Microbiome Metaproteomics Introduction — Hands-on

Gain a practical introduction to microbiome metaproteomics — from samples and protein extraction through LC–MS/MS acquisition, peptide identification, basic quantification and functional summaries. You will understand how metaproteomics complements metagenomics and metabolomics, and how to generate first pass community protein reports for real world studies.

Microbiome Metaproteomics Introduction

Help Desk · WhatsApp

Session Index

Session 1

Fee: Rs 8800 Apply Now

Metaproteomics Concepts & Study Design

Where metaproteomics fits in microbiome multi omics

DNA vs RNA vs protein vs metabolites **function in action vs potential** **links to pathways and phenotypes**

Study design for microbiome metaproteomics projects

sample types (stool, soil, bioreactors, etc.) **replicates and blocking ideas** **coordination with metagenomics and metadata**

Overview of metaproteomics workflows and data structures

from proteins to peptides to spectra | raw files, peak lists and search results | PSM, peptide and protein tables

Session 2

Fee: Rs 11800 Apply Now

Sample Prep, Protein Extraction & LC–MS/MS

Sample handling and protein extraction concepts

cell lysis strategies for complex matrices | host vs microbial protein considerations | protease inhibitors and quality checks

Digestion, cleanup and fractionation options

tryptic digests and protocol choices | desalting and cleanup mindsets | when to consider fractionation

LC–MS/MS acquisition thinking (DDA / DIA at a glance)

chromatography and gradient ideas | survey vs fragment spectra concepts | instrument settings and run planning

Session 3

Fee: Rs 14800 Apply Now

Peptide Identification, Quantification & Functional Views

Database construction for microbiome metaproteomics

using metagenomes / MAGs as search space | target decoy and FDR concepts | contaminant and decoy sequences

Peptide and protein identification & basic quant views

PSM tables and score thinking | peptide to protein inference ideas | intensity based quantification basics

Functional and taxonomic summaries of proteins

mapping to gene families and pathways **linking proteins to taxa at high level** **heat maps and bar plots of key functions**

Session 4

Fee: Rs 18800 Apply Now

Mini Capstone: Community Protein Report

End to end metaproteomics workflow on example data

Theory plus guided practical

Interpreting community protein profiles with metadata

condition wise functional differences **linking to pathways and phenotypes** **caveats in partial proteome coverage**

Deliverables: identification tables, plots & methods block

PSM / peptide / protein summary tables **functional and taxonomic figures** **reusable metaproteomics methods text**