Minimum Inhibitory Concentration (MIC) Assay

The first step in antimicrobial discovery is usually to screen library candidate drugs against the MIC of the target bacteria. Therefore, MIC is usually the starting point for greater preclinical evaluation of new antibacterial agents. The purpose of measuring the minimum inhibitory concentration is to ensure that antibiotics are effectively screened to increase the success rate of treatment. The concept of minimum inhibitory concentration was originally developed by microbiologist Alexander Fleming using the turbidity of broth to evaluate the antibacterial ability of antibiotics, which is generally considered to be the concept of minimum inhibitory concentration. In the late 1980s, the Clinical and Laboratory Standards Association integrated methods and standards for MIC determination and clinical use for evaluation of antibiotic bacteriostatic effects.

In microbiology, the minimum inhibitory concentration (MIC) is the lowest concentration of chemicals (usually drugs) that prevent visible growth of bacteria. The MIC depends on the microorganisms, the infected person (only in the body) and the antibiotic itself.

Our Procedures

The determination method of MIC is to prepare test chemical solutions in vitro at increasing concentrations.

First, incubate the solutions with different batches of cultured bacteria.

And then use agar dilution or broth microdilution to measure the results. By using agreed breakpoint values, the results have been classified as susceptible (often referred to as sensitive), moderate or resistant to specific antibacterial agents.

The measurement is usually carried out on planktonic bacteria (free floating). The MIC value can be determined based on the optical density based on the use of a spectrophotometer or disk diffusion method. This is a time and cost saving strategy for screening and identifying promising drug candidates. The assay can also be adjusted to determine the minimum test concentration required to inhibit the growth of a group of test isolates (MIC50 and MIC90) that are 50% or 90%.



Figure 1. While performing the dilution method, the lowest concentration (highest dilution) of the antimicrobial preventing appearance of turbidity (growth) is considered as MIC.

Our MIC Testing Services

- Culturing to be detected standard test bacteria
- Minimum inhibitory concentration testing
- Statistics analysis experimental results

Our Advantages

- Ensure high efficiency and quality for MIC detection services
- Competitive price in the market of MIC testing services
- Ensure 24/7 online service
- Timely result feedback

We combine infection and analytical expertise to provide our clients with the most powerful portfolio of antiviral and antimicrobial in vitro testing services. Facing an increasing demand for new antiviral and antimicrobial compounds for the treatment of infectious diseases, Creative Diagnostics can test these compounds in vitro to determine their potential efficacy in vivo models.