A PUBLICATION FOR FRIENDS OF DUKE COMPREHENSIVE CANCER CENTER

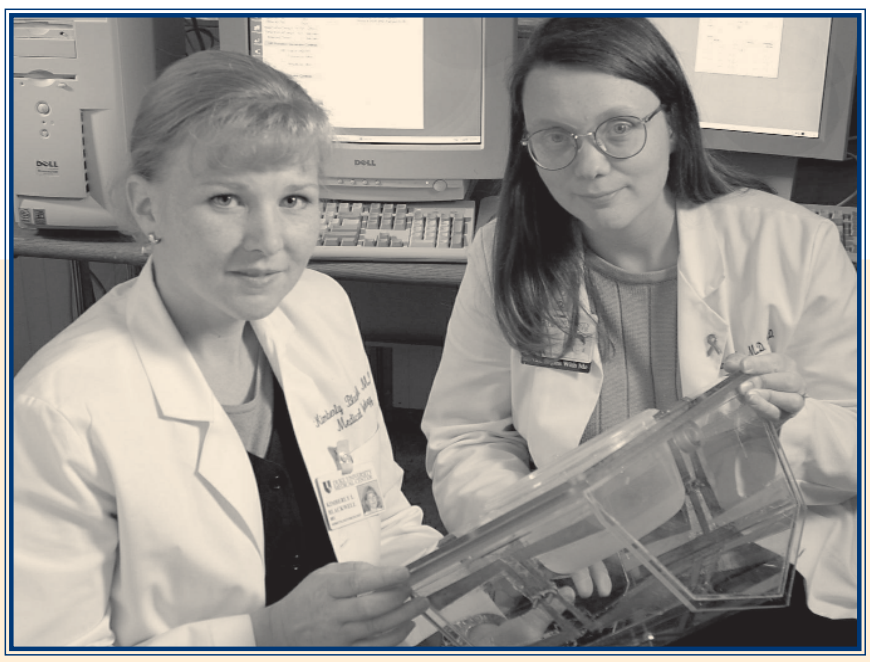
Duke Comprehensive Cancer Center notes

Summer 2002

New Breast Cancer Therapy

Boosts Drugs' Effects, Dramatically Shrinks Tumors

by Becky Levine



Kimberly Blackwell, MD and Ellen L. Jones, MD

Patients of Dr. Kimberly Blackwell jokingly call their treatment table the "booby Jacuzzi." The name may be a bit crass, but then, a close brush with mortality entitles these women to call the life-saving contraption whatever they want.

All humor aside, they have come to the Duke Comprehensive Cancer Center with the earnest hope of preserving their lives, if not their breasts, from the ravages of deadly breast cancers—termed "inflammatory" and "locally advanced" tumors—that often resist traditional treatments. Sixty to 70 percent of its victims do not survive past five years. Twenty-one women came to Duke for a unique phase I trial in search of better odds.

Propped on pillows and serenaded by the music of their choice, the women lie upon a massage-like table for one hour as radio frequency energy warms their breasts, which lie in a sunken pool of water. The heat triggers the chemotherapy they have just received to settle inside the tumor, where it trickles out of its protective coating—a tiny fat bubble called a liposome—and attacks the tumor's genetic machinery.

The body's normal tissues remain unheated, so the drug is not preferentially delivered there. Hence, the drugs slowly leak out into normal tissues over a period of three or four weeks—long enough for the liver and spleen to blunt its toxic side effects.

In several cases, the treatment has remarkably destroyed all visible signs of the tumor. In others, the treatment has saved women's breasts from surgical removal. In every case, it has halted the tumor from growing, said Blackwell, a Duke medical oncologist who runs the protocol with a team of a dozen colleagues.

The results are far more dramatic than any of the team envisioned, based on their pre-clinical studies, said Blackwell, who presented their phase I clinical trial data on May 18 at the American Society of Clinical Oncology in Orlando. Twenty-one women with newly diagnosed breast cancers participated in the 12-week hyperthermia trial, funded by the National Cancer Institute.

"Encapsulating the chemotherapy inside of liposomes enables us to deliver 30 times more chemotherapy than we normally could to the tumor site, without poisoning the rest of the body," said Blackwell. "Heat also boosts the drugs' potency by interfering with mechanisms that control a cancer cell's ability to replicate."

The only clinical trial of its kind in the nation, Blackwell said it is the first to combine "hyperthermia" (heat therapy) together with chemotherapy and fat liposomes in patients with newly diagnosed, large and invasive breast tumors. While hyperthermia has long been known to boost the effects of radiation therapy, its ability to enhance a tumor's response to drugs encased in liposomes is just being explored in humans.

Already, the Duke researchers have shown that traditional chemotherapy agents, which have little effect on cancer in mice, are highly effective in mice when encapsulated in liposomes and heated, said Mark Dewhirst, PhD, director of the hyperthermia program at Duke.

Simple as it appears, heat triggers a series of complex events that are critical to the tumor's demise, said Dewhirst, whose decades of animal research gave rise to the current trial. First, heating the breast draws liposomes out of the bloodstream and directly to the site of the tumor, thus concentrating the drug-packed liposomes where they are needed the most.

"A tumor's blood vessels are much leakier than normal blood vessels," Dewhirst said. "Heat pulls the blood vessels apart even more than usual, allowing tiny particles —such as liposomes—to leak out and pool into the tumor's interstitial spaces."

Second, heat increases the rate of a drug's uptake into the cancer cell itself, through mechanisms that are not well understood. Heat also increases oxygen levels within the tumor, oxygen being critical to the proper functioning of many chemotherapy agents, including those in the current trial. And finally, heat amplifies the level of DNA damage that chemotherapy inflicts upon the cell by inhibiting enzymes that normally repair such DNA damage.

Hyperthermia, however, is not the only powerhouse in this new treatment equation, said Dewhirst.

Liposomes themselves are quite beneficial to patients because their unique formulation reduces the amount of drugs that enter the heart, nerves and other critical tissues, where they could cause substantial harm.

The liposomal hyperthermia combination appears to be quite effective thus far. Results show the combined therapy has halted tumor growth in all women and has at least partially shrunk tumors in half the women. Eleven percent of women have had complete pathologic responses, meaning no cancer was found in the breast tissue upon analyzing its surgical remains. Thirty-three percent of patients had complete clinical responses, meaning visible signs of

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Stepping Down

O. Michael Colvin, MD, announced in January his decision to step down from the directorship in order to return full time to cancer research. Colvin had been director of the Duke Comprehensive Cancer Center for more than six years.

