

POSTER PRESENTATION

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P67. Targeted natural killer (NK) cell based adoptive immunotherapy for the treatment of patients with non-small cell lung cancer (NSCLC) after radiochemotherapy (RCT) – clinical application of NK cells activated by heat shock protein 70 (Hsp70)

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Membrane-bound Hsp70 serves as a recognition structure for NK cells that were pre-stimulated with Hsp70 peptide TKD plus low dose IL-2 *in vitro* and in mouse models. In a clinical phase I trial feasibility, safety and tolerability of *ex vivo* TKD/IL-2 stimulated autologous NK cells has been demonstrated in patients with metastasised colorectal carcinoma and NSCLC. Based on these findings a proof-of-concept phase II randomised clinical trial was initiated (BMBF - Innovative therapies). NSCLC patients will be treated with *ex vivo* stimulated NK cells after RCT. Most patients are diagnosed in locally advanced disease stages IIIA and IIIB. After conventional radiochemotherapy only part of the patients (less than 50%) show remission and despite improvements in standard therapies the mortality associated with this disease is very high (5 year survival rate does not exceed 15%). Therefore there is a strong medical need for innovative treatment strategies. Since an Hsp70 membrane-positive tumour phenotype is associated with a poor clinical outcome, only Hsp70 membrane-positive tumour patients are recruited into the trial. Leukapheresis products are generated centralised and cell processing is performed in a GMP-laboratory.

The aim of the study is to show the efficacy of the treatment with Hsp70-peptide TKD/IL-2 activated, autologous NK cells following completion of standard RCT by improvement of PFS.

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