

Cancer Lines

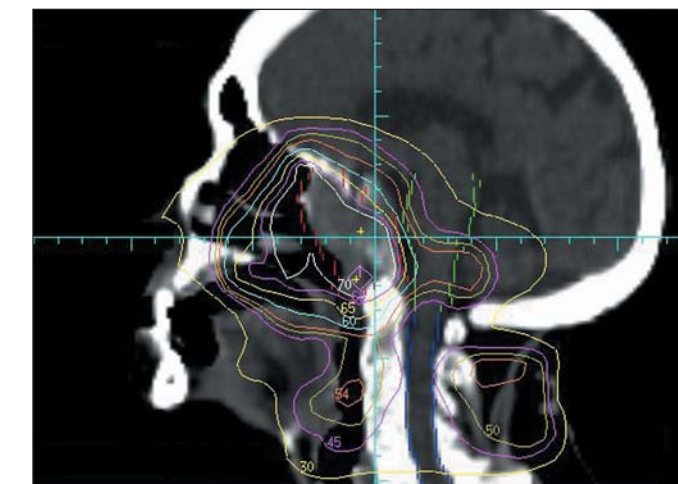
University of North Carolina School of Medicine & UNC Health Care

Fall 2002

UNC Center's Head & Neck Cancer Program

"Our work affects all people because of the continued ubiquitous use of tobacco and alcohol," says Mark Weissler, Joseph P. Riddle Distinguished Professor of Otolaryngology and chief of the Division of Head and Neck Oncology.

cancer patients for optimal diagnosis, treatment and rehabilitation." Specialists involved include surgeons, radiation oncologists, medical oncologists, dentists, speech and swallowing therapists, plastic surgeons, nurses and social workers.



UNC Radiation Oncology uses new methods (Intensity Modulated Radiation Therapy) to maximize radiation doses to tumors and minimize doses to critical structures. Shown here: a nasopharyngeal tumor. IMRT is one of several new methods of delivering therapy.

"The most effective way to reduce tobacco use is by never having young people begin its use," he says. In fact, 75 percent of head and neck cancers are preventable by simply avoiding these products. Despite its "preventability," head and neck cancers are the fifth most common cancer in the nation. This year, more than 50,000 people in the U.S. will be diagnosed with it and more than 16,000 people will die of it.

The UNC Lineberger Comprehensive Cancer Center's Head and Neck Cancer Program provides leading-edge treatment for all forms of benign and malignant tumors in the oral cavity (mouth), pharynx (throat), and larynx (voice box); as well as cancers of the salivary glands, sinuses, thyroid, blood vessels and nerves, muscles, skin and other structures of the head and neck.

"We are actively involved in both basic science and clinical research to improve the future care of head and neck cancer patients," Weissler says. "Our program involves eight medical specialties devoted to the interrelated care of head and neck

The standard way to detect the spread of cancer cells to lymph nodes is by slicing them into sections that are thin enough to look at under the microscope, usually about 1/5000th of an inch. Using this method, only a small percentage of the node can be examined, and cancer cells may not be detected.

"We have developed a very sensitive assay that can detect a few cancer cells in a much larger node," says Carol Shores, assistant professor of otolaryngology/head and neck surgery. "Each HNSCC cell contains about 10,000 molecules of

continued on page 3

Planning for a New Cancer Hospital

UNC Health Care has begun planning a new cancer hospital that will help the UNC Lineberger treat patients from all across North Carolina. The new building (shown here in the right foreground) will replace the current treatment facility, a 50-year old building originally designed as a TB hospital. Despite progress in prevention, screening, and treatment, over the



next several decades the aging baby boom generation will double the annual number of persons diagnosed with cancer. The new facility, along with increased efforts in prevention and early detection, will be needed to meet this growing demand. Next session, the NC General Assembly plans to reconsider a bond funding mechanism to support hospital construction. ●



(left-right): Drs. Michael Pignone, Russ Harris and Linda Kinsinger.

flexible sigmoidoscopy, colonoscopy, and fecal occult blood tests. Barium enema also might be effective, but that has not been confirmed.

