to perform system suitability calculations.

**Care of GC System & Columns Topics include:** Storing of the GC system, Column storage, Changing between mobile phases, Developing a clean-up and shut down method.

**Troubleshooting Topics include:** Order of troubleshooting, Examples of common problems and causes, Practical examples.

**Routine Maintenance Topics include:** Routine Maintenance Topics include: Theory & PRACTICAL maintenance of Pumps, Filters, Injector, and Detector.

**Hardware / System Validation. Topics include:** Hardware validation for injectors , Oven Temperature , auto samplers, Gas Ports and detectors, and overall system check.

**Method Validation Topics include:** Accuracy, Precision, Intermediate Precision, Specificity, Detection limit, Quantitation Limit, Linearity, Robustness, Acceptance criteria, Samples with more than one active.

## TRAINING WORKSHOP ON PCR

**Introduction to PCR Topics include:** The theory of PCR , Applications of PCR , Types of PCR Reactions , Requirement of optimisation etc.

**Nucleic Acid Extraction , Quality Control Topics include:** Extraction of Nucleic Acid , Gel Electrophoresis , Quantitative and Qualitative Analysis of Samples , Troubleshooting of Nucleic Acid Extraction

**Primer Designing & Selection Topics include:** Primer designing for cloning & Expression , Primer Selection for Molecular Marker Analysis

**PCR Optimisation Topics include:** GC contents in Primers , Role of annealing temperature , Role of Contamination , Role of PCR Cycles etc.

**Troubleshooting Topics include:** Order of troubleshooting, Examples of common problems and causes, Practical examples.

**PCR Run for Reactions Topics include:** Run of PCR reactions for biological samples Module Seven – Analysis of PCR Results Topics include: Analysis of results

## TRAINING WORKSHOP ON REAL TIME PCR

**Introduction to Real-time PCR & Applications:** Fluorescence Principles, Absorption and emission of fluorophores; Fluorescence resonance energy transfer (FRET), DNA intercalating dyes, and Probe based detection strategies.

**Real-time PCR reaction setup:** Construction of a standard curve: Biostatistics principles; Linear regression , Standard melt curve analysis ,High resolution melt curve analysis Practical Session II: Hands-on real-time PCR experience,Delegates set up their own SYBR Green real-time PCR reactions, Real-time PCR optimisation

**Analysis of SYBR Green real-time PCR results:** Melt curve analysis , Compare results from practical sessions I and II , Identify factors affecting success of real-time PCR reactions: Primerdimers; GLP aspects . Amplification efficiency : Impact of efficiency of a PCR assay on the quantification results ,Role of amplification efficiency in validation of assays , Primer and probe design, and synthesis

**Troubleshooting of real-time PCR reactions:** Data analysis of real-time PCR reactions: Step-for-step analysis, Absolute quantification, Relative quantification, Allelic discrimination, Plus/Minus assays.

## WORKSHOP ON PROTEIN PURIFICATION

**Introduction to Protein Extraction :-** Acid Base Equilibrium, pH, Buffer System, Charge, pI and pKa Value, Quantitative determination of biomolecule, mini scale bacterial protein extraction, protein extraction from plant source or other biological source

**Introduction to Protein Purification :-** Sample solvents, Column selection, Partition coefficient, Mobile phase selection, Gradients, Effect of flow rate, Temperature effects and Sample preparation., Challenges in Protein Purification

**Protein Purification by FPLC :-** Affinity Chromatography ( IMAC, GST Tagged Purification, Talon resin, Glutathione Sepharose, Heparin Sepharose, Streptavidin Sepharose, anti-Flag, Protein A, Protein G )

OR

Ion Exchange Protein Purification :- Ion Exchange Chromatography ( Mono-Q / Q Sepharose Fast Flow / Resource Q / Q Sepharose XL / DEAE Sepharose / SP Sepharose / CM Sepharose )

**Reverse Phase Protein Purification By HPLC :** Reverse-Phase HPLC Separation of Enzymatic Digests of Proteins

## **WORKSHOP ON PROTEIN CHARACTERISATION BY 2-D ELECTROPHORESIS**

**Protein Extraction :** Acid Base Equilibrium, pH, Buffer System, Charge, pI and pKa Value, Quantitative determination of biomolecule, mini scale bacterial protein extraction, protein extraction from plant source or other biological source

**Protein Estimation :** Protein Estimation by Lowry Method / BCA Method / Bradford Method

**Iso Electric Focusing of Proteins :** Iso Electric Focusing of Proteins in Ultra-Thin Polyacrylamide Gels

**2-D Protein Electrophoresis :** Preparation of Protein sample for 2-D Electrophoresis, Protein solubility in 2-D Electrophoresis, Disruption of Di-sulphide bridges, Two Dimensional Polyacrylamide Gel Electrophoresis of Proteins using pH Gradient in First Dimension.

**SDS-PAGE:** Basics of SDS-PAGE, Acetic-Acid Urea Polyacrylamide Electrophoresis of basic proteins

## HOW TO APPLY –

### Details of Documents For Registration :


1. Any identity proof along with University / College Identity Card / Aadhar Card etc.
2. Filled **Registration form** with photograph ( Given in Last Page of Brochure )
2. **Payment of Workshop Fee** as given below

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### How to pay Registration Fee Off Line ( Those Who Send Documents by Post ) :

1. Cheque or D.D will be in favour of “ **Allele Life Sciences Private Limited**”

### On Line Payment :

Payment By Internet Banking	Scan UPI Code
<p>Beneficiary Name - Allele Life Sciences Private Limited Account Number - 61071508494 IFSC Code - SBIN0031811 Bank Name - State Bank of India Bank Address - SBI, 14/15, Sector-18, Noida, UP - 201301</p> <p>Or Pay Through UPI / BHIM App UPI Address - allelelifesciences@upi</p>	

### 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  
M : + 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 through e.mail or remind us.

