

Hands-On Science

Practical Training in Biological and Biomedical Sciences for Aspiring Researchers (Theoretical and Practical)



Hands-On Learning



Expert Guidance



Advanced Labs



Certificate of Completion



FSGene_Lab



FSGene_Lab



info@fsg-lab.com

Our Company

At FSGene, we are more than just a biotechnology center; we are shaping a new era in genetic healthcare and specialized biomedical training. Based in the heart of Saudi Arabia, our mission is to address the challenges of genetic diseases and oncology through cutting-edge innovation and advanced genotyping technologies. As proud contributors to the Saudi Genome Project, we bridge the gap between complex research and practical application. By empowering researchers and healthcare professionals with world-class, hands-on training, we are helping shape the future of personalized medicine and supporting Saudi Vision 2030 in the life sciences sector.



Our Vision

To be the premier catalyst for biotechnology innovation in the Middle East, leading the evolution of personalized medicine and genetic research through world-class training and advanced genomic solutions.



Global & Local Achievements



Won 1st Place in
Global Health
Exhibition 2024



Best Innovative Project
Award in Cancer
Solutions 2022



Best Health Project
Award –
Mask 2021



Innovative Project
Award –
Monsha'at 2020



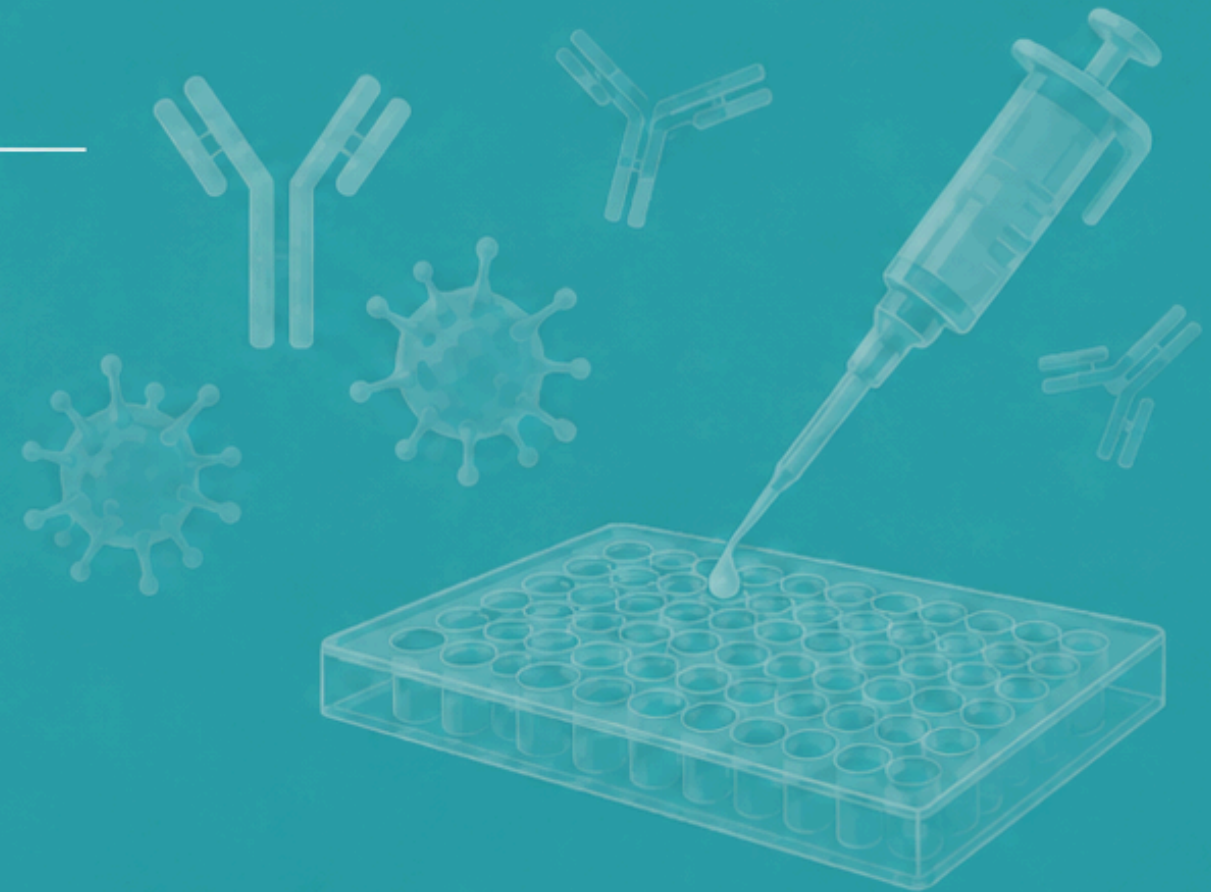


Duration: 2 Days



Program Highlights

- 1. Immune System Dynamics:** Understanding antigen-antibody interactions and the molecular basis of the immune response.
- 2. ELISA Specialization:** Hands-on execution of Direct, Indirect, Sandwich, and Competitive ELISA formats.
- 3. Data Validation:** Mastering microplate reading, calculating concentrations via standard curves, and identifying false positives and false negatives.



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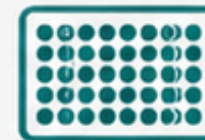
Immune System Dynamics



Understanding antigen-antibody interactions and the molecular basis of the immune response.

2

ELISA Specialization



Hands-on execution of Direct, Indirect, Sandwich, and Competitive ELISA formats.

3

Data Validation



Mastering microplate reading, calculating concentrations via standard curves, and identifying false positives and false negatives.



This program builds practical expertise in immunoassay techniques and data interpretation to ensure accuracy, reliability, and confidence in experimental outcomes.





Duration: **5 Days**



Program Highlights

- 1. Tissue Engineering & Processing:** Mastering dehydration, clearing, infiltration, paraffin wax embedding, and block orientation.
- 2. Precision Microtomy:** Techniques for ultra-thin sectioning, ribbon formation, and handling fragile tissues.
