

Screening Tool Can Detect Colorectal Cancer from a Small Blood Sample

AACR

- Robust profiling of miRNAs from plasma is feasible using LNA™-enhanced technology.
- miRNA profiles in plasma can detect early-stage colorectal cancer.
- Plasma miRNA is a promising new biomarker for diseases, including cancer.

DENVER — A new microRNA (miRNA) screening assay detected the majority of early-stage colorectal cancers with good specificity and sensitivity.

“Our test has the potential to be safe, cheap, robust, accurate and of little or no inconvenience to the individual, and could, therefore, easily be integrated into national screening programs as part of an annual checkup,” said Søren Jensby Nielsen, Ph.D., scientific manager, Diagnostic Product Development, Exiqon A/S.

Nielsen presented the results at the Fourth AACR [International Conference on Molecular Diagnostics in Cancer Therapeutic Development](#) [1], held here.

“We envision that this type of miRNA profile, once developed and marketed as a screening kit, can be used to screen entire populations in order to facilitate a focused selection of individuals who should undergo colonoscopy,” Nielsen said.

Colorectal cancer is the second leading cause of cancer-related deaths in the western world. If diagnosed early, the disease can usually be cured with surgery; however, the prognosis for late-stage cancer is grim. Although several early-detection screening methods are available, “current estimates suggest that less than half of Americans over the age of 50 receive adequate colorectal cancer screening,” Nielsen said.

Nielsen’s team developed a state of the art screening method based on the miRCURY LNA™ Universal RT microRNA PCR. With it, they profiled blood plasma samples collected from patients with early, resectable (Stage II) colorectal cancer and sex- and age-matched healthy volunteers.

The findings suggested that it is possible to distinguish early-stage colorectal cancer from healthy subjects with good sensitivity and specificity from a single plasma sample — less than 1 mL of blood. Nielsen and colleagues are starting a large, prospective clinical trial in symptomatic individuals undergoing colonoscopy to prospectively validate their screening test.

Although Nielsen’s team focused on colorectal cancer screening, their results indicated the technology has broader applicability. They have used the technology in a project to detect early stage colorectal cancer patients who are likely to

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experience disease recurrence and, therefore, are candidates for more aggressive adjuvant chemotherapy.

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The mission of the American Association for Cancer Research is to prevent and cure cancer. Founded in 1907, the AACR is the world's oldest and largest professional organization dedicated to advancing cancer research. The membership includes 32,000 basic, translational and clinical researchers; health care professionals; and cancer survivors and advocates in the United States and more than 90 other countries. The AACR marshals the full spectrum of expertise from the cancer community to accelerate progress in the prevention, diagnosis and treatment of cancer through high-quality scientific and educational programs. It funds innovative, meritorious research grants, research fellowships and career development awards. The AACR Annual Meeting attracts more than 18,000 participants who share the latest discoveries and developments in the field. Special Conferences throughout the year present novel data across a wide variety of topics in cancer research, treatment and patient care. The AACR publishes six major peer-reviewed journals: *Cancer Research*; *Clinical Cancer Research*; *Molecular Cancer Therapeutics*; *Molecular Cancer Research*; *Cancer Epidemiology, Biomarkers & Prevention*; and *Cancer Prevention Research*. The AACR also publishes *CR*, a magazine for cancer survivors and their families, patient advocates, physicians and scientists, providing a forum for sharing essential, evidence-based information and perspectives on progress in cancer research, survivorship and advocacy.

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