



# Industry Ready Training Training

## Our Benefit :



**Get Certificate**



**On Time Training**



**100 % Hands on  
learning**



 +91-9891179928 ( WhatsApp Only )

 allelelifesciences@gmail.com

 www.allelelifesciences.com



# Biotechnology / Life Science





## OUR PEDAGOGY

One of the main reasons why freshers find it difficult to get employment in the industry is the lack of hands-on experience. Our mission to get students industry-ready in their domain. . Our training programs are specially designed for the betterment of students career to help them capture knowledge on emerging technologies and to improve skills for Biotechnology & Biopharma research.

## WHO WILL BE BENEFITED

- Looking to get admission in Ph.D. from foreign university
- Career in Life Science Industry
- Institution Education is not adequate
- Six Months Project and Training For Degree Program

## HANDS ON EXPERIENCE ON MAJOR TOOL & TECHNIQUES:

- Animal Cell Biology - Culture, Inverted Microscopy, Fluorescence Microscopy & Image Analysis, Apoptosis, Cytotoxicity
- Nucleic Acid Extraction Techniques, PCR & Real Time PCR Analysis, Methylation & rDNA Technology
- Protein Purification by FPLC, Ion Exchange, Affinity Chromatography, Microplate Assay, ELISA, Immuno Fluorescence Assay, SDS-PAGE & BLOT Techniques. Analysis of AAA by HPLC, Fluorescence Detection by HPLC-FLD
- Microbial Techniques, Enzyme Production & Analysis
- Gas Chromatography, Bio-Separation Techniques, Nano Particle Synthesis, Analysis, Nano Lipids, Botanical Secondary Metabolite Extraction, Drug Analysis with nano particle.

## SERVICE FEE

**Training:** INR 45,000 / -

**Training + Project:** INR 55,000/-

( One Research Paper )

**Looking For Admission Foreign**

**Universities -** INR 65,000/-

( Two Research Paper )

## DURATION

**Six Months**



INFO@ALLELELIFESCIENCES.COM

# CELL CULTURE & DRUG SCREENING

## Lab Safety & Cell Culture Procedures

Unit 1: Cell Culture Lab Safety, Microscopy, Basics of Cell Culture

Unit 2: Culture of a Continuously Growing Nonadherent Cell Line

Unit 3: Microscopy & Imaging- Inverted Microscope, Fluorescence Microscopy

Unit 4: Isolating Cells and Growing Them in Culture

Unit 5: Cell Counting



## Mammalian Cell Culture Assay

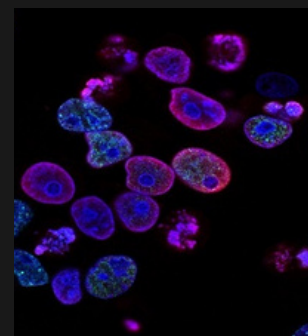
Unit 6: Culture of a Continuously Growing Nonadherent Cell Line

Unit 7: Cryopreservation of Continuously Growing Nonadherent Cells

Unit 8: Detection of Mycoplasma Contaminations by PCR

Unit 9: Eradication of Mycoplasma Contaminations

Unit 10: Authentication of Scientific Human Cell Lines ( VNTR PCR )



## Cell Viability & Apoptosis Assay

Unit 11: Trypan blue dye exclusion assay

Unit 12: Lactate dehydrogenase assay

Unit 12: Terminal deoxynucleotide transferase-mediated biotin-dUTP nick end Labeling assay ( TUNEL Assay )

Unit 13: Comet DNA Damage Assay

Unit 14: MTT Assay For Cell Toxicity



## Drug Screening in Mammalian Cell

Unit 15: In-Vitro analysis of curcumin in mammalian cell - Phase I

Unit 16: In-Vitro analysis of curcumin in mammalian cell - - Phase II

Unit 17: RNA extraction and analysis from cell

Unit 18: First Strand cDNA synthesis

Unit 19: Gene Expression Studies



## IVth Week - Methylation Analysis by dHPLC & ELISA

Unit 20: Reagent Preparation For dHPLC for Methylation Analysis

Unit 21: Basics of HPLC, Method Discussion & HPLC Software Handling

Unit 22: Sample run For Methylation Analysis by HPLC

Unit 23: Data Analysis of Methylation ( detect the level of 5mC (5-methylcytosine) )

Unit 24: Methylation Detection by ELISA





# MOLECULAR GENETICS

## Lab Safety & Nucleic Acids

Unit 25: Genetics Lab safety and Procedures ,Chemical & Reagent Preparation

Unit 26: DNA Extraction & Optimization of Protocol

Unit 27: Quantitative & Qualitative Analysis of DNA

Unit 28: Lab Safety for RNA, Total RNA Extraction & Optimization

Unit 29: Quantitative & Qualitative Analysis of RNA



## Bioinformatics, cDNA Synthesis & PCR Run

Unit 30: Bioinformatics: Primer Designing, Vectors, Selection of Restriction Sites, Virtual PCR, other Bioinformatics tools & Techniques

Unit 31: mRNA Purification & First Strand cDNA Synthesis

Unit 32: Optimisation of PCR Reaction – Melting Point , GC Content , Concentrations and Cycles, Sample Preparation For PCR Analysis, PCR sample Run

Unit 33: Analysis of PCR sample

Unit 34: Qualitative RT- PCR sample run & Analysis



## Real Time PCR Analysis

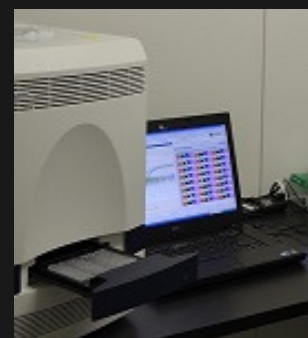
Unit 35 : RNA Extraction, Quantitative & Qualitative Analysis of RNA

