

De Gruyter Brill

SPECIAL ISSUE AT OPEN MEDICINE

DIGITAL TWINS IN CANCER CARE: FROM SIMULATION TO PRECISION DECISIONS

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OVERVIEW

Cancer care enters a new phase of precision medicine driven by data and models. Through the integration of multimodal oncological data, including medical imaging, digital pathology, molecular and genomic profiles, treatment records, and long-term clinical information, digital twin technology creates a dynamic virtual representation of patients, tumors, treatments, and health processes. These models can support the simulation of disease pathways, the prediction of treatment responses, the estimation of recurrence risk, and the optimization of complex clinical decisions across the continuum of cancer care. This focus is well suited to open medicine, whose scope focuses on translation research in medicine and public health and explicitly includes oncology and innovative research in high technological readiness.

AIM AND SCOPE

The aim of this special theme is to provide a forum for high-quality research and critical studies on the development, validation, implementation and governance of digital twin approaches to cancer care. The theme especially welcomes contributions that connect computational innovation and real clinical use, demonstrating how digital twins can improve diagnosis thinking, personalize therapeutic strategies, support multidisciplinary cancer management, and improve results at the patient and system levels. Open medicine aims to facilitate exchanges between biomedical researchers from different disciplines and countries, and submissions with strong cross-disciplinary and translational relevance are particularly encouraged.

CALL FOR PAPERS

The Special Issue invites original research, reviews, methodological papers and translation studies with clinical basis on the role of digital twins in oncology. Topics of interest include, but are not limited to:

- Patient-specific digital twins for tumor growth modeling, prognosis, and recurrence/ secondary primary cancers (SPCs) prediction
- Multi-modal data in oncology, integrating imaging, pathology, omics, and electronic health records through AI-enabled fusion
- Simulation of adverse events, toxicity risk, and patient safety in cancer therapy
- Validation, explain ability, robustness, and real-world clinical utility of cancer digital twin model
- Health economic evaluation and value assessment of digital twin implementation
- Ethical, legal, regulatory, and data governance issues in digital twin–enabled cancer care
- Implementation science, workflow redesign, and health policy implications for digital twin adoption in oncology

Contributions should clearly demonstrate their relevance to cancer care and preferably express well-defined clinical, translational or health system-specific use cases. Studies with strong empirical evidence, transparent methodology and explicit implications for decision-making and patient outcomes are particularly welcome.

HOW TO SUBMIT

To Submit a paper please use our system: https://www.editorialmanager.com/openmed/
As a Section Category please choose: **SI Digital Twins.**
Submissions to this special issue can expect 30% discount for publication.
Deadline for manuscripts submission: **30 April 2028.**

In case of any question please contact: **magdalena.wierzchowiecka@degruyterbrill.com.**