In 1995, Colvin became the third director of the Duke Comprehensive Cancer Center. He was recruited to Duke after a 34-year career at Johns Hopkins, where he was chief of the internationally recognized Division of Pharmacology and Experimental Therapeutics.

Colvin is one of the country's truly outstanding cancer researchers, and is well known for his pioneering work with cyclophosphamide and other drugs that damage the genetic material that causes cancer cells to replicate. He was one of the first investigators to use very high dose of cyclophosphamide for the treatment of solid tumors, now a common practice in bone marrow transplantation for breast cancer and other tumors.

During his tenure, Colvin did much to strengthen the Cancer Center. He restructured the administration and appointed leaders to oversee major areas such as basic research, clinical research, and cancer prevention, detection and control research. One of Colvin's primary goals was to develop multi-disciplinary disease-specific programs that brought together physicians and scientists from different fields to look at specific cancers. The Brain Tumor Center, the breast cancer program, and the thoracic oncology program are incredible examples of this approach, which enables our patients to benefit from Duke's world-class laboratory research as soon as the new therapies are available.

He also brought together collaborators to develop innovative therapies such as cancer vaccines and created a drug development program to create and test new treatments. He broadened the scope of the adult bone marrow transplantation to include other diseases and add a stronger immunotherapy component.

Under his direction, the Cancer Center received an "outstanding" score by the National Cancer Institute on its most recent core grant renewal and peer review. The Center was granted $3.5 million in support, a figure that represents a 38% increase over previous years.

Colvin was committed to meeting the needs of cancer patients. He oversaw the expansion of the Jaycees Outpatient Treatment Facility and has been a staunch supporter of the Cancer Patient Support Program, of which his wife, Macey, has been a volunteer since 1995. Colvin truly recognized the overwhelming impact cancer has on patients and their families, and fought to maintain a human touch and caring interface to cancer care.

Darell D. Bigner, MD, PhD, named Director pro tempore

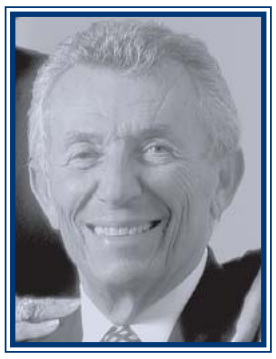
Darell D. Bigner, MD, PhD

Darell D. Bigner, MD, PhD, has been named Director pro tempore of the Duke Comprehensive Cancer Center as national search for a new director takes place. Bigner is the Edwin L. Jones, Jr. and Lucille Finch Jones Cancer Research Professor of Pathology, Chief of the Division of Basic Science and Investigative Pathology, and Director of the Preuss Laboratory for Brain Tumor Research. He was Deputy Director of the Cancer Center.

Dr. Bigner came to Duke in 1963 as a medical student and has remained for the past 38 years. He is considered the leading authority on brain tumors, and has directed the neuro-oncology program for the past 25 years, building it into the largest and most successful of its type in the world. Under his direction, Duke's program obtained the first Brain Tumor Center grant for the National Institute of Neurological Diseases and Stroke, and it remains one of three programs in the nation with such a grant.

"The Duke Comprehensive Cancer Center is now one of the top centers for research and care in the country, and I am confident that we can ensure our Cancer Center will remain a national leader as we conduct the search for Mike Colvin's successor," Bigner said. ●

Herman Albert, Cancer Center Benefactor, Dies



Herman Albert

Herman Albert died Sunday, June 16, 2002, at Duke University Medical Center. Last year the Alberts, who live in Purchase, NY, and Palm Beach, Fla., gave $1.5 million to the Thoracic Oncology Program to establish the Herman and Ruth Albert Lung Cancer Genomics Fund. Earlier this year, they committed an additional $2 million to the fund, a gift which came as a part of a $10 million commitment to the Medical Center, $8 million of which will create he Ruth and Herman Albert Eye Institute.

Supporters of Duke with their time and resources, both Mr. and Mrs. Albert were members of Duke Cancer Center and Medical Center Advisory Boards.

Ralph Snyderman, MD, Chancellor for Health Affairs, and CEO of the Duke University Health System, called Herman Albert "a truly great man, one of the strongest I've ever known. The legacy that he and Ruth created at Duke will live and benefit the health and lives of generations to come."

Herman Albert was born on November 23, 1922. At the end of WWII he began his career in an entry-level position with a home-furnishing textile manufacturing firm in New York City. With a combination of innovation, hard work, and calculated risk, he rose through the ranks to become CEO and owner of the company. In May, Mr. and Mrs. Albert were honored at a dinner at the home of Duke University President, Nannerl O. Keohane, where they received an official proclamation approving construction of the Albert Eye Institute. Herman Albert is survived by his wife, Ruth, of Purchase and Palm Beach; a daughter, Lena Albert of Santa Fe, NM; a son, Richard Albert, and wife, Janet, of Greensboro, NC; three sisters, Belle Wang of New York, NY; Irene Goldberg of Englishtown, NJ; and Edith Lederman of Massapequa Park, NY. ●