Unit 36: mRNA Purification & First Strand cDNA Synthesis

Unit 37: Real Time PCR - Reaction setup for real time PCR, selection of quantification – relative or absolute

Unit 38: SYBR Green Assay and Sample run

Unit 39: Real Time PCR Data Analysis



## rDNA Technology

Unit 40: Isolation of pUC18 plasmid from TOP10-pUC18 E coli cells

Unit 41: Restriction digestion of pUC 18 and  $\lambda$  DNA & Purifying pUC18/Hind III/ EcoR I digest by gel elution

Unit 42: Ligating the linearized plasmid -pUC18 and the insert – $\lambda$ DNA

Unit 43: Preparation of competent cells

Unit 44: Transformation of TOP10 cells with the pUC18- $\lambda$ DNA ligated Product & Confirmation by PCR



## Genetic Toxicology or Epigenetic Studies

Unit 45: Bioinformatics Tools For Methylation Primer Designing

Unit 46: Methylation in DNA - Bisulfites modification of DNA

Unit 47: Bisulfide modification in nanogram quantities of DNA

Unit 48: Methylation Specific PCR Technology :- PCR & Applications, Optimisation of PCR

Unit 49: Expression Studies by Real Time PCR Assay



# PROTEIN BIOLOGY

## Basics of Protein Lab & Protein Extraction

Unit 50: Lab safety and Procedures , Chemical & Reagent Preparation

Unit 51: Protein Extraction from Mushroom

Unit 52: Quantification of Mushroom Protein

Unit 53: SDS-PAGE Analysis of mushroom protein ( 2 Days protocol )

Unit 54: Data Analysis of crude mushroom protein



## Basics of Protein Purification

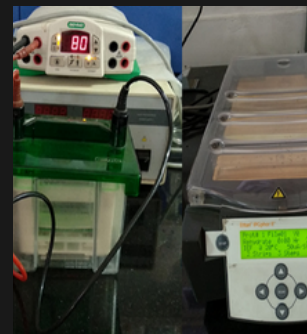
Unit 55: Acid Base Equilibrium, pH, Buffer System, Charge, pI and pKa Value,  
Quantitative determination of biomolecule

Unit 56: Ammonium sulfate precipitation

Unit 57: Estimation of Protein after Ammonium sulfate precipitation

Unit 58: Dialysis or Desalting of Protein Sample

Unit 59: Preparation for Protein Purification Strategies ( DEAE Sepharose / SP  
Sepharose / CM Sepharose )



## Advance Protein Purification Techniques

Unit 60: Protein Purification by Ion Exchange Chromatography

Unit 61: Protein Purification by Size Exclusion Chromatography

Unit 62: Estimation of Protein in Fractions

Unit 63: SDS-PAGE of Protein Fractions

Unit 64: Western Blot Analysis



## Amino Acid Analysis

Unit 65: Sample Preparation For Amino Acid Analysis

Unit 66: Hydrolysis and Derivatisation of Amino Acid

Unit 67: Preparation of Amino Acid Standards for Quantification

Unit 68: Separation & Detection of Amino Acids by HPLC

Unit 69: Amino Acid Quantification Data Analysis



## Antibody Purification

Unit 70: Affinity Chromatography & Antibody Purification

Unit 71: Preparation of Buffer, Column Packing & Reagents Preparation

Unit 72: Downstream Isolation and Purification of IgY

Unit 73: Protein Assay based on Bradford method

Unit 74: SDS-PAGE & Immunoblot Analysis



# ENZYMOLGY

## Basics of Enzyme Microbiology & In-Silico Studies

Unit 75: Lab safety and Procedures , Chemical & Reagent Preparation

Unit 76: Microbial Selection & Preparation for Enzyme Production

Unit 77: Medium Optimization by Plackett and Burman Design

Unit 78: Effect of pH on enzyme activity

Unit 79: Effect of temperature on enzyme activity



## Enzyme Production Strategies

Unit 80: Solid State Fermentation - Phase I

Unit 81: Solid State Fermentation - Phase II

Unit 82: Submerged Fermentation - Phase I

Unit 83: Submerged Fermentation - Phase II

Unit 84: Enzyme Estimation Assay



## Enzyme Assay For Optimisation

Unit 85: Enzyme Kinetics Assay

Unit 86: Batch Growth Kinetics of Microbe

Unit 87: Determination of KLa by Sulphite Oxidation Method

Unit 88: Enzyme Immobilization

Unit 89: Cell Disruption & Estimation of Enzyme



## Downstream Processing of Enzyme

Unit 90: Recovery by ammonium sulphate precipitation

Unit 91: Two phase extraction for partition coefficient.

Unit 92: Dialysis or Desalting of Enzyme Sample

Unit 93: SDS-PAGE of Crude Enzyme

Unit 94: Preparation for Protein Purification Strategies ( DEAE Sepharose / SP Sepharose / CM Sepharose )



## Enzyme Purification

Unit 95: Purification of Enzyme by Size Exclusion Chromatography ( FPLC )

