Explore proteomics beyond classic bottom up workflows by focusing on intact proteins and native like complexes. This module introduces top down and native proteomics concepts, from intact mass measurements and charge state deconvolution to qualitative structural and interaction insights, positioning these approaches alongside routine LC–MS/MS pipelines.

Top Down and Native Proteomics Workflows

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Session Index

Session 1 — Top Down vs Bottom Up Concepts   Session 2 — Intact Protein MS and Native MS

Session 3 — Deconvolution, Proteoforms and IDs   Session 4 — Study Design, QC and Readouts

Session 1
Fee: Rs 8800 Apply Now
Top Down vs Bottom Up Concepts

Bottom up proteomics recap and limitations

peptide centric identification inference of proteins from peptides proteoform ambiguity concept

What top down proteomics measures conceptually

intact protein mass and fragments direct view of proteoforms PTM combinations on single molecules

Native proteomics and non denaturing MS ideas

complex and oligomer stoichiometry ligand and

cofactor binding views link to structural biology workflows

Session 2
Fee: Rs 11800 Apply Now
Intact Protein MS and Native MS

Intact protein MS signal and charge states

broad charge envelopes idea mass range and resolving power needs adducts and heterogeneity concepts

Fragmentation and sequence information in top down

ETD/ECD style fragmentation ideas mapping fragments along intact sequence localizing PTMs at high level

Native MS for complexes and interactions (conceptual)

observing intact complexes in gas phase subunit stoichiometry reasoning ligand binding and stability views

Session 3
Fee: Rs 14800 Apply Now
Deconvolution, Proteoforms and Identifications

Charge state deconvolution concepts

from m/z envelopes to zero charge mass handling overlapping species conceptually effect of resolution and noise

Thinking in terms of proteoforms rather than proteins

different PTM and sequence variants tracking families of related masses linking intact views to bottom up IDs

High level identification strategies

matching masses and fragments conceptually
controlling search space ideas confidence and
ambiguity reasoning

Session 4
Fee: Rs 18800 Apply Now

Study Design, QC and Readouts

Designing top down and native experiments on paper

theory plus planning worksheet

QC concepts for intact and native spectra

stability of charge state envelopes mass accuracy
and resolution patterns replicate and control checks

Summarizing top down and native results

tables of proteoforms and complexes schematic
figures linking to structure methods descriptions for
manuscripts