

Special Issue

Genomic and Epigenetic Determinants of Circulating Cell-Free DNA Release in Cancer

Message from the Guest Editor

Precision oncology depends on molecular characterization of cancer and the detection of minimal residual disease to identify tumor-specific alterations and improve patient outcomes. This Special Issue highlights the epigenetic and genomic mechanisms driving the release of tumor cell-derived cfDNA (cfDNA) into the bloodstream as a result of cell death and explores its potential as a diagnostic and monitoring tool for solid tumors. cfDNA release is highly heterogeneous and, in some cases, levels are undetectable, making the mechanistic understanding of this process a critical challenge. Key contributors include chromosomal instability, DNA methylation, and exposure to external agents, which induce permanent DNA damage and consequent cell death. We invite review articles, original research, and case reports that provide new insights into the detection of tumor-specific molecular alterations, such as methylation patterns and fragmentation profiles, and enhance our understanding of cfDNA biology with clinical relevance.

Guest Editor

Dr. Federica Maione

1. Candiolo Cancer Institute, IRCCS-FPO, Turin, Italy
2. Department of Oncology, AOU San Luigi Gonzaga, Regione Gonzole 10, Orbassano, 10043 Turin, Italy

Deadline for manuscript submissions

30 April 2026



International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



mdpi.com/si/259355

*International Journal of
Molecular Sciences*
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
ijms@mdpi.com

[mdpi.com/journal/
ijms](https://mdpi.com/journal/ijms)





International Journal of Molecular Sciences

an Open Access Journal
by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed



[mdpi.com/journal/
ijms](https://mdpi.com/journal/ijms)



About the Journal

Message from the Editor-in-Chief

The International Journal of Molecular Sciences (*IJMS*, ISSN 1422-0067) is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, molecular biophysics, molecular medicine, and all aspects of molecular research in chemistry. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

Editor-in-Chief

Prof. Dr. Maurizio Battino

Department of Odontostomatologic and Specialized Clinical Sciences,
Sez-Biochimica, Faculty of Medicine, Università Politecnica delle
Marche, Via Ranieri 65, 60100 Ancona, Italy

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, PMC, MEDLINE, Embase, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q1 (Biochemistry and Molecular Biology) / CiteScore
- Q1 (Organic Chemistry)