ALLELE LIFE SCIENCES®

SUMMER / SHORT TERM TRAINING PROGRAM

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Introduction

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 For Ease of Hands on Learning**
- **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:

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** throughly and carefully for career development
2. **All Units of selected module** will be covered

Module I - Internship in Genomics & Molecular Biology

Genomics is an interdisciplinary field of science within the field of molecular biology and study of genes and their functions, and related techniques. The overall goal of the
Internship in Genomics and Molecular Biology training program is to provide the trainee with the skills they will need to provide appropriate genomics hands on techniques. This program covers in-depth DNA cloning, gene expression analysis, microarray analysis, bioinformatics, PCR and quantitative PCR and Genetic Toxicity Studies.

Unit I - Lab safety and Procedures :

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 Nucleic Acid Extraction, Optimisation and Quantification,Lab safety and Procedures :

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 IV - r-DNA Technology :

Isolation of pUC18 plasmid from TOP10-pUC18 E coli cells Restriction digestion of pUC 18 and λ DNA , Purifying pUC18/Hind III/ EcoR I digest by gel elution , Ligating the linearised plasmid - pUC18 and the insert – λDNA, Preparation of competent cells , Transformation of TOP10 cells with the pUC18-λDNA ligated product. Colony PCR : To amplify the inserted λDNA digest in pUC18 vector

Unit V - Gene Expression Studies By PCR & Real Time PCR

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 TAQMAN Green real-time PCR results: ,Troubleshooting of real-time PCR reactions, Basics of Microarray.

Unit VI - Bio separation Assays by HPLC & GC :

Basics of HPLC & Gas Chromatography, Software Handling, HPLC & GC Data Handling, Sample Preparation & Method Development.

Sample preparation , Introduction to separation techniques , SPME Separations , **Method Development for Biological Assay - Linearity, LOD , LOQ & Validation Procedures**

Biological Sample Assays by HPLC / Gas Chromatography .

TECHNIQUES COVERED IN THIS PROGRM :

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, Basics of Microarray , Bio-separations by HPLC & Gas Chromatography

Module II - Internship in Genetic Engineering / Gene Cloning

The overall goal of the I**nternship 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.

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 IV - Construction of Plasmids as Vector

Unit V - r-DNA Technology :

Isolation of pUC18 plasmid from TOP10-pUC18 E coli cells Restriction digestion of pUC 18 and λ DNA , Purifying pUC18/Hind III/ EcoR I digest by gel elution , Ligating the linearised plasmid - pUC18 and the insert –λDNA, Preparation of competent cells , Transformation of TOP10 cells with the pUC18-λDNA ligated product. Colony PCR : To amplify the inserted λDNA digest in pUC18 vector

Unit VI - Genetic Engineered Clone Confirmatory Assay

Confirmation By PCR and its Optimisation, SDS-PAGE , Blue White Screening of Cloned Colonies, Western Blot

Unit VII- 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;

Unit VIII - PCR & Real Time PCR Assay

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.

TECHNIQUES COVERED IN THIS PROGRM :

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, Basics of Microarray

Module III - Internship in Proteomics & Protein Chemistry

Proteomics is an interdisciplinary field of science within the field of molecular biology and study proteins and their functions, and related techniques. The overall goal of the Internship in Proteomics & Protein Chemistry training program is to provide the trainee with the skills they will need to provide appropriate proteomics hands on techniques.
This program covers in-depth hands on learning; Protein Extraction, Purification , Estimation, Characterisation and identification

Unit I - Lab safety and Procedures :

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

Unit II- Protein Extraction & Protein Assay

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

Unit III - Protein Estimation & Quantitation

Protein estimation by Lowry's Assay / Biuret Assay / Bradford's Method / BCA Method , Densitometry Analysis of Protein

Unit IV - Protein Purification or Separation by FPLC , LPLC & HPLC

Separation By Chromatography : Purification of Protein by Affinity Chromatography (IMAC / GST / Sepharose etc) , Ion Exchange Chromatography , Size Exclusion and Hydrophobic Purification,

Separation based on Size & Density : Ammonium Precipitation of Proteins, Desalting, Dialysis, Ultrafiltration and centrifugation.

