Bankhead-Coley Cancer Research Program

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Microbiology and Immunology
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2010 Program
Technology Transfer Feasibility
(1-year project)

Project Title: Potent DC Therapies for Cancer Using Novel Immune-Stimulating Fusion Proteins

Project Summary: The rationale of this study is to determine whether dendritic cell therapy, an approach for treating cancer by taking measures to increase immune system functioning, can be improved as a cancer treatment. The project uses a unique protein that has been shown in preliminary studies to help dendritic cells migrate toward lymph node chemokines (protein type). A critical roadblock in generating effective dendritic cell therapy is the problem with inducing proper migration. We will put a gene-encoding protein into dendritic cells, and these cells will be tested for their ability to migrate as well as other critical functions required for effective dendritic cell therapy treatment. This includes the ability of the dendritic cell to make important cytokines and to boost the immune response of activated T cells, a key cell involved in killing tumors. This research has the potential to enhance dendritic cell therapy and optimally boost the patient's immune cells so they can destroy cancer cells more effectively. The ultimate goal is to develop a dendritic cell therapy that can boost the patient's immune cells to the point where tumors and metastases regress and immune cells control the cancer for decades without the need for other treatments. Dendritic cell therapy has been tested in a number of clinical trials, and therefore this technology, if successfully commercialized, is likely to advance to small-scale clinical trials fairly rapidly (three-four years).