Award ID:
DP150021

Project Title:
Development of Rhenium Nanoliposomes for Cancer Therapy

Award Mechanism:
New Company Product Development Award

Principal Investigator:
Brenner, Andrew

Entity:
NanoTx Therapeutics

Lay Summary:

Radiation therapy remains an essential component of treatment for most cancers, including primary brain tumors. Theoretically, any tumor can be controlled if a sufficient dose of radiation is delivered. The main limiting factor is the potential for damage to the surrounding normal body. This is especially true with brain tumors, as damage to the surrounding normal brain can result in profound side effects. We have developed a method of loading radiation molecules into fatty particles about one thousandth the size of a cell, termed nanoliposomes or RNL. This can be injected into a tumor where it is essentially 'ingested' by the tumor cells, and the tumor is irradiated from the inside out. Due to the limited distance the particles can travel, the surrounding normal brain receives less radiation exposure and allows treatment with significantly higher doses. Experiments in rodents showed that these nanoliposomes could safely deliver over 30x the amount of radiation that is delivered by standard techniques. Tumors were largely eliminated without evidence of significant injury. Studies in dogs showed that no toxicity was observed at the highest levels tested. The FDA has provided permission to begin the clinical trial and patients will be treated soon. Financial support is needed to fund the upcoming clinical trial, develop the supporting technology, and establish infrastructure that is critical to the development of 186RNL. We believe RNL will have a significant impact on cancer.