Unit V - Protein Characterisation

Protein Characterisation by SDS-PAGE, Native Page, Zymography, Iso Electric Focussing, 2-D Electrophoresis, Western Blot, Staining by Coomassie Blue, Supra Ruby, Deep Purple Protein Fingerprinting, Immunodiffusion Assay

Unit VI - Amino Acid Analysis by Chromatography

Sample preparation, Hydrolysis, Derivatization, Separation of derivatized amino acids, Data Interpretation and calculation

Unit VII - Protein Bioinformatics

Analysis of 2-D Data, Peptide Mass Fingerprinting Data Analysis (LC-MS MALDI-TOF), Homology Modelling, Molecular Docking

TECHNIQUES COVERED IN THIS PROGRM :

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

Module IV - Internship in Enzymology & Enzyme Engineering

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 enzyme study and research.

Unit II- Enzyme Extraction & Enzyme Assay

Enzyme Extraction, Acid Base Equilibrium, pH, Buffer System, Charge, pI and pKa Value, Quantitative determination of molecule, mini scale bacterial bacterial extraction, enzyme extraction from plant source or other biological source

Unit III - 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 IV - 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 Kmax, Vmax, Enzyme Inhibitors & Activators

Unit V - Purification of Enzyme

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

Purify any biological crude for enzyme production through FPLC or Prep HPLC

Unit VI - Enzyme Estimation & Quantitation

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

Unit VII - Characterisation of Enzyme / Amino Acid

Enzyme Characterisation by Electrophoresis - SDS-PAGE , Native PAGE, Zymography, Densitometric Analysis
HPLC Analysis of Amino Acid : Sample preparation, Hydrolysis, Derivatization, Separation of derivatized amino acids, Data Interpretation and calculation

TECHNIQUES COVERED IN THIS PROGRM :

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

Module V - Internship in Microbiology & Microbial Technology

Meta genomics & Microbial Technology is a rapidly growing field of research that had a dramatic effect on the the way we view and study the microbial world. Meta genomics has the potential to substantially impact industrial production. It has proven to be rich and comprehensive and is making important contributions in many areas including Environmental Biotechnology, Industrial Bio-Products, Plant Biotechnology, Bioremediation, Natural Products and Medicine.

Unit I - Lab safety and Procedures :

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

Unit II - Isolation & Enumeration of Microorganism

Microbial Growth- Isolation & Plating Techniques, Single colony isolation, Determination of microbial count, Growth Curve Analysis **Microbiological Assay** of Direct microscopic count for Sauces, Tomato Puree and Pastes, Rope producing spores in Food, Enumeration and Isolation E.Coli, Salmonella , Shigella, Vibrio etc, Detection and determination of Thermophilic Flat Sour Spore Formers in Food, Bacteriological Examination of Water for coliform, Identification of Microbes .

Unit III - Bio-Chemical Characterisation For Preliminary Screening

Basic biochemical testing; IMVIC, Reducing Sugar, Gram Staining, Morphology, Triple Sugar Iron Agar , Starch Hydrolysis, Lipid Hydrolysis, Casein Hydrolysis and many more , **In-silico studies of the positive or negative data for microbial identification**

Unit IV Nucleic Acid Extraction, cDNA Synthesis Optimisation and Quantification

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 V - 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 VI - PCR,, Real Time PCR & 16s rDNA Analysis

Analysis of Food Pathogen through PCR , Characterisation of **microbes through 16s rDNA -** PCR Amplification, Elution, Restriction Digestion, Southern Blot, Data Analysis, , **PCR Multiplexing For Food Samples**

Real Time PCR Sample Analysis, Advantage of Real Time PCR over Conventional PCR in Microbial Analysis**,** Basics of Real Time PCR, **FRET Analysis by Real Time PCR,** Primer Design, Data Analysis

