

# Promising biomarker and candidate tumor suppressor gene identified for colorectal cancer

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Researchers have identified a new candidate tumor suppressor gene in colorectal cancer and examined its use as a potential biomarker in stool samples, according to a new study published online June 17 in the *Journal of the National Cancer Institute*.

In the study, Manon van Engeland, Ph.D., of the Department of Pathology at Maastricht University Medical Center in the Netherlands, and colleagues examined N-Myc downstream-regulated gene 4 (NDRG4) as a novel tumor suppressor and biomarker.

The researchers analyzed NDRG4 promoter methylation and expression in human colorectal cancer cell lines, noncancerous colon mucosa, and colorectal cancer tissue. Quantitative methylation-specific polymerase chain reaction was used to examine NDRG4 promoter methylation as a [biomarker](#) in fecal DNA from 75 colorectal cancer patients and 75 control subjects.

The researchers found that NDRG4 promoter methylation was more prevalent in colorectal cancers than in noncancerous colon mucosa. Its mRNA and protein expression were decreased in colorectal cancer tissue compared with noncancerous colon mucosa. A methylation-specific polymerase chain reaction assay for NDRG4 promoter methylation in stool identified the presence of colorectal cancer in 53% of colorectal cancer cases and correctly categorized a subject as cancer free 100% of

the time.

"In conclusion, to our knowledge, this is the first study to describe a [tumor suppressor](#) role for NDRG4 in cancer," the authors write. "Our data indicate that NDRG4 promoter methylation is potentially useful as a sensitive and specific noninvasive pre-selection modality for identifying individuals at risk for colorectal cancer for whom colonoscopy is recommended."

In an accompanying editorial, Gad Rennert, M.D., Ph.D., of the Carmel Medical Center and Technion in Haifa, Israel, discusses the concept of molecular testing of stool for early detection of colorectal cancer and where such testing stands today.

"[Genetic diagnosis](#) of colorectal cancers and meaningful adenomas has now reached a new phase that, when further fine-tuned, may carry the promise of becoming a suitable and affordable means of prevention and early detection of colorectal cancer in the general population," he writes.

Source: Journal of the National [Cancer](#) Institute ([news](#) : [web](#))

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