



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP140678

Project Title:  
Novel, Humanized Single-Chain CD123xCD3 Bispecific Antibodies for  
Eliminating Leukemia Stem Cells and Leukemic Cells

Award Mechanism:  
High Impact/High Risk

Principal Investigator:  
Woo, Jung H

Entity:  
Scott and White Healthcare

### Lay Summary:

Acute myeloid leukemia (AML) is the most common leukemia and its overall 5-year life expectancy rate is low. Poor survival of AML is often due to drug resistant cancer cells called leukemia stem cells (LSC). LSC often become resistant to drugs because they have proteins that allow them to avoid cell death from drugs. One protein found on LSC that promote tumor cell survival is called CD123. Researchers have targeted CD123 before as a way to target and kill LSCs. Results from two clinical trials for drugs targeting CD123 produced encouraging results in that the drugs did not cause major side effects and showed some effect in killing LSC and tumor cells. The drug being developed here builds upon the success of these past drug studies and has been designed to be more effective at killing LSC and to last longer. The new drug is called CD123xCD3 BiAb and has already been shown to effectively kill AML tumor cells in the laboratory. The objectives of this application are (1) to further improve CD123xCD3 BiAb to maximize cell killing activity and (2) to study the activity and efficacy of CD123xCD3 BiAb in animal tumor models.