Unit VII - Meta-Genomics & NGS Data Analysis

Next Generation Sequence Data Analysis - Data Q.C & Manipulation, NGS Mapping, NGS-RNA Analysis, Metagenomic Analysis, Genome Diversity, NGS RNA Structure, Phenotype Association, FASTA Manipulation, Multivariate Analysis, NGS Variant Analysis

Module VI - Internship in Food Science & Technology

Unit I - Food Lab Safety, Standards, Regulatory and SOP's

Law of Food Safety and Standards , Food Products Regulatory Bodies ,Standard Operating Procedures in Food Analysis
Basics of Laboratory: Lab safety and Procedures, Record Maintenance, Handling of Equipments , Sterilisation Techniques , Preparation of Chemical & Reagents.

Unit II - Quality Control & Quality Check in Food Microbiology

Microbial Analysis of Pharmaceutical Products - GLP of Microbiology Lab, SOP Development For - Environmental Monitoring of Aseptic Area , Media Preparation, Self Life of 70 % IP,

Microbiological Assay of Direct microscopic count for Sauces, Tomato Puree and Pastes, Rope producing spores in Food, Enumeration and Isolation E.Coli, Salmonella , Shigella, Vibrio etc, Detection and determination of Thermophilic Flat Sour Spore Formers in Food, Bacteriological Examination of Water for coliform, Identification of Microbes .

Unit III - Analysis of Food Products by PCR & Q-PCR Technology

Extraction of Nucleic Acid from microbe, Check of DNA integrity (DIN) , Purification of DNA , Amplification of DNA through PCR , Characterisation of **microbes through 16s rDNA,** Q.C of meta-genomics Sequence Data, , **PCR Multiplexing For Food Samples**

Advantage of Real Time PCR over Conventional PCR in Food Analysis, Basics of Real Time PCR, **FRET Analysis by Real Time PCR,** Primer Design , Real Time PCR Sample Run, Data Analysis

Unit IV - Analysis of Finished Food Products

Viscosity Analysis, Refractive Index, Test of Allergens, ph analysis, moisture analysis in cosmetic products, Test of Amino Acids, Analysis of antioxidants used in Food products, Determination of preservatives in Food Samples

Analytical Tools : HPLC, GC, TLC, Size Exclusion, Affinity, Ion Exchange Chromatography, ELISA and other analytical tools.

Unit V - Chromatography Lab Practices

Basics of HPLC & Gas Chromatography, Software Handling, HPLC & GC Data Handling, Sample Preparation & Method Development
Food Analysis by HPLC & Gas Chromatography, Drug Analysis by Spectroscopy, Biochemical Assays, Herbal Drug Screening , Lab Safety & Quality Control, TLC, Column Chromatography, Herbal Extraction Techniques, Drug Quality Analysis

Unit V - Analysis of Toxins / Preservatives in Food Product

Test of BHA & Test of BHT in finished cosmetic product, essential oil or fine fragrances **Method** – Spectroscopy , HPLC , GC

TECHNIQUES COVERED IN THIS PROGRM :

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, DNA Fingerprinting by Molecular Markers, Basics of Microarray , Chromatography - Size Exclusion, TLC, Bio-separations by HPLC & Gas Chromatography, Analytical Method Validation

Module VII - Internship in Biopharmaceuticals Analysis

Bio-Pharmaceutical industry is one of the largest job provider industry in India for life science and chemistry professionals in India (> 70 %).

The overall goal of the training program is to provide the trainee with the skills they will need to provide appropriate pharmaceutical / biopharmaceutical product analysis, research and management for pharmaceutical / bio-pharmaceutical industry.

Unit I - Lab safety and Procedures :

Pharmacopeia, Pharmaceutical Documentation & Record Maintenance, Handling of Equipments , Sterilisation Techniques , Preparation of Chemical Reagent, Buffers, Acid-Base Equilibrium, pH, Buffer System, Charge, Pi and pKa, Value, Quantitative determination of pharmaceuticals .

