Special Issue

Application of Spectral Analysis in Disease Diagnosis and Treatment

Message from the Guest Editors

Spectral analysis provides label-free molecular fingerprints that capture disease-related biochemical changes across neurodegenerative, oncologic, and metabolic disorders—supporting diagnosis, risk stratification, and longitudinal follow-up. Coupling spectral data with chemometrics and machine learning yields robust classifiers that integrate with imaging and multi-omics. This Special Issue invites original research and review articles that advance biomolecular research through multimodal platforms, hyperspectral and mass-spectral imaging, biofluid-based classifiers, and spectroscopically guided surgery, therapy, and monitoring. We mainly focused on basic science, in vitro, in vivo, and pre-clinical research that contribute to a deeper mechanistic understanding of disease processes or therapeutic effects. To ensure scientific rigor and accelerate translational pathways, we particularly welcome studies with rigorous clinical validation, prospective design, blinding, calibration transfer, batch correction, external testing, and explainable AI to accelerate translation into routine care.

Guest Editors

Prof. Dr. Entesar Al-Hetlani

Chemistry Department, Faculty of Science, Kuwait University, P.O. Box 5969, Safat 13060, Kuwait

Prof. Dr. Igor Lednev

Department of Chemistry, University at Albany, SUNY, 1400 Washington Avenue, Albany, NY 12222, USA

Deadline for manuscript submissions

30 April 2026

Biomolecules

About the Journal

Message from the Editorial Board

Biomolecules is a multidisciplinary open-access journal that reports on all aspects of research related to biogenic substances, from small molecules to complex polymers. We invite manuscripts of high scientific quality that pertain to the diverse aspects relevant to organic molecules, irrespective of the biological question or methodology. We aim for a competent, fair peer review and rapid publication. Please look at some of the exciting work that has been published in *Biomolecules* so far. We would be delighted to welcome you as one of our authors.

Editors-in-Chief

Prof. Dr. Peter E. Nielsen
Department of Cellular and Molecular Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Blegdamsvej 3C, DK-2200 Copenhagen, Denmark

Prof. Dr. Lukasz Kurgan
Department of Computer Science, Virginia Commonwealth University, Richmond, VA 23284, USA

Author Benefits

Open Access
— free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:
indexed within Scopus, SCIE (Web of Science), PubMed, MEDLINE, PMC, Embase, CAPlus / SciFinder, and other databases.

Journal Rank:
JCR - Q1 (Biochemistry and Molecular Biology) / CiteScore - Q1 (Biochemistry)