

Bacterial deficiency as a diagnostic marker for colorectal cancer

Published date: May 4, 2017

Technology description

Summary

This technology identifies a correlation between butyrate-producing bacteria and colorectal cancer that may serve as a diagnostic method and therapeutic platform.

Unmet Need: Accurate, non-invasive method for diagnosing colorectal cancer

Colorectal cancer (CRC) is the second leading cause of cancer-related deaths in the United States. Approximately 35% of CRCs develop via molecular mechanisms that involve the CpG island methylator phenotype (CIMP). However, detection of CIMP tumors is difficult using traditional endoscopy procedures, leading to delayed or missed diagnoses. As such, there is a need for more sensitive methods for identification of CIMP tumors.

The Technology: Detection of butyrate-producing bacteria provides a simple method for diagnosing CRC and quickly delivering effective treatment

This technology identifies differences in the intestinal microbiota of healthy patients and patients with CIMP tumors. Specifically, CIMP is associated with a loss of butyrate-producing bacteria, enabling levels of butyrate-producing bacteria to serve as a diagnostic marker for CRC. Furthermore, since butyrate has been implicated in intestinal homeostasis, this technology may also provide a means of developing preventative or therapeutic treatments for CIMP-associated CRC, whereby butyrate or butyrate-producing bacteria are reintroduced into the gastrointestinal tract.

This technology has been validated using colon biopsies of normal and tumor tissues.

Application area

Diagnostic marker for CIMP-related colorectal cancer

Research tool to study the mechanism of CIMP formation

Therapeutic platform for prevention and treatment of CIMP

Advantages

Potential for earlier detection of colorectal cancer

May reduce misdiagnoses

Non-invasive

Butyrate or butyrate-producing bacteria can be easily reintroduced into the gastrointestinal tract for treatment

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