

Pitch for Seeking a Consortium in Horizon Europe Cluster 1 Health
“Sensors for the detection of Biomarkers from Low Volumes Samples”

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What we do:

Our group fabricates electronic sensors using scalable fabrication methods for the detection of fluid and vapor biomarkers. We have demonstrated the detection of GFAP, a biomarker of Alzheimer's disease and traumatic brain injury (TBI), at concentrations as low as 1 femtomolar (fM) in buffer solution. We have also shown the detection of TNF- α , an inflammatory cytokine, at femtomolar concentrations [[Nature Communications 2022](#)], and are developing sensors for the detection of HPV DNA and neurofilament light. We are also developing vapor sensors for breath-analysis and environmental monitoring applications [[Advanced Science 2023](#), [Small 2024](#)]. We are looking to join a Horizon Europe consortium looking for methods to detect fluid or vapor biomarkers.

Research Objectives:

- Achieve low limit of detection (~1 fM) of fluid biomarkers.
- Low sample volumes (< 1 μ l) to improve safety to patient and user.

Potential Applications:

- Provide diagnostic or prognostic information in a small footprint platform.
- Study relationship between biomarkers and health conditions.

Potential Impact:

- Generate new diagnostic tools to support healthcare professionals and preventative mental health.

Potential Role in the team:

- Fabricate sensors for the detection of new fluid biomarkers.
- Send sensor chips and readout module to partners for validation.

Calls that align with research:

- HORIZON-HLTH-2025-01-DISEASE-06: Implementation research addressing strategies to strengthen health systems for equitable high-quality care and health outcomes in the context of non-communicable diseases
- HORIZON-HLTH-2025-03-DISEASE-02: Advancing innovative interventions for mental, behavioural and neurodevelopmental disorders
- HORIZON-HLTH-2025-01-ENVHLTH-01: The impact of pollution on the development and progression of brain diseases and disorders