

# Whole Genome Sequencing & Gram-Negative Pathogen Genome Characterization: Complete Analysis Workshop

August 29-30, 2025

## WORKSHOP HIGHLIGHTS

- **Complete AMR-Specialized Pipeline** — From raw sequencing data to resistance gene identification, virulence assessment, plasmid detection, outbreak tracking, and phylogenetic analysis — all without any coding
- **10 Advanced Analyses in One Workshop** — Quality control, genome assembly, gene annotation, antibiotic resistance genes, virulence factors, plasmid detection, mobile elements, phage discovery, strain typing, and transmission tracking
- **Understand & Interpret Results** — Learn to read and understand resistance mechanisms, virulence profiles, outbreak sources, and strain relationships from results
- **No Coding Required** — Everything happens in your web browser with simple clicks and downloads — no Linux, no terminal, no programming skills needed
- **Publication-Ready Research Outcome** — By the end of Day 2, you'll have a complete genomic report that's ready for research publication, clinical consultation, and outbreak investigation briefings
- **Become an In-House Expert** — Master the exact same genomic analysis methods used by international reference laboratories and epidemiological agencies worldwide

## SCHEDULE

### DAY 1: August 29, 2025

**Session 1: 10:00 AM - 12:00 PM** - Quality Control, Genome Assembly, Genome annotation

**Session 2: 2:00 PM - 4:00 PM** – Resistance Genes, Virulence Factors, Plasmid Detection

### DAY 2: August 30, 2025

**Session 1: 10:00 AM - 12:00 PM** - Insertion Sequences, Phage Detection, Crispr Cas Detection

**Session 2: 2:00 PM - 4:00 PM** - Strain Typing, Phylogenetic Trees

## YOU'LL LEARN

### Analysis 1: Quality Control

Check if your sequencing data is good or bad

### Analysis 2: Genome Assembly

Convert raw reads into complete bacterial genome

### Analysis 3: Gene Annotation

Find every gene in the genome

### Analysis 4: Resistance Genes

Identify which antibiotics WON'T work

### Analysis 5: Virulence Factors

Understand disease severity & mechanisms

### Analysis 6: Plasmid Detection

Find mobile DNA carrying resistance

### **Analysis 7: Insertion Sequences**

Detect how resistance spreads

### **Analysis 8: Phage Detection**

Find hidden viruses in bacterial genome

### **Analysis 9: Strain Typing**

Identify outbreak source & transmission

### **Analysis 10: Phylogenetic Trees**

Trace bacterial evolution & outbreak chains

### **WHO SHOULD JOIN?**

Lab technicians, Microbiologist, Biotechnologist, Clinicians, Public health staff,  
Researchers and Medical students

OMICS NEXUS