Unit 96: Quantification & Purification of Enzyme by HPLC

Unit 97: SDS-PAGE of Purified Enzyme & Molecular Weight Determination

Unit 98: Separation & Detection of Enzyme by RP-HPLC

Unit 99: Data Analysis





# NANO-BIOTECHNOLOGY

## 1st Week - Basics of Nanotechnology & Synthesis of Nanoparticle

Unit 100: Lab safety and Procedures , Chemical & Reagent Preparation

Unit 101: Synthesis using plant extracts- Phase 1

Unit 102: Synthesis using plant extracts- Phase 2

Unit 103: Synthesis of Lipid Nanoparticle Formulation- Phase 1

Unit 104: Synthesis of Lipid Nanoparticle Formulation- Phase 2

**Note** - SEM will be outsourced



## Biological Assay of Plant-mediated synthesized NPs

Unit 105: Anti-microbial Activity assay - Phase 1

Unit 106: Anti-microbial Activity assay - Phase 2

Unit 107: Anti-oxidant Activity assay - Phase 1

Unit 108: Anti-oxidant Activity assay - Phase 2

Unit 109: Molecular Docking of Nanoparticles



## Cell based Assay of Plant-mediated synthesized NPs

Unit 110: Culture of a Continuously Growing Nonadherent Cell Line & Imaging

Unit 111: Cell Counting Assay & Distribution on ELISA Plate

Unit 112: Cell Treatment with Nanoparticles

Unit 113: MTT Assay with nano particles

Unit 114: Total RNA extraction & mRNA Synthesis



## Cell Based Assay with LNP's

Unit 115: Formation of Lipid Nano Particle with mRNA

Unit 116: Quantification of encapsulated LNP-mRNA

Unit 117: In-vitro Transfection with animal Cells

Unit 118: High-content imaging for two days

Unit 119: Data Analysis



## Project Work

We will assign a project work to shape you for critical thinking, literature search research writing and data analysis.

**Cost of Training :** Training Only -INR 45,000 / -

Training + Project - INR 55,000/-

**Candidate Looking For Admission Foreign Universities** - Training + Project Fee & 10,000 for one research paper or 25,000 for two research paper will be additional.



**Duration :** Six Months



The background of the image is composed of several large, overlapping triangles in shades of blue (light blue and dark blue) and white. The triangles are arranged in a way that creates a dynamic, geometric pattern. The text "FORENSIC SCIENCE" is positioned in the upper left quadrant, set against a white background.

# **FORENSIC SCIENCE**



## OUR PEDAGOGY

Our training programs are specially designed for the betterment of students career to help them capture knowledge on emerging technologies and to improve skills for Forensic Biology, Forensic Chemistry and Toxicology.



## WHY TRAINING ?

One of the main reasons why freshers find it difficult to get employment in the industry is the lack of hands-on experience. Our mission to get students industry-ready in their domain.

## WHO WILL BE BENEFITED

- Career in Forensic or Analytical Chemistry Lab
- You may consider as Pre Ph.D. Program

### DURATION & FEE :

- 3 Months
- INR 25,000

## HANDS ON EXPERIENCE ON MAJOR TOOL & TECHNIQUES:

- Nucleic Acid Extraction Techniques, PCR & Real Time PCR Analysis, STR Analysis, VNTR Analysis, STR by dHPLC Analysis
- Forensic sample extraction techniques, Chemical Titrations, Spectrophotometric Analysis. Analysis by FPLC, Ion Exchange, Affinity Chromatography, Microplate Assay, ELISA, Immuno Fluorescence Detection by HPLC-FLD
- HPLC - PDA Analysis , TLC Analysis and other Forensic Analytical Procedures
- Gas Chromatography Analysis of volatile or semi volatile compounds of forensic samples.



# FORENSIC DNA TECHNOLOGY

## Basics of Forensic, DNA Evidence & DNA Extraction

Unit 1: Lab safety and Forensic Procedures , Chemical & Reagent Preparation

Unit 2: Preparation of Extract from Bloodstains, Soft Tissues Precipitin Tube Method

Unit 3: Double Diffusion, Cross Over Electrophoresis & Staining

Unit 4: Recovery of High-Molecular-Weight DNA and Forensic Specimens

Unit 5: DNA extraction from Hair



## High Molecular Weight DNA & RNA Extraction

Unit 6 : DNA extraction from Cigarette Butts & Postage Stamp

Unit 7: DNA recovery from dried blood sample

Unit 8: Mitochondrial DNA extraction of forensic sample

Unit 9: RNA recovery from blood sample

Unit 10: First Strand cDNA Synthesis



## Minisatellites or Variable Number Tandem Repeats (VNTRs)

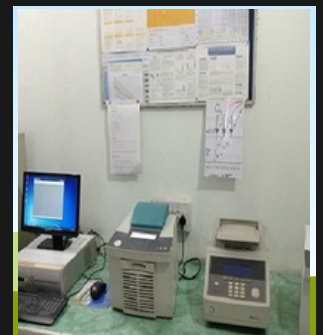
Unit 11: Basics of PCR, Optimisation & Setup for forensic application

Unit 12: Digestion of DNA with a restriction endonuclease

Unit 13: Southern Blot Analysis & Hybridization

Unit 14: VNTRs Analysis - Phase I

Unit 15: VNTRs Analysis - Phase II



## Single Nucleotide Polymorphisms (SNPs) Analysis

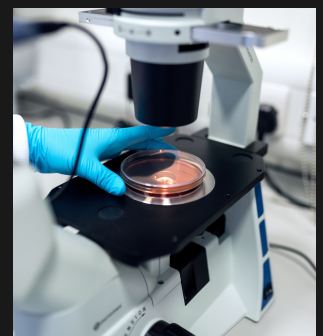
Unit 16: Procedure for genotyping single nucleotide polymorphisms - Phase I

Unit 17: Procedure for genotyping single nucleotide polymorphisms - Phase II

Unit 18: Total RNA extraction & mRNA Synthesis

Unit 19: First Strand cDNA Synthesis

Unit 20: SNP Analysis by Real Time PCR



## Forensic DNA Phenotyping & Karyotyping

Unit 21: Data Analysis of Real Time PCR for SNP Analysis

Unit 22: SNP analysis by HPLC ( PCR Product )