"Given the available data, there was no clear form of screening that was most cost-effective," said Pignone, a faculty member in the Department of Medicine and a fellow at UNC's Cecil G. Sheps Center for Health Services. "At any given time, colonoscopy is the most accurate test, but over a patient's lifetime results were mixed, perhaps because colonoscopy is done less frequently than other tests."

Pignone and colleagues published their reviews in the July 16, 2002 issue of the *Annals of Internal Medicine*. ●

UNC Cancer Experts Lead National Chemoprevention & Screening Task Forces

UNC Lineberger members have led national review groups to evaluate cancer prevention and early detection. Done with the Evidence-based Practice Center at RTI International and colleagues around the country, these reviews support the work of the U.S. Preventive Services Task Force.

is something women should talk with their doctors about, so they can make good decisions that are right for them individually."

Kinsinger and Harris, faculty members in the Department of Medicine, published their review in the July 2, 2002 issue of the *Annals of Internal Medicine*.

Chemoprevention for Breast Cancer

Few chemoprevention drugs have reached clinical practice. The exception is breast cancer, where options are increasingly available. The question is, what's the evidence?

Drs. Linda Kinsinger and Russ Harris and colleagues reviewed the evidence. Their answer—good news but not for every woman in every case.

"For women at increased risk of breast cancer, two medicines—tamoxifen and raloxifene—have been shown to be effective in decreasing that risk," Kinsinger explains. Increased risk comes mostly from having a first-degree relative (a mother or sister) with breast cancer or having had breast biopsies, especially if they showed abnormal tissue.

The developments are encouraging, but Kinsinger urges caution because of side effects, such as increased risk for blood clots and cancer of the uterus. "This a complicated topic. There's no one right answer that neatly fits all women. This

calendar of events

October 24-25, 2002
Multiple Myeloma Research Foundation Symposia. Oct. 24—Physicians and Medical Staff. Oct. 25—Patients and Families, Friday Continuing Education Center, Chapel Hill, NC.

January 31-February 1, 2003
UNC Lineberger Prostate Cancer Symposium. Friday Center.

February 19-22, 2003
The Colossal Colon. First stop on a national tour. UNC Campus, Chapel Hill, NC.

February 28, 2003
Board of Visitors Meeting. Lineberger Cancer Center, Chapel Hill, NC.

March 1, 2003
Lineberger Club Annual Brunch and Basketball. Kenan Center.

March 18-19, 2003
UNC Lineberger 27th Annual Scientific Symposium. Friday Continuing Education Center, Chapel Hill, NC.

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2 Director's Message & Horse Show



4 Profile: Ollila & Briefs



5 Pain & Symptom Care Program



6 Gifts to the Center '01-'02 & Clinical Trials

10 UNC Cancer Experts Lead Task Forces

Center '01-'02

More Inside



American Cancer Society Relay for Life. UNC Lineberger had a team in this year's American Cancer Society Relay for Life: *The Tumor Suppressors*. The event was held at Fetzer Field on the UNC campus and raised funds for cancer research and patient programs. Pictured are: (clockwise from 9:00) team captain Amy Maddox (Burrige lab and cell and developmental biology grad student); Juli Trautman; Chad Pearson; Lisa Cameron and Bonnie Howell. The team also included 11 others, from UNC faculty members to graduate students.

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Carolina Cancer Focus 3-on-3 Tournament. Carolina Cancer Focus, the UNC student organization that raises funds for and awareness of cancer, held the second 3-on-3 basketball tournament on April, 13. The event raised close to \$2000 for UNC Lineberger.

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We mourn the death of Board members Louie Woodbury of Wilmington and Jimmy Hardison of Wadesboro. Both were founding Board members who helped the Center in numerous ways, providing leadership in many projects and campaigns.

Clinical Trials Underway

For information about any of these trials, please call the 919-966-4432 or visit the UNC LCCC website at <http://cancer.med.unc.edu/patient/protocols>.

