Charles E. Schmidt College of Medicine
Distinguished Lecturer Series

Dr. Vijaya Iragavarapu
Associate Professor of
Biomedical Science at
Florida Atlantic University

Seminar 12:45 - 1:50 p.m.
Friday, January 29, 2016

College of Medicine
BC 71- Room 130

FAU
CHARLES E. SCHMIDT
COLLEGE OF MEDICINE
Florida Atlantic University

"Pro-inflammatory chitinase-3-like-1 protein promotes tumor growth and metastasis."

Abstract: Breast cancer is the 2nd leading cause of cancer related deaths in women. Disseminated metastasis accounts for the majority of cancer-related deaths. Lungs are one of the common sites for breast cancer metastasis. Inflammation is known to contribute to tumor initiation and metastasis. A molecule that is common in both breast cancer and inflammatory disease is chitinase-3-like-1 protein (CHI3L1). Elevated levels of CHI3L1 has been correlated with poor prognosis and survival in breast cancer patients. Using a combined model of ragweed allergic pulmonary inflammation and breast cancer model, we tested the effect of pre-existing inflammation on breast cancer metastasis. We found that there were higher levels of CHI3L1 and macrophages in the lungs of ragweed mammary tumor bearers. Moreover, tumor cell infiltration in the lungs was three-times faster in ragweed mammary tumor bearing mice. Ragweed allergic mammary tumor bearers showed accelerated primary tumor growth, metastasis and shorter survival rate. We explored the role of macrophages that aid in the support of incoming mammary tumors cells and accelerated metastasis. Depletion of macrophages prior to tumor cell inoculation in mice with pre-existing pulmonary inflammation decreased CHI3L1, pro-tumorigenic molecules, tumor growth and metastasis. Thus targeted therapies may be efficient strategies against breast cancer metastasis.