

Special Issue

Microbiome Dynamics: Advancing Therapeutic Development in Health and Disease

Message from the Guest Editors

The development of microbiome-based therapeutics is reshaping biomedical innovation. As our understanding of host–microbiome interactions grows, microbiota-targeted strategies show promise in managing metabolic, inflammatory, neurodegenerative diseases, cancer, and antibiotic-resistant infections. This Special Issue, “Microbiome Dynamics: Advancing Therapeutic Development in Health and Disease”, covers the full pipeline—from discovery to clinical application. We welcome studies on novel microbial taxa, next-generation probiotics (NGPs), and disease-specific microbial biomarkers validated through animal models or artificial gut systems. Research using multi-omics approaches to explore host–microbiome–metabolite interactions is highly relevant. Mechanistic insights into bioactives such as SCFAs, bile acids, and tryptophan metabolites are encouraged. Also in scope are works on strain optimization, scalable production, GMP-compliant manufacturing, and clinical trial outcomes for pharmaceutical or functional food use. By linking fundamental research with translational efforts, this Special Issue aims to accelerate precision microbiome therapeutics.

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Life (ISSN 2075-1729) is an international, peer-reviewed open access journal that publishes scientific studies related to fundamental themes in life sciences. Some papers are published individually, while others are submitted for inclusion in special issues with guest editors. You are invited to contribute a research article, essay, or a review to be considered for publication.

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