Unit 23: Forensic DNA Phenotyping

Unit 24: Y Chromosome analysis by Karyotyping - Phase I

Unit 25: Y Chromosome analysis by Karyotyping - Phase II



# FORENSIC CHEMISTRY

## Basics of Techniques required in Forensic Chemistry

Unit 26: Lab safety and Forensic Procedures , Chemical & Reagent Preparation

Unit 27: Chemical Analysis Procedures - Titrations, Viscosity, Refractive Index etc

Unit 28: Determination and basics of Spectrophotometry

Unit 29: Determination by Thin Layer Chromatography

Unit 30: Determination by High Performance Liquid Chromatography & Gas Chromatography



## Analysis of Cement, Mortar, Concrete & Metals

Unit 31: Detection and estimation of cement in crime cases

Unit 32: Determination of mortar in crime cases

Unit 33: Determination of concrete in crime cases

Unit 34: Test of Gold Polish in Cheating Cases

Unit 35: Test For Fake Silver in cheating cases



## Analysis of Fat & Oils

Unit 36: Analysis of Ground Nut & Sesame Oil

Unit 37: Analysis of Argemone oil in edible oils

Unit 38: Analysis of Mineral Oil in edible oils

Unit 39: Detection of rancidity in edible oil

Unit 40: Detection of acid & colour in edible oil



## Analysis of Trap Cases & Drug Analysis

Unit 41: Test of Phenolphthalein in Trap cases - Basic chemical method

Unit 42: Test of Phenolphthalein by advance techniques

Unit 43: Analysis of Anthracene

Unit 44: Analysis of alcohol in liquors/drinks

Unit 45: Determination of drug with HPLC analysis



## ANALYSIS OF ALCOHOL IN LIQUORS/DRINKS

Unit 46: Qualitative Analysis of Liquor

Unit 47: Test for Methanol

Unit 48: Quantitative Analysis of Liquor

Unit 49: Preparation of method for Gas Chromatography

Unit 50: Analysis of sample by Gas Chromatography





# FORENSIC TOXICOLOGY

## Techniques required in Forensic Toxicology

Unit 51: Lab safety and Forensic Toxicology Procedures

Unit 52: Microscopic examination of leaves

Unit 53: Analytical procedure of THC (Sigma Aldrich )

Unit 54: Analysis of THC by Thin Layer Chromatography

Unit 55: Determination of THC with High Performance Liquid Chromatography



## Solvent Extraction, Dialysis and Ion Exchange Chromatography

Unit 56: Classification of poison & poisoning, factors affecting the intensity, diagnosis and medico legal aspects of cases.

Unit 57: Solvent Extraction in Forensic Toxicology

Unit 58: Dialysis for Forensic analysis

Unit 59: Ion Exchange Chromatography

Unit 60: Solid Phase Micro Extraction of Forensic Sample



## Extraction of Toxic compound in Forensic Matrices

Unit 61: Extraction of Pesticides in Urine & Blood

Unit 62: Extraction of Pesticides in Fruits & Vegetables

Unit 63: Extraction of Drugs and Poisons of Plant Origin in Biological Matrices

Unit 64: Solid Phase Extraction of Drugs from Urine

Unit 65: Cleanup using Alumina and Silica Column



## Analysis of Forensic Toxicology Samples

Unit 66: Analysis of Plant toxicants by different techniques

Unit 67: Analysis of Plant Pesticide with analytical techniques

Unit 68: Analysis of toxic compound in Urine sample

Unit 69: Analysis of toxic compound in blood

Unit 70: Analysis in tissue sample



**Cost of Training :** INR 25,000 / -

**Duration :** Three Months





# **FOOD** SCIENCE



## OUR PEDAGOGY

Our training programs are specially designed for the betterment of students career to help them capture knowledge on emerging technologies and to improve skills for Food Science & Technology.



## WHY TRAINING ?

One of the main reasons why freshers find it difficult to get employment in the industry is the lack of hands-on experience. Our mission to get students industry-ready in their domain. This training will help you to qualify for Food Certified Analyst Exam.

## WHO WILL BE BENEFITED

- Career opportunities in Food Lab
- Certified Food Analyst Exam ( FAE & JAE )
- You may consider as Pre Ph.D. Program

### DURATION & FEE :

- 3 Months
- INR 25,000

## HANDS ON EXPERIENCE ON MAJOR TOOL & TECHNIQUES:

- Food Laws & Regulations, Documentation, Basic Microbiology, Identification of food pathogens, Advance Microbial Techniques.
- Nucleic Acid Extraction Techniques, PCR & Real Time PCR Analysis, ELISA, PCR Multiplexing and Identification by advance techniques.
- Food Analytical Procedures; Moisture, Crude Fat, Total Protein, Carbohydrate, Peroxidase etc.
- HPLC - PDA Analysis , TLC Analysis and other Food Analytical Procedures
- Gas Chromatography Analysis of volatile or semi volatile compounds of forensic samples.



## Basics of Microbiology

Unit 1: Food Laws and Standards of India and International Food Laws - Phase I

Unit 2: Food Laws and Standards of India and International Food Laws - Phase II

Unit 3: Planning Organization and setting up of Food Analysis Laboratory including  
NABL / ISO / IEC-17025: 2017 and laboratory safety

