

Integrative Proteomics & Peptidomics (Proteogenomics) — Hands-on

Build end-to-end proteomics and peptidomics pipelines, then integrate them with transcriptomics and genomes for proteogenomic discovery. Learn search/ID, quantification (LFQ/TMT/DIA), PTM mapping, variant/novel peptide detection, and biological interpretation with robust QC and reporting.

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[Help Desk](#) · [WhatsApp](#)

Session Index

[Session 1 — MS IDs, Databases & FDR](#) [Session 2 — Quantification: LFQ/TMT/DIA](#) [Session 3 —
Peptidomics & Proteogenomics](#) [Session 4 — Mini Capstone: Cohort Proteogenomics](#)

Session 1

Fee: Rs 6300 [Apply Now](#)

MS IDs, Databases & FDR

Spectra → peptide IDs: search engines & parameters;
target-decoy & FDR

Theory

Tools & workflows (overview)

[MaxQuant](#) [Proteome Discoverer](#)

[MSFragger/Comet/Mascot*](#) [Percolator/PeptideProphet](#)

Protein inference, PTM site localization & QC

Ascore/PTMProphet **multi-enzymes/open search**

Session 2

Fee: Rs 8400 Apply Now

Quantification: LFQ/TMT/DIA

Label-free vs isobaric vs DIA: design, batch effects & normalization

LFQ (MaxLFQ) **TMT/iTRAQ** **DIA-NN/Spectronaut***

Missing values, imputation & differential abundance

MSstats/Limma **combat/batch removal**

PTM-centric quant & site occupancy (phospho etc.)

localization probabilities **motif enrichment**

Session 3

Fee: Rs 11200 Apply Now

Peptidomics & Proteogenomics

Endogenous peptide-centric analyses (processing & QC)

semi-/no-enzyme searches **de novo (PEAKS*/Novor)**

Proteogenomics: custom FASTAs & variant/neoantigen peptides

RNA-seq-guided FASTA **novel junctions/SNVs** **open modification search**

Pathways & interaction maps from proteomic signatures

GSEA/ssGSEA/ORA **STRING/Cytoscape**

Session 4

Fee: Rs 14000 Apply Now

Mini Capstone: Cohort Proteogenomics

Process a small cohort: ID → quant → PTM/variant peptides → pathways

Theory + Practical

Build a reproducible report bundle with provenance & QC gates

Snakemake/Nextflow **Quarto/Markdown**
manifest/checksums

Deliverables: figures, tables, README & manifest

PDF **CSV/TSV** **HTML**