Special Issue

Cancer Models: Development and Applications

Message from the Guest Editor

Cancer models, in particular, play a critical role in studying cancer biology, disease progression, and therapeutic intervention in a controlled setting. These models allow researchers to explore the molecular and cellular aspects of cancer, identify potential drug targets, and test the efficacy of new therapies before moving them into clinical trials. These include innovative systems such as perfused 3D organoids, which mimic the tumor microenvironment and allow for more physiologically relevant drug testing, and patient-derived xenografts (PDX), in which human tumor tissue is implanted into immunocompromised mice to closely mimic the characteristics of the original patient's cancer. Genetically engineered mouse models (GEMMs) are also widely used to study the role of specific genes in tumor development and response to therapy. In addition, zebrafish cancer models have emerged as a powerful tool for high-throughput screening due to their rapid development and genetic similarity to humans. By using a combination of these complementary models, researchers can more effectively evaluate therapeutic candidates, and move closer to developing personalized cancer treatments.

Guest Editor

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Deadline for manuscript submissions

20 November 2025

International Journal of Molecular Sciences

an Open Access Journal by MDPI

Impact Factor 4.9
CiteScore 9.0
Indexed in PubMed

mdpi.com/si/218667

International Journal of Molecular Sciences
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mdpi.com/journal/ijms

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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.

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