

Sensing Solutions for a Challenging World



LUMENSIA SENSORS

EPIC Online Technology Meeting on Photonic Integrated Circuits for Sensing Applications
September 28th, 2020

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GENERAL MANAGER



ABOUT LUMENSIA



Founded in 2013 by **DAS PHOTONICS** to foster the product development of **biosensing photonics** technology, resulting from different projects.

LUMENSIA aim is the development of high-performance sensing products based on its **proprietary photonics technology** for high volume sectors such as Health, Food and Environment.

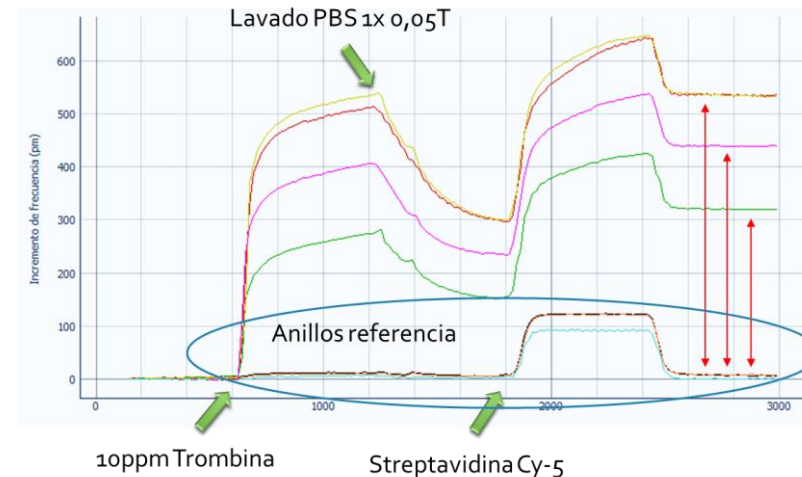
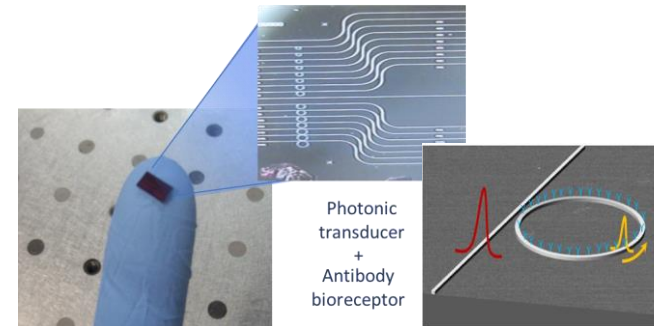
LUMENSIA's Technology



Biosensing photonics platform is based in **Resonant Rings on Silicon Nitride Photonics Integrated Circuits.**

Lumensia's Sapher technology implements a **multiple simultaneous immunoassay sensing scheme** by means of biological probes biofunctionalisation on the Resonant Rings which produce specific responses in the presence of the binding targets.

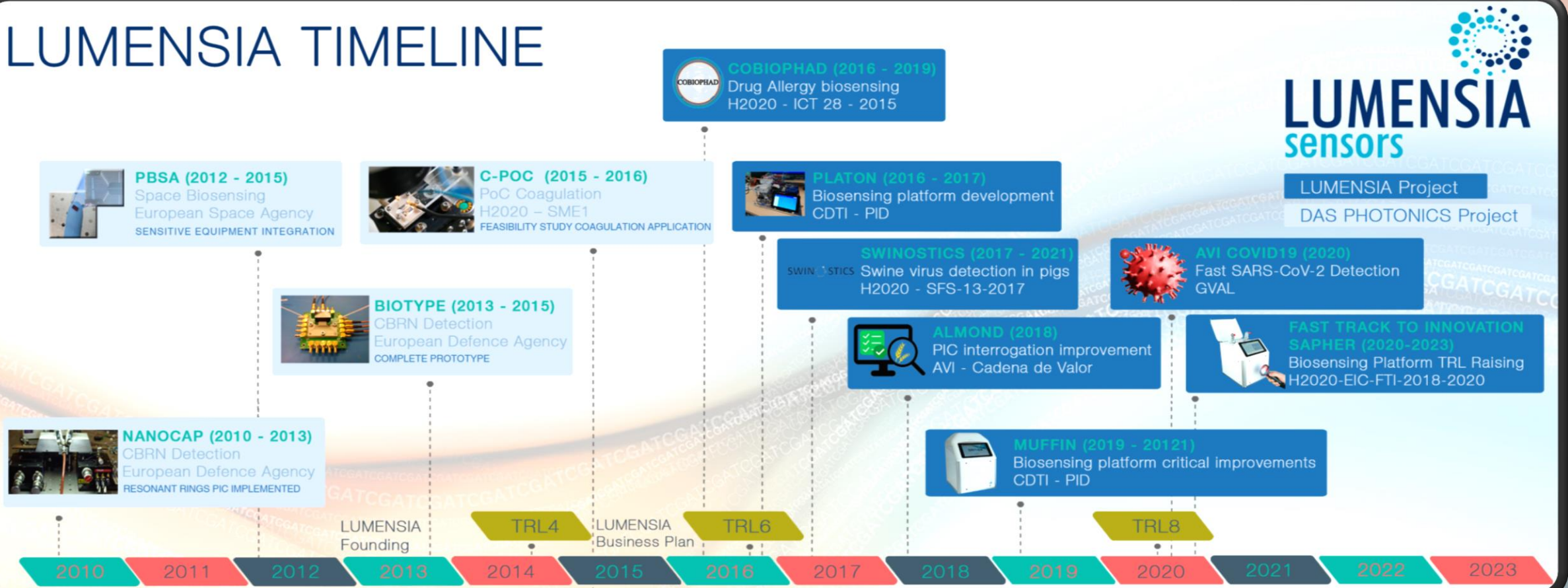
Microfluidics for sample flow over the sensing areas.



