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*2005 Program  
New Investigator (3-year project)*

**Project Title:** Immune Response Against Lung Cancer with gp-96 Fusion Proteins

**Project Summary:** The incidence of Lung cancer (number of new patients) in the United States was 169,400 in 2002 and the number of deaths for Lung Cancer was 154,000. Lung cancer is the leading cause of death in US. Seventy percent of these patients diagnosed with new lung cancers are in advanced stage or incurable since presentation candidates only for palliative chemotherapy. Results of treatment with chemotherapy for this disease are poor. Large clinical studies with the best chemotherapy combinations available now have demonstrated responses (Decreasing tumor size) in 15% to 35% of the patients; however they can only place a patient in complete remission (Total destruction of the tumor) in less than 10% of patients with a modest impact on survival. The average survival even with chemotherapy is still less than one year since diagnosis. Effective therapy requires innovative strategies that can improve the response rate and decrease chemotherapy toxicity such as the tumor vaccine approach proposed here.

Immunologic surveillance is believed to be one means by which cells undergoing malignant transformation are eliminated and controlled by a healthy person. Lung cancers like other cancers escape this surveillance and cannot be recognized by our immune system. Vaccines against tumors that have generated responses have been seen in melanoma and renal cell carcinoma. Unfortunately there is not a vaccine effective against lung cancer yet. The tumor vaccine has the purpose to make the lung cancer tumor more immunogenic (susceptible to be recognized by the CD8 lymphocytes - 'defense cells' - in the patient) allowing a proper immune response from the patient with the subsequent killing of the tumor without major side effects related with administration of chemotherapeutic agents that do not have the efficacy to cure the patient yet.