

New endoscope to target colon tumours

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European scientists are working on the development of an innovative, compact and easy-to-use endoscopic device for identifying and diagnosing preprecancerous polyps and early colon cancers. Worldwide, colon cancer remains the third most common cancer in men, behind lung and prostate cancer, and second in women, behind breast cancer.

Colorectal [cancer](#) ranks as one of the world's most predominant cancers, affecting approximately one in ten people during their life and causing almost 700,000 annual deaths globally. Almost 95 percent of these cases are adenocarcinomas, which typically start as a growth of tissue called a polyp.

Today, the main method to achieve early detection of the disease is colonoscopy. While up to 40 percent of the patients under routine analysis colonoscopy present one or more [polyps](#), almost 30 percent of these polyps are not detected, especially in the case of flat polyps. Of those detected, 29 to 42 percent are generally hyperplastic, and will not develop into cancer. The remainder are neoplastic polyps, which are of primary importance because they harbor malignant potential and represent a stage in the development of [colorectal cancer](#). For this reason, it is essential to identify these polyps at an early stage.

Speaking about the PICCOLO Project Dr. Artzai Picon (Tecnalia) said "We hope that PICCOLO will provide major benefits over traditional colonoscopy. Firstly, by developing an advanced endoscope, using both [optical coherence tomography](#) (OCT) and multi-photon tomography (MPT), we will provide high-resolution structural and functional

imaging, giving details of the changes occurring at the cellular level comparable to those obtained using traditional histological techniques. Furthermore, when multiple polyps are detected in a patient, the current gold standard procedure is to remove all of them, followed by microscopic tissue analysis. Removal of hyperplastic polyps, which carry no malignant potential, and the subsequent costly histopathological analysis, might be avoided through the use of the PICCOLO endoscope probe, which could allow image-based diagnosis without the need for tissue biopsies."

The long-term potential for this project is exciting. Not only will it provide a new approach in colon cancer detection, but the new image-based diagnosis methods could be applied to diseases in other organs of the body. The PICCOLO team hope to refine their first prototype by the end of 2018 and begin clinical trials around 2020.

Provided by Tyndall National Institute

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