Project abstract

Name of DKFZ research division/group:	***Junior Research Group Translational Molecular Imaging in Oncologic Therapy Monitoring (E310)***
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Group homepage: Please visit our website for further information on our research and recent publications.	*https://www.dkfz.de/en/translational-molecular-imaging-in-oncologic-therapy-monitoring*

PROJECT PROPOSAL

Our research group is dedicated to advancing molecular imaging to bridge translational research and clinical application, with a strong focus on personalized oncology. Through close interdisciplinary collaboration among experts in imaging, radiopharmacy, medical physics, and clinical disciplines, we develop, validate, and clinically translate innovative PET tracers in combination with state-of-the-art hybrid imaging technologies such as the long-axial field-of-view positron emission tomography with computed tomography (PET/CT) or magnetic resonance imaging (PET/MRI). Our overarching goal is to improve early cancer detection and therapy monitoring to enable accurate, and noninvasive tumor assessment.

Antibody-based therapy, including antibody-drug conjugates, has demonstrated substantial clinical benefit and improved survival across a range of malignancies. Nevertheless, therapeutic resistance, intratumoral heterogeneity, and dynamic changes in target expression over time continue to limit treatment efficacy. To overcome these challenges, we explore the use of radiolabeled antibodies and antibody-drug conjugates (ADCs) as noninvasive imaging tools that enable whole-body assessment of target expression and treatment response, extending beyond the limitations of biopsy-based evaluation. Using advanced molecular imaging technologies, this approach provides comprehensive characterization of tumor biology and supports informed patient selection. Ultimately, it aims to optimize therapeutic decision-making, improve response prediction, and enhance clinical outcomes.

We are seeking a clinician scientist to lead a translational research project at the interface of advanced molecular imaging, data integration, and clinical oncology. This position offers a unique opportunity to work at the forefront of molecular imaging and data-driven analysis in oncology, combining clinical expertise with innovative research to advance diagnostic strategies and ultimately improve patient outcomes.

Key responsibilities/research opportunities:

- Overseeing imaging with state-of-the-art LAFOV-PET/CT and PET/MRI
- Close collaboration with pathologists and genomics researchers to correlate imaging findings with histopathological features and liquid biopsy
- Contribution to the development and validation of quantitative imaging biomarkers for therapy prediction and response assessment