CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP120298

Project Title:
Chimeric T cells for therapy of Hodgkin Lymphomas and CD30+ Non Hodgkin Lymphomas

Award Mechanism:
Individual Investigator

Principal Investigator:
Ramos, Carlos

Entity:
Baylor College of Medicine

Lay Summary:

While Hodgkin Lymphomas (HL) and Non Hodgkin Lymphoma (NHL) may have a good response to chemotherapy and radiation, this treatment has severe toxic/fatal effects and fails in a significant number of patients. We have been developing an alternative approach that does not rely on drugs/radiation, but instead boosts the patient's own immunity to the tumor. We have successfully used this approach in patients with HL and NLH in which a virus (Epstein Barr virus or EBV) is present in the tumor cells. We give these patients their own immune cells called T lymphocytes that we have trained in the laboratory to be effective against the cancer cells. By using this approach we have produced long-lasting and complete remissions in two thirds of the patients with this lymphomas. Many HL and NHL tumor cells, however, do not contain the EB virus. We have therefore modified our approach and now engineer our T lymphocytes to recognize a structure called CD30 that is present on all HL cells and many NHL cells. We change the T lymphocytes so that they make a synthetic protein that can recognize the CD30 structure on the cancer cell. These synthetic proteins, called chimeric antigen receptors (CARs), help bring the specificity of an antibody and the killing ability and long life-span of a T lymphocyte to bear on tumor cells, and eradicate disease permanently. We have shown in the laboratory that these CAR.CD30-activated T cells kill HL and NHL tumor cells very effectively. This approach is now ready to be tested in patients suffering from CD30+ HL or NHL. We have obtained all local and Federal approvals and documentation and manufactured all the components required for human studies. We now wish to proceed with our clinical trial in patients with advanced CD30+ HL or NHL. If successful, our approach could be used earlier in the treatment course of HL and NHL, reducing the severe short and long-term side effects suffered by these patients.