Locally Advanced Prostate Cancer (LCCC 0109). This is a pilot study using an anti-inflammatory drug, Celebrex (celecoxib), in patients who have failed primary radiation therapy or surgery and have rising PSA levels. Epidemiological and clinical data regarding the potential anti-tumor effects of anti-inflammatory drugs have been best described for colon cancer suggesting both a therapeutic and chemopreventive role. More recent studies have shown that anti-inflammatory drugs may have a role in prostate cancer as well. The study seeks to determine if this commercially available medication has any therapeutic value in prostate cancer. *PI, Raj S. Pruthi, MD.*

Elderly Patients with Non-Small Cell Lung Cancer (NSCLC) IIIb/IV (LCCC 0204). This is a Phase I/II trial of weekly docetaxel and ZD1839,

determining the safety, toxicity and efficacy of this combination therapy. Docetaxel is an active single agent in the treatment of NSCLC and has been shown to improve survival as a single agent. ZD1829 is an investigational drug, a novel small molecule, which inhibits the growth of cancer cells and has very few serious side effects shown in early-stage clinical trials. This drug as a single oral agent has shown activity in advanced NSCLC. The combination therapy seeks to improve response rate, characterize tolerable toxicities, and improve survival in elderly patients. *PI, Mark Socinski, MD*

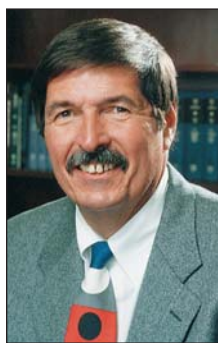
Advanced Colorectal Cancer (TRC-0201). This is an NCI expanded access protocol using Oxaliplatin, a novel platinum agent, in combination with 5-Fluorouracil and Leucovorin for patients who have not received prior chemotherapy for advanced colorectal cancer. This drug combination has been used by Lineberger physicians for over four years and has recently been approved by the FDA for treatment of colon cancer, in part, based on our clinical trial data.

Current studies are looking at response rate, toxicity, and survival with the addition of Oxaliplatin to this regimen. The NCI established the Treatment Referral Center (TRC) mechanism in 1991 to handle inquiries for availability of investigational agents from physicians seeking treatment options for their patients. LCCC is a NCI-designated Comprehensive Cancer Center and qualifies as a treatment center for this trial. *PI, Stephen Bernard, MD*

Cancer Patients with Solid Tumors That Are Resistant to Other Therapies (EGF10004). This is a Phase I study with an oral drug (GW572016) believed to block inappropriate cell growth, leading to cell death. This study will evaluate the safety, tolerability, and blood levels of different doses of this drug. Also, this study will evaluate the effects that GW572016 has on cellular targets found in skin tissue. Several labs in the Lineberger Center are studying the effects of this drug in cancer cells. *PI, Claire Dees, MD*

Director's Message

In this issue of *Cancer Lines* is a story about the leadership UNC faculty, members of both the Sheps Center and Lineberger, in collaboration with colleagues at Research Triangle Institute, have provided for



Dr. H. Shelton Earp, III

We are delighted to announce that Dr. Barbara Rimer will be joining UNC's School of Public Health and the cancer center. Barbara will serve as the Lineberger's Deputy Director of Population Sciences. Faculty in this Center group study cancer's incidence and epidemiology; they design and deliver interventions to prevent and detect cancer early and work to ameliorate the disease's impact on patients and survivors. But as you will read below, Barbara's probing curiosity, recognized expertise, national stature and experience in Washington will be a great help to me and faculty across the cancer research spectrum.

Barbara is a preeminent behavioral scientist. Trained at the University of Michigan (BA, MPH) and Johns Hopkins (DPH), her career has included leadership positions at Fox Chase and Duke Comprehensive Cancer Centers. From 1994-96 she served as a member and then Chair of the National Cancer Advisory Board.

