

Special Issue

Germline Susceptibility and Somatic Genetic Alterations in Carcinogenesis

Message from the Guest Editors

Cancer arises from inherited genetic predispositions and somatic mutations. This Special Issue explores germline-somatic interactions in tumor initiation, progression, and therapy response. Advances in next-generation sequencing have revealed germline variants modulating cancer risk across populations. Simultaneously, somatic mutation analyses have identified cancer drivers and clonal evolution patterns. This Issue presents research examining:

- Germline variants' influence on somatic mutation rates and selection;
- Mechanistic insights into germline-somatic interactions shaping cancer;
- Inherited predisposition in tissue-specific oncogenesis;
- Host genetics' impact on tumor microenvironment and therapy;
- Methods detecting germline-somatic interactions in cancer genomics.

By integrating germline and somatic genomics, this work enables holistic cancer genetics for risk prediction, early detection, and precision therapy. We hope this stimulates interdisciplinary research bridging cancer epidemiology, molecular genetics, and clinical oncology.

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Deadline for manuscript submissions

closed (28 February 2026)



Life

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Impact Factor 3.4
CiteScore 6.0
Indexed in PubMed



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