Unit 4: Principles of Food Preservation, Processing and Packaging

Unit 5: Food Analytical Procedures , Chemical & Reagent Preparation



## Proximate analysis of a food sample

Day 1: Determination of Total protein in Protein Rich sample

Day 2: Determination of Moisture in Food Sample

Day 3: Determination of Total Fat or Lipid

Day 4: Determination of Total Solids or Ash

Day 5: Determination of Crude fibre



## Determination of chemical constituents of foods

Day 1: Estimation of titrable acidity

Day 2: Estimation of mineral content

Day 3: Determination of soluble protein content by Lowry method

Day 4: Estimation of Total phenolic compounds

Day 5: Determination of peroxide value



## Determination of chemical constituents of foods

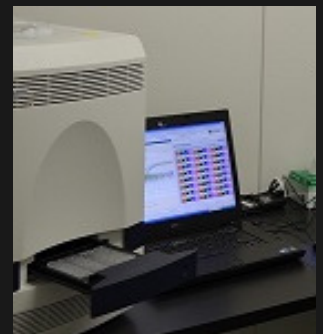
Day 1: Determination of Ascorbic Acid in food sample

Day 2: Determination of Total Titratable Acidity

Day 3: Determination of Gluten

Day 4: Determination of Reducing Sugar

Day 5: Determination of Non Reducing Sugar



## Microbial Analysis in Food Sample

Day 1: Microbial Standards Food Regulations Act 1984 & Media, Sterilization and Disinfectants

Day 2: Preparation of Media, Dilution, Plating, Incubation & Colony Counting

Day 3: Most Probable Number Method (MPN) & Counting

Day 4: Detection, Determination and Confirmation of Coliforms, Faecal coliforms and Escherichia coli in Foods and Beverages

Day 5: Direct Microscopic Count of yeast , mold, spores & bacteria





### Bio-Chemical Assay For Microbial Screening

Day 1: Enumeration of microorganism in Food Sample

Day 2: Gram Staining & Microscopy of microbes

Day 3: Triple Sugar Iron Agar & Starch Hydrolysis

Day 4: Lipid Hydrolysis & Casein Hydrolysis

Day 5: In-silico studies of the positive or negative data for microbial identification



### Bio-Chemical Assay For Microbial Screening

Day 1: Detection and Confirmation of Shigella species

Day 2: Detection, Determination and Confirmation of Staphylococcus aureus

Day 3: Detection and Confirmation of Sulfide Spoilage Spore

Day 4: Detection and Determination of Thermophilic Flat Sour Sporeformers

Day 5: Estimation of Yeasts and Molds in Foods and Beverages



### Metagenomics & Microbial Technology

Day 1: PCR Multiplexing Analysis of Food Sample

Day 2: Characterisation of microbes through 16s rDNA - Phase I

Day 3: Characterisation of microbes through 16s rDNA - Phase II

Day 4: Characterisation of microbes through 16s rDNA - Phase III

Day 5: Data Q.C & Manipulation, Mapping, Metagenomic Analysis, Genome Diversity & Phenotype Association



### Microbial DNA, PCR & Q-PCR Analysis

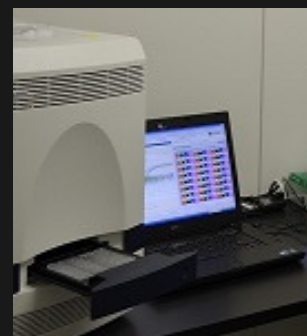
Day 1: Extraction, Purification and optimisation of both food microbial DNA

Day 2: Qualitative analysis by electrophoresis, gel Docking and quantitative analysis

Day 3: PCR Technology for Meta-genomic Study

Day 4: Real Time PCR Analysis of microbes

Day 5: Data Analysis



### Metagenomics & Microbial Technology

Day 1: PCR Multiplexing Analysis of Food Sample

Day 2: Characterisation of microbes through 16s rDNA - Phase I

Day 3: Characterisation of microbes through 16s rDNA - Phase II

Day 4: Characterisation of microbes through 16s rDNA - Phase III

Day 5: Data Q.C & Manipulation, Mapping, Metagenomic Analysis, Genome Diversity & Phenotype Association



### Ist Week - Basics of Food Analysis Lab & Analytical Procedures

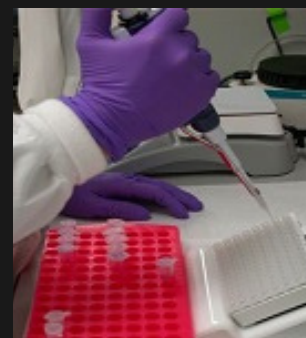
Day 1: Lab safety and Forensic Procedures , Chemical & Reagent Preparation

Day 2: Amount of crude protein in food sample

Day 3: Total carbohydrates in food sample

Day 4: Amount of crude fiber in food sample

Day 5: Cut out test for Canned Products



### IIInd Week - Sensory Evaluation & Other Analysis

Day 1: Moisture Content analysis in Food Sample

Day 2: Total ash analysis in food sample

Day 3: Acesulfame saccharin and cyclamate Detection and Determination in Sweets

Day 4: Sensory Evaluation - Taste Identification Tests

Day 5: Sensory Evaluation - Taste Intensity Test



### IIIrd Week - Estimation of Food Additives & Preservatives

Day 1: Analysis of Benzoic & Sorbic Acid in Food Sample

Day 2: Estimation of Benzoic acid in the presence of saccharin

Day 3: Analysis of Hydroxy Benzoates ( Parabens) in Food sample

Day 4: Analysis of Cyclamate in food sample

Day 5: Aspartame analysis in sample



### IVth Week - Food Sample Analysis by HPLC & Gas Chromatography

Day 1: Data Analysis of Real Time PCR for SNP Analysis

Day 2: SNP analysis by HPLC ( PCR Product )

Day 3: BHT analysis by High Performance Liquid Chromatography

Day 4: Organochlorine Pesticides analysis by Gas Chromatographic (GC) Method

Day 5: Data Analysis of GC & HPLC



**Cost of Training :** INR 25,000 / -

**Duration :** Three Months



# BIO PHARMACEUTICALS







## OUR PEDAGOGY

Our training programs are specially designed for the betterment of students career to help them capture knowledge on emerging technologies and to improve skills in Bio Pharmaceutical Research.



