NEW FACULTY

Peter David Cole, M.D.
Associate Professor, Pediatrics

Dr. Cole is a pediatric hematologist/oncologist active in the care of children with malignant diseases. Children who undergo cancer therapy that involves the brain often become fatigued, have trouble concentrating and experience short-term memory loss. Dr. Cole's laboratory and clinical research team are trying to understand the causes of these neurological complications and to develop new ways of preventing them.

Marc James Gunter, Ph.D.
Assistant Professor, Epidemiology & Population Health

Dr. Gunter is investigating the molecular pathways through which obesity increases a person's risk of developing cancers of the colon, breast, endometrium and prostate. In collaboration with his Cancer Center colleague Howard Strickler, M.D., he recently found that an elevated insulin level in the blood increases a woman's breast-cancer risk.

Gloria Shining Huang, M.D.
Assistant Professor, Obstetrics & Gynecology and Women's Health

A Board-certified gynecological oncologist, Dr. Huang is involved in the surgical care of patients with gynecological malignancies. Her laboratory research focuses on developing new strategies for treating cancers of the ovary and endometrium using cytotoxic anticancer drugs and new biological therapies that inhibit factors that stimulate tumor growth.

Simon Daniel Spivack, M.D., M.P.H.
Associate Professor, Medicine, Epidemiology & Population Health, and Geriatrics

Dr. Spivack studies changes in the lining of the pulmonary airways that may be early harbingers of lung cancer. Using a technique he developed, Dr. Spivack analyzes the DNA recovered from cells in exhaled breath, looking for abnormalities that occur during the development of lung cancer. The object of this noninvasive technique is to develop a test for detecting lung cancer at an early stage when successful treatment is more likely.

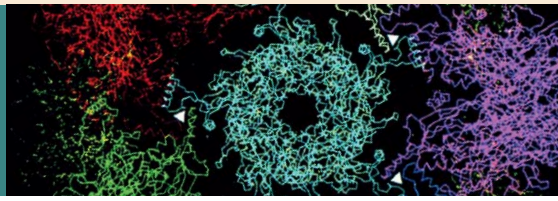
Ulrich Steidl, M.D., Ph.D.
Assistant Professor, Cell Biology

Dr. Steidl, the Diane and Arthur B. Belfer Faculty Scholar in Cancer Research, works with stem cells that fuel acute myeloid leukemia. This cancer progresses rapidly and is often resistant to conventional chemotherapy. His work may lead to effective therapies against this type of leukemia.

ON THE WEB

To learn more about the Albert Einstein Cancer Center, please visit the Center's website at www.einstein.yu.edu/cancer.

discoveries

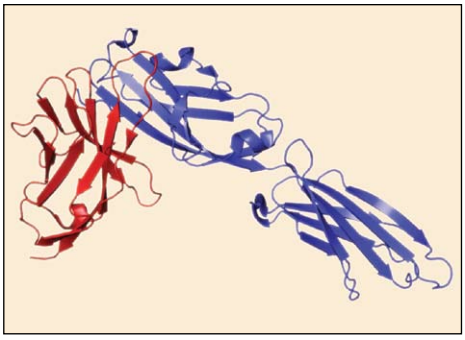


Attacking metastatic melanoma

Two Einstein scientists have pioneered a treatment for melanoma in which a radiation-emitting isotope is "piggybacked" onto an antibody that binds to melanin, the pigment that gives skin its color. When injected into a patient's bloodstream, the antibodies latch onto melanin particles within tumors, and then the isotopes emit radiation that kills melanoma cancer cells. In studies with a mouse model of metastatic melanoma, the two scientists—Ekaterina Dadachova, Ph.D., the first Sylvia and Robert S. Olnick Faculty Scholar in Cancer Research, and Arturo Casadevall, M.D., Ph.D., the Leo and Julia Forchheimer Professor and chairman of Einstein's microbiology & immunology department—showed that administering their antibody-isotope therapy followed by the chemotherapy agent dacarbazine proved more effective against melanoma than either treatment alone.

Arousing the immune system to fight cancer

Why don't our immune systems protect us from developing cancerous tumors? One reason may be a molecule known as PD-1 (Programmed Death-1) that suppresses the immune response to cancer. In this study, Cancer Center researchers led by Steven Almo, Ph.D., were able to obtain a "freeze-frame" image of the crystal structure of PD-1 in association with one of the two molecules with which it combines to signal the immune system to "ignore" tumors. This information could help in formulating drugs that will suppress PD-1 and thereby strengthen the immune response against cancer.



Top: Ekaterina Dadachova, Ph.D., and Arturo Casadevall, M.D., Ph.D.

Bottom: The crystal structure of PD-1, a molecule involved in helping tumors evade the immune system, is shown in red. The binding of PD-1 to two other molecules (one of them shown in blue) suppresses the body's immune response to cancer. The arrows within the molecular strands indicate the direction in which the strands are constructed.

Restoring blood-cell production

In myelodysplastic syndrome (MDS), the bone marrow fails to produce enough red cells, white cells and platelets, and patients become anemic and susceptible to infections and bleeding. MDS is becoming increasingly common in older people and often leads to leukemia. In this study involving a mouse model of MDS, Amit Verma, M.D., and his research group identified a signaling pathway that suppresses the bone marrow's production of blood cells. The researchers found that blocking this signal had the desirable effect of stimulating blood-cell production. These observations provide important clues for treating MDS in humans. This work encompassed epigenetic studies in collaboration with John Greally, M.B., B.Ch., Ph.D., and was funded, in part, by a generous gift from Janet and Arthur Hershaft. It was also supported by a grant from the G&P Foundation for Cancer Research.

A breast/prostate cancer connection

Women with mutations in either of two genes, BRCA1 or BRCA2, face an increased risk of developing breast cancer, ovarian cancer or both. Now, a large study by Robert David Burk, M.D., and colleagues has found that men who develop prostate cancer and who carry one of these same gene mutations run a greater risk of having an aggressive tumor. The findings could help guide prostate-cancer patients and their physicians in their choice of treatment options.