

Fighting Tough Tumors

Breast cancer tumors vary in strength. Some are easy to kill; others have lost the receptors that make them sensitive to treatment. These are called triple negative tumors, which have limited therapeutic options and a poor prognosis.

About 20 percent of tumors are triple negative, according to Elizabeth Peralta, M.D., associate professor of surgery and a member of the breast cancer research team at the Simmons-Cooper Cancer Institute at SIU. She is giving women with these types of tumors new hope with her research project studying a G protein-coupled receptor, GPR30. Dr. Peralta has found this receptor in triple negative tumors.

This receptor binds estrogen and related compounds and has been found

in the tumors of younger women. Her research team hypothesizes that GPR30 may have a role in breast tumor biology and survival. The function of GPR30 in breast cancer is presently unknown, but it may mediate growth signals and confer chemotherapy resistance. Dr. Peralta received a two-year grant from the William E. McElroy Charitable Foundation to study this question.

Patients of the Breast Center at SIU, with a new diagnosis of triple negative tumor will be recruited before their surgery to donate tumor cells for short-term cultures. The cells will be tested for GPR30 status. Researchers will look for how the receptor encourages cell production and signals calcium channels. This study could lead to new therapies for this tough type of breast cancer.



Stem cells and cancer

Mary E. McAsey, Ph.D., associate professor of obstetrics and gynecology, got a boost to her study of how bone marrow stem cells can be modified to migrate to tumors and destroy cancer cells. She received a two-year grant from the William E. McElroy Charitable Foundation.

This project, described in the winter 2008 issue of **aspects** (Vol. 31, No. 1), may lead to new cancer therapies in which the patient's own bone marrow stem cells might be used in the treatment of ovarian, breast, prostate and other cancers.



The McElroy Foundation was established by the estate of William E. McElroy, a former central Illinois businessman and Springfield postmaster, who died in 1992. It provides various local grants and loans including grants to medical researchers studying cancer and heart disease. Eight previous SIU research scientists have received McElroy grants.

Understanding an enzyme's role in infection

What makes a normal cell go haywire and turn into an abnormal cell? Kinases are enzymes that control complex processes in cells. Changes in specific kinases can disrupt the normal function of the host cell and eventually contribute to the development of certain cancers.

Edward Gershburg, Ph.D., assistant professor of medical microbiology, im-



munology and cell biology, is working to better understand the role

of an important kinase in viral infection through tests in laboratory cultures with the hope to develop drugs that target its activity.

The enzyme is associated with the herpes virus, which is a focus of Dr. Gershburg's research. His study could lead to new therapies that will prevent the virus from spreading, thus reducing the frequency of various diseases, including cancer.

Dr. Gershburg, the principal investigator for the project, received a two-year federal grant totaling more than \$397,000 for this study

from the National Institute of Allergy and Infectious Diseases, a division of the National Institutes of Health (NIH).

He is a research member of the SimmonsCooper Cancer Institute at SIU. This is his first NIH grant for his research, which is focused on herpes virus and cancer.