Spanish company searchs for European r&d partners specialised in micro-dispensing technologies and biomedical data analysis software development to apply for next Eurostars programme call in September.

Summary

Profile type	Company's country	POD reference
Research & Development Request	**Spain**	**RDRES20250617023**
Profile status	**Type of partnership**	**Targeted countries**
PUBLISHED	**Research and development cooperation agreement**	**• World**
Contact Person	**Term of validity**	**Last update**
Enrico FRANZIN	**19 Jun 2025** **19 Jun 2026**	**19 Jun 2025**

General Information

Short summary

A Spanish biomedical deeptech company is seeking for partners to co-develop a point-of-care diagnostic platform based on graphene field-effect transistor (GFET) biosensors. The company wants to develop and validate a multiplex in vitro diagnostic device for the detection of sexually transmitted infections (STI) in women. Partners with multi-sensing technologies, graphene-based transistors or data analyis software r&d experience are sought. Estimated budget 1.2 Million €, for 24 months duration.

Full description

The Spanish company, specialised in developing cutting-edge diagnostic technologies, plans to submit an Eurostars proposal, focused on the development of a graphene-based biosensor platform for the multiplex detection of STI. The system will combine advanced GFET sensors with a microfluidic sample handling module, test reading hardware and data interpretation software.

The company has offices in the Basque Country and Madrid regions, where it has established its r&d and management premises since 2020. Previous steps regarding company biosensor platform development have taken

the company from a design stage to a pre-industrial stage, and there is already a technological concept design and a development plan for the new system. Company seeks for complimentary partners, preferably European Sme's, interested in co-development tasks , willing to cooperate under their coordination.

The project addresses the growing need in the market for rapid, decentralised and reliable STI diagnostics, with a particular focus on underserved female populations. There is a clear opportunity to deliver a cost-effective, CE-marked in vitro diagnostic solution that is aligned with EU regulations and has high commercial and technological potential in primary care and public health screening programmes across Europe and beyond.

Project main goal is to reach a functional prototype (TRL 6-7) that complies with IVDR 2017/746 and ISO13485 guidelines, enabling future CE marking and clinical trials. The project duration is expected to be 24 months with a total budget of approximately €1.2 million.

Areas sought for collaboration are related with, pre-designed systems solutions modules.

* Module A) comprising: non-contact microdispensing technologies for printing biological reagents on GFETs, piezoelectric or inkjet-based dispensing platforms, multi-analyte spotting and multiple reagents, volume controlling with picoliter and nanoliter ranges.

The partner's contribution will be essential in creating a stable, multiplexed biochemical interface and ensuring sensor selectivity and sensitivity. The optimisation and setup of adequate QCs would be a critical part of the project.

* Module B) Software & AI development technologies. AI-driven software for signal processing and system intelligence for transistor-based biosensing. The software should be able to:

- •Track and analyse parameters such as Dirac voltage shift, hysteresis and maximum/minimum current ratios.
- • Establish the adequate QCs and set up the parameters of intra- and inter-chip reproducibility
- • Apply machine learning or deep learning models to compensate for non-idealities such as sensor-to-sensor variability, drift and environmental noise, as described in recent literature (e.g. Pannone et al., Nature, 2024).
- • Operate within regulatory frameworks such as IVDR and ISO 13485.

The partner will contribute significantly to improving system-level robustness, accuracy, and regulatory compliance, enabling the final product to operate reliably under real-world conditions and manufacturing variability.

Advantages and innovations

Advantages and Innovations
The new system solution developed addresses urgent public health needs by facilitating early sexually transmitted infections detection, reducing undiagnosed cases, and enabling decentralised screening in primary care.
Regarding actual market solutions, it offers a cost-effective, IVDR-compliant alternative to lab-based PCR and immunoassays, enabling faster treatment decisions and reducing NHS burden.
Considering social impact it includes improved women's health equity and access to diagnostics.
And regarding sustainability and digital green transition, the new solution will provide measurable environmental benefits, as sample transport, plastic waste, and reagent consumption will be all reduced.
The platform's core architecture —graphene biosensors, fluidics and signal processing—provides high versatility and personalization features, and can be adapted to detect other conditions such as respiratory infections or early-stage cancers.
Key advantages of the platform can be sum up:

- High sensitivity/specificity (>95%)
- Non-invasive sample collection
- Multiplex detection
- Adaptability to low-resource settings
- Scalable to new diagnostic targets and industrial production

Technical specification or expertise sought

We are seeking technology partners—preferably an R&D-performing SME—with proven experience in one or more of the following areas:

- Non-contact microdispensing technologies (e.g. piezoelectric or inkjet-based systems) with a proven ability to deposit multiple types of biomolecules (e.g. antibodies, DNA and proteins) onto small biosensor surfaces (2–10 mm, up to 50 GFETs) with high spatial resolution and volume control. Experience with the functionalisation of nanomaterials or biosensor arrays, especially on substrates such as functionalised graphene, is highly desirable
- Graphene or GFET signal processing and interpretation, including the extraction of electrical parameters such as the Dirac point shift (V_(Dirac)), transfer curve hysteresis and current modulation under different gate voltages.