## WHY TRAINING ?

One of the main reasons why freshers find it difficult to get employment in the industry is the lack of hands-on experience. Our mission to get students industry-ready in Bio Pharma Sector.

## WHO WILL BE BENEFITED

- Looking to get admission in Ph.D. from foreign university
- Career opportunities in Bio Pharmaceutical Research
- You may consider as Pre Ph.D. Program

### DURATION & FEE :

- 3 Months
- INR 30,000

## HANDS ON EXPERIENCE ON MAJOR TOOL & TECHNIQUES:

- Animal Cell Biology - Culture, Inverted Microscopy, Fluorescence Microscopy & Image Analysis, Apoptosis, Cytotoxicity
- Nucleic Acid Extraction Techniques, PCR & Real Time PCR Analysis, Methylation & rDNA Technology
- Protein Purification by FPLC, Ion Exchange, Affinity Chromatography, Microplate Assay, ELISA, Immuno Fluorescence Assay, SDS-PAGE & BLOT Techniques. Analysis of AAA by HPLC, Fluorescence Detection by HPLC-FLD
- Microbial Techniques, Enzyme Production & Analysis
- Gas Chromatography, Bio-Separation Techniques, Nano Particle Synthesis, Analysis, Botanical Secondary Metabolite Extraction, Drug Analysis.





## Basics Bio-Pharma Analysis Lab & Analytical Procedures

Unit 1: Lab safety and Analytical Procedures , Chemical & Reagent Preparation

Unit 2: Soxhlet Extraction, Drying the solvent by Vacuum Rotary Evaporator

Unit 3: Qualitative assay of Herbals - Assay of Alkaloids, Flavonoids, Terpinenes, Glycosides, Free Glucose, tannins, Anthraquinone, Saponins, Phenols etc

Unit 4: Quantitative assay of Total Phenolics

Unit 5: Quantitative assay of Total Flavonoids



## Cell based Assay, MIC & Anti Microbial Assay

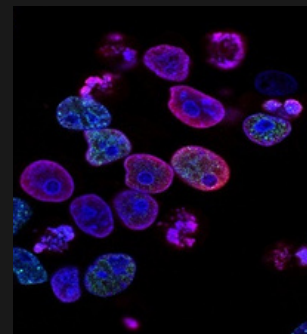
Unit 6: Cell Culture Lab Safety, Microscopy, Basics of Cell Culture

Unit 7: Culture of a Continuously Growing Cell Line

Unit 8: MTT Assay for cytotoxicity analysis

Unit 9: Determination of minimum inhibitory concentration

Unit 10: Anti-Microbial assay of extracted crude extract ( ELISA based )



## Antioxidant / Oxidative Stress Assay

Unit 11: Inhibition Concentration (IC<sub>50</sub>) of Antioxidant activity

Unit 12: In vitro radical scavenging assay & data analysis

Unit 13: Reducing Power assay of herbal extract

Unit 14: Analysis of Catalase test in herbal sample

Unit 15: superoxide dismutase (SOD) activity



## Chromatography Separation & Analysis

Unit 16: Purification of herbal extract by column chromatography

Unit 17: Analysis of fractions by TLC

Unit 18: Spectrophotometric analysis of crude fraction

Unit 19: Basics of High Performance Liquid Chromatography

Unit 20: Sample Analysis & Data Analysis of HPLC



## Basics of Pharma Biotech Lab & Microbiology

Unit 21: Lab safety and Procedures , Chemical & Reagent Preparation

Unit 22: Simple & Serial Dilution, Moles and Molar Solutions

Unit 23: Growth Curve Analysis of Microbial Culture

Unit 24: Enumeration of Microbes & Colony Counting

Unit 25: Colony Morphology & Survival Analysis



## Lab Safety & Nucleic Acids

Unit 26: Genetics Lab safety and Procedures ,Chemical & Reagent Preparation

Unit 27: DNA Extraction & Optimization of Protocol

Unit 28: Quantitative & Qualitative Analysis of DNA

Unit 29: Lab Safety for RNA, Total RNA Extraction & Optimization

Unit 30: Quantitative & Qualitative Analysis of RNA



## Bioinformatics, cDNA Synthesis & PCR Run

Unit 31: Bioinformatics: Primer Designing, Vectors, Selection of Restriction Sites, Virtual PCR, other Bioinformatics tools & Techniques

Unit 32: mRNA Purification & First Strand cDNA Synthesis

Unit 33: Optimisation of PCR Reaction – Melting Point , GC Content , Concentrations and Cycles, Sample Preparation For PCR Analysis, PCR sample Run

Unit 34: Analysis of PCR sample

Unit 35: Qualitative RT- PCR sample run & Analysis



## rDNA Technology

Unit 36: Isolation of pUC18 plasmid from TOP10-pUC18 E coli cells

Unit 37: Restriction digestion of pUC 18 and  $\lambda$  DNA & Purifying pUC18/Hind III/ EcoR I digest by gel elution

Unit 38: Ligating the linearized plasmid -pUC18 and the insert – $\lambda$ DNA

Unit 39: Preparation of competent cells

Unit 40: Transformation of TOP10 cells with the pUC18- $\lambda$ DNA ligated Product & Confirmation by PCR



## Lab Scale Up Stream processing

Unit 41: Microbial Selection & Preparation for Protein Production

Unit 42: Medium Optimization by Plackett and Burman Design

Unit 43: Effect of pH on enzyme activity

Unit 44: Effect of temperature on enzyme activity

Unit 45: Batch Growth Kinetics of Microbe



## Lab Scale Down Stream processing

Unit 46: Extraction of Protein from microbial culture

Unit 47: Ammonium sulfate precipitation & Estimation

Unit 48: Dialysis or Desalting of Protein Sample

Unit 49: Preparation for Protein Purification Strategies

Unit 50: Molecular Weight determination by SDS-PAGE



## Pharmaceutical Analysis Lab & Analytical Procedures

Unit 51: Lab safety and Chemistry Lab Procedures , Chemical & Reagent Preparation

Unit 52: Calibration of balance, pH Meter and apparatus, Acid-base titration

Unit 53: Moisture content analysis, Dissolved Oxygen Analysis, TDS, Nitrogen Potentiometric Analysis, Refractive Index determination.

