

## Internship in Enzymology & Enzyme Engineering

Life Science is a knowledge-based industry requiring manpower that has the right combination of understanding the technology as well as managerial expertise. We offer comprehensive and in-depth practical hands on training for industrial or research needs.

We are well recognised in the area of life science in which a number participants from diverse scientific fields like biotechnology, biochemistry, human genetics, forensic science, food science & technology, life sciences, microbiology, chemistry, medical sciences, vet sciences, agriculture, Pharmacy etc.



### Designing & Implementation of Training Programs

Our Mission at Allele Life Sciences is to offer innovative and exceptional analytical technical process for industry & Research. Our training programs will build and strengthen skills in the specific tasks to be completed for efficient functioning of the industry.

### Our Advantage

- Syllabus with latest technologies
- Capacity to implement hands on learning with state of art research facility
- Dedicated Research Advisory
- Periodical Review of the Syllabus
- Validated Protocols & Manuals
- Compulsory One Week Instrumentation Learning

After successful completion of the summer internship, they will get their Certificate along with Evaluation Sheet ( E-Copy of the certificate will be send to their concerned institution for validation )

### Training Fee Per Module Indian Nationals:

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

### Admission Criteria : First Come - First Serve

#### Note -

1. Read and analyse the brochure thoroughly and carefully for career development
2. All Units of selected module will be covered

## Module Hands on Learning Syllabus:-

Enzyme engineering deals with enhancement of enzyme activity of existing enzyme or inducing a new enzyme activity .

The overall goal of the **Training in Enzyme Engineering & Production** is to give the students more fundamental and practical knowledge about general rules for optimisation, modelling and design of enzymatic processes.



### Unit I - Lab safety Procedures, Instrumentation & Data Handling

Record Maintenance, Handling of Equipments , Sterilisation Techniques , Preparation of Chemical & Reagents. Discussion of ethical, legal, and social issues involved in genomics study and research.

### Unit II - Enzyme Production & Optimisation

Enzyme Database Search, Enzyme source selection, optimisation of extraction procedures or growth requirement procedures, submerged and solid state fermentation ( Lab Scale )

**Extraction of Enzyme of Your Choice** - Food Enzyme, Industrial Enzyme, Pharmaceutical Enzyme etc.

### Unit III - Enzyme Assay, Simulation, Kinetics of Enzyme

Simulation Software handling, In-silico Experiment Designing, Enzyme Kinetics, Inhibition Studies, Effect of pH, Temperature, Substrate Concentration, Enzyme Concentration, Determination of  $K_{max}$ ,  $V_{max}$ , Enzyme Inhibitors & Activators

### Unit IV - Purification of Enzyme

Purification of Enzyme by Size Exclusion Chromatography, Affinity Chromatography, Ion Exchange Chromatography, Purification of Enzyme by HPLC, Centrifugation, Dialysis and Electrophoresis

### Unit V - Enzyme Estimation & Quantitation

Enzyme estimation by Spectrophotometry & Chromatography - Bradford or BCA Assay , HPLC or FPLC Quantitation

### Unit VI - Characterisation of Enzyme / Amino Acid

Enzyme Characterisation by Electrophoresis - SDS-PAGE , Native PAGE, Zymography

### Unit VII- Project Work - Extract & Characterise Enzyme ( Optional)

**Search any biological source and extract enzyme of industrial importance of your choice as mini project work .**

### TECHNIQUES COVERED IN THIS PROGRAM :

Enzyme Extraction & Optimisation, Simulation Studies for enzyme kinetics, Enzyme estimation by spectrophotometer, Enzyme Purification by FPLC,, Affinity , HPLC or Gas Chromatography, Enzyme characterisation by SDS-PAGE and electrophoresis, Fermentation

## Information about Project Work with Training Program:

We will provide a project work of your interested area, our assigned projects will be on product development, basic research and novel idea like;

Extraction, purification and characterisation of amino acid from waste hair collected from saloon or bio waste / Development of aromatic massage oil for spa / Development of enzyme of food, industrial importance from cheap biological source / Development of microbial inoculate as bio-fertiliser / Development of clone / Method Validation procedures for analysis of micro molecules / Fertiliser from bio-waste / Bio-Energy / Development of Natural preservatives

• At the last we respect and welcome all feasible ideas suggested by you.....

## Training Fee Indian Nationals:

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

## 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. **Registration fee** will be Rs 1000 / - paid through cheque or on line payment

### 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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**Locate at Google Map**

[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)