



SAPHER

**DISRUPTIVE NANO PHOTONICS-BASED BIO SENSING PLATFORM FOR
SIMULTANEOUS ANALYSIS OF MULTIPLE ALLERGENS IN FOOD INDUSTRY**



THE ULTIMATE SOLUTION FOR ALLERGEN ASSESSMENT IN THE FOOD INDUSTRY

Approximately 2-5% of adults and 4-10% of children are affected by food allergies globally. Food allergens may be present as an ingredient but also inadvertent via cross contamination.

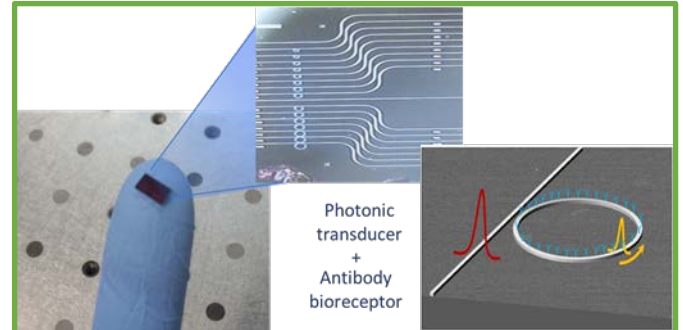
The only way to prevent food allergy is to eliminate the allergenic substance from diet. It is therefore important to trace allergenic food within the food production process, from the raw material to the final product, as part of an Allergen Management Plan. This contributes to the control of allergens within a food business, and leads

to an accurate product labelling reliable for the consumers.

This project's aim is to disrupt the current approach to allergen assessment in the food industry and enable a new paradigm in safety for affected populations. The following companies and institutions spanning across different countries, are involved: LUMENSIA SENSORS; UPV (Polytechnic University of Valencia); EUROFINS INGENASA; DTU, (Technical University of Denmark) and NESTLÉ.

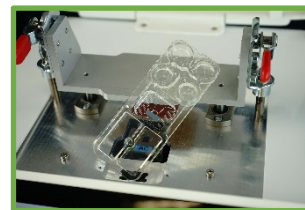
IN A NUTSHELL, THE SAPHER TECHNOLOGY:

- Is a fully automatic nano-photonics biosensing allergen test platform, based on **Ring Resonators** on Silicon Nitride **Photonics Integrated Circuits**.
- Implements a multiplex, label free **immunoassay sensing scheme** by bio functionalizing probes on the PIC surface which produce specific response in the presence of the specific target.
- **Incorporates a Microfluidics** sub system which performs sample delivery through a pressure management system avoiding the platform parts going into contact with the sample, thus eliminating cross-contamination issues.



A STAND-ALONE UNIT THAT PERFORMS THE WHOLE TEST PROCEDURE

- **Consumable cartridges:** They incorporate both the Photonic Integrated Circuit (PIC) and the microfluidic structures.
- **Biosensing platform:** Is the read-out system unit of the cartridges, include optics, electronics, pneumatics, data and signal processing software, as well as the human-machine interface



SIMULTANEOUS ALLERGEN ASSESSMENT