Unit 54: Chromatography Procedures - Column Chromatography, TLC, HPLC & GC

Unit 55: Spectrophotometric Analysis



## Qualitative Analysis of Pharmaceutical Drugs

Unit 56: Determination of % purity of ammonium chloride

Unit 57: Partition Coefficient of Benzoic acid between benzene & water

Unit 58: Assay & Analysis of aspirin

Unit 59: To perform analysis of paracetamol

Unit 60: To carry out the Assay of furosemide tablets.



## Analysis of Pharmaceutical Finished Products

Unit 61: Analysis of Erythromycin tablet

Unit 62: Pharmaceutical Analysis of Ethambutol Tablets

Unit 63: Pharmaceutical Analysis of Ethosuximide Syrup

Unit 64: Analysis of Metronidazole Injection

Unit 65: Atropine Eye Ointment Analysis



## Food Sample Analysis by HPLC & Gas Chromatography

Unit 66: Basics of High Performance Liquid Chromatography & Gas Chromatography

Unit 67: Software, application in HPLC and Data Analysis

Unit 68: Software & Its application in Gas Chromatography

Unit 69: Sample, Standard and Solvent Preparation for HPLC

Unit 70: Sample Run & Data Analysis



**Cost of Training :** INR 30,000 / -

**Duration :** Three Months





# **HERBAL / AYURVEDA**





## OUR PEDAGOGY

Our training programs are specially designed for the betterment of students career to help them capture knowledge on emerging technologies and to improve skills in Herbal analysis & research.



## WHY TRAINING ?

One of the main reasons why freshers find it difficult to get employment in the industry is the lack of hands-on experience. Our mission to get students industry-ready in Ayurveda Sector..

## WHO WILL BE BENEFITED

- Career opportunities in Ayurveda Research or Industry
- You may consider as Pre Ph.D. Program

### DURATION & FEE :

- 3 Months
- INR 30,000

## HANDS ON EXPERIENCE ON MAJOR TOOL & TECHNIQUES:

- Animal Cell Biology - Culture, Inverted Microscopy, Fluorescence Microscopy & Image Analysis, Apoptosis, Cytotoxicity
- Microscopy of Botanicals - Classical botany
- Extraction Procedures, Solvent management by vacuum rotary evaporation and other distillation techniques
- Microbial Analysis, MIC, Anti Microbial Activity, Anti oxidant Activity etc.
- Heavy Metal Analysis
- Pesticide Analysis
- Chromatography Techniques - Size Exclusion, Preparative HPLC Purification, HPLC Analysis, TLC & Column Chromatography
- Gas Chromatography



## Macroscopic & Microscopic Examination of Botanical

- Unit 1: Visual examination and odour - size, colour, texture, surface characteristics
- Unit 2: Inspection by microscopy - Preliminary treatment, section & staining
- Unit 3: Histochemical detection of cell walls and contents
- Unit 4: Disintegration of tissues
- Unit 5: Determination of the stomatal index



## Determination of extractable matter, volatile oil & bitterness

- Unit 1: Hot extraction and Cold maceration of botanical
- Unit 2: Drying the solvent by Vacuum Rotary Evaporator
- Unit 3: Determination of water and volatile matter
- Unit 4: Determination of volatile oils
- Unit 5: Determination of bitterness value



## MIC & Anti Microbial Assay

- Unit 6: Determination of haemolytic activity
- Unit 7: Determination of tannins
- Unit 8: Determination of swelling index
- Unit 9: Determination of foaming index
- Unit 10: Qualitative assay of Herbals - Assay of Alkaloids, Flavonoids, Terpenes,



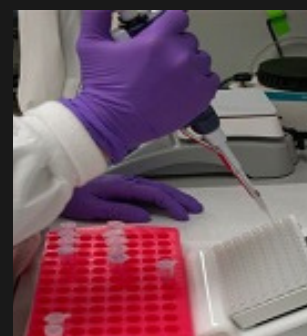
## Basics of Herbal Analysis Lab & Analytical Procedures

- Unit 11: Qualitative assay of Herbals - Free Glucose, tannins, Anthraquinone, Saponins, Phenols etc
- Unit 12: Quantitative assay of Total Phenolics
- Unit 13: Quantitative assay of Total Flavonoids
- Unit 14: Quantitative assay of Total Phenolics
- Unit 15: Quantitative assay of Total Alkaloids



## Chromatography Separation & Analysis

- Unit 16: Analysis of crude fractions by TLC
- Unit 17: Purification of herbal extract by column chromatography
- Unit 18: Spectrophotometric & TLC analysis of fractions
- Unit 19: Basics of High Performance Liquid Chromatography
- Unit 20: Crude Fraction & Data Analysis of HPLC



## Herbal Microbial Analytical Procedure

Unit 21: Simple & Serial Dilution, Moles and Molar Solutions

Unit 22: Sterility Check : Procedural Blank , Media Blank , Field Blank , Positive & Negative Control Cultures

Unit 23: Enumeration of Microbes & Colony Counting

Unit 24: Growth Curve Analysis of Microbial Culture

Unit 25: Colony Morphology & Survival Analysis



## MIC & Anti Microbial Assay

Unit 26: Minimum Inhibitory Concentration Assay ( MIC Assay )

