Hana Hassanin
Dr. med.

Telomerase Specific T-Cells Against Pancreatic Ductal Adenocarcinoma (PDAC)

Geboren am 02.12.1975 in Edinburgh/ GB
(Staats-) Examen am 21.06.2000 an der Universität Ahfad University/Sudan

Promotionsfach: Chirurgie
Doktormutter: Prof. Dr. Angela Märten

Patients with ductal adenocarcinoma of the pancreas have limited promising therapy options. The last two decades have seen the emergence of immunotherapy as an effective treatment for selected patients with metastatic cancer. In this study, the feasibility of generating *in vitro* telomerase specific CD8+ T-cells and the factors which control this process were investigated.

Furthermore, the cytotoxic efficacy of these cells was tested in an orthotopic pancreatic ductal adenocarcinoma mouse model pre-lymphodepleted using cyclophosphamide.

The expansion approach using mIL-2 ,over a period of two weeks, was very successful in generating high number of telomerase specific CD8+ T-cells without losing their function after ACT.

Significant slower tumour growth rate and less metastasis were observed after adoptively transferring telomerase specific CD8+ T-cells, expanded uing mIL-2, in the orthotopic mouse model and the induction of anti-tumour activity was realised.

Further investigations showed that the anti-tumour efficacy was associated with a significant shift from naïve CD8+ T-cells to CD8+ central memory T-cells, as well as the recruitment of high number of dendritic cells which were infiltrating the spleens of the treated mice.

The data are promising but quite immature as only limited number of mice were evaluated and due to some technical restrictions faced this study.

Further studies should be carried out with higher number of mice and the protocol should go beyond being laborious in order to achieve clinical importance in the future.