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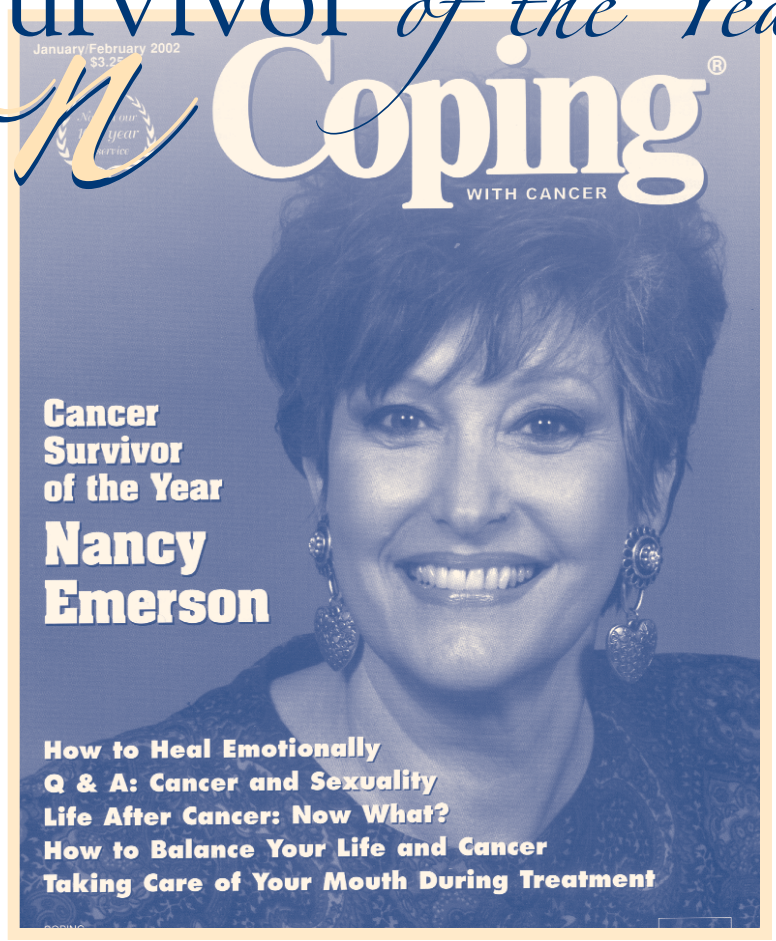
Emerson Cancer Survivor of the Year

by Nancy Oates



Last fall, after her oncologist decided a third liver ablation was unnecessary, Nancy Emerson reviewed her latest PET scan. "Multiple (too numerous to count) intensely abnormal" pockets of cells were scattered throughout her skeleton.

"It made me stop and say, why am I still here?" recalled Emerson.

Many positive, uplifting reasons could be offered why Emerson, the director of major projects and assistant director of the Duke Comprehensive Cancer Center's Office of Development and Communications, is still here. In fact, because of her tenacious battle with various forms of cancer, her tireless support of others struggling with the disease and her efforts to raise money for cancer research, *Coping* magazine named Emerson its "Cancer Survivor of the Year."

Each year, the magazine searches worldwide for someone whose story of trumping the disease will give hope to others. Emerson's husband, John, leafing through a copy of the magazine in a clinic waiting room, thought his wife would be a good candidate, so nominated her. The magazine's editors agreed. Emerson's picture graced the cover of the January/February 2002 issue, and her recovery story was the main feature.

Emerson was first diagnosed with breast cancer in 1982, three years after her doctor brushed aside her reports of symptoms and assured Emerson she had nothing to worry about. By the time the cancer was confirmed, it had spread to six lymph nodes. After a mastectomy and seven months of chemotherapy, Emerson went on with her life.

Three years later, the cancer had crept back and spread to her spine. The recurrence was worse than the original diagnosis.

"It's a real shock when you hear you have cancer," she said. "But when you've fought it and it comes back, it's like a kick in the stomach."

She endured radiation treatment and a new type of chemotherapy, despite the dismal prognosis for someone with a recurrence so soon after the original cancer had been treated. The statistics for survival gave her two years to live. That was 1985.

"I remember how out of control I felt," Emerson said. "I asked God to give me something to help me through this."

Two things happened next: She opened the Bible and saw words of comfort; and she closed her eyes and saw a billboard with the word CANCER splashed across it.

"That was the first time I saw the CAN in cancer," she said.

Emerson used that opportunity to assess her purpose in life. Over the years, she had built a successful career, pulling together experience in real estate, advertising and banking to become a bank senior vice president. After the cancer recurred, she took a yearlong leave of absence to share her cancer experiences with others. She contacted Rachel Schanberg who had recently begun the Duke Cancer Patient Support Program. Despite the pain of cancer and the side effects of treatment, Emerson commuted daily from her home in Graham to volunteer.

At the end of the year, she went back to the bank under the condition that she be given a half day each week to continue her volunteer work at Duke. She also joined the support program's advisory board and later became its chairwoman.

Duke's Comprehensive Cancer Center was one of the first eight cancer treatment and research clinics established in the country after Congress declared war on cancer in 1972. There are now 41 such centers nationwide. Duke's is ranked among the top 10.

In 1990, Duke administrators contacted Emerson about an opening in its development office.

"It gave me an opportunity to raise money to beat this disease, as well as see more cancer patients and give them hope and encouragement by my experience," she said.

Part of the operating expenses for the Duke Cancer Patient Support Center comes from donors. While chairwoman of the advisory board, Emerson came up with a new fund-raising idea: the Tree of Hope. One of her first projects as a staff member was to make it a reality.

Last year, the Tree of Hope raised more than $30,000. People make donations to put a light on the tree in memory or in honor of someone. At the start of the winter holidays, donors and others gather for a tree-lighting ceremony, and a strong supporter of the program or someone who's been an inspiration to the patients is honored.

Emerson envisioned the Tree of Hope as a large holly tree, but Duke gardeners said the spot for the tree, in front of the Morris Cancer Clinic in the Duke Clinics Building, was too shady for holly. Emerson settled for a pine tree the gardeners recommended, but a year and a half later, she noticed the tree was turning brown.

She called the gardeners and said, "Look, the Tree of Hope is dying, and we can't have that." Once again, she asked for a holly tree, and once again let herself be talked into another pine. Two years later, it, too, began to fail.

She asked a third time for the holly, and this time the gardeners relented. Emerson calls it poetic justice that the tree is growing fat and sturdy in the too-shady spot.

"That holly was not supposed to live in that spot, and it is thriving," she said. "That's an example for cancer patients: Don't be swayed by statistics."

Emerson had to remind herself of that when cancer returned a third time, invading her liver and jumping from different places along her spine to her ribs, pelvis, legs, arms and skull. So far this year she's had 10 tumors removed from her liver by the ablation technique that uses radio frequency to pummel the tumors into oblivion. She starting a new chemotherapy, and she still works full time.

"I feel I have a mission, not a job," she said. "I have an opportunity to help find a cure for this stuff. If it wasn't for individual support, we would never have made the progress we have in cancer research."

Indeed, she's seen many strides in cancer treatments in the past 20 years.

When she was first diagnosed, cancer was a death knell. Friends would stop calling because they didn't know what to say. Now, she's gone so far beyond the statistics that she doesn't know what her prognosis is, she said.

