Proteomics Foundations & Experimental Design — Hands-on

Build a strong foundation in modern LC–MS/MS based proteomics and learn how to design robust experiments from biological question to acquisition strategy and quality control. This module focuses on experimental planning, sample handling and design choices so that you can confidently select platforms, controls and replicates for discovery, targeted and clinical proteomics studies.

Proteomics Foundations & Experimental Design

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Session Index

Session 1 — Proteomics Concepts & Workflows
Session 2 — Samples, Prep & Experimental Factors
Session 3 — LC-MS/MS Modes & Quant Strategies
Session 4 — Experimental Design & Case Studies

Session 1

Fee: Rs 8800 Apply Now

Proteomics Concepts & Workflows

Proteome organization and measurable proteomics readouts

bottom-up vs top-down **shotgun vs targeted** **discovery vs verification**

Core LC–MS/MS workflow and terminology

ionization and analyzers **MS1 / MS2** **peptide-centric**

view

Study questions that are suitable for proteomics

biomarker discovery | mechanistic signalling | time course and perturbation

Session 2

Fee: Rs 11800 Apply Now

Samples, Prep & Experimental Factors

Sample types and proteome complexity

cells and tissues | biofluids | subcellular fractions

Protein extraction, digestion and cleanup choices

detergents and chaotropes | in-solution vs in-gel | desalting and enrichment

Pre-analytical variables and batch effects

collection and storage | freeze–thaw cycles | randomization strategies

Session 3

Fee: Rs 14800 Apply Now

LC-MS/MS Modes & Quant Strategies

Acquisition modes and when to use them

DDA conceptually | DIA conceptually | targeted SRM/PRM overview

Quantitative designs and dynamic range

label free intensity | isobaric tags concept | internal standards

Instrument time budgeting and throughput

gradients and cycle time | sample multiplexing | pilot

runs

Session 4

Fee: Rs 18800 Apply Now

Experimental Design & Case Studies

Replicates, blocking and controls in proteomics

theory plus planning exercise

QC strategy and monitoring over a run

system suitability pooled QC spikes and standards

Designing a small proteomics study plan

study worksheet sample map instrument queue outline