Albert Einstein College of Medicine of Yeshiva University

Albert Einstein Cancer Center

Fall 2008

A Center for Cancer Research and Treatment designated by the National Cancer Institute

Inside Stories:

The mission of the AECC is to promote and facilitate research that will lead to a better understanding of the origins of cancer and to more effective prevention, diagnosis, and treatment of malignant diseases. There is special emphasis on stimulating interdisciplinary collaborations that draw together all faculty of the Einstein community that can contribute to the goals of the Center.

The Albert Einstein Cancer Center (AECC) was one of the first cancer centers on a medical school campus to be funded by the National Cancer Institute (NCI), following the passage of the National Cancer Act in 1971. AECC has received continuous funding by the NCI since that time.

The AECC Cancer Center Support Grant from the NCI was recently competitively renewed (2007 – 2012) and will provide ~$20M in funding over that period. This is the largest grant to the College, and it provides support for the Center's core laboratory facilities that make available advanced technologies and services to the entire faculty. This grant, along with philanthropy, enables AECC to fund high-priority pilot project grants which ultimately become competitive for external funding, and to recruit faculty to AECC who contribute new expertise and ideas to our programs. There are currently 148 AECC members who represent virtually all academic departments.

NCI·CC
A Cancer Center Designated by the National Cancer Institute

CURRENT FOCUS OF CANCER CENTER RESEARCH PROGRAMS

Immuno-oncology

- How acquired defects in genes that regulate immune cells lead to the development of non-Hodgkin's lymphomas
- Development of antibodies that target cancer: focus on the treatment of malignant melanoma
- Development of new methods for augmenting the immune system to enhance anti-cancer vaccines for the prevention and treatment of cancer

Tumor Microenvironment and Metastasis

- Impact of the microenvironment that surrounds tumors on the ability of cancer cells to invade and metastasize
- Mechanisms that control the motility of cancer cells
- Development of new experimental approaches, and optical technologies, to monitor the activity of cancer cells within animal models

Cell Growth and Differentiation Control

- Studies on the chemical changes in genes that inhibit or augment the development of cancer (epigenetics)
- The role of cancer stem cells in the development and treatment of leukemia
- Studies on the mechanisms that regulate the survival and death of

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Research Programs (continued from Page 1)

normal and cancer cells

Molecular Membrane Biology

- The chemical properties of the surface of cancer cells that determine "stickiness" and the ability of cells to "detach" from their normal location and spread
- Studies on the molecules that transport nutrients and anticancer drugs into and out of cancer cells. How alterations in these processes result in drug resistance
- How substances synthesized within cells traffic to their sites of action and how these processes are disturbed in cancer cells

Experimental Therapeutics

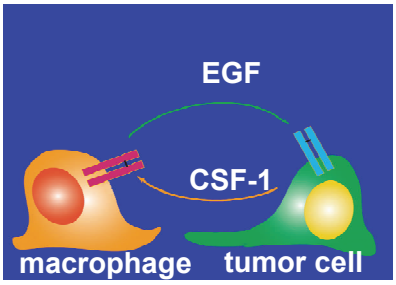
- The mechanism of action of anticancer drugs
- Development of new drugs targeted to vulnerable sites in cancer cells
- Clinical trials of new anticancer drugs and drug combinations
- Development of multidisciplinary approaches to the treatment of specific cancers: breast, lung, gynecological, head and neck

Biology of Colon Cancer

- Regulation of the growth and maturation of normal cells of the large intestine and the how alterations in these processes result in cancers of the colon and rectum.
- Development of mouse models of human colorectal cancer
- Evaluation of pharmaceutical agents and nutritional factors that prevent colorectal cancer in mouse models – extrapolation to cancer prevention in humans

Cancer Epidemiology

- The role of dietary, environmental, and lifestyle factors in the development of breast and other cancers: focus on the Women's Health Initiative and other cohorts
- The impact of obesity on the development of cancer
- The role of human papilloma virus (HPV) in the development of cervical and head and neck cancers
- Factors that determine whether an HPV infection will persist and result in cancer
- The impact of vaccines in the prevention and treatment of cervical cancer



AECC investigators have shown that tumor cells secrete a factor (CSF-1) that attracts normal cells (macrophages) in the tumor microenvironment. Macrophages, in turn, secrete a factor (EGF) that attracts tumor cells. Macrophages guide tumor cells to blood vessels, following which tumor cells penetrate blood vessel walls and metastasize to distant sites.

NEW PROGRAM - Cancer Prevention and Control

Dr. Bruce Rapkin has just accepted a position at AECC to lead the Marilyn and Stanley M. Katz Comprehensive Cancer Prevention and Control Program.

The initial research focus of this new program will include:

- Analysis of interactions and behaviors in families and communities that increase the risk of cancer
- Development of methodologies to modify and diminish behaviors that increase the risk of cancer
- Development of approaches that increase the effectiveness of physicians in implementing cancer prevention programs for their patients

RECENT NEW MEMBERS

AECC is pleased to announce the addition of the following new members:

Gloria Huang, MD - was appointed as assistant professor in the Department of Obstetrics and Gynecology. She is Board-Certified in Gynecological Oncologist and is active in the surgical care of patients with gynecological malignancies. She also conducts laboratory research focused on the development of new strategies for the treatment of cancers of the ovary and endometrium

Bhasker Das, PhD – an organic chemist, was recruited last year as assistant professor in the department of nuclear medicine with a joint appointment in the Department of Developmental and Molecular Biology. Dr. Bas collaborates with AECC biologists who have identified novel target in cancer cells. Dr. Bas then synthesizes drugs that are effective inhibitors of these targets.