"We all are going to die sometime," she said, and told of a cancer survivor who was killed in a car accident. "I can become bitter or better. I'd rather be remembered as a positive, uplifting person than someone swamped in disease." ●

Hour of Power

On Sunday, June 9, Nancy traveled to Garden Grove, California, for an interview with Dr. Robert Schuller at a service in the Crystal Cathedral. The conversation was taped for a later television broadcast on ***The Hour of Power,*** *international television program that emanates from the weekly worship services at the Crystal Cathedral and is viewed by 50 million people worldwide.*

To read more about Nancy's story, and to access a streaming video of her appearance, visit ***http://www.hourofpower.org/interviews/nancy.emerson.html****.*

Research notes

HIGH-PROGESTIN PILL REDUCES RISK

It's been known for years that taking oral contraceptives can dramatically reduce a woman's risk of developing ovarian cancer. Most experts believe the protective effect comes from limiting ovulation. Now, however, Duke researchers have found that progestin levels in birth control pills may be just as important.

After reanalyzing data from an existing study, the researchers found that pills with higher levels of progestin are associated with greater reduction of risk of ovarian cancer than those with lower progestin potency, regardless of estrogen content, duration of use, and latency. Non-users of oral contraceptives appeared to be at greater risk of ovarian cancer than women who took oral contraceptives, regardless of formulation.

Lead investigator Joellen Schildkraut, PhD, cautions that more studies are needed, and that high doses of the hormone are associated with increased breast cancer and heart disease risk. However, she pointed out, improving prevention is critical: "Ovarian cancer is usually detected at a late stage, when not a lot can be done in terms of treatment." Study details appeared in the January 2002 Journal of the National Cancer Institute. ●

LOSS OF TASTE AND SMELL CAN COMPROMISE SUCCESS

Cancer patients who experience taste and smell loss because of the disease and its treatments are at high risk for weight loss and nutritional deficits that can compromise their overall treatment success, according to a small study of 33 lung cancer patients at Duke.

While not all cancer patients lose weight with the disease, those who do so tend to have a poorer prognosis for treatment outcome and long-term survival, said Jennifer Garst, MD, a study author and assistant professor of oncology.

Thus, finding ways to prevent weight loss and nutritional deficits is critical to helping patients respond more effectively to treatments and even live longer, she said. The scientists are now continuing the study to explore the whether the addition of flavor-enhancing powders, derived from actual foods such as cheese, bacon, garlic and fruits, can improve the patients' appetite.

"Weight loss has long been a hallmark of cancer, but it has been considered an inevitable byproduct of the disease process and chemotherapy drugs, rather than as a treatable symptom that can affect outcomes," said co-author Susan Schiffman, PhD, professor of medical psychology.

More than just a nuisance, taste and smell deficits have been associated with reduced levels of key immune system cells, such as T-cells and B-cells, in elderly patients tested at Duke, said Schiffman.

In the study of 33 lung cancer patients undergoing chemotherapy, the Duke researchers assessed the patients' own perceptions of their taste and smell deficits, then scored their ability to detect and recognize odors and flavors presented to them in a laboratory. Patients who reported the lowest degree of taste and smell ability, and who scored the lowest on the psychophysical measurements, also experienced the most weight loss, body-mass loss and nutritional deficits.

Half the patients were then given powdered flavor enhancers—extracts of natural foods combined with amino acids—that strengthen the smell and taste of foods. All patients received nutritional advice and worksheets explaining what foods help alleviate dry mouth, constipation, diarrhea and other side effects of treatments.

The researcher's hypothesis is that patients who receive the flavor enhancers will lose less weight and will show higher immune status at their eight-month checkup than patients who do not receive the flavor enhancers.

"As oncologists, we can become so focused on the medical treatments of the disease that we overlook the importance of factors like weight loss and nutritional status. Both of these factors have a huge impact on quality of life and long-term survival," said Garst. ●

TUMOR SIZE DOESN'T EQUAL SEVERITY

A fundamental assumption of lung cancer screening is that small tumors are less likely to have metastasized—spreading to other organs—than large tumors. But a new study by Duke researchers shows that size does not necessarily indicate the severity of cancer.

The authors of the study caution physicians who have begun to use computed tomography (CT) scans for screening and early lung cancer detection not to assume that small tumors represent early-stage cancers. They advise physicians against the widespread use of CT scans for screening and early detection of lung cancer until further data become available.

"Our study found no statistically significant relationship between the size of small tumors and the stage of cancer," said Dr. Edward F. Patz, Jr., professor of radiology.

The study found that patients with a primary lesion that is three centimeters or smaller in diameter will have an approximately 80 to 85 percent chance of having stage I (early) lung cancer and an approximately 10 percent chance of having stage IV (most advanced) lung cancer, regardless of tumor size at detection. For that reason, Patz advises against the widespread use of CT scans for screening and early detection of lung cancer until further data become available.

Edward F. Patz, Jr., MD

In recent years, low-dose "spiral" CT scans—in which an imaging machine rotates rapidly around the body taking more than 100 images in sequence—have been proposed as a potential method to screen for lung cancer. Proponents of CT scans have argued that these scans could detect smaller lesions not visible with chest X-rays, that these smaller tumors represented an early stage of cancer and detecting them would lead to reduced lung cancer mortality, the Duke researchers said.

"Our study emphasizes the fact that size alone does not appear to determine a cancer's metastatic potential and ultimate stage distribution," the researchers wrote. "While it is reassuring to believe there is a size threshold below which there is minimal or reduced risk of a tumor having metastasized, and thus that lung cancer screening can reduce mortality, there is no conclusive data to support this notion. Early detection with imaging alone may not be enough to impact the natural course of lung cancer." ●

INITIAL STUDY SHOWS SAFETY AND BIOACTIVITY OF CANCER VACCINE

A new phase I clinical trial of a prostate cancer vaccine developed at Duke has shown that the vaccine made from the patient's own dendritic cells causes no adverse side effects. More importantly, the trials indicate that the vaccine is able to boost the patient's immune system to fight cancer.

"This is the first study that has data on the safety and immunological efficacy of this type of cancer vaccine," said Johannes Vieweg, MD, an associate professor of urology and assistant professor of immunology at Duke University Medical Center and senior investigator in the study. "And while this work was done in prostate cancer patients, we believe this method may prove to work in most cancers, not just prostate cancer."