Unit 27: Data Analysis of minimum inhibitory concentration

Unit 28: Anti-Microbial assay of extracted crude extract ( Plate Assay )

Unit 29: Anti-Microbial assay of extracted crude extract ( ELISA based )

Unit 30: Antibigram data Analysis



## Antioxidant / Oxidative Stress Assay

Unit 31: Inhibition Concentration (IC50) of Antioxidant activity

Unit 32: In vitro radical scavenging assay & data analysis

Unit 33: Reducing Power assay of herbal extract

Unit 34: Analysis of Catalase test in herbal sample

Unit 35: superoxide dismutase (SOD) activity



## Cell Culture, Cytotoxicity Assay

Unit 36: Cell Culture Lab Safety, Microscopy, Basics of Cell Culture

Unit 37: Revival of Cryo preserved Cell

Unit 38: Culture of a Continuously Growing Cell Line

Unit 39: MTT Assay for cytotoxicity analysis

Unit 40: Data Analysis of cytotoxicity assay



## Molecular Docking Approach in Screening of Ayurvedic Phytoconstituent Leads

Unit 41: Complementarity binding response & Protein analysis

Unit 42: Target details and Receptor Structure

Unit 43: Ligand preparation

Unit 44: Protein preparation and grid generation

Unit 45: Molecular docking





## Heavy Metal & Pesticide Analytical Techniques

Unit 46: Analysis of lead in herbal sample

Unit 47: Analysis of chromium in herbal extract

Unit 48: Analysis of cadmium in herbal sample

Unit 49: Analysis of arsenic in herbal sample

Unit 50: Analysis of pesticide in herbal extract



## Activity Guided Purification of column fractions by Semi or Preparative HPLC

Day 1: Purification of fraction with Size Exclusion Chromatography ( HPLC )

Day 2: Analysis of active ingredient with Microplate Reader

Day 3: Analysis of purified fraction for anti microbial activity

Day 4: Analysis of purified fraction with cell line - Phase 1

Day 5: Analysis of purified fraction with cell line - Phase 2



## Analysis of non volatile compound with HPLC

Unit 51: Basics of High Performance Liquid Chromatography

Unit 52: Software, application in HPLC and Data Analysis

Unit 53: Sample, Standard and Solvent Preparation for HPLC

Unit 54: Sample run with HPLC

Unit 55: Data Analysis



## Analysis of semi or volatile with Gas Chromatography

Unit 56: Basics of Gas Chromatography

Unit 57: Software, application in GC and Data Analysis

Unit 58: Sample, Standard and Solvent Preparation for GC

Unit 59: Sample run with GC

Unit 60: Data Analysis



**Cost of Training :** INR 30,000 / -

**Duration :** Three Months





## Address Office:

A : C-59, Sector-10, Industrial Area, Noida, Uttar Pradesh, India - 201301

P : +91-9891179928

E : [info@allelelifesciences.com](mailto:info@allelelifesciences.com)



## PERSONAL INFORMATION

Full Name :

Address :

Nationality :

Institution ( If Any )

Phone :

Email :

Name of Training :

## 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 Rs 1000/- deposited is completely non refundable.
3. I will deposit the service charges as decided by the company in brochure at the time of joining date of training program.
4. Students have to bear their own boarding/lodging /conveyance charges.
5. Trainees will maintain adequate discipline & lab safety inside the lab premises.
6. Company will not be responsible for any medical, legal issues during the internship tenure.

## Declaration

I  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 terms & conditions, norms, lab etiquette during the training .

Pay Registration Fee for confirmation of seat for training program.  
Send the copy of the form, payment detail and any identity proof at :  
[info@allelelifesciences.com](mailto:info@allelelifesciences.com)



[allelelifesciences@upi](mailto:allelelifesciences@upi)

## THANK YOU FOR REGISTRATION

We will send your training confirmation letter at your Email ID given in the registration form

Trainee Signature

## More Information :

If you do not receive confirmation letter kindly WhatsApp your details at:  
9891179928

[www.allelelifesciences.com](http://www.allelelifesciences.com)



## CONTACT US —

### ALLELE LIFE SCIENCES PVT. LTD

C-59, Sector-10, Industrial Area, Noida, Uttar Pradesh, India - 201301

WhatsApp: 9891179928

Email: [info@allelelifesciences.com](mailto:info@allelelifesciences.com)

Web: [www.allelelifesciences.com](http://www.allelelifesciences.com)

## OUR SERVICES

### GENOMICS SERVICES

- Sequencing Services
- PCR & Real Time PCR Services
- Gene Cloning
- Genotyping Services
- Epigenetic Analysis
- Microbiome Analysis
- Nutrigenomics Analysis
- Plant Genomics

### PROTEIN CHEMISTRY

- Protein Purification
- Protein Analysis
- Peptide Synthesis
- Peptide Modification
- Peptide Labelling
- Antibody Purification
- Enzyme Production
- Enzyme Analysis

### BIOLOGICAL ASSAY

- In-Vitro Cell Assay
- Microbial Assay
- Antioxidant Assay
- Oxidative Stress Assay
- Toxicity Assay
- Nanotechnology Assay
- Bio-Chemical Assay
- Immunology Assay

### ANALYTICAL SERVICES

- HPLC Analysis
- GC Analysis
- Mass Spectrometry Analysis
- Vitamin Analysis
- GMO Analysis
- Amino Acid Analysis
- Allergen Analysis
- Trace Analysis

## OUR PRODUCTS

- Molecular Biology Reagents
- Biochemical Analysis
- Protein Analysis Reagents
- Cell Culture Products
- Plant Research Products
- Lab Equipment