Resistome & Mobilome Analytics AMR MGE — Hands-on

Learn how to characterize the resistome and mobilome from microbiome and metagenomic data. You will explore AMR gene calling and quality control, detect mobile genetic elements, build normalized abundance profiles, interpret co-occurrence and co-selection patterns, and generate surveillance-ready reports for clinical, environmental, wastewater and agri use-cases.

Resistome and Mobilome Analytics AMR MGE

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Session Index

Session 1

Fee: Rs 8800 Apply Now

AMR, Resistome & Mobilome Foundations

AMR, resistome and mobilome concepts in microbiomes

intrinsic vs acquired resistance ideas | **resistome as a community level property** | **selection pressure and co selection thinking**

Mobile genetic elements and horizontal transfer mindset

plasmids, transposons and integrons | **phages as carriers of AMR genes** | **linking MGEs to host**

backgrounds

Resistome study designs and sample types overview

clinical, environmental and agri settings | wastewater and surveillance use cases | linking sequencing plans to questions

Session 2

Fee: Rs 11800 Apply Now

Read Mapping & Gene Calling for AMR & MGEs

Databases and reference resources for AMR and MGEs

concepts behind curated AMR gene catalogs | plasmid and integron reference views | versioning and update awareness

Read mapping and assembly based AMR detection thinking

alignment vs k mer style approaches | identity thresholds and coverage ideas | contig level AMR gene calling mindset

Mobilome detection and linkage to contigs or bins

plasmid signatures and markers | integron and transposase neighborhood ideas | cross referencing with MAGs and hosts

Session 3

Fee: Rs 14800 Apply Now

Quantification, Normalization & Co-Occurrence Views

Building AMR and MGE abundance tables

gene level vs class level summaries | copy number vs read count views | linking to sample metadata

Normalization and comparability across samples and studies

per million reads and per cell style ideas **normalizing to 16S or housekeeping genes** **compositionality and log ratio thinking**

Co-occurrence patterns and risk oriented summaries

AMR gene co presence and co location ideas **associations between AMR, MGEs and taxa** **simple risk indices and heat map panels**

Session 4

Fee: Rs 18800 Apply Now

Mini Capstone: AMR & Mobilome Surveillance Report

End to end resistome and mobilome analysis on a cohort

Theory plus guided practical

Summarizing AMR burden and mobilome context for stakeholders

class level bar plots and heat maps **co occurrence and host context figures** **flags for high concern patterns**

Deliverables: tables, dashboards & methods text for surveillance

AMR and MGE abundance tables **summary plots and simple dashboards** **reusable resistome analysis methods text**