InnoMatch

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**EIC INNOVATION PROCUREMENT PROGRAMME**

# Optomics® Platform
## case study

ALL BIOMARKERS HAVE A FINGERPRINT

**with the support of**

bluepharma

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# PILOT: iLoF – Intelligent Lab on Fiber & Bluepharma

## Optomics® Platform (MINT Pilot) | Healthcare, Biotechnology, and Nanomedicine Manufacturing

**>90% ACCURACY**

**EMPTY PARTICLE SIZING**

Over 90% size accuracy on empty reference nanoparticles

**>80% ACCURACY**

**LOADED DRUG PROFILING**

Over 80% accuracy profiling nanoparticles loaded with drug payloads

**2x FASTER**

**TESTING SPEEDUP**

Twice as fast as traditional multi-instrument laboratory tools

**0% SAMPLE**

**ZERO DESTRUCTION**

Non-destructive testing preserves 100% of expensive drug samples

### PILOT PROFILE

**EIC Awardee:** iLoF – Intelligent Lab on Fiber

**Solution:** Optomics® Platform (MINT Pilot)

**Partner:** Bluepharma – Indústria Farmacêutica, S.A. (Portugal)

**Testing Ground:** Research & Development and Quality Control formulation laboratories at Bluepharma

**Sector & Challenge Focus:** Healthcare, Biotechnology, and Nanomedicine Manufacturing

### The Challenge

Developing advanced nanomedicines (such as microscopic lipid spheres used to deliver drugs inside the body) requires measuring particle size and drug payload accurately. Traditional laboratory testing tools are slow, expensive, require multiple separate machines, and destroy valuable drug samples during testing, delaying pharmaceutical development.

### The Solution

Optomics® is an advanced analytical testing platform combining photonics (optical laser sensors) and Artificial Intelligence. By shining light through micro-fiber sensors, the system analyses nanoparticles in seconds without destroying sample material, delivering instant particle size and drug loading measurements on a single machine.

### Objectives

The pilot aimed to evaluate Optomics® ability to measure nanoparticle size and differentiate empty versus drug-loaded particles without sample destruction. Bluepharma wanted to test if the platform can replace slow multi-instrument testing pipelines.

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### Constrains

Training AI algorithms to recognize complex biological test formulations required compiling comprehensive optical reference libraries.

### Performance

Optomics® achieved over 90% size accuracy on empty reference particles and over 80% accuracy on drug-loaded particles at Technology Readiness Level 6. The system doubled testing speed while preserving 100% of drug sample material, proving its ability to streamline pharmaceutical quality control.

### Partner Operational Improvements

Faster pharmaceutical formulation testing, zero sample waste, and consolidation of multi-instrument laboratory equipment.

**SUCCESSFUL PILOT VALIDATION**

Bluepharma expressed active interest in ongoing collaboration with iLoF to further evaluate Optomics® for routine pharmaceutical testing.

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