

Study discovers how gut bacteria interacts with microRNAs to promote colon cancer growth

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Gut microbes can influence the growth of colon cancer, though little is known about how they trigger the disease. A new study conducted by researchers at Baylor University Medical Center at Dallas identified a key interaction between *Fusobacterium nucleatum*, a bacteria commonly linked to gum disease, and a specific microRNA gene regulator in the gut that led to tumor growth in the colon. The findings, recently published in *Gastroenterology*, could potentially lead to more targeted treatment options for colon cancer.

Colon cancer is the second leading cause of cancer-related deaths in the U.S. among cancers that affect both men and women. Previous studies conducted by the research team at Baylor Scott & White Research Institute showed that specific microRNAs, or molecules that regulate gene expression, play a role in the development of colon cancer. This study aimed to identify how *Fusobacterium nucleatum* and microRNAs interact to promote its growth.

"We are recognizing that microbial environment in the gut plays an important role in the development of colon cancer, but what we don't know yet is how various microbial flora influences cancer development and what specific genes are involved in this process," said Ajay Goel, PhD, director of gastrointestinal research and translational genomics and oncology, at Baylor Scott & White Research Institute and Baylor Sammons Cancer Center and one of the lead authors of the study. "To the best of our knowledge, this is the first study that provides novel clues toward the relationship between microorganisms in the gut, and how they control the expression of a microRNA that promotes multiple cancers, including colorectal cancer."

Study results showed microRNA21 and *Fusobacterium nucleatum* work together to promote the growth of colon cancer, and high levels of both indicated poor patient outcomes. When microRNA21 was inhibited, it stopped the microbe from promoting cancer cell growth.

Nearly 20 percent of cancers can be linked to bacteria or viruses, including the

human papillomavirus, which is well-known for causing cervical cancer. Research connecting gut microbes and the growth of colon cancer has been conducted only in the past few years.

"This study is an important step in our ongoing efforts to determine which targets to pursue when developing new, life-saving therapies for colon cancer patients," Dr. Goel said.

Source:

<http://news.bswhealth.com/releases/dallas-researchers-identify-how-common-gut-bacteria-may-cause-colon-cancer>