## 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.
9. Company will not be responsible for any medical, legal issues during the internship tenure.

### 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**

## Instruments Capabilities

**Our State of art facility** is located in Industrial Area of Noida (NCR) . The lab / research facility is Total : 6000 Sq Feet

<b>Affymatrix &amp; Agilent Microarray Platform</b>	Gene Expression Studies, Biomarker, Sequencing
<b>Real Time PCR ( ABI )</b>	Gene Expression, Sequence Detection
<b>PCR ( ABI, Biorad , Eurofins ) - 5 in numbers</b>	Amplification of nucleic acids
<b>Bioanalyser &amp; Spectrophotometer</b>	Quantification of Nucleic Acids
<b>Gel Documentation System</b>	Visualisation of Nucleic Acids, PCR Products etc.
<b>Electrophoresis &amp; Power Supply ( Biorad ) - 7 Sets</b>	Separation of Nucleic Acids & Other Arrays
<b>DNA Concentrator ( Thermo Speedvac )</b>	Nucleic Acid Extraction
<b>Centrifuge, High Speed Centrifuge - 8 Nos</b>	Sample Preparation
<b>PCR Station and other accessories</b>	

<b>Biorad Profinia Affinity Chromatography</b>	Affinity Chromatography - IMAC, GST, Antibody
<b>Biorad Biologic Low Pressure Chromatography</b>	Size Exclusion, Ion Exchange, Affinity etc.
<b>Preparative HPLC ( Thermo ) , Agilent 1100</b>	Bulk Protein Purification & Analysis
<b>GE Amersham 2-D Electrophoresis System</b>	Protein Characterisation
<b>Immunoblot, SDS-PAGE , Biorad HV Powerpac</b>	Visualisation of Nucleic Acids, PCR Products etc.
<b>Mass Spectrometry , ELISA, Immunoassay</b>	Protein Identification
<b>Cryo Preservation Facility &amp; Common Facility</b>	Sample Storage & Preparation

<b>Agilent HPLC System - PDA, FLD &amp; ECD Detector</b>	Separation and analysis of molecules
<b>Agilent GC with FID &amp; FPD Detectors</b>	Separation and analysis of molecules
<b>Thermo Prep HPLC with Dual Pump &amp; UV-Vis</b>	Bulk Purification & Analysis
<b>Shimadzu GC with FID &amp; NPD Detector</b>	Separation and analysis of molecules
<b>Triple Quad GC-MS System ( Agilent )</b>	Analysis of Semi Volatile & Volatile Compound
<b>LC-MS-MS ( API Sciex )</b>	Analysis of Non Volatile Compound
<b>Varian Carry Spectrophotometer</b>	Analytical Tool for various purpose
<b>Thermo Helios Spectrophotometer</b>	Analytical Tool for various purpose
<b>Vacuum Rotary Evaporator ( Buchi )</b>	Sample Preparation



## Other Analytical Chemistry Equipments :

Refractometer , Flame Photometer ( Toshniwal), Karl Fisher Titrator (Sistrionics), Potentiometer, Polarimeter , Tintometer ,Viscometer , Kjeldahl Distillation Unit , Kjeldahl Digestion Unit , Ion Selective for Fluoride Analysis ( Thermo Orion ) , Nephelometer , Soxhlet Extraction , Rotatory Vaccum Evaporator with chiller , etc.



**Microbiology & Cell Culture Facility :** Vertical Laminar Air Flow ( 4x2x2 ) , Horizontal Laminar Air Flow ( 2x2x2 ) B.O.D. Incubator ( Julabo ) , CO<sub>2</sub> Incubator ( Jauan ) , Orbital Incubator Shaker, UV Chamber , Incubator, Colony Counter , Colorimeter , Muffle Furnace , Hot Air Oven , Desiccators, Binocular Microscopes and , Lypholizer

**Biochemistry / Organic Synthesis Chemistry Lab :** Spectrophotometer ( Thermo Heleus Alpha ) , Analytical Balance ( Sartorius ) , Ph Meter ( Thermo Orion ) , Ion Selective (Thermo Orion) , Conductivity Meter ( Thermo Orion ) , Dissolved Oxygen Meter ( Thermo Orion ) , Turbidity Meter, Autoclaves, Hot Air Oven , Hot Plate , Magnetic Stirrers , Pipette Washer , Shaking Machine , Water Bath , Colorimeter , Flame Photometer , etc.

**Lab Water Purification :** Millipore Milli Q System

**Clinical Biology Lab :** Haematology Analyser , Automatic Immunoassay, Haematology HPLC Biorad Variant II





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[https://www.google.com/maps/place/Allele+Life+Sciences+\(P\)+Ltd/@28.5886515,77.3345613,16.62z/data=!4m5!3m4!1s0x0:0xfab3f2cf3ca21b!8m2!3d28.5890149!4d77.3327766?hl=en-US](https://www.google.com/maps/place/Allele+Life+Sciences+(P)+Ltd/@28.5886515,77.3345613,16.62z/data=!4m5!3m4!1s0x0:0xfab3f2cf3ca21b!8m2!3d28.5890149!4d77.3327766?hl=en-US)