

Fighting Cancer with New Tools

By Greta Petry

Photography: Mark Schmidt



“This is not your grandparents’ war on cancer. This is a brand new approach – a 21st-century approach.”

Paulette McCormick, director of UAlbany’s Gen*NY*Sis Center for Excellence in Cancer Genomics

where else in the country, such as the M.D. Anderson Cancer Center in Houston, for a second opinion and treatment. M.D. Anderson, Sloan-Kettering, and Dana-Farber were ranked first, second, and fourth among cancer hospitals in *U.S. News & World Report’s* 2004 “Best Hospitals” guide. (Johns Hopkins Hospital in Baltimore is ranked third.)

“The reason you get the best care at a comprehensive cancer center is that they are designing new protocols for treating cancer — and they have a clinical practice. So the doctors are treating patients, but they are also working in the labs,” McCormick said.

A full 85 percent of cancer patients in the U.S. are not treated at these major centers, according to McCormick, who earned her Ph.D. in cell and molecular biology from the University at Albany in 1979 and joined the faculty in 1985. That includes Capital Region residents, unless they seek a second opinion outside of the area and have a health

insurance plan that covers treatment elsewhere.

“What happens with many patients is that when their general care practitioner tells them, ‘You have cancer,’ the brain shuts down,” McCormick said. “They just want to do everything the doctor tells them to do. They just want the cancer to go away. Most people don’t get a second opinion, or they don’t have the means to go to a comprehensive care center or the health insurance to pay for it.”

While some do an extensive search on the Internet to find the best hospital to treat a specific type of cancer, others do not.

“In many ways, we are sort of underserved in the Capital Region. It’s not that you receive bad treatment; it’s the fact that there is no real clinical research going on,” McCormick said. “We don’t have a ‘cancer hospital’ in this area.”

The result is that a patient diagnosed with pancreatic cancer, for

example, may require a type of surgery that is done only once a month or once every six months in the Albany region.

“If you go to a center like Sloan-Kettering, there will be a whole surgical team and a pancreatic cancer center, where they have done many of these procedures. Everyone on the team has experience in treating pancreatic cancer,” McCormick said.

The new cancer research center at the University at Albany’s East Campus is scheduled to open Oct. 18. The center is committed to research aimed at discovering the genetic origins of cancer needed to find a cure. It will combine research expertise in genomics and biomedical sciences with state-of-the-art technology in a 116,338-square-foot, four-story building.

While the University’s cancer center is for basic research and not treatment, McCormick sees a future in which the center will have all three components necessary to become a

Paulette McCormick has a vision. Today, the University at Albany’s Gen*NY*Sis Center for Excellence in Cancer Genomics conducts basic research on such topics as why some cancer cells grow out of control, while others go to sleep for 10, 20 or 30 years.

Down the road, however, “our long-term goal is to become a comprehensive cancer center, of which there are only about 39 in the nation,” said McCormick, who directs the Gen*NY*Sis center.

The thinking behind this goal is simple: The Albany area is 150 miles away from the nearest comprehensive cancer center. These centers provide the latest in cancer surgery, have developed new chemotherapy drugs and targeted radiation therapy, and treat patients with a combination of therapies. What that means for local cancer patients is that they may have to travel to Memorial Sloan-Kettering Cancer Center in New York City, Dana-Farber Cancer Institute in Boston, Roswell Park Cancer Institute in Buffalo, or some-

The cancer research team: from left, Chittibabu Guda, Igor Kuznetsov, Scott Tenenbaum, Paulette McCormick, Julio Aguirre-Ghiso, Thomas Begley and Doug Conklin



The Fund for Memory and Hope: Honoring Victims and Survivors of Cancer

Making a donation to the UAlbany Gen*NY*Sis Center's Fund for Memory and Hope is a lasting way to honor a cancer victim or survivor.

Mary Polsinello Hanley made the first gift to the campaign — \$65,000 — more than two years ago in honor of her son, James, who died of brain cancer in 2002. Funds can also be given to support cancer research in hope for a cure for a loved one, or for all cancer victims — past, present, and future.

The Wall of Memory and Hope, located in the entrance lobby of UAlbany's new cancer research center building, will display plaques chosen by donors to the center. The first one will be dedicated to James Hanley. Plaques honoring a loved one are available to all donors making gifts of \$1,000 or more. Contributions of less than \$1,000 are also welcome, according to Paulette J. McCormick, director of the new center.

Those who donate between \$100 and \$1,000 may list a loved one's name on an electronic video kiosk in the cancer center lobby. The center aims to raise \$25 million to complete equipping the new building and supporting cutting-edge research.

Significant donations have already been made this year. In addition to substantial state appropriations to construct the facility, the University has secured federal grants of \$7.4 million to support specific research projects. Recent private donations, totaling \$673,670, include:

- ◆ Walter Robb and his wife, Anne: \$200,000 pledged on a challenge basis, with funds to be used to outfit the Imaging and Histology laboratory. Robb, a former senior vice president and group executive for Medical Systems at General Electric, pioneered much of today's medical imaging technology;
- ◆ Troy Savings Bank Charitable Foundation: \$150,000 pledged toward new equipment; and
- ◆ The Samuel Waxman Cancer Research Foundation: \$230,000 to support the research of cancer center scientist Julio Aguirre-Ghiso.

— Greta Petry



comprehensive care center under National Cancer Institute guidelines: basic research, clinical research, and population sciences, which track cancer rates by demographics.

