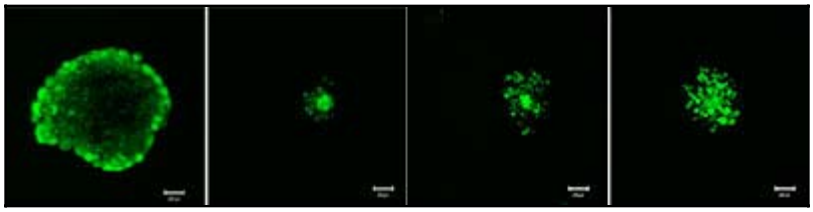
In The Spotlight: Program Project Grant Recipients

February 2004 -- When a scientist needs funding in order to pursue their research interests, they often apply to an organization like the National Institutes of Health to receive a grant. If successful, the grant is awarded to the institution the scientist works for, which in turn provides the facilities the scientist needs and is accountable for the funds. There are times, however, when the extent of a research objective goes beyond a single scientist and institution, and in cases like these it is possible for multiple scientists at multiple institutions to receive funding through what is known as a Program Project grant. These projects involve organized efforts from groups of investigators who conduct integrated research projects that contribute to an overall objective. Recently, two Department of Biological Sciences faculty, Dr. Mary C. Farach-Carson and Dr. Eric Kmiec, learned that Program Project grant applications they were involved with had been approved.

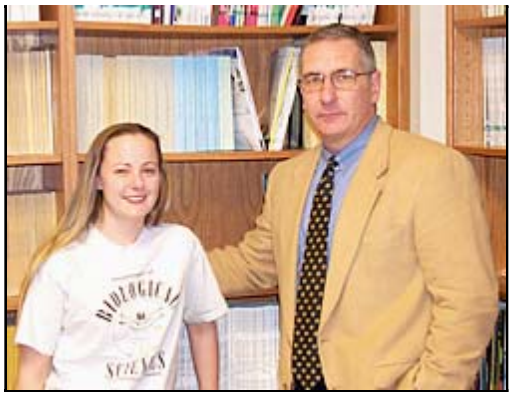

Dr. Farach-Carson

For her Program Project, Dr. Farach-Carson is teamed with Dr. John Petros, Associate Professor of Urology from Emory University, and Dr. Leland Chung, Director of Urological Research at Emory and the project's leader. It is this trio's hope that they can develop new and improved diagnostic, prognostic, and treatment options for prostate cancer. "If a man gets prostate cancer, and the cancer has restricted itself to the prostate gland, the five year survival rate is nearly 100 percent," explained Dr. Farach-Carson. "However, if the cancer travels beyond the prostate [a development known as 'metastasis'] and begins to grow within bone, the five year survival rate drops to between 30 and 35 percent." The best treatment available at this point has minimal effect, and there is no cure after the treatment is used and the cancer within bone grows back. It is the lack of options at this stage that prompted the National Cancer Institute to request applications from the scientific community to receive funding for research on this topic.

Besides Drs. Farach-Carson, Petros, and Chung, this project involves a large collection of researchers from around the country: specialized groups from the University of Virginia, Stanford University, and Fred Hutchinson Cancer Research Center in Seattle are contributing to this endeavor. "We're working with some of the best talent in the country," said Dr. Farach-Carson. Just in Delaware alone, there are a considerable number of people involved: besides herself, Dr. Farach-Carson has a large team of technicians, postdoctoral fellows, graduate students, and undergraduate students working on this project. Other UD Biological Sciences faculty involved include Dr. Robert Sikes, an expert in prostate cancer cells, and Dr. Carlton Cooper, who studies the blood vessels that feed cancer tumors. Dr. Nicholas Petrelli, from the nearby Helen F. Graham Cancer Center at Christiana Hospital, also contributes by providing bone marrow cells from cancer patients for experiments.


Cancerous tumors from bone: The leftmost tumor was left to progress normally while the other three tumors were treated with a new drug developed from the project Dr. Farach-Carson is involved with. The treated tumors have significantly decreased in size.

Dr. Kmiec's Program Project combines the efforts of his lab along with Dr. Jacques Tremblay, Professor of Anatomy and Physiology at Université Laval in Quebec, Canada, and NaPro BioTherapeutics, Inc., a Colorado-based company focused on the development of therapies for cancer and hereditary disease. Working together, it is their goal to develop a new way to combat Muscular Dystrophy (MD), a common name for a group of genetic diseases that cause muscles to weaken and degenerate. Genes, which are found within the chromosomes of cells, provide instruction on how someone will grow and develop. Certain diseases like MD can develop if particular genes become altered, or "mutate," and different mutations can cause different types of muscular dystrophies.



Katie Maguire and Dr. Kmiec

Leading the work within the Kmiec lab is graduate student Katie Maguire. Katie explained the technique as, "sending small pieces of DNA into a cell that, when absorbed by cell, bind to the mutated gene and act as a template to repair the mutation." The first phase of this work will involve trying this method on muscle removed from mice with MD. If successful, the next phase involves treating dogs, specifically Golden Retrievers that have developed MD. The prospect of helping dogs in addition to people certainly appeals to Katie. "I'm a very big animal lover; it's something that really draws me to this project," she said. If these first two phases prove to be effective, NaPro BioTherapeutics will assume a leadership role in final stage of the project: clinical trials for treatment in humans. Dr. Kmiec said that, "this kind of collaboration between academic labs and biotechnology companies is supported by federal grants so that important discoveries actually get translated into clinical settings."