Dendritic cells are white blood cells that activate the immune system by capturing antigens—substances that trigger an immune response, such as against a virus, bacteria or tumor—and presenting them to the body's killer cells, called "T-cells." The vaccine created in the Duke study introduces genetic information from a prostate cancer patient's own dendritic cells, in the form of RNA from prostate-specific antigen (PSA). This antigen is secreted by the prostate gland and is elevated in some forms of prostate cancer. Once the dendritic cells use the RNA to produce and present the PSA antigen, they are injected back under the patient's skin and activate the T-cells to attack tumors.

In the trial, 13 men with metastatic prostate cancer were given three escalating doses of the vaccine. Overall, the vaccine was well tolerated, reported Vieweg and his colleagues. Four subjects had low-grade fevers and flu-like symptoms, and four patients had inflammation at the site of the injection that subsided after two to three days. "Patients responded well to the vaccine because we are using materials from their own body to create a vaccine that is designed just for them," said Vieweg. ●

Brain Tumor Center Featured on "60 Minutes"

On April 7, the Brain Tumor Center at Duke was featured on the CBS news program, "60 Minutes." The center is the largest and most successful program of its type in the nation and currently treats more than 1,900 pediatric and adult patients with brain tumors who have come to Duke from all over the world.

The special double-length story profiled three patients as they progressed through their treatment and follow up appointments at the Brain Tumor Center. Doctors Henry Friedman, Allan Friedman, Darell Bigner, and several staff members were featured in interviews and footage that helped to tell the story of the many people being helped by brain tumor research and medical care at Duke.

The show offered a touching portrayal of the center, and the patients and families who, after coming to Duke, have found hope. The response has been phenomenal—in the week following the show, more than 2,000 e-mails and hundreds of phone calls flooded the Brain Tumor Center from all around the world. Every message received a reply. We are extremely proud of the work being done at the Brain Tumor Center and are pleased that the producers of "60 Minutes" chose to highlight this outstanding program. ●

Nielsen Shares Story at Power of Knowledge

On May 7, inspirational breast cancer survivor and author Jerri Nielsen, M.D., who performed surgery on her own breast cancer tumor while stranded in Antarctica, was the keynote speaker at the second annual Power of Knowledge seminar. Nielsen was presented with a Jonquils award at the event, an honor given to distinguished individuals and organizations that have made significant contributions in the fight against cancer

During the winter of 1999, when Dr. Nielsen was medic-on-duty at the Amundsen-Scott South Pole Station, she discovered a lump in her breast.

Communicating with doctors in the U.S. 11,600 miles away, and with the support of a team of South Pole scientists and engineers, Nielsen was able to perform a biopsy on her own breast and set up a chemotherapy regime using airlifted supplies. Her story is now a best-selling novel titled Icebound: A *Doctor's Incredible Battle for Survival at the South Pole*. A copy of the book was given to the first 400 attending, courtesy of Aventis Pharmaceuticals.

The event raised more than $22,000 for the Duke Cancer Patient Support Program. ●

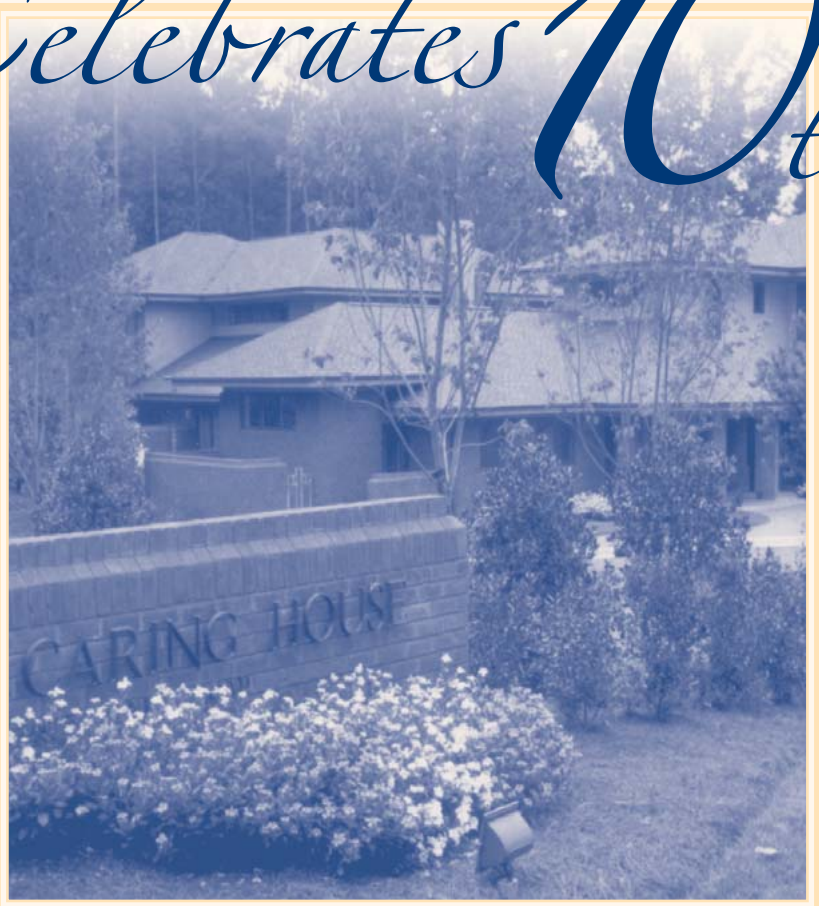
Ladies Home Journal Honors "Best Docs"

Cancer Center physicians have been recognized for excellence by a leading women's magazine. *The Ladies Home Journal* list of "Best Doctors for Women Coast to Coast" includes more doctors from Duke than from any other medical center in the Southeast region. The five Cancer Center members included in the list were:

- Andrew Berchuck, MD (Gynecologic Oncology)
- Gregory Georgiade, MD (Breast Specialist, Plastic Surgery)
- Herbert Kim Lyerly, MD (Breast Specialist, Surgery)
- Leonard Prosnitz, MD (Breast Specialist, Radiation Oncology)
- Michael Zenn, MD (Breast Specialist, Plastic Surgery).

The physicians were chosen by a team that asked physicians in each area to identify highly skilled, exceptional doctors. The list was published in the April 2002 issue of the magazine. ●

Caring House Celebrates 10th



Caring House has been the best treatment I possibly could have received. This is more than just a place to stay; it is a haven from the rest of the world. A safe place where everyone around you understands what you are going through. Both the physical and the mental side effects of treatment. Just to be able to see smiles that welcome you home is worth everything.

