

MAINE CANCER FOUNDATION

2008 GRANT AWARDS

Research Grants

- \$81,995** **ROLE OF DELTA OPIOID RECEPTORS IN BONE CANCER**
Edward Bilsky, Ph.D. University of New England, Biddeford
Bone cancer pain is one of the more common and challenging symptoms associated with advanced cancer. Current treatments for bone cancer pain are limited due to lack of efficacy, side effects and/or difficulty in administration. Previous work in the Bilsky laboratory provides a rationale for developing analgesics (pain relievers) that target the delta opioid receptor. The research funded by the Maine Cancer Foundation will investigate the activity and side-effect profile of novel drugs that activate this receptor in a mouse model of bone cancer, with the ultimate goal of having better analgesics for bone cancer patients (as well as other cancer-related pain conditions).
- \$79,524** **DEVELOPMENTAL GENOMICS OF LUNG CANCER**
Carol Bult, Ph.D. Jackson Laboratory, Bar Harbor
Cancer is often associated with the inappropriate regulation of the same genes and pathways that are important for normal organ and tissue development. Our project will measure genome wide gene expression at thirteen stages of normal lung development in mouse and then compare these data to aberrantly expressed genes in human lung tumors. Our hypothesis is that using the comparative context of normal development will allow us to identify genes and pathways that are central to lung tumor initiation and survival. The results of our study will produce novel targets for future development of diagnostic and prognostic biomarkers for lung cancer.
- \$73,552** **WAVELET-BASED IMAGE ANALYSIS OF MAMMOGRAMS**
Andre Kahlil, Ph.D. University of Maine, Orono
The need to use reliable computer assisted diagnostic methods is becoming more and more crucial in mammography analysis. This is especially true in a state like Maine, and more generally in smaller hospitals, where there may only be one available radiologist to give a visual assessment of mammograms. We propose to offer a novel methodological approach to be eventually implemented into an automated breast cancer diagnosis assistant. Using the 2D Wavelet Transform Modulus Maxima (WTMM) method, the goal of this project is to determine the fractal dimension of microcalcification clusters and to eventually quantitatively discriminate between benign and malignant samples.
- \$79,696** **HOMOLOGOUS RECOMBINATION FACTOR XRCC2 IN B-CELL GENOME STABILITY AND TUMOR SUPPRESSION**
Kevin Mills, Ph.D. Jackson Laboratory, Ph.D.
According to estimates by the Maine Cancer Registry and the National Cancer Institute there are more than 700 new leukemia and lymphoma cases, and over 220 leukemia or lymphoma-related deaths, yearly in Maine. Chromosome abnormalities – such as broken chromosomes, rearrangements, and exchanges of material between different chromosomes – are hallmarks of leukemia and lymphoma. This project aims to identify and investigate the cellular processes that normally protect against cancer-related chromosome rearrangements. This work will be essential to 1) understanding the origins of chromosome abnormalities and how they may lead to cancer; and 2) developing better diagnosis and/or treatment strategies.

- \$86,191 **FGF-MEDIATED TUMOR GROWTH INDUCED BY NOTCH SIGNALING INHIBITION**
Igor Prudovsky, Ph.D. MMC Research Institute, Scarborough
 Tumor increase depends on growth of vessels, which provide tumors with oxygen and nutrients. Fibroblast growth factors (FGF) are strong stimulators of vessel growth. Notch signaling system regulates cell fate at all stages of organism development. We found that Notch signaling inhibition, which can occur in some tumor types, results in the increase of production and secretion of FGF1. The aims of our project are to understand the role of FGF1 in tumor growth stimulated by the inhibition of Notch signaling and to assess the carcinogenic activity of gamma secretase inhibitors, potential anti-Alzheimer drugs, which block Notch signaling.
- \$78,413 **GENETIC MODEL OF TGF β RECEPTOR-DEPENDANT SUPPRESSION OF PROSTATE CANCER METASTASIS**
Cal Vary, Ph.D. MMC Research Institute, Scarborough
 Prostate cancer metastatic disease is the primary cause of prostate cancer-associated mortality. We propose to develop a novel mouse model of prostate cancer metastasis that combines the ability to genetically manipulate the expression of components of the TGF β signaling pathway in male mice that are genetically programmed to get metastatic prostate cancer. Patients with prostate cancer suffer a high rate of mortality because of metastatic disease. Our analysis of the signaling pathways involved in the regulation of prostate cancer metastasis will provide a rationale for the design of novel therapeutic approaches that can improve prostate cancer survival.

Education and Patient Support Grants

- \$10,000 **Regional Medical Center at Lubec**
 to present a region-wide conference for patients, survivors, providers and the community
- \$10,000 **Connecting to Cancer Care, York County Community Action**
 to meet the transportation needs of patients throughout York County
- \$5,000 **Franklin Memorial Hospital, Farmington**
 to present a regional conference for cancer patients, survivors, and providers
- \$5,000 **Cancer Community Center, South Portland**
 for patient and family support programs
- \$5,000 **Cary Medical Center, Caribou**
 to support a community wide prostate cancer awareness initiative
- \$3,140 **SMCC Radiation Therapy Program, South Portland**
 to provide advanced education for RT students
- \$1,650 **Leukemia and Lymphoma Society, state-wide**
 to provide telephone support services to patients
- \$1,500 **Camp Sunshine, Casco**
 to provide a week at camp for one family affected by cancer
- \$1,200 **Maine Breast Nurse Network, state-wide**
 to support conference planning and education for this start-up professional organization

Program Grants

In addition, the Foundation underwrote the expense of Discovery Weekend whose final weekend was September '08; distributed Portraits of Courage books to patients, especially those newly diagnosed; in partnership with Maine Breast Health Cooperative supported the Blaine House Tea and Leadership Award; in partnership with Maine Cancer Consortium supported exploring palliative care needs in Maine's immigrant communities.