Barbara has a distinguished research record, authoring over 175 scientific articles, 60 invited papers and chapters, and three books, one of which is the standard textbook in her field. She has held numerous NIH grants, including large program projects in cancer prevention and control. Her far-ranging interests have included smoking cessation/tobacco control, cancer screening (particularly breast cancer screening with mammography), genetic testing, health communications, and vulnerable populations.

Five years ago, Barbara was chosen to go to Washington and lead the NCI's Division of

Cancer Control and Population Sciences, with its hundreds of employees and most recently a \$450 million budget. The Division grew in stature and funding under her leadership and her imprint on the overall direction of NIH-funded research is clear for all to see. Having accomplished her goals as a top-level administrator, albeit one who continued research in her "free time," she decided to return to the university setting.

Fortunately we convinced her that UNC was the place to be, and she will turn her considerable talents to enhancing our already excellent cancer prevention and control research. She will broaden this endeavor to create a program in health communications that includes investigators and departments across the entire University.

Bernard Glassman, Barbara's husband, will also be joining the Cancer Center from his position at NCI. He has an extensive background in communication and applied technology, and is co-teaching a course in Health Communications Technologies at the Harvard School of Public Health. Bernard will concentrate on the Center's capabilities in public information and dissemination.

Needless to say, Barbara's and Bernard's recruitment is a "coup" for UNC and the Lineberger Center.

In other good news, *US News and World Report* recently released its annual rankings of cancer centers and hospitals. UNC leaped from 38 to 15 in a (we believe) belated recognition of our clinical excellence. We made strategic decisions in the early 1990's to expand and integrate our clinical oncology faculty and staff. It's gratifying to see this plan—creating multidisciplinary clinical care and research teams—recognized for its excellence at the national level.

This ranking is a real tribute to UNC Hospitals, the Medical School's clinical departments and the Center's organizing principles and faculty.

two important national reports from US Preventive Services Task Forces. Dr. Mike Pignone led the group that defined the success and therefore urges the use of colorectal cancer screening for all Americans 50 and older. Drs. Linda Kinsinger and Russ Harris outlined the data and defined the best pathways for reducing a woman's chance of developing breast cancer. It is always gratifying to see our faculty lead national policy-making efforts.

National recognition is coming also to our young faculty. Dr. Laura Linman, assistant professor of health behavior and health education and a member of Lineberger's cancer prevention and control program, was honored with the 2002 Young Investigator Award from the Society of Behavioral Medicine. Dr. Nancy DeMore, assistant professor of surgery and a member of the UNC Breast Center, received one of 11 Career Development Awards from the American Society of Clinical Oncology.

And for three consecutive years UNC faculty have received national research awards from the V Foundation, established in memory of Coach Jim Valvano. The V Foundation gives only 10 such awards yearly, and this year's (2002) recipients include our newest recruit, Jason Lieb (UNC A.B. 1994), who is returning to us from Berkeley and Stanford. Two other recent recruits, Blossom Damania (2001) and Yi Zhang (2000), were previously honored.

As wonderful as all these honors are for us, it is your continued and sustained support of the Center that keeps us going. In the annual honor roll, we list the gifts from so many generous individuals, companies and business and civic groups. Thank you for sharing our passions for cancer research and our determination to lessen the burden of this disease. You provide the wherewithal for innovation. ●



NCHJA Horse show

The North Carolina Hunter Jumper Association (NCHJA) held its annual horse show benefit in Raleigh, with UNC Pediatric Hematology/Oncology as a recipient of the proceeds.

The event featured a \$10,000 Jumper Classic event sponsored by the Carolina Hurricanes. NCHJA members worked hard to make the benefit a success. Donations of food, items for the silent auction and volunteer services all contributed to the elegant evening that raised \$33,000 for UNC.

Pictured left to right: Linda Riddiough, President of NCHJA; Linda Mansmann, horse show co-chair and UNC Pediatric Oncology nurse; Deborah Judd, horse show co-chair; Dr. Julie Blatt, chief, UNC Pediatric Hematology/Oncology; Glenn Petry, NCHJA Horse Show manager, President of Triangle Farms, Inc., and President of the North Carolina Horse Council. ●



UNC Lineberger is designated a comprehensive cancer center by the National Cancer Institute.