These words from a former guest are just one example of the heartfelt praise that Caring House has received in its ten years of providing a home-away-from-home for cancer patients. Since opening on July 20, 1992, Caring House has served more than 1800 patients and their caregivers.

The idea for Caring House began in 1984 when six Durham women—Barbara Booth, Frankie DuBose, Susie Leaming Huffines, Pat Joklik, Bunny Kerns, and Martha Uzzle—were looking for a project to assist patients at the Duke Comprehensive Cancer Center. After hearing an oncology social worker discuss the need for a residence for adults receiving outpatient treatment for cancer, the six friends decided to create a home in Durham for adult cancer patients and their families. In a joint effort with the Cancer Center, $1.9 million was raised to construct and furnish Caring House.

The convenient and well-equipped facility allows cancer patients and family members to concentrate on their treatments, because the stresses of living away from home are greatly reduced. Each of the 18 bedrooms has a television, telephone, and private bath. Guests can gather around the piano in the two-story great room, or borrow books and magazines from the fully stocked library. Exercise equipment and computers are available in the hobby room. Three fully equipped kitchen units allow guests to prepare their own meals at any time day or night, and the dining room and screened porch overlook a water garden. Van service to and from the Cancer Center is provided.

A devoted staff and dedicated volunteers provide a strong foundation for the home. In fact, volunteers Ann Barlow, Arlene Corrigan, Carolyn Davis and Bill Townsend have been giving of their time since the facility opened ten years ago.

"I'm always struck by the fact that guests often remark when checking out, 'Oh, I hate to leave. This is my second home, my second family," notes Barlow. "I'm proud to be a part of this special place."

To contact Caring House, call 919-490-5449. ●

Development notes

A Record Day for Angels

The 9th annual *Angels Among Us 5K and Family Fun Walk* netted an incredible $354,000 to support the Brain Tumor Center at Duke as a record number of participants ran, walked, and wheeled their way through the Duke campus to raise money to combat brain and spinal cord tumors. This is the most money raised at a Cancer Center event to date, and nearly three times what the event brought in just three years ago.

Grateful thanks goes to an incredible group of families, friends and school groups, traveling from as far away as Iowa and Maryland, who formed teams in honor or memory of loved ones. Their commitment to finding a cure for brain tumors was truly inspirational, and their dedication and incredible energy have made the event into what it is today. Together, the top ten fundraising teams brought in more than $242,000. They were: Team Epperson from Atlanta; Team Kramer from Maryland; Team Kate from Emerald Isle, NC; the Justin Carney Team from Northern VA; the Mangum Explorers from Bahama, NC; the Chris Cash Team from Durham, NC; Jasper's Team/Kerr Vance Academy from Henderson, NC; Survivor Iowa from Capital City, Iowa; West Lake Middle School from Apex, NC; and the Hoepucky Warriors from Greensboro, NC.

This year's top fundraising team, Team Epperson from Atlanta, Georgia, raised $52,015 in memory of Jeff Epperson.

A fantastic group of volunteers worked tirelessly to make the day a tremendous success. Carolina Builders and Schering Plough were this year's top "corporate angels" with their generous donations. ●

One Lap for Hope

To raise funds for the Brain Tumor Center at Duke, Richard LaScala, chair of the Brain Tumor Advisory Board, and Dr. Greg Hulka, assistant professor in the Division of Otolaryngology, competed in the automobile endurance race One Lap of America from May 3 - 11. The pair, who named their team One Lap for Hope, logged 6,500 miles and competed in 17 races in nine raceways throughout the United States. They dodged snow in Buffalo, tornadoes in Oklahoma, forest fires in New Mexico, and plowed through a Texas rainstorm to place 35th among 83 teams.

In the early 1970s, legendary automotive journalist Brock Yates created the *Cannonball Sea-to-Shining-Sea Memorial Trophy Dash*, a race from New York City to Redondo Beach, California. After five successful events, Brock set out to create a motorsports event that was accessible to the average citizen. And so, in 1984, the first *Cannonball One Lap of America* was run. Since then, the event has evolved into what it is today: Nearly twenty-four hours a day driving with time trial competitions on racetracks throughout the country.

"Some may think of this as an extreme way of generating new sponsors for the Center," LaScala said. "Greg and I are convinced that Duke's research, clinical, surgical, patient and family support professionals are the pivotal ream in the fight to conquer brain and spinal tumors." The One Lap for Hope team plans to compete in the 2003 event. ●

The One Lap for the Hope team car.

Swim, Bike and Run for Hope

On Saturday, September 14, the Duke Comprehensive Cancer Center, the North Carolina Jaycees, and Set-Up, Inc. (a triathlon production company) will join forces to host ***The Duke Blue Devil*** iron-distance triathlon. There are less than ten triathlons of this type in the United States, none of which are hosted by and fully benefit a non-profit organization. This history-making event for the state will bring top triathletes from throughout the world to compete in the grueling seventeen-hour event. Governor Mike Easley and LeRoy Walker are honorary chairs and Jaycees chapters throughout North Carolina will come together to provide the base of volunteer support. Sponsors to date include NBC-17, Inside Out Sports, Hammer Gel, the Millennium Hotel, Overtons, Zone Perfect, Click Culture and Budweiser.

THE DUKE BLUE DEVIL
An Iron Distance Triathlon

The Duke Blue Devil consists of a 2.4-mile swim at Beaver Dam in Falls Lake, a 112-mile double loop bike ride, and concludes with a 26.2-mile point-to-point marathon ending on the west campus of Duke University. A finish-line celebration will include live entertainment, food, beverages and various activities lasting until the final finishers arrive by midnight.

Half of the proceeds from this event will support research and innovative projects at the Duke Comprehensive Cancer Center. The remaining half of the proceeds will help construct Hope Lodge, a 30-suite pediatric housing facility for bone marrow and stem cell transplant patients and their caregivers.

There are many ways in which you can be a part of this great event. Volunteers are needed. There's room for participants, both individuals and relay teams, as well. Or come on out to the finish line party and help cheer for the triathletes!

