

New method for early screening of colorectal cancer

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A highly sensitive method that can detect even the earlier stages of colorectal cancer has been developed by researchers in Japan. Shimadzu Corporation, the Kobe University Graduate School of Medicine, and the National Cancer Center in Japan have collaborated to develop a new screening method that comprehensively analyzes the metabolites in our blood. The results of this research were published in the online edition of *Oncotarget*, a U.S. scientific publication, on February 4, 2017.

Colorectal cancer is one of the most common causes of cancer death, and cases of this cancer are increasing in developed countries. In 2012, a group headed by Associate Professor YOSHIDA Masaru at Kobe University used gas chromatography-mass spectrometry (GC/MS) and clinical metabolomic analysis methods to analyze serum samples from [colorectal cancer](#) patients and healthy subjects. The group succeeded in identifying four [metabolite](#) markers that can be used to diagnose colorectal cancer and developed a highly reliable diagnostic prediction [model](#) using those markers. This model was considered to be more practical in comparison with existing tumor markers, but it lacked sensitivity and specificity when actually used as a [screening method](#).

Following this, a research team combining members from Shimadzu Corporation and Kobe University developed an analytical approach that enabled much more accurate measurement of metabolites in blood plasma. To achieve this, they used high-speed and high-sensitivity GC-MS/MS, which relies on Shimadzu's Advanced Scanning Speed Protocol (ASSP) and Smart MRM technologies.

By using this approach to analyze a large number of samples (at least 600) with known clinical data stored at the National Cancer Center, they were able to develop a high-performance screening [method](#). After reviewing the results of comprehensive analyses of the metabolites contained in blood plasma from colorectal cancer patients and healthy subjects, they discovered eight multi-biomarkers that can be used to diagnose colorectal cancer.

Based on the data for these eight metabolites, they were able to create a diagnostic prediction model for colorectal cancer that exceeded 96 percent for both sensitivity and specificity. They also confirmed that the sensitivity of this new model remained at high levels even with early-stage colorectal [cancer](#) patients (stage 0 and stage I).

More information: Shin Nishiumi et al. Investigations in the possibility of early detection of colorectal cancer by gas chromatography/triple-quadrupole mass spectrometry, *Oncotarget* (2017). [DOI: 10.18632/oncotarget.15081](https://doi.org/10.18632/oncotarget.15081)

Provided by Kobe University

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