Cancer Lines is a semi-annual publication of the UNC Lineberger Comprehensive Cancer Center, The University of North Carolina School of Medicine at Chapel Hill.

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Lineberger Club speakers (left to right) wife Holly D'Addurno and patient Cliff Layman with protocol nurse Melissa Hall and Dr. Tom Shea, director of UNC's bone marrow and stem cell transplant program.

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UNC-Chapel Hill's Alpha Sigma chapter of Tri-Delta sorority hosted its fifth annual Hole-in-One golf tournament on April 6 at Finley Golf Course in Chapel Hill. Pictured above are some of the Tri-Delta volunteers. Back row, fourth from the left is Melinda Woodall, president of Tri Delta. And fifth from the left is Kasey Gore, chair of the tournament. The Tri-Deltas subsidize all costs for the event so that every dollar raised goes directly to Lineberger. This year's tournament raised \$9,700.00.

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Race for the Cure 2002. Team UNC Lineberger had 412 plus members at the 2002 NC Triangle Komen Race for the Cure. Bottom picture: Sole Sisters II, an exercise program for women who don't exercise regularly had over 75 members take part in the race. (left-right) Sole Sisters II team members: Rhonda Glenn, Lisa Plourdes, Breast Center Advisory Board member Mary Seagraves, Irish Nolen and Michelle Staab. Top picture: (left-right) Susan Gabbay; Maggie Goloboy; UNC Breast Center Advisory Board member Kathy Clemmons; Alyssa Cance.

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The Chapel Hill Tennis Club held its second tournament to raise funds for lung cancer research. This year's event raised over \$3,000. Back row (left to right): Michal Zaluski, tennis director; Dr. Joseph Pagano, UNC LCCC director emeritus; Senator Howard Lee; Dr. Jeffrey Lieberman, UNC Psychiatry; Dr. Bill Cance, associate director, UNC LCCC.

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UNC Head and Neck Cancer

continued from page 1

cytokeratin 14 RNA, a marker found in HNSCC but not normal lymph nodes. We can detect as few as 32 molecules or less than 1 percent of one cancer cell's worth."

HNSCC from all subsites within the head and neck express cytokeratin 14 RNA, while normal lymph nodes do not. Lineberger investigators are beginning experiments to determine the clinical utility of this technique.

Clinician-scientists at UNC also are evaluating gene expression profiles of HNSCC to determine if these profiles can predict tumors that are clinically more aggressive or more likely to metastasize. Identifying tumors associated with poor prognosis will help physicians determine which patients require more aggressive therapy. This research also should allow scientists to identify molecular targets for development of novel therapeutic agents.

"Traditional approaches to identify genes that predict biological and clinical behavior of the tumors have included multiple techniques designed to examine one or at most, a handful of genes at a time," says medical oncology fellow Christine Chung.

"Comprehensive analyses of gene expression patterns of individual tumors can be achieved with microarray technology," she continues. "Using this approach, many tumors have been subclassified into several relatively homogenous groups based on their gene expression patterns. In some instances, these expression patterns correlate with clinical outcomes."

The molecular subclassification based on gene expression is critical for three reasons, Chung says. First, stratifying patients based on risk factors may enable physicians to modify the intensity of treatment regimen in a high-risk group and to decrease treatment morbidity and mortality in low-risk groups that are predicted to have favorable outcomes.

"Second, this technique may allow us to predict responses to standard treatments in order to tailor the therapeutic regimen based on the biology of the individual tumor," Chung notes. "Finally, gene expression data obtained through our study can be used to identify molecular targets for the development of novel therapeutic agents."

Novel Treatments

"Over the past two decades, the treatment of head and neck cancer has moved towards non-surgical treatment using concomitant chemotherapy and radiation (chemoradiation) for newly diagnosed, previously untreated patients," notes Michael Poole, a certified physician's assistant in the division of hematology/oncology working with Dr. Steve Bernard, a medical oncologist.

