

# Letter to the Editor : Identification of Gut Microbes-related Molecular Subtypes and Their Biomarkers in Colorectal Cancer

Naji Naseef Pathoor<sup>1</sup> Akshaya Viswanathan<sup>1</sup> Pitchaipillai Sankar Ganesh<sup>1</sup>

<sup>1</sup>Department of Microbiology, Centre for infectious Diseases, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University (Deemed to be University), Chennai, Tamil Nadu, India

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**Address for correspondence** Pitchaipillai Sankar Ganesh, M.Sc., M.Phil., Ph.D., Department of Microbiology, Centre for infectious Diseases, Saveetha Dental College and Hospitals, Poonamallee, Poonamallee High Road No. 162, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University (Deemed to be University), Chennai 600 077, Tamil Nadu, India (e-mail: gp0675296@gmail.com).

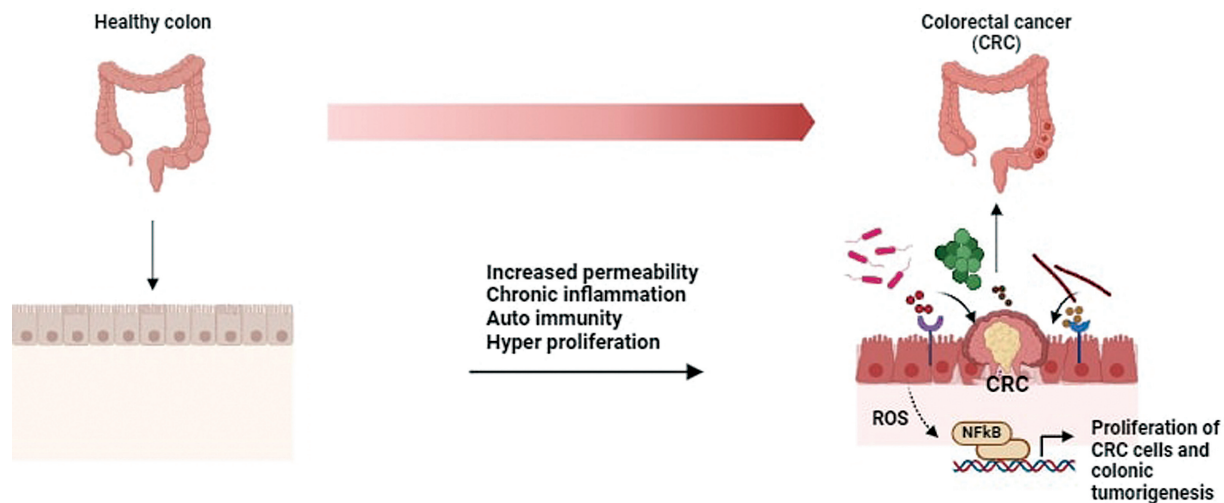
Dear Editor,

We have taken great interest in reading an original article entitled “Identification of gut microbes-related molecular subtypes and their biomarkers in colorectal cancer” published in *Aging* in 2023.<sup>1</sup>

The authors investigated the intricate relationship between colorectal cancer (CRC) and the gut microbiome. The multifactorial disruptions contributing to CRC were explored, including genetic, epigenetic, and environmental factors such as diet, physical activity, and smoking (► **Fig. 1**). The study conducted a complete analysis, identifying gut microbes-related genes (GMRGs) and developing a new CRC subtype. The authors

aimed to find differences in survival prognosis, function of cancer cells, immune infiltration, and immunotherapy efficacy across various CRC subtypes. The ultimate goal was to provide a deeper understanding of CRC focusing on molecular biology, immunology, drug sensitivity, survival prognosis, and disease dynamics, with the aim of enhancing treatment planning and improved patient outcomes.<sup>2,3</sup>

It was noted in the results that the study identified 164 GMRGs and developed a new subtype of CRC which exhibited significant differences compared with other CRC subtypes. Nine genes among the GMRGs showed significant associations with the prognosis of CRC patients. Further



**Fig. 1** Overview of the implications of gut bacteria in the development and progression of colorectal cancer. A shift from the normal healthy cells to colorectal cancer cells is shown and other factors effecting the shift are also depicted.

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analysis led to the identification of two key GMRBs (interleukin-7 and BCL10) associated with clinical outcomes. The research offered new perspectives on CRC subtypes and potential biomarkers, highlighting the gut microbiome's impact on cancer progression and treatment responses. The potential implications for patient risk categorization and immunotherapy, present a promising path for further research.<sup>1</sup>

While the CRC and gut microbiome study provides valuable perceptions, potential limitations include support on open data sources, a lack of complete experimental evidence, and a need for further mechanistic understanding. External validation, particularly with additional data sets or clinical studies, is essential to strengthen the proposed molecular subtypes and biomarkers. The study's clinical implications should be carefully considered, and addressing ethical considerations and improving communication for broader understanding would enhance its overall impact.

### Patient Consent

None

### Ethical Approval

This article does not contain any studies with human participants or animals performed by any of the authors.

### Conflict of Interest

None declared.

### References

- 1 Liu X, Zhang G, Li S, Liu Y, Ma K, Wang L. Identification of gut microbes-related molecular subtypes and their biomarkers in colorectal cancer. *Aging (Albany NY)* 2024;16(03):2249-2272
- 2 Kim J, Lee HK. Potential role of the gut microbiome in colorectal cancer progression. *Front Immunol* 2022;12:807648
- 3 Pandey H, Tang DWT, Wong SH, Lal D. Gut microbiota in colorectal cancer: biological role and therapeutic opportunities. *Cancers (Basel)* 2023;15(03):866