

Special Issue

Exploring the Molecular Basis of Cancer: Perspectives from Genetics and Epigenetics

Message from the Guest Editor

Cancer remains a significant global health challenge, prompting extensive research into its molecular foundations to discover new therapeutic strategies. Advances in genetic and epigenetic analyses, along with integrated "omics" techniques—such as genomics, transcriptomics, proteomics, and epigenomics—are reshaping our understanding of cancer biology. The molecular basis of cancer involves complex genetic and epigenetic changes that drive tumor initiation, progression, and therapeutic resistance. This Special Issue aims to enhance our understanding of these molecular mechanisms through innovative research in genetics, epigenetics, and integrated "omics" approaches, offering new insights into the diverse and dynamic biology of cancer. We invite submissions of original research, reviews, short communications, perspectives, and commentaries that explore the role of bioinformatics and machine learning in cancer biology. Relevant topics include, but are not limited to, tumor subtype classification, immunotherapy, T cell exhaustion, gene regulation, cancer prognosis, cancer transcriptomics, epigenomics, and predictive models for drug response.

Guest Editor

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Deadline for manuscript submissions

30 November 2025



Biology

an Open Access Journal
by MDPI

Impact Factor 3.5
CiteScore 7.4
Indexed in PubMed



mdpi.com/si/223032

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A major strength of biological science is the diversity of approaches that biological scientists apply to their research problems. *Biology* reflects this diversity and brings together studies employing the varied experimental and theoretical approaches that are fueling biological discovery. *Biology*, the journal, is a fully peer-reviewed publication with a rapid and economical route to open access publication and is listed on PubMed. All articles are peer-reviewed and the editorial focus is on determining that the work is scientifically sound rather than trying to predict its future impact.

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