

## PROJECT OBJECTIVES

LUCA aims to develop and bring to the clinic a state-of-the-art portable device for thyroid cancer screening and an improved and more accurate diagnosis of thyroid nodules.

This cost-effective and novel solution will combine ultrasound and near-infrared diffuse optical technologies in a single device and a hand-held probe that enables multimodal data acquisition.



## PROJECT FACTS

Coordinator: Prof. Turgut Durduran, ICFO – Institute of Photonic Sciences (ES)

Duration: 48 months

Runtime: February 1, 2016 - January 31, 2020

Total EU Funding: €3,628,845.75

## CONSORTIUM

ICFO - Institute of Photonic Sciences (ES)  
Politecnico di Milano (IT)

Institut d'Investigacions Biomèdiques August Pi i Sunyer (ES)  
Hemophotonics (ES)

VERMON (FR)

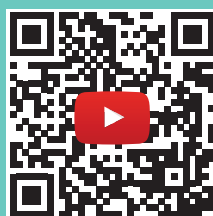
Echo Control Medical (FR)

University of Birmingham (UK)

European Institute for Biomedical Imaging Research (AT)

For more information visit [www.luca-project.eu](http://www.luca-project.eu)  
or contact the Project Office [kkrischak@eibir.org](mailto:kkrischak@eibir.org)

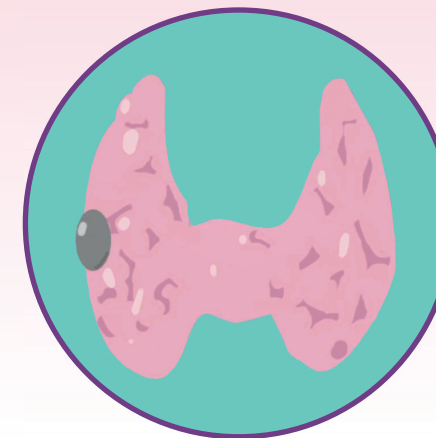
#LUCAprject



PHOTONICS<sup>21</sup>

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 688303.

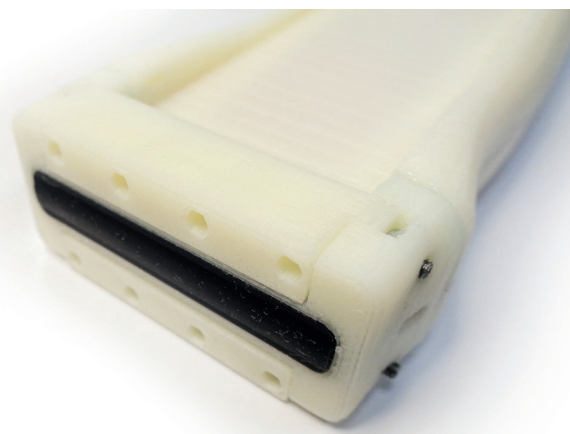
The LUCA project is an initiative of the Photonics Public Private Partnership.  
[www.photonics21.org](http://www.photonics21.org)



## LASER AND ULTRASOUND CO-ANALYZER FOR THYROID NODULES

THE  
LUCA  
PROJECT

For further details see [www.luca-project.eu](http://www.luca-project.eu)



## OUR MOTIVATION

*“The innovative technology of the LUCA device will provide clinicians with more specific results in thyroid nodule screening. This will allow them to distinguish accurately between malignant and a benign nodules enabling better diagnosis and successfully avoiding unnecessary surgeries.”*

**Prof. Turgut Durduran**  
Project Coordinator of the LUCA Project

## WORK PLAN

LUCA is set to run four years and is divided into three phases of development and testing.

### PHASE 1 month 1 – month 18

- Innovation in biophotonics and ultrasonics
- Development of components and subsystems
- Integrated, low-cost, portable probe and system

### PHASE 2 month 19 – month 36

- Component testing
- Construction of the LUCA demonstrator
- Validation in laboratory settings
- Fully functional LUCA system

### PHASE 3 month 30 – month 48

- Demonstration in real-life settings
- Upgrades and final tests
- Construction of an improved LUCA demonstrator
- Exploitation and dissemination of results

## EXPECTED IMPACT OF LUCA

- Improved specificity of the thyroid screening process and corresponding earlier and faster diagnosis for effective treatment.
- Reduction of the number of unnecessary surgeries and associated co-morbidities, thus improving patients' quality of life.
- Reduction of the socio-economic cost related to thyroid cancer and saving of hundreds of millions euro every year.
- Potential use in the diagnosis of other cancers e.g. in the breast or in any part of the body that is accessible to the applied technique.