For more information, visit www.dukebluedevil.org, or call Dorrys McArdle at 919-667-2616. ●

Singer Shares Message with Students

This spring, Leslie Nuchow, singer, songwriter, and activist from Brooklyn, New York, shared her anti-smoking message with students at Rogers-Herr Middle School in Durham, NC. Duke's Thoracic Oncology Program and Ortho Biotech sponsored the appearance, which was the first in a series of events aimed specifically at teenagers in an effort to curtail youth smoking habits.

In 1997, Nuchow, who has appeared on national television including MTV, VH1 and NBC's "Dateline," was approached to participate in a high-profile promotion run by the Virginia Slims cigarette company.

In keeping with her belief that music has the power to heal and should not be used to harm, she rejected their offer and instead founded Virginia SLAM!, an organization committed to exposing corporate deception and exploitation. Leslie also started SLAM! Records, a record label devoted to targeting industries or organizations which hurt humanity, and SLAM!ing them with the healing power of music.

"I think music is one of the most powerful healing forces on the planet," Nuchow said at the concert. "I do not feel that way about cigarettes."

On November 16th, the Thoracic Oncology Program will sponsor a "Teens Fighting Cancer" Block Party for area teens. The event will have anti-smoking information and raise money for lung cancer research at the Duke Comprehensive Cancer Center. *Visit www.teensfightingcancer.org for more information.* ●

Other Event News...

The inaugural *Tee Off Against Colon Cancer,* the brainchild of the nurses in Duke's GI Endoscopy Unit, raised funds for community awareness of the importance of early colon cancer screenings… On May 4, *Rainbow of Heroes* walk participants braved stormy weather to raise money for the Pediatric Bone Marrow and Stem Cell Transplant Family Support Program… More than $207,000 was raised at the *Joann Gaddy Grimes Bike and Walk to Fight Cancer* on May 18. This year, a 5K walk through beautiful Hagan-Stone Park in Greensboro, NC was added to the day's festivities…

"Jill's Ordeal"

Daughter's Experience Spurs Family to Help Other Children with Brain Tumors

By Laura Ertel

On January 11, 2002, Johnny Dawkins picked up a birthday cake for his daughter, who turned eleven that day. Joyous events like this are the kind the Dawkins family could only dream about in October 1994, when they found themselves in the midst of a parent's worst nightmare.

"Jill's ordeal," as her father calls it, began that month while Johnny and Donna Dawkins were vacationing in Arizona. Their two children, Jay and Jill, were staying with their grandparents back home in Fayetteville, North Carolina. Checking in regularly, the couple learned that Jill, then three, had begun vomiting and staggering when she walked.

Donna's parents took Jill to her pediatrician on October 6. The doctor detected tremendous pressure in the back of Jill's eyes and sent her to the local hospital for an immediate CT scan. A few terrifying hours later, the grandparents were signing consent forms at Cape Fear Valley Medical Center: Jill would undergo emergency brain surgery to remove a tumor—an ependymoma—attached to her brain stem. Without the surgery, the little girl might not survive the night.

A helpless Johnny and Donna learned the news while calling in from a truck stop in Holbrook, Arizona (250 miles from Phoenix) and frantically made flight plans and sped to the airport to get to their daughter's side. They would leave everything they had with them at the Bellrock Inn in Sedona, Arizona. Their brother-in-law, Jim Caison, would be responsible for flying home with the golf clubs and luggage for four. Johnny, Donna, and Johnny's sister, Dawn Caison, flew through the night—praying and crying all the way—and got to the hospital soon after Jill's nine-and-a-half hour surgery was completed. By morning, Donna and Johnny were holding Jill's hands in the recovery room, and they never left her side through several trying days in the hospital.

When the Dawkins family returned home, they had to decide where to continue Jill's treatment. They were relieved to find that Duke, right in their own backyard, was home to the leading Brain Tumor Center in the world. For nearly a year, Jill underwent chemotherapy treatments under the supervision of pediatric neuro-oncologist and co-chair of Duke's Brain Tumor Center, Dr. Henry Friedman. Afterwards, regular MRIs were used to monitor her condition, and things looked good …until July 1999, when doctors discovered several new tumors.

So Jill's ordeal continued in 1999, first with surgery at Duke to remove the three brain tumors, and then with six weeks of daily radiation for the eight-year-old. The family lived near Duke for two months, and Jill saw a tutor at Duke Hospital to continue her studies. Finally, in November 1999, Jill returned home and got the green light to return to school.

During the frequent visits to Duke, the Dawkinses got to know many other families with children battling brain tumors, and Johnny was invited to join the Duke Brain Tumor Program Board of Advisors. Fundraising was part of the assignment, so the Dawkins family decided to start a golf tournament to raise money for the program. As a group health and long-term care insurance broker, commercial real estate manager, and past chairman of the Fayetteville Chamber of Commerce—not to mention a lifetime resident of Fayetteville, son of the city's late mayor J.L. Dawkins, and a mayoral candidate himself—Dawkins figured he had the connections to make the event a success.

Everyone in the Dawkins family got into the act—parents, grandparents, siblings, aunts and uncles, in-laws—to plan the new tournament and make it a success. The Dawkinses joined forces with the Harris family, lifelong family friends who lost three-year-old Margaret to the same ependymoma tumor at about the time Jill was first diagnosed.

The Dawkins Family

Together, the two families launched the *Hope for Kids Golf Tournament*, "in memory of Margaret and in honor of Jill," Dawkins notes. The tournament, held every fall since 1996 at the Gates Four Country Club in Fayetteville, draws over one hundred golfers from the community, family, and friends. This past year, the Kiwanis Club co-sponsored the event with the families.

Dawkins finds two things rewarding about running the annual event: "Number one, seeing folks having a good time, because this tournament makes each participant feel good about themselves, knowing that they're making a difference. Number two is actually handing Dr. [Darell] Bigner [deputy director of the Duke Comprehensive Cancer Center] the check and knowing that this money is going to be put to the best use to help other kids fight this dreaded disease."

The money raised from the tournament—about $90,000 in six years—goes to brain tumor research at the Cancer Center. "Our goal is to put brain tumor research scientists out of business by finding a cure for cancer," Dawkins states matter-of-factly. "There are over a hundred different types of brain tumors, unfortunately, and they all have different ways of acting. So it's probably going to be a long process, but Dr. Bigner's and Dr. Friedman's labs at Duke are making great strides."

