

Special Issue

Molecular Mechanisms of Gut Microbiota in Health, Immunity and Disease

Message from the Guest Editor

The gut microbiome, a dynamic ecosystem of trillions of microorganisms, plays a vital role in human health and disease. Through complex molecular mechanisms, the microbiota influence digestion, modulate immune responses, affect metabolism, and interact with the central nervous system via the gut–brain axis. Dysbiosis, or microbial imbalance, is associated with numerous chronic conditions, highlighting the need for deeper insights into microbiota–host interactions. This Special Issue seeks to unravel the molecular crosstalk between gut microorganisms and their host, exploring the microbiome’s contributions to homeostasis, disease pathogenesis, and potential therapeutic strategies. Submissions are invited on topics including, but not limited to:

- Gut microbiota and host health;
- Microbiota in disease pathogenesis;
- Immune modulation by microbiota;
- Microbiota–driven therapeutics;
- Multi–omics and advanced methodologies;
- Environmental and lifestyle impacts on the microbiome.

We welcome innovative studies that advance our understanding of the microbiome and its implications for health and disease.

Guest Editor

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Deadline for manuscript submissions

closed (31 October 2025)



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Message from the Editor-in-Chief

Editor-in-Chief

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.3 days after submission; acceptance to publication is undertaken in 2.8 days (median values for papers published in this journal in the second half of 2025).

Recognition of Reviewers:

APC discount vouchers, optional signed peer review, and reviewer names are published annually in the journal.