Ideally, the partner will have experience in developing software capable of handling real-time sensor data acquisition and analysis, as well as machine learning or AI-based signal analytics applied to sensor data. The focus should be on building robust predictive models that mitigate non-idealities (e.g. cycle-to-cycle and chip-to-chip variability). Familiarity with neural network architectures, feature engineering and interpretability frameworks would be an advantage, as would expertise in regulatory-compliant design (ISO 13485, IVDR and IEC 62304) and experience in scaling up prototypes for industrial manufacturing or preclinical validation.The partner is expected to co-develop, integrate and test the diagnostic device in collaboration with Attenbio. They may also contribute to the design of multidispensing and set up of the adequate QCs protocols, software integration, algorithm optimization, or regulatory documentation, depending on their profile.
Cross-sectoral or transferable know-how from areas such as lab-on-a-chip systems, electrochemical biosensors or GFETS, processes QCs is considered an asset, especially when aligned with high-precision microdispensing or AI-based signal interpretation.

Stage of development

Under development

Sustainable Development goals

- **Goal 3: Good Health and Well-being**
- **Goal 5: Gender Equality**
- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

IPR applied but not yet granted

IPR Notes

Partner Sought

Expected role of the partner

1. Microdispensing Technology Partner
This partner is expected to develop and/or integrate non-contact microdispensing solutions for the precise, multi-analyte functionalisation of biosensor chips (2-10 mm). Key tasks include:
- Selection or adaptation of inkjet, piezoelectric or similar precision dispensing platforms capable of stable nanoliter/picoliter deposition.
- Development of robust protocols for multi-bioreceptor spotting on graphene surfaces, ensuring reproducibility and stability.
- Establishment of quality control (QC) criteria and procedures for each dispensing step (e.g., spot volume, alignment, adhesion, bioactivity), enabling safe and traceable transition toward pilot manufacturing.
- Contribution to the design-for-manufacturing (DfM) and scale-up strategy.
- Support in preclinical validation of multiplexed chips under real assay conditions.

2. AI & Software Development Partner
This partner is expected to develop the software layer responsible for signal acquisition, interpretation and intelligence. Tasks include:
- Real-time processing of GFET transfer curves (I_DS vs. V_G) to extract electrical features such as Dirac voltage, hysteresis, and current modulation profiles in order to stablish a QC from the signals obtained with the sensors.
- Implementation of machine learning for classification and quantification, accounting for sensor drift, variability, and environmental noise.
- Integration of software into embedded or portable diagnostic platforms.
- Design and implementation of software-level quality controls (e.g., calibration routines, automated error detection, data logging) to ensure robust performance and traceability across different sensor batches and use cases.
- Ensuring compliance with relevant standards (e.g., ISO 13485, IVDR, IEC 62304), and support in software validation and regulatory documentation.

The ideal partner will have experience in biosensor analytics, diagnostic systems, or regulated medical software, and set up of QCs.

In both roles, the partner is expected to co-develop, integrate and test the diagnostic system together with the Spanish SME, and play an active role in establishing quality control frameworks that enable reliable transition from R&D to manufacturing and clinical application (TRL to MRL). Attention to reproducibility, traceability, and regulatory readiness is essential throughout all stages of the project.

Type of partnership

Type and size of the partner

Research and development cooperation agreement

- **Big company**
- **SME 11-49**
- **R&D Institution**
- **SME <=10**
- **SME 50 - 249**

Call Details

Framework program

Eureka

Call title and identifier

Call 9 of Eurostars-3 (CoD9)

Submission and evaluation scheme

Single-stage submission with centralised evaluation by the Eureka Secretariat.

Anticipated project budget

1.2 M EUR

Coordinator required

No

Deadline for EoI

20 Jul 2025

Deadline of the call

4 Sep 2025

Project duration in weeks

104

Web link to the call

https://eurekanetwork.org/opencalls/eurostars-september-2025/

Project title and acronym

GRAFEM: Development of a Graphene-Based Point-of-Care Biosensor Platform for Multiplex Detection of Sexually Transmitted Infections in Women.

Dissemination

Technology keywords

- **06002002 - Cellular and Molecular Biology**
- **02002016 - Microengineering and nanoengineering**
- **05002001 - Biosensor**
- **06002007 - In vitro Testing, Trials**
- **01003003 - Artificial Intelligence (AI)**

Market keywords

- **05005006 - Gynaecology**
- **05004001 - Electromedical and medical equipment**
- **05004005 - Diagnostic equipment**
- **05001002 - In-vitro diagnostics**
- **05001001 - Diagnostic services**

Targeted countries

- **World**

Sector groups involved

- **Health**
- **Electronics**
- **Digital**