- 3. Advanced Staining:** Systematic approach to Hematoxylin & Eosin (H&E) and specialized histochemical stains such as PAS and Masson's Trichrome.
- 4. Pathology Mastery:** Principles of Immunohistochemistry (IHC) for cancer biomarker detection and an introduction to digital pathology and slide scanning.



1 Tissue Engineering & Processing

Mastering dehydration, clearing, infiltration, paraffin wax embedding, and block orientation.

2 Precision Microtomy

Techniques for ultra-thin sectioning, ribbon formation, and handling fragile tissues.

3 Advanced Staining

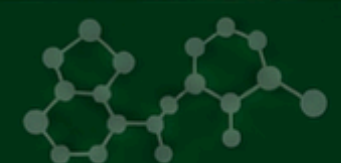
Systematic approach to Hematoxylin & Eosin (H&E) and specialized histochemical stains such as PAS and Masson's Trichrome.

4 Pathology Mastery

Principles of Immunohistochemistry (IHC) for cancer biomarker detection and an introduction to digital pathology and slide scanning.



This program builds strong hands-on expertise in histological techniques, staining, and pathology applications—empowering you to deliver high-quality tissue analysis and diagnostic insights.





Duration: **4 Days**



Program Highlights

- 1. Nucleic Acid Mastery:** Advanced protocols for genomic DNA and total RNA extraction from diverse biological samples.
- 2. Precision Analytics:** High-sensitivity quantification using Nanodrop and Qubit for downstream applications.
- 3. Amplification Technologies:** Design and optimization of PCR, RT-PCR, and qPCR assays, including troubleshooting primer-dimers and non-specific amplification.
- 4. Next-Gen Foundations:** Library preparation basics and quality control for NGS platforms.



1

Nucleic Acid Mastery



Advanced protocols for genomic DNA and total RNA extraction from diverse biological samples.

2

Precision Analytics



High-sensitivity quantification using Nanodrop and Qubit for downstream applications.

3

Amplification Technologies



Design and optimization of PCR, RT-PCR, and qPCR assays, including troubleshooting primer-dimers and non-specific amplification.

4

Next-Gen Foundations



Library preparation basics and quality control for NGS platforms.



This program equips participants with advanced molecular skills and hands-on expertise to ensure accuracy, reproducibility, and confidence in modern molecular biology workflows.





Duration: 4 Days



Program Highlights

- 1. Database Navigation:** Extracting high-quality data from NCBI, Ensembl, and UniProt.
- 2. Sequence Analysis:** Expert use of BLAST for alignment and ClustalW for multiple sequence alignment.
- 3. Molecular Design:** In-silico primer design for PCR and CRISPR applications, plus protein structure prediction.
- 4. Genomic Interpretation:** Analyzing VCF files and interpreting variants in the context of clinical genetics and personalized medicine.



