



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP160019

Project Title:
An Adaptive Personalized Clinical Trial using a Patient-Derived Xenograft Strategy to Overcome Ibrutinib Resistance in Mantle Cell Lymphoma

Award Mechanism:
Individual Investigator

Principal Investigator:
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Entity:
The University of Texas M.D. Anderson Cancer Center

Lay Summary:

Mantle Cell Lymphoma (MCL) is a type of lymphoma that is rare but presently incurable. Our work led to the FDA approval of ibrutinib, a once-daily, oral drug, to treat patients with relapsed MCL. Although the majority of patients treated with this drug show significantly improved outcomes, most patients become resistant to ibrutinib and experience relapse, with the vast majority of relapsed MCL patients dying within one year. To dramatically improve the cure rate of MCL, novel and pioneering approaches must be taken. To reduce the death rate after ibrutinib relapse, we believe that personalized therapeutic approaches are necessary to achieve this goal; therefore, we are proposing to conduct the first adaptive, personalized clinical trial in MCL using a patient-derived xenograft (PDX) strategy in which a patient's own tumor cells are engrafted into mice that are then administered numerous therapies and therapeutic combinations to ascertain which therapies may be the most effective in the patient. In this pilot study, once an effective therapy is determined in the PDX system, the therapy will be administered to the patient. The beauty of the PDX model in the clinic is that numerous agents and combinations already approved by the FDA or shown to be effective in clinical trials can be tested in the PDX platform to determine the most effective patient-specific therapy. If PDX-based therapy is proven to be a valid system in the clinic, clinicians and patients will no longer be bound to one or two uniform therapies in any current clinical trial in lymphoma, creating a practice-changing concept in the treatment of lymphoma and in the structure of clinical trials, ultimately saving the lives of MCL patients in Texas and throughout the United States.