Centrifugal Microfluidics for Rapid Bacterial Growth and Antibiotic Susceptibility Testing

Tech ID: 34160 / UC Case 2019-203-0

BRIEF DESCRIPTION

A novel device leveraging centrifugal microfluidics to accelerate bacterial growth and rapidly determine antibiotic susceptibility.

FULL DESCRIPTION

This technology utilizes a novel centrifugal microfluidics platform to promote rapid bacteria growth and expedite the phenotypic response of bacteria to antibiotics. The system comprises a driving apparatus for oscillating a microfluidic cartridge, which includes incubation chambers for liquid culture growth. By employing a preferred oscillation protocol and temperature control, alongside a microfluidic disc design that facilitates passive gas exchange, this method significantly enhances bacterial growth and allows for quicker antibiotic susceptibility testing.

SUGGESTED USES

· Healthcare diagnostics, particularly in rapid antimicrobial susceptibility testing.

· Microbiological research requiring optimized growth conditions for bacteria.

· Pharmaceutical industry for the development and testing of antibiotics.

· Biotechnology firms specializing in microbial cultivation and analysis.

ADVANTAGES

· Rapid determination of bacterial susceptibility to antibiotics within 60-90 minutes.

· Enhanced bacterial growth, seen through an average increase in ribosomal RNA concentration of 162%.

· Special agitation protocol and microfluidic disc design optimize liquid culture conditions and gas exchange.

· Potential for on-site, time-sensitive assays without the need for extensive lab infrastructure.

RELATED MATERIALS

» Perebikovsky, A., et al. (2021). Rapid sample preparation for detection of antibiotic resistance on a microfluidic disc platform. Lab Chip, 21.

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OTHER INFORMATION

CATEGORIZED AS

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