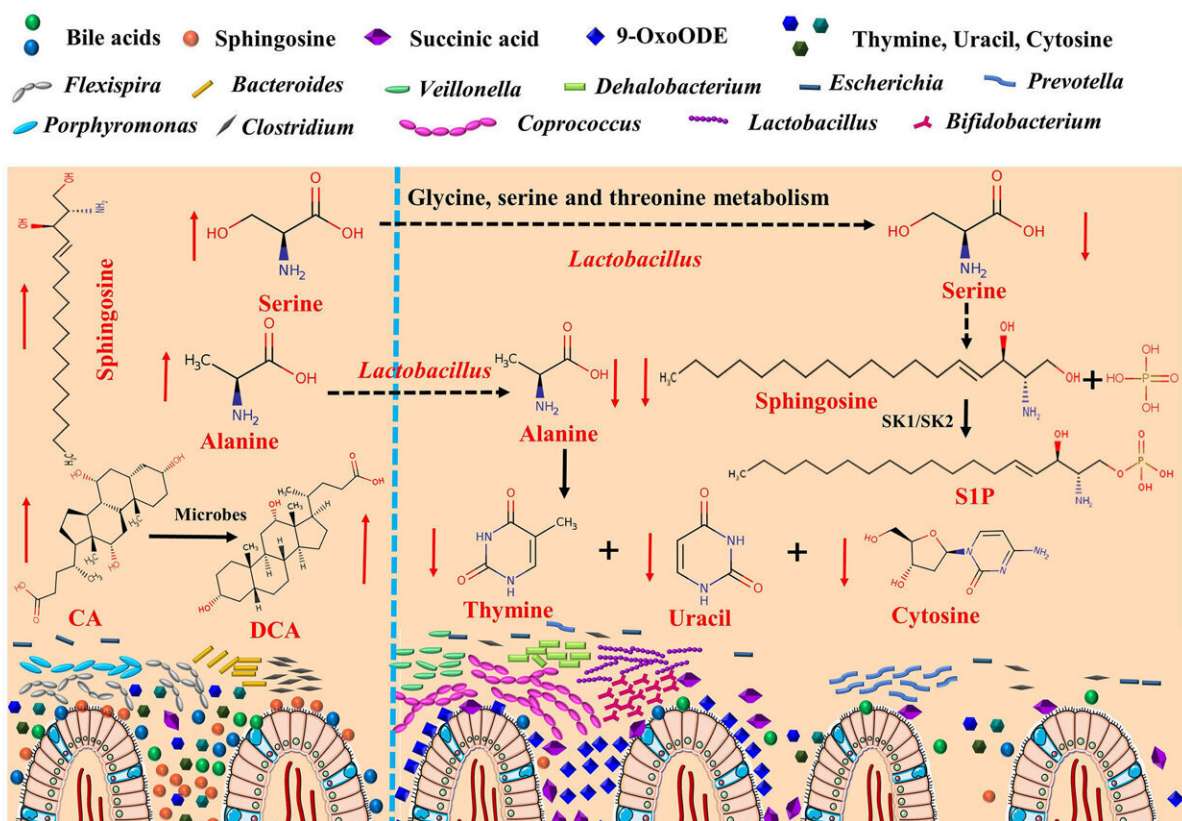


# Study provides new insights for prevention and treatment of colon cancer by probiotics intervention

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Graphical representation of major microbial and metabolomic alterations correlated with the tumorigenesis and the progression of colon cancer. Credit: *Microbiology Spectrum* (2023). DOI: 10.1128/spectrum.00189-23

In a study published in [Microbiology Spectrum](#), the researchers at the Institute of Modern Physics (IMP) of the Chinese Academy of Sciences (CAS) suggest that the intervention of probiotics is a potentially feasible strategy for preventing colon cancer.

Colorectal cancer is the third most common cancer worldwide and the second leading cause of cancer-related deaths worldwide. Most patients are diagnosed at the middle and advanced stages due to the longer development of malignancies in the colon and rectum, as well as higher concealment compared to other cancers, which results in a narrow treatment window and [high mortality rate](#). Thus, efficient and safe prevention strategies for colon cancer in its early stages are essential for its management.

Gut microbiota and their secreted metabolites have a significant influence on the initiation and progression of colon cancer. Therefore, the prevention and treatment of colon cancer based on the regulation of intestinal microflora by probiotics has become a frontier research topic in [tumor biology](#).

The researchers at IMP have irradiated probiotic JY strain by heavy-ion beams, and obtained an excellent mutant strain JY300-8 through selections of transit tolerance in the upper human gastrointestinal tract. In addition, from the intestine of mice with complete tumor remission, they isolated a strain of *L. reuteri* with a strong anti-proliferation ability on tumor cell.

After investigating the preventive and therapeutic efficacy of *Lactobacillus* for colon cancer, the researchers found that the inhibition rates of these probiotics against mice colon cancer cells and human colon cancer cells were more than 50% and 70% respectively, reaching a higher level in similar research. They also found that dual probiotics could reduce the tumor formation rate and tumor volume, and could

significantly inhibit the progression of tumors in colon cancer susceptible models in mice.

In addition, the researchers revealed the underlying antitumor mechanism through the alteration of [gut microbiota](#) and their metabolites. They combined the carbon ion radiation therapy with gut microbial therapy for the first time, which increases the survival rate of [colon cancer](#) model in mice by 50% compared with the control group.

This study enriched the resource of probiotics, and provided a tumor treatment strategy by combining the carbon ion radiotherapy with the gut microbial therapy, laying a theoretical foundation for the precise prevention and management of [colon cancer](#).

**More information:** Fuqiang Xu et al, The efficacy of prevention for colon cancer based on the microbiota therapy and the antitumor mechanisms with intervention of dietary Lactobacillus, *Microbiology Spectrum* (2023). [DOI: 10.1128/spectrum.00189-23](https://doi.org/10.1128/spectrum.00189-23)

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