



BIOMETASENS: POINT-OF-CARE DEVICE FOR MONITORING DISEASE-RELATED ANTIBODIES



CHALLENGE

Surface Plasmon resonance (SPR) sensors have exciting prospects for biosensing. They offer unique advantages for the development of new in vitro diagnostic (IVD) devices, such as label free detection, high sensitivity, real time analysis and versatility.

However, fabrication processes are still complex and expensive, thus limiting their use in Point-of-care (POC) diagnostics. Furthermore, current SPR setups are not cost-effective, bulky and require specialized training. Overcoming these challenges would allow SPR biosensors to disruptively enter the market of IVD and POC diagnostics.



MARKET

The global biosensors market is expected to grow at a compound annual growth rate (CAGR) of 7% from 2025 to 2030 and will reach a value of USD 49B in 2030.

The global in vitro diagnostics market is estimated to grow at a CAGR of 5% from 2025 to 2030 and be worth USD 132B in 2030. The point of care segment is expanding to meet the demand for quick diagnosis of infectious diseases and chronic diseases. Moreover, there is a demand of new complex technologies to boost personalized medicine.

Competitors Analysis reveal that current sensor based on SPR are too expensive and this is a major barrier to the introduction of this technology in primary care or at home monitoring tests. This barrier can be overcome by Biometasens.

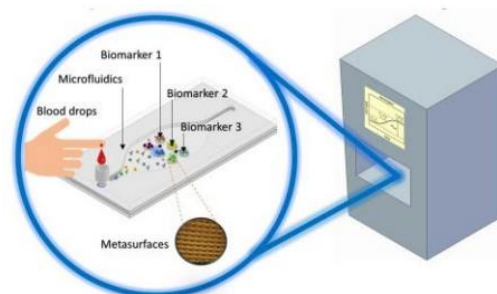


ASSET

We offer an improved versatile diagnostic system, based on nanoplasmonic sensors that allow to detect specific molecules in biological samples.

Our technology is decentralized, direct, label-free, low-cost, allows multiplexed diagnostics/monitoring with just a few drops of biological fluids in the doctor's office in 15 minutes. The fabrication method for the biosensors is easy, quick, easily scalable and increase the detection sensibility.

We are integrating the sensors into a Portable 'Lab-on-a-chip' Diagnostic Photonic Platform, a compact optical multiplexing platform which has a high capability for detection of biomarkers in a short time with low concentration and low volume of analyte



Team

Javier Ramón - Scientific Leader IBEC
Juanma Fernández - Senior Scientist
Eduardo Salas - Head of Tech Transfer

Stage of Development

- Laboratory-scale proof of concept of point-of-care device for detection and monitoring of myasthenia gravis (MG) completed.
- New miniaturized and cost-effective prototype to increase sensitivity, increase resolution, expand the detectable biomarkers and types of body fluid tested (ongoing)
- Market analysis and Regulatory Roadmap assessment available

Exploitation Plan

Spin-off creation / Patent available for licensing with technical collaboration or technical co-development.

Intellectual Property Status

PCT(priority January 2023) WO2024/153708A1
National Phases (2025): US, JP, South Korea, EU and China

The patent is owned by IBEC (Spain), ICREA (Spain) and AGH University of Science and Technology (Poland).

ASSET VALUE

- Superior biosensing sensitivity (up to pg/ul)
- Wide range of detectable protein sizes and autoantibodies
- Easily scalable fabrication method
- Multiplexed detection available for biomarkers and samples
- Potentially compatible with all body fluids

USES

- Versatile point-of-care device for the diagnosis and monitoring of diseases.
- Improving the sensitivity of nanoplasmonic sensors for antibody/antigen recognition.
 - Organ-on-a-chip devices.
 - Sensing devices.