Resistome & AMR Surveillance Analytics — Hands-on

Learn how to identify and quantify antimicrobial resistance signatures in microbiome and environmental datasets. This module covers ARG databases, mapping workflows, resistome profiling, normalization strategies, co selection patterns and core analytics for wastewater and One Health AMR surveillance projects.

Resistome & AMR Surveillance Analytics

Help Desk · WhatsApp

Session Index

Session 1

Fee: Rs 8800 Apply Now

AMR & Resistome Foundations

AMR concepts in a microbiome and One Health context

acquired vs intrinsic resistance **clinical, environmental and food chains** **role of microbiomes in AMR spread**

Resistome building blocks

antibiotic resistance genes (ARGs) **mobile genetic elements and plasmids** **co selection with metals and biocides overview**

Sample types and study designs for AMR surveillance

clinical isolates and metagenomes | wastewater and environmental matrices | cross sectional vs longitudinal designs

Session 2

Fee: Rs 11800 Apply Now

ARG Databases & Detection Pipelines

Overview of ARG and AMR resources

CARD, ResFinder, MEGARes | ARG OAP style frameworks | metadata and antibiotic class groupings

Read and contig based AMR detection

short read mapping to ARG databases | contig annotation and coverage | sensitivity, specificity and cut off thinking

Linking ARGs to taxa and mobile elements

co localisation on contigs and MAGs | host assignment strategies | basic networks of ARG host relationships

Session 3

Fee: Rs 14800 Apply Now

Quantification, Normalization & Surveillance Metrics

Quantifying ARG abundance and diversity

ARG counts and length normalisation | reads per kilobase per million style units | richness and diversity of ARG classes

Host and biomass based normalisation ideas

per 16S copy or cell equivalents overview | normalising to flow or population for wastewater

linking to clinical DDD metrics overview

Surveillance style analytics and reporting

heatmaps of ARG classes across sites | trend lines and simple thresholds | linking resistome profiles to metadata

Session 4

Fee: Rs 18800 Apply Now

Mini Capstone: Resistome Surveillance Story

Designing a small resistome analysis workflow

guided theory plus practical

From processed reads to resistome dashboards

ARG detection with one database | normalised ARG abundance tables | core summary plots for sites or cohorts

Deliverables: figures, tables and narrative for an AMR question

ARG class heatmaps and barplots | key indicators and trend summaries | short report for One Health surveillance teams