

False Discovery Control & Levels of Identification (MSI) — Hands-on

Make your metabolomics results statistically and chemically trustworthy. This module connects multiple testing and FDR control with LC–MS/GC–MS feature curation, decoy and blank strategies, and Metabolomics Standards Initiative (MSI) identification levels so that you can report features and metabolite IDs with clear, defensible confidence.

False Discovery Control & Levels of Identification (MSI)

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Session 1

Fee: Rs 8800 [Apply Now](#)

Multiple Testing, FDR & q-Values in Metabolomics

Why multiple testing explodes in untargeted feature tables

[thousands of features](#) [p-value inflation](#) [false discovery concepts](#)

From p-values to FDR and q-values

[Benjamini Hochberg overview](#) [q-value interpretation](#)
[setting FDR thresholds](#)

Feature level significance reporting for metabolomics tables

adjusted p-values **volcano plots (concepts)** **effect sizes and fold changes**

Session 2

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Decoys, Blanks & QC Based False Positive Control

Using blanks and QCs to identify artifactual features

blank dominated signals **carryover and contamination** **QC coefficient of variation**

Decoy based strategies to estimate false discovery rates

target decoy logic (concepts) **shuffling or randomization ideas** **empirical FDR curves**

Combining statistical and experimental evidence for filtering

blank filters plus FDR **presence and intensity rules** **transparent decision criteria**

Session 3

Fee: Rs 14800 Apply Now

Identification Confidence & MSI Levels in Practice

Recap of MSI levels and what they mean in real datasets

Level 1 through Level 4 **when to upgrade or downgrade IDs** **common pitfalls and overclaims**

Evidence matrices for each candidate identification

accurate mass and RT support **MS/MS pattern quality** **adduct and isotope consistency**

Feature level vs ID level uncertainty and FDR thinking

significant feature sets **candidate metabolite lists**

communicating uncertainty

Session 4

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Mini Capstone: FDR & ID Confidence Report

Apply FDR control and filtering to a small metabolomics dataset

Theory + Practical

Attach MSI levels and evidence columns to selected IDs

MSI level annotation **evidence and notes fields** **flags**
for low confidence hits

Deliverables: feature list with q-values and ID confidence

q-value annotated feature table (CSV) **MSI level and**
evidence table **short FDR and ID confidence summary**