"Unrestricted research funds such as those raised by the Dawkinses' golf tournament are invaluable," notes Dr. Bigner, the Edwin L. Jones, Jr. and Lucille Finch Jones Cancer Research Professor of Pathology, who leads research for Duke's Brain Tumor Program. "They allow us to obtain the preliminary data for new ideas and cancer treatments that are necessary to then submit applications for the highly competitive, but large federal grants available from institutions like NIH."

Jill, now a thriving fifth grader, plays a central role at each Hope for Kids tournament, driving around in a golf cart to meet participants and take pictures with them, and helping her parents present the check to Dr. Bigner at tournament's end. "She has a big time," says her proud dad.

Jill is currently doing "outstanding," Dawkins reports. "Of course, we thank the Lord every day. But we also have fun. We know that life is precious and we try not to waste any of it."

That's a lesson you learn when your daughter goes through this kind of ordeal.

The 2002 Hope for Kids tournament is scheduled for September 26. Please call Ellen Stainback at 919-667-2603 for more information. ●

New Therapy Tops Tamoxifen


Matt Ellis, MD

by Becky Levine

A new cancer drug called letrozole worked better at shrinking breast cancer tumors than did the front-line breast cancer drug tamoxifen among a group of postmenopausal women with estrogen-positive tumors, according to a study coordinated by Dr. Matt Ellis, clinical director of the Breast Cancer Program at the Duke Comprehensive Cancer Center.

Sixty percent of women taking letrozole (trade name Femara®) showed tumor shrinkage after four months on the drug, whereas 41 percent of women taking tamoxifen showed tumor shrinkage. Patients taking letrozole also underwent fewer mastectomies (complete breast removal) than women who were taking tamoxifen.

Moreover, letrozole actually slowed the rate of cell division—and hence, tumor growth—better than tamoxifen did, according to cellular studies conducted on the actual tumors.

"We are very excited by letrozole's potential because it appears to block the growth-promoting effects of estrogen within cancer cells better than tamoxifen does," said Ellis. "Estrogen is involved in up to 80 percent of all breast cancers, so blocking its effects is vital to successful treatment."

"Although our results are preliminary, letrozole appears to block estrogen more effectively than does tamoxifen, suggesting that letrozole may work for women whose tumors are relatively resistant to tamoxifen," said Ellis.

Letrozole could even replace the more toxic chemotherapy drugs in some patients, or it could be taken together with other non-cytotoxic drugs like Herceptin for maximum effect, the researchers theorize. Its distinct mechanism of action makes letrozole quite different from current therapies like tamoxifen and other, more toxic chemotherapies, Ellis said.

Ellis cautioned that, while his results are highly significant, they must be replicated in larger and more standard types of studies. The current study design was unique because it examined the drugs' ability to shrink tumors before women had surgery to remove their tumors rather than after surgery, as is commonly done to eradicate any undetected cancer cells. Also, the sample size of 324 women is not large enough upon which to base a change in routine clinical practice, he said.

Letrozole works by depriving the tumor of estrogen. Specifically, letrozole inhibits an enzyme called aromatase, which converts the male hormone androgen into the female hormone estrogen. Women taking letrozole, therefore, make almost no estrogen at all. Without estrogen, tumor cells that rely on the hormone for growth cannot divide and do not continue to grow.

Tamoxifen has a very different mechanism of action. It binds to small sites in the cancer cell called estrogen "receptors" and blocks estrogen from docking there. The receptors, plugged up with tamoxifen instead of estrogen, initiate a different sequence of events than they would in the presence of estrogen.

However, tamoxifen's presence on the receptor still triggers some estrogen-regulated genes to exert their influence within the cell, albeit in ways not fully understood. This effect may blunt the effectiveness of tamoxifen against some breast cancers.

Ellis says letrozole's ability to completely block estrogen from the cell is, in part, responsible for its apparent benefits over tamoxifen in some women.

In addition, he said, tamoxifen allows two other proteins—called ErbB-1 and ErbB-2—to amplify the growth-promoting effects of estrogen inside the cell. Letrozole, on the other hand, nullifies the action of these proteins because they rely on the estrogen receptor being stimulated to exert their action.

Knowing how the ErbB-1 and ErbB-2 proteins interact with the estrogen receptor to promote cancer is vital for several reasons, Ellis said. If researchers can identify which women express these proteins in their cancer cells, they can use them as biological "markers" to predict which women will respond to a given cancer treatment.

For example, women whose tumors made or "expressed" either of these proteins (ErbB-1 or ErbB-2) appeared to be largely resistant to the effects of tamoxifen, the study showed. Letrozole, however, was very effective in these types of tumors, shrinking them in 88 percent of women.

Several upcoming studies will compare letrozole's effects to tamoxifen in larger numbers of breast cancer patients, said Ellis. These larger studies should provide abundant data to confirm or refute letrozole's effects.

The study was funded by Novartis Pharmaceuticals Corp., which manufactures letrozole.

Ellis is a consultant for Novartis, and a member of their speakers' bureau.

Joining Ellis in the study were researchers from Universitaets Frauen-und Poliklinik, Hamburg, Germany; Instituto Valenciano de Oncologia, Valencia, Spain; Institut Bergonie, Bordeaux, France; and West General Hospital, Edinburgh, United Kingdom. ●

New Therapy, continued from page 1

the tumor could no longer be detected, and 17 percent of patients were converted from mastectomy candidates to lumpectomy candidates.

Hyperthermia treatment begins with a traditional infusion of chemotherapy, followed by a CT scan of the breast to pinpoint the tumor's precise location. Next, a plastic tube or "catheter" is placed inside the tumor, in which doctors place a thermometer to monitor the tumor's temperature during hyperthermia. Patients then lie on a one-of-a kind treatment table, with their affected breast lying in a pool of salt water. Sophisticated software delivers radio frequency energy through the water and directly to the breast.

Following four hyperthermia treatment sessions over several months, radiation oncologists measure the tumor shrinkage and recommend the least invasive type of surgery to remove their patients' tumors. Surgery is followed by additional chemotherapy and radiation to kill any undetected cancer cells in the breast and surrounding tissue.

"We use the best and newest agents up front, then the standard and traditional treatments at the tail end," Blackwell said. "It's like a guarantee policy to ensure that the patients receive every possible benefit we have to offer them." ●

SUPPORT GROUPS

The Duke Cancer Patient Support Program sponsors many cancer support groups. For complete, up-to-date information about these groups, please call **919-684-4497.**

Duke Comprehensive Cancer Center
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