Richard Roberts, research director for BioInformatics at New England Biolabs, Inc., of Ipswich, Mass., is a scientific advisory board member at the University's Center for Functional Genomics. Roberts shared the 1993 Nobel Prize in Physiology or Medicine with Phillip Sharp of the Massachusetts Institute of Technology's Center for Cancer Research for their discoveries of split genes.

"Cancer is such a dreaded disease that everyone should get the best care possible. Whenever that can be assured without lengthy travel requirements, it should be encouraged," Roberts said. "Dr. McCormick's plan is a bold one, and she has both the energy and the vision to make it happen. We should all help, in every way we can, to capitalize on the new research discoveries that come regularly from laboratories in Albany and elsewhere around the world."

McCormick, who entered the field because she was not satisfied with the treatment her mother received as a breast cancer patient in 1974, is raising funds for this long-term vision through the Fund for Memory and Hope. Its centerpiece is the Wall of Memory and Hope in the lobby of the center's new building. For a minimum of \$1,000, one can dedicate a plaque on the wall. The dedications may be made for a variety of reasons — in memory of a loved one who died of cancer, to celebrate someone who survived cancer, or simply in hope for cancer cures. McCormick's mother, Millie McCormick, beat breast cancer, but eventually passed away from a heart attack in 1985. Her father, Paul McCormick, died of a stroke in 1986. She is honoring their memory by making a donation of \$10,000 and inscribing a plaque with their names.

The \$45 million cost of the research center was offset by state grants, most notably, a \$24.9 million grant from the New York State Gen*NY*Sis Program for Excellence secured through the efforts of Senate Majority Leader Joseph Bruno. Bruno, whose district includes the East Campus in Rensselaer, about ten miles east of UAlbany's main campus, had a brush himself with prostate cancer two years ago.

Basic research is already taking place at the Center for Excellence in Cancer Genomics, with a core of young scientists who have Ph.D.s and have attracted nine major research grants. Their work covers everything from what makes cancer cells spread or go dormant to creating new chemotherapeutic

Joe Bruno Talks About Cancer

Everybody knows someone who has been affected by cancer, and everyone has witnessed the devastation this disease can cause. Two years ago, I was diagnosed with prostate cancer, so this cause is one that is particularly close to my heart.

I am one of the fortunate ones who, through early detection and treatment, were able to win the battle against cancer. But millions of people still struggle with cancer every day, which is why I am pleased I was able to help secure funds that allowed the Center for Excellence in Cancer Genomics to be built at UAlbany.

We are lucky to have the best and brightest minds working here at the center, and my goal, and the goal of every-

one involved in this project, is nothing short of finding a cure for cancer. People with cancer, and their family and loved ones, suffer through a traumatic experience, often with tragic consequences. I know the anguish firsthand, and nothing would make me happier than to see this center produce the cure that would spare future generations the pain caused by cancer.

My own personal experience has made me aware of how much more research needs to be carried out to find a cure for cancer. Scientists and researchers are fighting the battle against cancer all over the world, and with the opening of this center, we will be joining this fight for a cure right in our own backyard.

Senate Majority Leader Joe Bruno breaks ground for the University's cancer research center.

"My own personal experience has made me aware of how much more we have to do and how much research needs to be carried out to find a cure for cancer."

— Senate Majority Leader Joe Bruno

drugs. Rounding out the group are bioinformatics specialists who use high-performance computing to collect the data needed in genomics research. Much of the work is funded by grants from the National Institutes of Health, the National Science Foundation and the Department of Defense.

McCormick's group is working on partnering with more than a dozen such scientists at Albany Medical Center, which has the largest group in the area, and with researchers at the Wadsworth Center and Ordway Institute, as well. Wadsworth, a comprehensive state health laboratory, has a mission to protect and promote the health of New Yorkers through analysis, research and education. The Ordway Institute, a not-for-profit corporation, works to translate basic science observations into therapeutics. Expertise in population sciences is available through epidemiology and prevention studies at the University's School of Public Health and the New York State Department of Health.

McCormick points out there have been such tremendous advances in

technology due largely to the sequencing of the human genome that a flood of data is now available, speeding up the time in which new discoveries can be made.

"This is not your grandparents' war on cancer. This is a brand-new approach — a 21st-century approach," McCormick said. "We are one of the few centers in the country dedicated to the use of high throughput technologies to identify which common behaviors of cancer — which culprits — to attack."

The aim is to hasten the discovery of drugs for therapeutic intervention. Years ago, cancer researchers would examine a whole section of a tumor on an electrophoretic gel and often "couldn't see the forest for the trees because the tumor wouldn't just have cancer cells, but would also have lots of normal cells," McCormick said.

Scientists could spend years looking at a single protein only to discover that their work wasn't truly germane because the protein was specific to the normal cells within the tumor, rather than to the cancer cells themselves.

But today "you can pick out just

the cancer cells from this section with new technology such as UV or laser-capture micro dissection, lifting them right out of the section so you can pop them in a tube and analyze them specifically," McCormick said.

By taking a "high-throughput, brute-force approach," scientists can look at 40,000 or more genes overnight, whereas it used to take a week or more to look at a single gene associated with cancer.

With the new technology and the explosion of data now available, "I firmly believe, at this pace, in the next 10 years we will begin to see some real cures," McCormick said.

How You Can Help

If you would like to make a donation to the Gen*NY*Sis Center for Excellence in Cancer Genomics, please use the envelope in the front of this magazine and designate your gift for The Fund for Memory and Hope. For more information, please contact Cathy Farrell at (518) 437-4958 or e-mail her at cfarrell@uamail.albany.edu.