Unit II - Analytical Assays For Bio-Pharmaceuticals

Assay of carbohydrate, Determination of disaccharide, Lactose , Sucrose , Determination of Lipids; triglycerides , Test of Fatty Acids , Determination of Vitamins & Minerals

Assay For Herbals For Alkaloids, Flavonoids, Glycosides, Free Glucose, tannins, Anthraquinone, Saponins, Toxicity Analysis

Assay For Pharmaceutical Water - TDS , Dissolved Oxygen, Pyrogens and Microbial

Unit III - Pharmaceutical Microbiology

Microbial Analysis of Pharmaceutical Products - GLP of Microbiology Lab, SOP Development For - Environmental Monitoring of Aseptic Area , Media Preparation, Self Life of 70 % IP,
Microbiological Assay of Cyanocobalamin or Vitamin B12, Effectiveness of Antimicrobial Preservatives in Pharmaceutical Drugs

Unit IV - Introduction to Chromatography & Spectrometry

Introduction to HPLC, GC & Spectrometry,Sample Preparation, Method Development for analysis, Analytical method validation : LOD, LOQ , Specificity, Reproducibility etc.

Unit V - Quantitive Analysis of Bio-Pharma / Pharma Products

Analysis by HPLC, GC, Spectrophotometry, TLC and other chromatography techniques of selected pharmaceutical, bio-pharmaceutical and herbal product.

- **Test of Aspirin by Spectrophotometry & HPLC**
- **Test of Insulin by HPLC or GC**
- **Test of antibiotics by HPLC**
- **Antioxidant Assay of any herbal drug**
- **Test of any available vaccine or Intact IgG monomer and dimer separation by Suitable Chromatography; HPLC / GC / FPLC**
- **Fingerprint Analysis of Herbal Product**

TECHNIQUES COVERED IN THIS PROGRM :

Bio-separations by HPLC & Gas Chromatography, Drug Analysis by Spectroscopy, Biochemical Assays, Herbal Drug Screening, Pharmaceutical Microbial Analysis, Lab Safety & Quality Control, TLC, Column Chromatography, Karl Fisher Titration, Water Analysis, Herbal Extraction Techniques, Drug Quality Analysis

Module VIII - Internship in Forensic Science & Analysis

Forensic science is a discipline that applies scientific analysis to the justice system, often to help prove the events of a crime.

Forensic scientists analyse and interpret evidence found at the crime scene. That evidence can include blood, saliva, fibres, tire tracks, drugs, alcohol, paint chips and firearm residue etc.

Unit I - Lab safety and Procedures :

Evidence Collection methodology, Evidence containers, Biological lab Safety , Chemistry Lab Safety , Record Maintenance, Understand the importance of the maintenance of forensic records from crime science to court , Forensic Record Formats, Draft petition with the admission of scientific evidence , prosecution strategy ,

Unit II Nucleic Acid Extraction, Optimisation and Quantification

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. Purification of mRNA from Total RNA, First Strand cDNA Synthesis

Unit III - Bioinformatics

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

Unit IV - Real Time PCR , PCR Optimisation , DNA Profiling

Optimisation of Conventional , Nested and PCR , PCR Multiplexing Methods , Run of Conventional PCR , Run of Real Time PCR, Data Analysis .

Methods and Analysis of DNA Profiling through Molecular Markers: PCR analysis & DNA bar coding, Dendrogram Generation, Similarity & Dissimilarity Matrix , Data Analysis

Unit V - Forensic Analytical Chemistry

Calibration & Instrument Handling , Sample Preparation , Sample Processing, Data Analysis : Standard Curve and Data Interpretation, Method Development

- **Analysis by Spectrometry**
- **Analysis by HPLC**
- **Analysis by TLC**
- **Analysis by Gas Chromatography**

Unit VI - Forensic Drug Analytical Method Validation

Analytical method validation : LOD, LOQ , Specificity, Reproducibility etc. in different condition in artificially prepared gastric lavage with spiked drug or drug in combination

TECHNIQUES COVERED IN THIS PROGRM :

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, DNA Fingerprinting by Molecular Markers, Basics of Microarray , Chromatography - Size Exclusion, TLC, Bio-separations by HPLC & Gas Chromatography, Analytical Method Validation

Module IX - Internship in Cosmetics & Perfume Analysis

The overall goal of the training program is to provide the trainee with the skills they will need to provide appropriate cosmetic / fragrance product testing and management for Cosmetic Industry.
Cosmetic / Fragrance Chemist develop and apply stringent methods of chemical analysis to the product before it goes on the market or quality control chemist, utilises chemistry lab skills to test and measure materials, generally in a manufacturing or product development.

