Contrast Media & Molecular Imaging

Special Issue on

Molecular Imaging to Guide Personalized Therapy in Cancer: From Preclinical to Clinical Settings

CALL FOR PAPERS

Recent findings on molecular signatures of different tumors and the key role played by the microenvironment in tumor behaviour have dramatically accelerated the development of novel anticancer drugs, targeting selectively specific biomarkers. High-resolution imaging systems enable assessing early tumor response to conventional and/or targeted therapies noninvasively in unprecedented detail. Advances in multimodality imaging, integrating anatomical and functional features of tumors, have allowed guiding clinicians in a prompt decision of the effectiveness of treatments in individual patients, thus reducing therapeutic failures. Indeed, molecular imaging methods allowing in vivo characterization and measurement of biological processes at the cellular and molecular level can detect mechanisms of drug resistance and avoid the use of an ineffective treatment in nonresponding patients. In addition, this approach can identify specific molecular targets, allowing the selection of patients for novel therapies.

Furthermore, the use of radiomics, which allows the high-throughput extraction of quantitative features from images and their conversion into mineable data, has improved clinical decision-making. These imaging-derived phenotypes can be integrated with genomic data, i.e., radiogenomics, in order to better understand the biological characteristics of tumors.

Small-animal imaging studies have substantially contributed to characterizing tumor targets and to monitoring the response to specific agents. Preclinical imaging is an important stepping stone in the development of novel molecules as imaging probes and/or anticancer drugs and can help the translation of new therapies into the clinic.

The main focus of this special issue is on the ability of molecular imaging methods, in preclinical and clinical fields, to early predict the tumor response to conventional and targeted therapies and to improve patient stratification for precision medicine. We encourage the submission of original research as well as review articles summarising recent preclinical and clinical findings in the area of breast, lung, prostate, and head-neck cancer, as well as melanoma and glioma. Contributions on the development of innovative imaging probes and theranostic tools as well as radiomic approaches are of particular interest.

Potential topics include but are not limited to the following:

- Multimodality molecular imaging methods to predict early tumor response to conventional as well as novel targeted therapies
- Discovery of novel molecular imaging biomarkers to detect tumor response to treatments
- Development of novel molecules as imaging probes and/or anticancer drugs
- Radiomic approaches to evaluate tumor response
- Molecular imaging (PET and MR) for the prediction of treatment response to cancer immunotherapies
- PSMA theranostics, particularly the use of 68Ga-PSMA small molecule ligands to monitor treatment response to 177Lu-PSMA small molecule therapies
- CT-based radiomics in lung cancer to define clinically actionable molecular subtypes

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/cmmi/migp/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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