PRESS RELEASE

Tekniker participates in the development of an innovative polyp detection device

- *The Basque centre is collaborating with Universitat Pompeu Fabra and MiWEndo Solutions to develop a device featuring an innovative microwave method to complement optical systems used on endoscope*
- *The centre is designing and developing a prototype that can be installed on commercial endoscopes to improve the efficacy of these medical tests*

[Eibar, 19 March 2020] - Colorectal cancer is associated with the highest number of diagnoses in the Spanish population: in 2017, more than 34,300 people were diagnosed with this pathology, i.e., 15% of the total number of cancer cases according to the **Spanish Cancer Observatory**. It is a disease that can be prevented by means of early detection (using faecal blood tests) and by removing cancer-precursor polyps. Although colonoscopies provide the most effective detection method nowadays, 22% of the polyps are not detected due to viewing constraints.

In order to improve the effectiveness of this diagnostic test, **Tekniker**, a member of the Basque Research and Technology Alliance (BRTA), is currently collaborating with **Universitat Pompeu Fabra** in Barcelona and **MiWEndo Solutions** to develop a functional prototype for a medical device that can detect colon polyps by using an innovative microwave technique. According to Marta Guardiola, the person in charge of the MiWendo project, microwaves “can automatically detect and differentiate malignant polyps in healthy colon mucosa”, meaning that this technique offers a highly potential complementary method to diagnose this disease.

Built into conventional endoscopes

The aim of this project is incorporate microwave images to conventional colonoscopies to increase the number of successful diagnostic tests. An aerial applicator has been designed to prevent microwaves from interfering with the optical visualisation system located on the tip of the endoscope, whilst meeting all safety requirements for patients and guaranteeing manageability of the device for the endoscopist. Said applicator is connected to an external unit via coaxial and signal cables. The external unit generates control and microwave signals for aerial input and switching and shows the results of the examination.

Safety and handling

Tekniker has specifically been requested to develop the casing where the microwave detection system is located and which is to be secured to commercial endoscopes to enhance visual detection properties. In order to guarantee functionality and operability, the device must be made of biocompatible materials and provide complete watertightness to prevent colon fluid from seeping inside and damaging its internal components.

As it is a device that has been designed to be used in the colon, it will have to be thoroughly cleaned throughout its entire life cycle. Consequently, the material used to cover the casing must withstand numerous, intense cleaning cycles and remain firmly secured to the endoscope so that it does not become loose during tests.

An adaptable solution

It should also be possible to adapt the final solution to the entire range of endoscope diameters currently available on the market, with a variation ranging between 10 and 16mm so that the rigid part of the device is no bigger than 35mm.

Tekniker first took into consideration the technical requirements specified by the person in charge of the project, Marta Guardiola, and by the university itself to develop early prototypes and perform a number of laboratory tests.

Once these models have been tested, the Basque technology centre will design a functional prototype so that Universitat Pompeu Fabra may perform the first preclinical trials so that, based on their results, all the necessary improvements can be made to design the final prototype.

Tekniker's high level of specialisation in terms of prototype design and development, concept optimisation, manufacturing, commissioning and validation have made it possible to develop this kind of integral solutions.

Concerning Tekniker

With nearly 40 years of experience in the field of applied research and knowledge transfer, Tekniker has achieved a high degree of specialisation in four major areas (Advanced manufacturing, surface engineering, product engineering and ICTs) and can now make available its cutting-edge technology to customers to meet their needs. The technology centre is a member of the Basque Research and Technology Alliance (BRTA).

Further information:

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