Unit I - Lab safety, Regulatory, Procedures and Documentation

Record Maintenance, Handling of Equipments , Sterilisation Techniques , Preparation of Chemical Reagent, Buffers, Acid-Base Equilibrium, pH, Buffer System, Charge, Pi and pKa, Value, Quantitative determination of pharmaceuticals

Unit II - Cosmetic Microbiology

Microbiological evaluation & Regulatory Compliance of Cosmetics : Total microbial count, Isolation and identification of microorganisms specified in BIS guidelines from cosmetic products and raw materials & **Determination of Microbial Load in Cosmetics**

Unit III – Distillation & Analysis of Fragrance Oil

Distillation : Simple Distillation, Vapor Pressure & Boiling, Fraction Distillation, Steam Distillation, Collection of Essential Oil, Water Distillation, Vaccum Distillation, Distillation of High-boiling and/or air sensitive materials etc.
Analysis of Essential Oil : Estimation of Essential Oil by Clevenger apparatus,Specific gravity, Solubility in Alcohol,Refractive index,Acid value,Ester value, Carbonyl value

Purity Analysis of Essential Oil : Purity Analysis By - **GC & HPLC**

Unit IV - Analysis of Finished Cosmetic Products

Viscosity Analysis, Refractive Index, Test of Allergens, ph analysis, moisture analysis in cosmetic products, Test of Amino Acids, Analysis of antioxidants used in cosmetic products, Determination of preservatives in cosmetics

Analytical Tools : HPLC, GC, TLC, Size Exclusion, Affinity, Ion Exchange Chromatography, ELISA and other analytical tools.

Unit V - Toxicology of Cosmetic Product

Test of BHA & Test of BHT in finished cosmetic product, essential oil or fine fragrances **Method** – Spectroscopy , HPLC , GC

Unit VI - Formulation Development & Analysis of Fragrances

Fragrance creation Strategies - Top, Middle & Base Notes, Blending, Formulation of Blends,Essential Oil Blend to Perfume, Fragrance creation by natural oils, fragrance creation by synthetic compound, Novel Product Strategies, Quality analysis, Packaging Strategy, Marketing of Cosmetics

TECHNIQUES COVERED IN THIS PROGRM :

Cosmetic Analysis by HPLC & Gas Chromatography, Cosmetic Analysis by Spectroscopy, Chemical Assays, Cosmetic Screening, Microbial Analysis, Lab Safety & Quality Control, TLC, Column Chromatography, Karl Fisher Titration, Water Analysis, Cosmetic & Perfume Screening Techniques, Cosmetic Quality Analysis , Fragrance Creation , Cosmetic Product Toxicity Analysis

Module X - Internship in Analytical Testing & Quality Control

The overall goal of the training program is to provide the trainee with the skills they will need to provide appropriate product testing and management for pharma, food, cosmetic, perfumery, chemical industry. **Analytical Chemist** develop and apply stringent methods of chemical analysis to the product before it goes on the market or quality control chemist, utilises chemistry lab skills to test and measure materials, generally in a manufacturing or product development.

Unit I - Lab safety, Regulatory, Procedures and Documentation

Record Maintenance, Handling of Equipments , Sterilisation Techniques , Preparation of Chemical Reagent, Buffers, Acid-Base Equilibrium, pH, Buffer System, Charge, Pi and pKa, Value, Quantitative determination of pharmaceuticals .

