LS11-036 - Enhanced Therapy for Liver Malignancies based on Optimised Secondary Particle Radiotherapy and Bio-pharmacokinetic Modelling

Zusammenfassung

Liver malignancies remain one of the most life-threatening forms of cancer. Current, conventional therapeutic options make little impact, hence a cutting-edge treatment option is pursued in this project. A tumor-seeking tracer labeled with the isotope B-10 is administered to the patient, the liver is removed and irradiated within a nuclear research reactor and thereafter re-implanted into the patient. The neutron irradiation from the reactor causes the liver to be purged of all metastases as has been shown in pioneering clinical trials. The benefit for the patient can be essentially improved by determining the optimal moment of surgery and irradiation, as well as the expected radiation dose in healthy and cancerous tissue. The required methodology consists of biokinetic modeling and dosimetry, both involving taking samples from patients, as well as animal models and numerical calculations. The results will lead to an improved treatment protocol, thus enhancing therapeutic success.

Keywords:
Liver metastases, secondary particle radiation, high LET, autoimplantation, biokinetics, dosimetry, clinical study, animal models, in-silico models

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Weiterführende Links zu den beteiligten Personen und zum Projekt finden Sie unter
https://www.wwtf.at/funding/programmes/ls/LS11-036/