

Haura, Eric B.

*Interdisciplinary Oncology Program
H. Lee Moffitt Cancer Center/USF*

*2001 Program
New Investigator (3-year project)*

Project Title: STAT signaling pathways in human lung cancer

Project Summary: Each year 170,000 people in the United States will be diagnosed with cancer of the lung with nearly 160,000 of patients succumbing to the illness. While approaches using targeted therapy hold promise, responses are rare and it remains unclear how to molecularly classify patients appropriate for individual signal transduction inhibitors. A better understanding of signal transduction pathways important in lung cancer biology as well as assays that define patient subsets of NSCLC possessing such pathways is of critical importance. This project generated data demonstrating the importance of Stat3 in the control of lung cancer survival. This protein controls Bcl-2 family members and can modulate cell death in response to chemotherapy. Assays on patient samples will be used to determine the importance of this protein in outcome following surgery and in patients receiving chemotherapy.

Project Successes: The study found that Stat3 regulates survival in lung cancer cells. Novel drugs that inhibit Stat3 activity result in lung cancer cell death. Inhibition of Stat3 also enhances death in lung cancer cells resulting from chemotherapy. This occurs in part through the direct regulation of survival proteins that influence a cell's sensitivity to chemotherapy agents. This work suggests that development of drugs specifically targeting Stat3 may hold promise for patients with advanced lung cancer.

Publications from BRP funded research in Peer Reviewed Journals:

Haura, E.B. Management of Advanced Non-Small Cell Lung Cancer: Current Trends. *Curr Opin Pulm Med* 8(4):251-6, 2002.

Song L, Turkson J, Karras J, Jove R, **Haura EB**. Activation of Stat3 by receptor Tyrosine Kinases regulates survival in human non-small cell carcinoma cells. *Oncogene*. 2003;22(27):4150-4165.

Sarries C, **Haura EB**, Roig B, Taron, M, Abad A, Scagliotti, G, Rosell R. Customized chemotherapy in non-small cell lung cancer. *Pharmacogenomics*. 2002;3(6):763-80.

Presentations from BRP funded research:

"Survival Mechanisms in Lung Cancer". Grand Rounds. Sylvester Cancer Center/University of Miami. December 10, 2003

"Biology of Lung Cancer: Implications for Molecularly Targeted Therapy". Brazil International Symposium – Standards in Oncology. Salvador, Brazil. July 17-19, 2003

"Survival Mechanisms in Lung Cancer". Moffitt Cancer Center Lung Cancer Symposium. Hawks Cay, Florida. February 7, 2003.

"Update on Biology and Genetics of Lung Cancer". ACCP & CHEST Lung Cancer Postgraduate Course – Lung Cancer: The Guidelines and Beyond. November 2, 2002

“STAT Signaling Pathways and Lung Cancer”. Educational Symposium of the Spanish Lung Cancer Group. Valencia, Spain. October 10-11, 2002

“Insights into the Biology and Treatment of Advanced Non-Small Cell Lung Cancer”. Grand Rounds at the H. Lee Moffitt Cancer Center and Research Institute. Tampa, Florida. February 15, 2002

“Signaling Pathways and Lung Cancer”. Research in Progress Seminar Series. The H. Lee Moffitt Cancer Center and Research Institute. Tampa, Florida. January 10, 2002

New grants based in part on BRP-funded work:

NIH NCI R01 (Pending)

Project Title: R01

Project Period: 07/05 – 06/10

Amount: \$1,250,000

NIH NCI P01 (Pending)

Project Title: P01

Project Period: pending

Amount: \$5,000,000