

The Grand View League Funded Postdoctoral Fellowship 2016

The American Cancer Society's mission is to save lives, celebrate lives, and lead the fight for a world without cancer.

Type of Cancer:

B cell Lymphoma

Systemic Therapies – Discovery and Development

Lymphomas are blood cancers in the lymph nodes. B-cell lymphomas affect a specific type of immune system cell. They develop more frequently in older adults and in immunocompromised individuals.

Rituximab, a monoclonal antibody that targets B cell lymphoma, has greatly improved outcomes for patients with lymphoma. Novel approaches that enhance antibody therapies are urgently needed, however, as more than 20,000 patients with B cell lymphoma die every year.

In previous work Dr. Frank and his lab demonstrated an enhanced ability of rituximab to kill lymphoma cells with the addition of a second antibody that targets and activates CD137, a protein expressed on activated immune cells. This activation of the CD137 protein on immune cells results in enhanced killing of rituximab coated lymphoma cells as demonstrated in multiple mouse lymphoma models.

Based on this preclinical work, multiple clinical trials are now underway evaluating the combination of CD137 targeting antibodies with rituximab. The early phase clinical trial results suggest that this combination is both safe and effective, but more testing is needed.

This research project seeks to improve beyond these current clinical trials. He hypothesized using a special "bispecific" antibody that binds simultaneously to both the lymphoma cells and CD137 will further enhance lymphoma killing by both recruiting activated immune cells to the lymphoma and making the immune cells more potent at killing.

To date, they have been able to show in a test tube that this special bispecific antibody has enhanced lymphoma-killing capability as compared to two individual antibodies with the same targets. Additional experiments successfully demonstrating the bispecific antibody's enhance killing ability in multiple mouse lymphoma models will substantiate the effectiveness of this novel therapeutic strategy, which is the scope of this research proposal.

If successful, these experimental results would support initiating a clinical trial to evaluate this novel bispecific antibody in patients who have B cell lymphoma.

Institution:

Stanford University

Investigator:

Matthew Frank, PhD



Project Title:

A Novel Bispecific Antibody for the Treatment of B cell Lymphoma

Active Through:

6/30/2020

Total Funding:

\$163,500



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