

English Abstract Session

2025年11月15日(土) 11:00 ~ 11:50 第10会場

[E4] English Abstract Session 4 Diagnosis & Drug Therapy

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[E4-5] Vancomycin boosts immunotherapy in MSS CRC via gut microbiota modulation

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Although immune checkpoint blockade agents have achieved significant progress in the treatment of colorectal cancer (CRC), patients with microsatellite stable (MSS) CRC generally exhibit treatment resistance. Given the critical role of the gut microbiota in modulating the tumor immune microenvironment, this study focuses on vancomycin, an antibiotic with gut-specific effects. Oral administration of vancomycin can selectively deplete Gram-positive bacterial populations, and in this study, we aim to investigate whether the combination of vancomycin and anti-PD-1 can sensitize immunotherapy by modulating the gut microbiota. This study evaluates the anti-tumor effects of vancomycin combined with anti-PD-1 therapy through the establishment of a subcutaneous xenograft model of MSS CRC. By integrating transcriptomic sequencing, metagenomics, and metabolomics technologies, we comprehensively analyze the regulatory characteristics of the tumor immune microenvironment, gut microbiota, and metabolic networks during the treatment process. We observed that the combination of vancomycin and anti-PD-1 significantly enhanced anti-tumor responses compared to monotherapy groups. Integrated gut microbiome-metabolome analysis further demonstrated that the combination treatment specifically enriched *Clostridium scindens* and significantly upregulated isoLCA levels. IsoLCA promotes DC maturation by activating the TGR5/ZAP70 succinylation signaling axis, thereby enhancing tumor antigen cross-presentation and sensitizing immune checkpoint blockade therapy in MSS CRC. These findings indicate that vancomycin enhances the antigen-presenting capacity of DCs in tumor-draining lymph nodes by modulating the gut microbiota and their metabolites, thereby sensitizing immune checkpoint blockade therapy.