The regimen of choice for more than 20 years has been a combination of the drugs cisplatin and 5-fluorouracil. "It is very effective in achieving complete responses in previously untreated patients when given simultaneously with radiation therapy," Poole says. "However, the toxicities in this treatment are significant and even life-threatening. Fortunately, most patients retain adequate speech and swallowing function and have a high quality of life after recovery."

Approximately 125 patients at UNC have been treated with the combination in the past five years, says Poole, who has followed the first 40 patients closely to determine their disease-free-survival (DFS).



Head and Neck Cancer team members. Back row (left-right): Dr. David Morris; Dr. Mark Weissler, program leader; Dr. William Shockley; Dr. Christine Chung; Laura Lyndon, program coordinator; Sylvia Wren, nurse coordinator; Dr. Dell Yarbrough; Dr. Lauren Patton. Front row (left-right): Michael Poole; Dr. Lav Goyal; Dr. Carol Shores; Dr. Janet Southerland.

"The 3-year DFS was 75-90 percent for patients with operable tumors treated for organ preservation (OP) and 45 percent for patients with inoperable tumors (U) treated for aggressive palliation." The 4-year DFS will be calculated in October 2002. OP patients realized a 90 percent complete response rate; U patients, 65 percent.

"This is an exponential change for this patient population since the 1980s and makes it one of the most responsive solid tumor types," Poole concludes.

Biological Therapy

A novel treatment uses a mutated adenovirus (ONYX-015) plus chemotherapy. The Lineberger Cancer Center is one of nine U.S. medical centers involved in a study to determine if injections of ONYX-015, a genetically modified common cold virus, could be used to selectively infect and kill head and neck tumor cells.

"Preliminary results suggest that 60 percent of advanced and recurrent head and neck cancer patients will respond to injection of the virus," explains Dell Yarbrough, assistant professor, otolaryngology/head and neck surgery, biochemistry and biophysics. "This response rate is much higher than can be achieved with standard therapy."

The trick is that cells with deactivated tumor suppressor gene, p53, which occurs in roughly 50 percent of malignant head and neck tumors, are not killed by the adenovirus while normal cells are not harmed. "When ONYX-015 gets in a cancer cell with inactivated p53, it replicates, making new adenoviruses," says Yarbrough, the trial's principal investigator. "Then, as part of its normal life cycle,

it kills that cell and releases viruses that can then infect adjacent cancer cells." This selected treatment may allow all cancer cells to be infected, while leaving normal cells alone.

"Most biological therapies, including this adenovirus, in combination with standard therapy, don't increase toxicity to the patient," he notes. "Research also suggests that adenovirus and chemotherapy may have synergistic anti-tumor activity."

Continuing Care

"Treatment of cancer is a life-changing experience not only for the patient, but also for family and friends," says Kim Johnson, clinical social worker. "Feelings of fear and uncertainty of outcome [from] a potentially fatal disease overwhelm newly-diagnosed patients. Supportive counseling during this time is a vital part of the treatment process."

Social workers educate patients about community resources, financial aid, transportation and medical coverage. They also provide discharge-planning assistance to help patients and families determine recovery needs and appropriate solutions.

"Our patients are faced with the challenge of understanding the complexities of the disease, deciding the best treatment option and exploring resources available to meet their needs," Johnson explains. "They get support from the medical treatment team to offer education and guidance during their treatment. Case management is an essential role of the social work team to ensure continuity of care at the inpatient, outpatient and community level." ●

Lineberger Director Named to National Planning Group

Dr. Shelton Earp has been named to the National Cancer Advisory Board's Ad Hoc P30-P50 Working Group. This strategic planning committee, appointed by National Cancer Institute Director Dr. Andrew Von Eschenbach, will help shape the future of cancer centers and Specialized Program of Research Excellence (SPORE) programs. Their report to the Board is expected in early 2003.

