

## 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

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### Deadline for manuscript submissions

closed (30 April 2026)



## International Journal of Molecular Sciences

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### Message from the Editor-in-Chief

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