

## Special Issue

# The Role of Gene–Environment Interactions in Metabolic Dysregulation in Osteochondral Disease Pathogenesis

### Message from the Guest Editors

This Special Issue focuses on elucidating the tripartite interplay between genetic susceptibility, environmental exposures, and resultant metabolic dysregulation in driving the pathogenesis of osteochondral diseases.

We invite high-quality original research and reviews addressing, but not limited to, the following: 1. **Molecular Mechanisms:** epigenetic regulation induced by dietary factors, toxins, mechanical stress, or inflammation that alters metabolic gene expression. 2. **Metabolic Pathways:** dysregulation in chondrocyte/bone cell metabolism triggered by gene–environment interactions. 3. **Environmental Triggers:** impact of obesity-associated metabolites, micronutrient deficiencies, endocrine disruptors, biomechanical overload, or gut microbiome-derived metabolites. 4. **Genetic Vulnerabilities:** polymorphisms/metabolic quantitative trait loci in nutrient-sensing, anabolic/catabolic, or stress-response pathways that modulate environmental sensitivity. 5. **Interventional Strategies:** dietary, pharmacological, or biomechanical approaches targeting gene–environment interaction-mediated metabolic pathology.

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### Guest Editors

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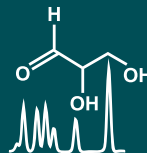
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### Deadline for manuscript submissions

closed (16 March 2026)



## Metabolites

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## About the Journal

### Message from the Editor-in-Chief

The metabolome is the result of the combined effects of genetic and environmental influences on metabolic processes. Metabolomic studies can provide a global view of metabolism and thereby improve our understanding of the underlying biology. Advances in metabolomic technologies have shown utility for elucidating mechanisms which underlie fundamental biological processes including disease pathology. *Metabolites* is proud to be part of the development of metabolomics and we look forward to working with many of you to publish high quality metabolomic studies.

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### Editor-in-Chief

Dr. Amedeo Lonardo  
Internal Medicine, Ospedale Civile di Baggiovara, Azienda Ospedaliero-  
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#### Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.7 days after submission; acceptance to publication is undertaken in 3.6 days (median values for papers published in this journal in the second half of 2025).