Yousin Suh PhD – was recruited to the Departments of Medicine and Genetics as associate professor. Her research is focused on the identification of genetic factors that connect cancer and aging.

Ilir Agalliu, MD, ScD - is assistant professor in the Department of Epidemiology and Population Health. His research interest is on understanding factors at the molecular level that increase the risk of development of prostate cancer.

Andreas Jenny, PhD – was recruited to the Department of Developmental and Molecular Biology as an assistant professor. His research is focused on understanding the relationship between the spatial location of cells in tissues and their propensity to detach and migrate, an important factor in cancer progression.

Anne Müsch, PhD – is an assistant professor in the Department of Developmental and Molecular Biology. Her research is directed to understanding the mechanisms that determine the polarity, (orientation), of cells in tissues.

Paraic Kenny, PhD - was appointed assistant professor in the Department of Developmental and Molecular Biology. His research focuses on the behavior of cancer cells as they grow in small masses in culture in the laboratory, a model that is considered to be most relevant to the way cancers grow in vivo.

Antonio Di Cristofano, PhD – was recruited to the Department of Developmental and Molecular Biology as associate professor. He has developed mouse models of human cancers; his current focus is on a model of endometrial cancer. This mouse model will facilitate understanding the disturbances in normal pathways that result in this disease and more effective approaches to its treatment.

Xingxing Zang, MD, PhD – is assistant professor of the Department of Microbiology and Immunology. His research is focused on the identification of mechanisms by which cancer cells evade the immune system. The objective is to develop methods to block these processes to enhance the immune response to cancer and immune-based therapies.

Ulrich Steidl, MD, PhD - was recruited to the Department of Cell Biology as the Diane and Arthur B. Belfer Faculty Scholar in Cancer Research. His research is directed to understanding the properties of leukemic stem cells which are considered to be responsible for the recurrence of the disease following intensive chemotherapy and bone marrow transplantation

Peter Cole, MD – was recruited to the

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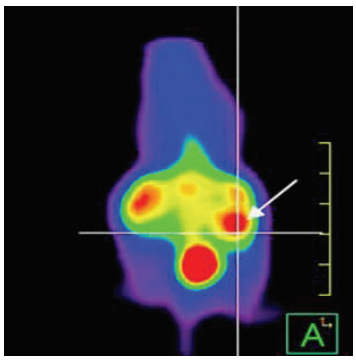
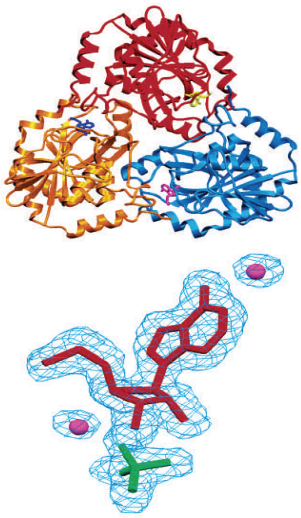


Targeted positron therapy of breast cancer with 18F-2-deoxy-2-fluoro-D-Glucose in a mouse model



Development of a transition-state inhibitor-based cancer therapeutic directed to 5'-methylthio-adenosine phosphorylase for the prevention and treatment of prostate and other cancers

New Members *(continued from page 3)*

Department of Pediatrics as associate professor. Dr. Cole is a pediatric hematologist/oncologist active in the care of children with malignant diseases. He has a laboratory and clinical research program directed to understanding the causes of the neurological deficits associated with cancer treatment in children and the development of new ways to prevent these complications.

Simon Spivack, MD, MPH – is a member of the Department of Medicine. He is professor and chair of the Division of Pulmonary Medicine. Dr. Spivack's research interest is in the detection of early changes in the lining of the pulmonary airways that are associated with the risk of development of lung cancer. One approach he is studying is directed to the analysis of chemicals from abnormal cells that are exhaled and may correlate with lung cancer risk.

Jeffrey Pessin, PhD – is a member of the Department of Medicine. He is the Judy R. & Alfred A. Rosenberg Professor and director of the Diabetes Research Center. His research is focused on mechanisms that control the trafficking of glucose transporters to cell membranes. These transporters are very important to cancer cells which have high energy requirements and often exist in oxygen-deprived environments in which there is a high requirement for glucose.

Harriet Smith, MD – was recruited as professor in the Department of Obstetrics and Gynecology. She is a gynecological oncologist active in the surgical care of patients with gynecological cancers and in laboratory and clinical investigation. Dr. Smith is particularly interested in identifying biochemical and molecular properties of ovarian and endometrial cancers that correlate with response to treatment.

Kathryn Anastos, MD - is a professor in the Departments of Medicine and Epidemiology and Population Heath. Dr. Anastos plays a key role in linking the large population of patients with HIV at Montefiore Medical Center to AECC studies focused on the co-infection of these patients with human papillomavirus, an important risk factor for the development of cervical neoplasia. Patients with HIV are also at high risk for other cancers, which is an area of interest to AECC laboratory scientists and epidemiologists.

AECC Senior Leadership

Director	I. David Goldman, MD
Deputy Director	Jeffrey Pollard, PhD
Associate Directors:	
Clinical Research	Roman Perez-Soler, MD
Laboratory Sciences	Pamela Stanley, PhD
Population Sciences	Thomas Rohan, MD, PhD
Shared Resources	Michael Prystowsky, MD, PhD
Therapeutics	Susan Horwitz, PhD
Translational Research	Leonard Augenlicht, PhD
Administration	Richard Seither, PhD, MBA

For information about gift opportunities, please call Ira Lipson, AECC Director of Development, at 718-430-2371

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