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Database Navigation

Extracting high-quality data from NCBI, Ensembl, and UniProt.

2

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+ + + + +
A T G C T A G
+ + + + +
A T G C T A G

Sequence Analysis

Expert use of BLAST for alignment and ClustalW for multiple sequence alignment.

3



Molecular Design

In-silico primer design for PCR and CRISPR applications, plus protein structure prediction.

4



Genomic Interpretation

Analyzing VCF files and interpreting variants in the context of clinical genetics and personalized medicine.



This program combines biological insight with computational analysis to equip participants with the tools and expertise needed for modern genomics research and translational bioinformatics.





Duration: **3 Days**



Program Highlights

- 1. Microbial Cultivation:** Formulating specialized and selective media, mastering aseptic techniques, and streak-plate isolation.
- 2. Pathogen Identification:** Advanced biochemical profiling and morphological classification using differential staining techniques.
- 3. Resistance Profiling:** Performing Kirby-Bauer Disk Diffusion and Minimum Inhibitory Concentration (MIC) tests to evaluate antibiotic susceptibility.
- 4. Environmental Monitoring:** Basics of air and surface sampling within controlled laboratory environments.



1

Microbial Cultivation



Formulating specialized and selective media, mastering aseptic techniques, and streak-plate isolation.

2

Pathogen Identification



Advanced biochemical profiling and morphological classification using differential staining techniques.

3

Resistance Profiling



Performing Kirby-Bauer Disk Diffusion and Minimum Inhibitory Concentration (MIC) tests to evaluate antibiotic susceptibility.

4

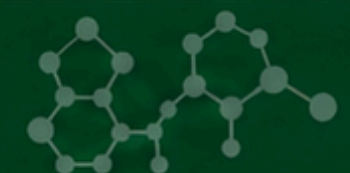
Environmental Monitoring



Basics of air and surface sampling within controlled laboratory environments.



This program strengthens practical microbiology skills and antimicrobial testing expertise, empowering participants to deliver accurate, reliable, and clinically relevant results.





Duration: **3 Days**



Program Highlights

- 1. Extraction Innovation:** Utilizing Soxhlet, maceration, and ultrasound-assisted extraction for bioactive compounds.
- 2. Separation Science:** Principles of Thin Layer Chromatography (TLC) and High-Performance Liquid Chromatography (HPLC) for compound purification.
- 3. Identification & Bioassays:** Spectroscopic profiling using UV-Vis and IR, and evaluating antimicrobial, antioxidant, or cytotoxic activities of natural extracts.
- 4. Pharma-Integration:** Transitioning from lead compound to drug formulation and safety profiling.



1

Extraction Innovation



Utilizing Soxhlet, maceration, and ultrasound-assisted extraction for bioactive compounds.

2

Separation Science



Principles of Thin Layer Chromatography (TLC) and High-Performance Liquid Chromatography (HPLC) for compound purification.

3

Identification & Bioassays



Spectroscopic profiling using UV-Vis and IR, and evaluating antimicrobial, antioxidant, or cytotoxic activities of natural extracts.

4

Pharma-Integration



Transitioning from lead compound to drug formulation and safety profiling.



This program bridges natural product research with modern drug discovery and development techniques, empowering participants to transform botanical resources into safe, effective therapeutics.





Duration: **1 Day**



Program Highlights

- 1. Regulatory Compliance:** Understanding ISO 15189 and CAP standards.
- 2. Operational Excellence:** Drafting Standard Operating Procedures and managing Internal Quality Control.
- 3. Risk Management:** Root Cause Analysis for lab errors and implementing Corrective and Preventive Actions.



1

Regulatory Compliance



Understanding ISO 15189 and CAP standards.

2

Operational Excellence



Drafting Standard Operating Procedures and managing Internal Quality Control.

3

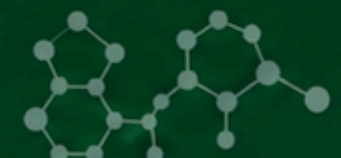
Risk Management



Root Cause Analysis for lab errors and implementing Corrective and Preventive Actions.



This program empowers healthcare and laboratory professionals with essential quality management skills to enhance compliance, strengthen quality systems, and drive continuous improvement.



Thank You

Let's Shape the Future of Science Together



Advancing research, innovation,
and hands-on biomedical training
for the next generation.

Together, we create impact.



FSGene_Lab



FSGene_Lab



info@fsg-lab.com

