

عنوان مقاله:

The role of the microbiome and its metabolites in cancer progression, regression and treatment

محل انتشار:

بیست و چهارمین کنگره بین المللی میکروبی شناسی ایران (سال: 1402)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Melika Sadat Mousavi Jahed – Bachelor Student of MicroBiology, Faculty of Sciences and New Technologies, Islamic Azad University Tehran Medical Branch, Iran

Kimiya khazadeh – Bachelor Student of MicroBiology, Faculty of Sciences and New Technologies, Islamic Azad University Tehran Medical Branch, Iran

خلاصه مقاله:

**BACKGROUND AND OBJECTIVES**In spite of decades of clinical research, cancer remains a major public health burden and the leading cause of human mortality globally. In recent years, significant progress has been made in dealing with cancer, including early detection, diagnosis and treatment of cancer, and part of this progress is due to the attention paid to the gut microbiota. Until recently, the human microbiota was considered pathogenic, but today it has emerged as a vital player in maintaining human health. The microbiome is also known as the 'second brain' because of its significant pathophysiological role in human health and disease. Human gut microbes may increase, decrease, or have no direct effect on carcinogenesis. The use of the microbiota to optimise cancer treatments has become an alternative to personalised medicine. **MATERIALS AND METHODS**A search was conducted on PubMed, Google Scholar, Magiran, and Web of Science databases from ۲۰۱۶ to ۲۰۲۳ using the terms "cancer therapy", "gut microbiota", "gut microbiota-derived metabolites", "immune system", and "Microbiota". **RESULTS AND DISCUSSION**Gut microbes are undeniably potential candidates for predictive biomarkers and therapeutic targets. Some microbial metabolites have a direct carcinogenic effect. For example, colibactin from pks+ E.coli acts as a DNA alkylating agent, causing double-strand breaks and interstrand cross-links that destabilize the genome of human intestinal epithelial cells and ultimately lead to colon cancer. Besides carcinogenic effects, certain metabolites derived from microbiota possess anticancer functions. Butyrate produced by intestinal microorganisms increases the mRNA expression of claudins, thus effectively protecting intestinal epithelial cells from damage and preventing the development of colon cancer. Cancer development can be indirectly facilitated by microbes that stimulate inflammation or weaken immune surveillance. These microbial immunomodulatory activities are referred to as the "microbiome-immune-oncology axis". **CONCLUSION**Considering the extensive role of microbiome and microbial metabolites in cancer, targeting them as a starting point for discovering new cancer treatment approaches will inevitably bring more benefits to cancer patients. However, more relevant experimental data are needed. Some microbial metabolites have cancer-causing and cancer-fighting effects. There are still several aspects of microbial metabolites that require further investigation.

کلمات کلیدی:

Gut microbiota, Gut microbiota-derived metabolites, Immune system, Microbiota

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1922112>

