

## Special Issue

# Next-Gen Biofuels: Innovations in Microbial Fermentation and Metabolic Networks

### Message from the Guest Editors

This Special Issue highlights the most recent breakthroughs that integrate microbiology, metabolic design, and process engineering to push beyond the limitations of conventional biofuel technologies. New tools in synthetic biology and genome editing based approaches and dynamic regulatory circuits—are accelerating the construction of robust microbial cell factories capable of efficiently converting lignocellulosic biomass, industrial waste streams, and CO<sub>2</sub>-rich gases into high-value biofuels.

Metabolic network modeling and systems-level optimization now allow unprecedented control over key pathways, improving redox balance, substrate utilization, and tolerance to product-related stress. Novel microbial consortia, co-cultivation strategies, and dark fermentation processes are enabling the simultaneous production of hydrogen, methane, and organic acids, creating integrated biorefinery concepts with minimized waste and improved energy recovery.

We welcome original research articles, reviews that explore innovative metabolic engineering, novel microbial strains, advanced fermentation systems, and integrated process concepts contributing to the next generation of sustainable biofuels.

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### Guest Editors

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### Deadline for manuscript submissions

31 December 2026



## Fermentation

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## About the Journal

### Message from the Editor-in-Chief

Welcome to an open access journal, *Fermentation*, which meets the growing need for a high quality peer-reviewed international journal with easy access to all researchers globally. We hope that you will share our enthusiasm for this journal and look forward to working with you to make *Fermentation* a leader in its field. Your contributions are vital for the success of this journal. Proposals for editing a special issue for a particular topical area are always welcome.

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### Editor-in-Chief

Prof. Dr. Christian Kennes  
Department of Chemical Engineering, Faculty of Sciences, University of La Coruña, La Coruña, Spain

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