



IN VITRO ANTIBACTERIAL EFFICACY TESTING

iFyber provides a range of assays that can be tailored to test a material in a way that is relevant to its proposed end use. We also actively develop novel antimicrobial assay systems based on our client's specific needs. Relevant materials for testing include new antibiotics/biocides, coatings, nanomaterials, wound dressings, coated natural tissue matrices, and coated medical devices.

iFyber is a preclinical contract research organization offering customized services to companies that operate at the interface of chemistry, microbiology and materials science. iFyber is unique. We pride ourselves on providing access to top scientists and creatively solving problems with quick turnaround times.

THINK OF IFYBER AS:

- Consultants with a laboratory to back up ideas with data
- An academic lab, solving R&D problems on corporate or start-up timelines
- A testing lab that develops new methods tailored to clients' products and services
- An extension of your R&D lab

DYNAMIC CONTACT ASSAY:

WHAT IS IT?

The dynamic contact assay is used to determine the efficacy of antimicrobial agents that are bonded to a substrate surface, and are therefore not expected to leach during conditions of normal use. Through a process of continuous agitation, the test is designed to maximize the contact between the non-leachable antimicrobial agent, and the bacterial species against which it is being tested.

WHY USE IT?

If a client is developing non-leachable antimicrobial coatings for any type of substrate, this is one of the first tests that iFyber would recommend. This is a high-throughput assay that enables performance assessment of multiple types of antimicrobial materials using various species of bacteria.

ZONE OF INHIBITION (ZOI) ASSAY:

WHAT IS IT?

The zone of inhibition (ZOI) assay is designed to assess the antimicrobial activity of leachable agents that have been applied onto the surface of, or incorporated into, solid substrates. The antimicrobial material is placed on top of a bacterial 'lawn' that has been grown on nutrient agar. After a defined incubation period, the agar plates are examined: If the leachable agent is biocidal against the test bacteria, a clear region (i.e., zone of inhibition) will be apparent around the test material. Quantification is achieved by measuring the diameter of the zone.

WHY USE IT?

The ZOI assay offers a fast, efficient approach for concurrent screening of multiple leachable antimicrobial materials. Moreover, it is one of the most commonly used screening assays, and as such will provide a client with performance data that may be directly compared to other materials.

MINIMUM INHIBITORY CONCENTRATION (MIC) ASSAY:

WHAT IS IT?

The MIC assay is a high-throughput approach for determining bacterial susceptibility to soluble antimicrobial material. It is used to determine the lowest concentration of an antimicrobial agent that inhibits bacterial growth. The typical experimental approach involves exposing the bacterial species of choice to a dilution range of the antimicrobial test agent, then quantifying bacterial growth. A standard quantification approach is turbidity measurement (optical density) using a spectrophotometer.

WHY USE IT?

The MIC assay will help a client zero in on the effective concentration range of a soluble antimicrobial technology, and can provide informative feedback on such variables as storage conditions and appropriate concentrations of stock solutions for manufacture.

OTHER RELEVANT ASSAYS

- Bacterial selective plating
- Time-Kill Assay
- MTT Assay
- Biofilm Assays

