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Cancer ^{early} ^{diagnosis} ^{plasmonic} ^{ultrasensitive} **devices**

ULTRA **PLACAD**

SENSITIVE

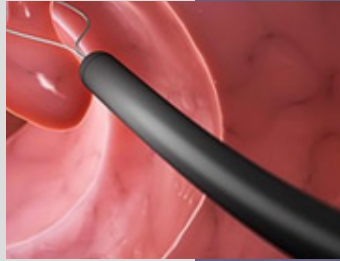
SMONIC

ANCER

IAGNOSIS

Cancer is a leading cause of death in Europe and accounted for about 1.3 million of cancer deaths in 2012. Colorectal cancer (CRC) as compared to breast, lung, and prostate cancers, represents more than 50 % of cancer incidence in Europe. An early detection of cancer through screening has been shown to reduce the mortality from colorectal cancer.

Cancer biomarkers circulating in body fluids have been shown to reflect the pathological process. For this reason they can be used for cancer diagnosis, prognosis and choice for therapeutic interventions. Biomarker detection is a key aspect to new minimally-invasive diagnostic approaches.



Impact

ULTRAPLACAD project represents a radical change in detection of colorectal cancer by biomarkers circulating in blood (liquid biopsy).

This diagnostic platform will improve early diagnostic testing and also enable more specific selection of patients for therapy, as well as enables therapy monitoring from liquid biopsies, thus reducing invasive procedures and improving patient management.

The development of ULTRAPLACAD platform enables a broad range of clinical applications and is therefore a step to saving thousands of lives and, at the same time, avoiding additional strain on the healthcare systems in developed countries.

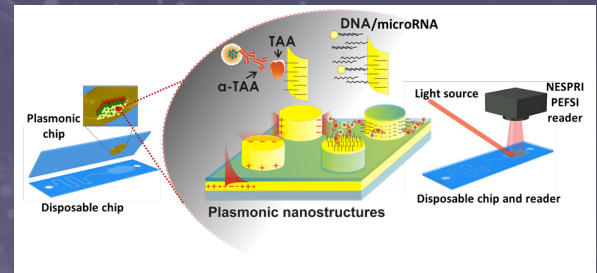
plasmonic early ultrasensitive Cancer ULTRAPLACAD diagnosis ultrasensitive devices

Project overview

ULTRAPLACAD aims at the development of a novel robust in vitro diagnostic system for early cancer diagnosis, prognosis, patient follow-up and therapy efficacy assessment based on molecular analysis of peripheral blood (liquid biopsy).

The project is focused at developing a compact plasmonic-based device with an integrated microfluidic circuit and functionalized nanostructures for the detection of DNA, microRNA and tumor autoantibodies. The aim is to detect these cancer biomarkers circulating in blood with improvement in sensitivity, reduction in cost of platform compared to today's available techniques and analysis time less than 1h.

ULTRAPLACAD IS A H2020 FUNDED PROJECT DEALING WITH THE DEVELOPMENT OF A COMPACT PLASMONIC-BASED DEVICE, WITH INTEGRATED MICROFLUIDICS AND FUNCTIONALIZED NANOSTRUCTURES, FOR THE DETECTION OF DNA, MICRORNA AND TUMOR AUTOANTIBODIES CANCER BIOMARKERS.



Concept pictures of ULTRAPLACAD disposable plasmonic chip (left) and compact reader (right).