powered by

dkfz.
GERMAN
CANCER RESEARCH CENTER
IN THE HELMHOLTZ ASSOCIATION

Contribution ID: **13** Type: **Pillar 1: Therapeutic Innovations**

Translational Radioimmunotherapy

Monday 7 July 2025 13:40 (15 minutes)

We previously demonstrated in preclinical and case reports that hypofractionated radiotherapy (RT) can induce tumor-specific T cells, thereby acting synergistically with immune checkpoint blockade (ICB), both locally and outside the RT field (abscopal effect). In the current funding period, we have (i) tested novel treatment combinations in mice to improve the abscopal effect, particularly T cell infiltration of abscopal tumors, e.g., by adding low-dose radiation or chemotherapy, which induce T cell-attracting chemokines; (ii) participated in clinical trials investigating the abscopal effect in metastatic melanoma/NSCLC (IRINA/PARADIGM DKTK-wide joint funding project and RadImmun-NSCLC with DKTK partners in Freiburg); (iii) investigated immune biomarkers in these and other trials. In the coming years, we aim to further improve RT/ICB combinations, particularly the abscopal effect, through additional adoptive T cell transfer, e.g., in ICB-resistant or poorly antigenic tumors. We started by adding TILs, TCR-transgenic T cells, or CD133-specific CAR T cells to RT/ICB in immunocompetent abscopal mouse models without lymphodepleting preconditioning. We are establishing methods to characterize and expand TILs from NSCLC tissue, and will assess their antitumor efficacy using patient-derived organoids (ongoing cooperation with Thoracic Surgery and FREEZE-O) and xenografts in mice +/- RT. In addition, TCR-engineered T cells will be produced. Collaborations on targeted radioligand therapy, preclinical MR and PET imaging to optimize combination therapies, and identification of neoepitopes using NGS/mass spectrometry are also planned. Our medium-term goal is to enable clinical trials using TILs or TCR-transgenic T cells to enhance the abscopal effect or for adoptive transfers with T cell-attracting RT.

Preferred type of presentation

Primary author: NIEDERMANN, Gabriele (Dept. of Radiation Oncology, University Clinics Freiburg)