InnoMatch

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EIC INNOVATION PROCUREMENT PROGRAMME

Nano FFAST (MelodyOne)

case study

Sound Cell

with the support of

RHMDC

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PILOT: SoundCell B.V. & Reinier Haga Medical Diagnostics Center B.V.

Nano FFAST (MelodyOne) | Healthcare, Medical Diagnostics, and Infectious Disease Management

70 to 120 MINS	96% SENSITIVITY	80% ACCURACY	<5 MINS
RAPID TEST RESULTS	**HIGH RESISTANCE DETECTION**	**OVERALL DIAGNOSTIC MATCH**	**MINIMAL SAMPLE PREP TIME**
Delivers antibiotic testing results in under 2 hours versus 24 to 48 hours standard	Accurately identifies drug-resistant bacterial strains in rapid trials	Strong agreement with standard multi-day hospital laboratory culture methods	Fast hands-on lab technician preparation time per clinical sample

PILOT PROFILE

EIC Awardee: SoundCell B.V.

Solution: Nano FFAST (MelodyOne)

Partner: Reinier Haga Medical Diagnostics Center B.V. (RHMDC, Netherlands)

Testing Ground: Routine clinical microbiology diagnostic laboratory at Reinier Haga Medical Diagnostics Center

Sector & Challenge Focus: Healthcare, Medical Diagnostics, and Infectious Disease Management

The Challenge

When a patient develops a severe blood infection (sepsis), every hour without the correct antibiotic increases mortality risks. Traditional Antibiotic Susceptibility Testing (lab tests that determine which antibiotic kills a specific bacterial infection) requires growing bacteria in culture dishes, taking 24 to 48 hours. During this delay, doctors are forced to prescribe broad-spectrum antibiotics blindly, which can prove ineffective and accelerate global drug-resistant bacterial superbugs.

The Solution

Nano FFAST is a rapid diagnostic platform that uses ultra-thin sheets of graphene (an atom-thick carbon material). Living bacteria vibrate at microscopic physical scales. When bacteria are exposed to an effective antibiotic on a graphene membrane, their microscopic vibrations stop immediately. The platform uses optical sensors and Artificial Intelligence to measure these tiny vibrations (nanomotion), delivering accurate antibiotic suitability results in 70 to 120 minutes.

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Objectives

The pilot aimed to validate that the graphene vibration platform can deliver accurate antibiotic testing on live clinical samples inside a hospital microbiology lab. Reinier Haga Medical Diagnostics Center wanted to verify test speed, train laboratory technicians, and assess workflow fit.

Constrains

Handling delicate graphene microfluidic chips required establishing clean sample preparation steps. The system also had to satisfy strict European medical diagnostic regulations (In Vitro Diagnostic Medical Devices Regulation) before being used for routine patient care decisions.

Performance

The hospital laboratory completed 108 nanomotion measurement trials, reaching Technology Readiness Level 7. The platform delivered diagnostic results in 70 to 120 minutes with under 5 minutes of technician preparation time (compared to 24 to 48 hours for standard lab cultures). It achieved 80% overall accuracy and 96% sensitivity in detecting antibiotic resistance, proving its ability to guide rapid life-saving treatment.

Partner Operational Improvements

Drastic reduction in diagnostic waiting time for acute infections, streamlined laboratory workflow, and improved antibiotic stewardship.

SUCCESSFUL PILOT VALIDATION

The hospital laboratory trained three technicians and integrated the testing unit into routine validation. Formal procurement will proceed upon completion of European medical diagnostic device (CE-IVDR) certification.

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