The technology evolution



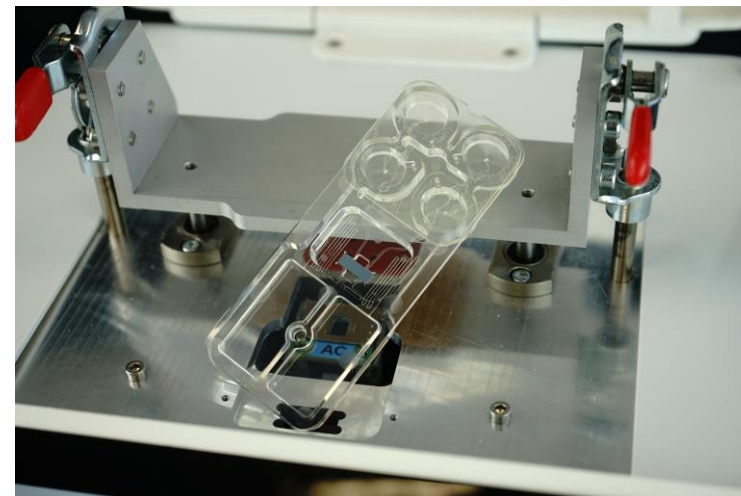
LUMENSIA TIMELINE



The product - SaPher

Two main components:

- **‘Application agnostic’ biosensing platform integrating all subsystems for PIC interrogation:** Optics, fluidics, pneumatics, electronics, mechanics, software, communications, HMI, ... It is a stand alone system that performs the whole test procedure.
- **Consumable cartridge:** Manufactured by injection molding, integrates the biofunctionalised PIC and the microfluidic structures. The sample flows over the PIC sensors. The cartridges are self-contained in order to avoid cross contamination and ease the product and method certification.



SaPher 1 – Simultaneous allergen assessment for Food Industry

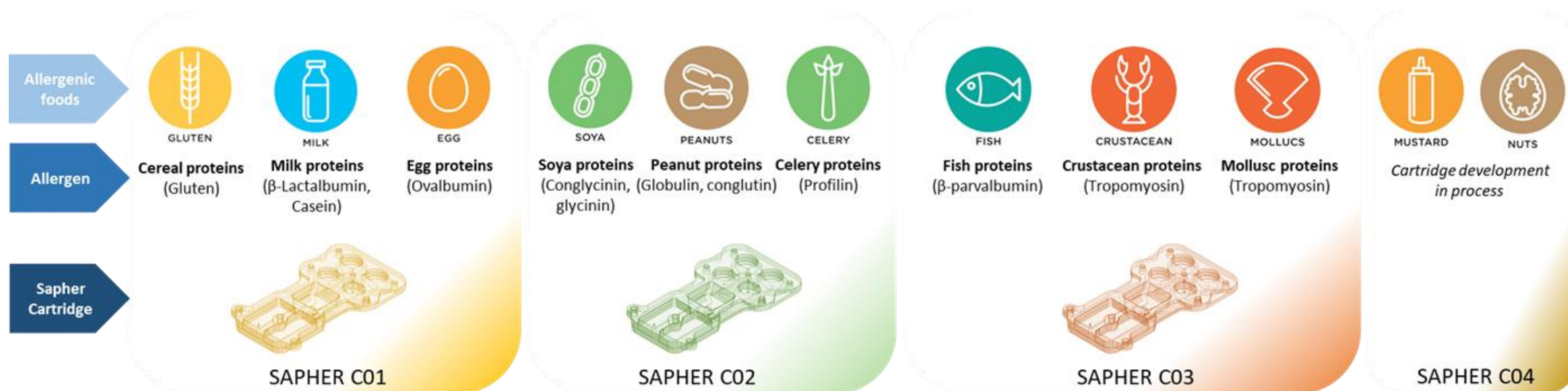


A Fast-Track-to-Innovation project funded by the European Commission

Topic: EIC-FTI-2018-2020 Project ID: 958855



Objective: Raising the TRL6 status of Sapher to TRL9, by expanding the range of assessed allergens, preparing for industrial serial manufacturing and for international market roll out.



Product Lines / Product Roadmap



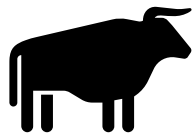
Food Safety

- SAPHER 1 Allergen Assessment in Food Matrices (**TRL7, SAPHER FTI project**)
- SAPHER 2 Microbiology Assessment in Food Production (**TRL4**)



Health

- Fast SARS-CoV-2 and antibodies detection (**TRL5, task force**)
- Urinary Tract Infection detection (**Proof of concept**)
- DOAC coagulation control (**Proof of concept**)



Veterinary

- Swine fever detection in pigs (**TRL5, H2020 SWINOSTICS project**)



Environment

- Microbiology Assessment in reused water facilities (**TRL4**)

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