

Glossary of terms used in this course

Agglutination: Clumping together of antibody-coated latex beads and bacteria when a specific antigen is present.

Antimicrobial: An agent that kills or inhibits microorganisms including bacteria, viruses and fungi.

Aseptic: Free from contamination.

Breakpoint: The concentration at which an antimicrobial will kill/inhibit bacteria. If the MIC (see minimum inhibitory concentration below) is less than or equal to the breakpoint, then that bacteria is susceptible to the antimicrobial.

Carbapenemase: A type of beta-lactamase enzyme produced by some bacteria, which is capable of hydrolysing several class of antibiotics. These include penicillins, cephalosporins, monobactams and carbapenems. Carbapenemase-producing bacteria are very difficult to treat.

Cephalosporin: A class of beta-lactam antibiotics.

CFU: Colony forming unit. A colony of bacteria that has grown from a single bacterium.

Clonal: Group of bacteria that have originated, through one or multiple generations, from the same progenitor bacterial cell.

Confluent growth: Continuous growth of bacteria across an agar plate. No single discrete colonies are visible.

Contigs: Long contiguous stretch of nucleotide sequence generated by assembling bioinformatically the short reads generated by DNA sequencers.

Efficacy: The ability of a drug to have a therapeutic effect in a clinical setting.

Extended spectrum betalactamase (ESBL): An enzyme that confers bacterial resistance to beta-lactam antibiotics. Bacteria that produce ESBLs are often referred to as ESBLs themselves. Bacteria that can produce ESBLs include *Escherichia coli* and *Klebsiella pneumoniae*.

Gene: Sequence of nucleotides that together encode an RNA/protein.

Genotype: The genetic makeup of an organism, based on sequencing its genome. Contrasts to Phenotype.

Lawn: Growth of bacteria over an agar plate

Minimum inhibitory concentration (MIC): The lowest quantity of antibiotic needed to kill/inhibit bacteria.

PBS: Phosphate buffered saline. Used to make suspensions of bacteria for disc testing and other laboratory tests.

Phenotype: The observable characteristics of an organism, such as whether it is resistant or sensitive to antibiotics. Contrasts to genotype.

Reads: Short stretch of nucleotide sequences generated by DNA sequencers.

Resistance determinant: A gene or SNP that confers resistance to a particular antibiotic.

Sensitivity: (of a test) The proportion of actual positives that are correctly identified. The higher the sensitivity of a test, the fewer false negative results it will give.

SNP: Single Nucleotide Polymorphism. Refers to a change in the nucleotide base when comparing two or more nucleotide sequences.

Specificity: (of a test) The proportion of actual negatives that are correctly identified. The higher the sensitivity of a test, the fewer false positive results it will give.

Turbidity: The cloudiness of a liquid. In bacteriology, the higher the turbidity, the high the concentration of bacteria in the liquid.

Whole genome sequencing: The process of determining complete nucleotide sequence of the genetic material.