Unit II - Microbiology Procedures & Data Handling

Regulatory Compliance of Microbiology Lab : Microorganisms in raw materials, Risk assessment, Microorganisms in manufacturing environment, current GMP, Microbial contamination in finished products. Microbial considerations in product formulation. **Microbiological evaluation:** Total microbial count, Isolation and identification of microorganisms specified in BIS guidelines from cosmetic products and raw materials & **Determination of Microbial Load in finished product**

Unit III - Genetics Lab Procedures

Analysis of sample by PCR, Real Time PCR & Other Techniques: 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 IV - Basic Analytical Lab Tools & Technologies

Chemical Assays by Titration, Elemental Analysis by Ion Meter & Flame Photometer, Karl Fisher Titration for moisture, Dissolved Oxygen Analysis, TDS, Estimation of Protein, Lipids, Carbohydrate, Vitamins, Fat and other compounds.

Unit V - Chromatography Lab Practices

Basics of HPLC & Gas Chromatography, Software Handling, HPLC & GC Data Handling, Sample Preparation & Method Development

Bio-separations by HPLC & Gas Chromatography, Drug Analysis by Spectroscopy, Biochemical Assays, Herbal Drug Screening , Lab Safety & Quality Control, TLC, Column Chromatography, Herbal Extraction Techniques, Drug Quality Analysis

Unit VI - Sample Run, Handling & Q.C Reporting : **One sample of any finished product of your choice with complete q.c report**

- Product Quality Analysis Report with Experimental Data (Spectrophotometer)
- Pharmaceutical Product Q.C Report with Experimental Data (HPLC)
- **HPLC Analytical Method Validation of any Finished Product**

TECHNIQUES COVERED IN THIS PROGRM :

Cosmetic Analysis by HPLC & Gas Chromatography, Cosmetic Analysis by Spectroscopy, Chemical Assays, Cosmetic Screening, Microbial Analysis, Lab Safety & Quality Control, TLC, Column Chromatography, Karl Fisher Titration, Water Analysis, Cosmetic & Perfume Screening Techniques, Cosmetic Quality Analysis , Fragrance Creation , Cosmetic Product Toxicity Analysis

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 wast 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.

Check other project in individual brochures

We respect and welcome all feasible ideas suggested by you for better science .....

Training Fee:

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 PAY TM Code
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** **Or Pay Through PAYTM** **Address - 9891179928 OR ALLELE LIFE SCIENCES**	

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

Note : We will send confirmation within specified time through e.mail or remind us.

ALLELE LIFE SCIENCES®

Photograph

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

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

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

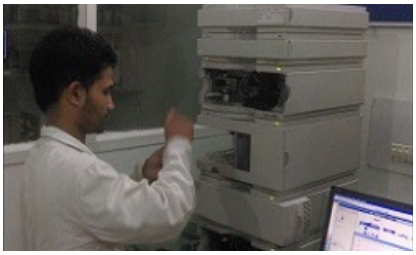
Agilent HPLC System - PDA, FLD & ECD Detector	Separation and analysis of molecules
Agilent GC with FID & FPD Detectors	Separation and analysis of molecules
Thermo Prep HPLC with Dual Pump & UV-Vis	Bulk Purification & Analysis
Shimadzu GC with FID & NPD Detector	Separation and analysis of molecules
Triple Quad GC-MS System (Agilent)	Analysis of Semi Volatile & Volatile Compound
LC-MS-MS (API Sciex)	Analysis of Non Volatile Compound
Varian Carry Spectrophotometer	Analytical Tool for various purpose

Thermo Helios Spectrophotometer	Analytical Tool for various purpose
Vacuum Rotary Evaporator (Buchi)	Sample Preparation

Other Analytical Chemistry Equipments :

Refractometer , Flame Photometer (Toshniwal), Karl Fisher Titrator (Sistronics), Potentiometer, Polarimeter , Tintometer ,Viscometer , Kjeldahl Distillation Unit , Kjeldahl Digestion Unit , Ion Selective for Fluoride Analysis (Thermo Orion) , Nephalometer , 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) , CO2 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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