

**New Jersey State Commission on Cancer Research
LAY ABSTRACT OF RESEARCH PROJECT**

NAME OF PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR: **RuiRong Yuan**

Project Title: **Immunotargeting Therapy for SCLC by anti-HuD Immunotoxin**

Description: **To test efficacy of anti-HuD immunotoxin therapy for small cell lung cancer on a tumor xenografted animal model .**

Small cell lung cancer (SCLC) is a carcinoma of neuroendocrine origin that expresses the neuron antigen-HuD protein at high level. HuD-antigen is expressed in 100% of SCLC tumor cells. About 15-20% of patients with SCLC harbor anti-HuD antibodies in their blood stream. Most interestingly, the patients expressing anti-Hu antibodies are more likely to be in a less advanced stage of the disease and respond better to treatment than those without anti-HuD antibodies. This suggests that the anti-HuD immunoresponse somehow inhibits SCLC growth. We have created a new antibody-toxin compound by assembling a mouse anti-human HuD monoclonal antibody with toxin saporin and have demonstrated that the immunotoxin specifically kills SCLC cells with high efficacy in cell cultures. Neither pure anti-HuD antibody nor toxin saporin alone manifests similar cytotoxicity when tested on SCLC cells. Our recent pilot studies demonstrate that this immunotoxin significantly inhibits tumor progression in a mouse model of human SCLC without causing toxicities. We plan to extend our findings into larger groups of tumor xenografted animals to verify the efficacy of the intravenous immunotoxin treatment and to define the best treatment schedule as well as its potential toxicity. In the future, this new compound may offer clinicians a novel treatment option with significant therapeutic potential for SCLC patients.