

Pre-analytics and analytics of microbiota in clinical practice

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Presentation

Gut Microbiota

Mechanisms & Personalised Medicine

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The speaker presented a framework for using gut microbiome diagnostics in precision medicine, emphasizing applications in colorectal cancer screening, predicting immune checkpoint inhibitor response, and optimizing fecal microbiota transplantation.

KEY POINTS

- The speaker stated that a microbial signature can identify ulcerative colitis and Crohn's disease with nearly 90% accuracy and that oral cavity bacteria clusters are associated with colorectal cancer
- Low alpha diversity in FMT recipients is associated with increased clinical success, and donor microbiota engraftment correlates with clinical response regardless of disease, according to the speaker
- FMT is very effective in *C. difficile* infection because any healthy donor works in this acute, simple dysbiosis, but chronic disorders show less effective results because chronic dysbiosis is more difficult to restore
- Metagenomic sequencing is needed to differentiate bacterial strains with different functional capacities, while 16S amplicon sequencing cannot identify species-level differences such as the beneficial *Akkermansia muciniphila*
- The speaker co-developed a consensus framework stating that microbiome testing should be clinician-prescribed, use amplicon or metagenomic methods with standardized ecological measures, and avoid post-testing therapeutic advice
- The speaker believes cancer, particularly colorectal screening and immune checkpoint inhibitor response prediction, represents the main clinical application for microbiome diagnostics

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