Profile

tute in Los Angeles. "I chose melanoma because I love the combination of science and working with patients," he says. "I chose the sentinel node because I trained with

the godfathers of sentinel node research at John Wayne Cancer Institute."

The sentinel node is the first lymph node within a lymph node basin to drain the area and therefore it is the first to show if metastasis exists. In breast cancer the lymph drains to the underarm area. In a sentinel lymph node biopsy, usually only one or two lymph nodes are removed, versus all the nodes in the traditional procedure. "This allows us to get critical information with a much less invasive procedure," Ollila explains. At UNC it is used for about 60 to 70 percent of all breast cancer and melanoma patients.

At John Wayne, Ollila also worked on two polyvalent melanoma vaccines. At UNC he is the lead institutional investigator for the international vaccine protocols that will lead to further immunotherapy research and clinical applications in this area. "The vaccine is for therapy of advanced melanoma. It won't prevent melanomas," he says. "We hope it will halt further development in people who already have a melanoma diagnosis." The trials will be complete in late 2003.

David is married to Mary Ollila, a key member of the UNC Medical Foundation team. David and Mary just had their second child in May.

When he's not meeting with other doctors or studying in the lab, Ollila enjoys hiking and golf. "I've got a handicap of 11," he says. "Sometimes I think I've got the little game, and some days it's got

Melanoma Program Leader Finds His Place Out of the Sun

Young David Ollila would stare up at the moon, dreaming of becoming an astronaut. Today, the co-leader of the UNC Lineberger Melanoma Program is just glad he was basking in the light of the moon and not the sun.

"We're paying for the sins of sun worshipping in the 70s and 80s," said Ollila, who is also an assistant professor of surgery and director of the Sentinel Node Program at Lineberger. "In 2000, one in 75 Americans developed melanoma. It will probably get to one in 65 soon."

In the meantime, Ollila is busy educating other physicians about melanoma, the fastest-growing cancer diagnosis in the nation. "I meet as often as I can with dermatologists, medical oncologists and family practitioners to let them know what we're working on here at UNC in surgical oncology and with our multidisciplinary team," Ollila said.

The increased incidence of melanoma in 2000 was part of what drove him to focus on this disease after getting his undergraduate degree in chemistry at Miami of Ohio and his M.D. at the University of Cincinnati. He followed that with a fellowship in surgical oncology at the John Wayne Cancer Insti-



me." But his real passion is for watercolor painting. "I love to paint. It's my outlet. If I hit the lotto, that's what I'd do every day of my life."

Growing up in Columbus, Ohio, Ollila wasn't planning on becoming a doctor. He was dreaming of walks on the moon or hitting a home run in a major league baseball game. But his colleagues at Lineberger Comprehensive Cancer Center are glad he chose medical school instead, and they aren't rooting for him to win the lottery and take up painting either. ●

Pain & Symptom Care Program

Treating cancer involves more than chemotherapy, radiation and surgery. At the University of North Carolina Hospitals, cancer patients also get a healthy dose of palliative care from the Pain and Symptom Care Program.

"The major tenet of palliative care is that it neither prolongs life nor hastens death but provides symptom relief for people with advanced diseases of any type, not just cancer," notes Steve Bernard, a medical oncologist and a Lineberger Cancer Center member. The Pain and Symptom Care team serves the entire medical community at UNC, although 50 percent of patients served have cancer because of their recognized needs for pain and symptom management.

"We work with patients who have serious, life-limiting conditions, face severe pain, or psychological or spiritual suffering, and are ineligible for or unwilling to use hospice services," explains Barbara Usher, pain and symptom care nurse consultant and program coordinator.

In essence, the Pain and Symptom Care Program strives to:

- Promote patient, family and staff awareness of pain management, end-of-life care planning and palliative care services using community outreach and education

- Augment symptom relief
- Provide additional information, referral and coordination of services in and out of the hospital

"Patients have a right to good pain management and attention to their emotional and spiritual needs, and we give them that," says Laura Hanson, a geriatrician in the UNC Program on Aging. An

interdisciplinary team works together to meet the unique needs of each patient. In addition to the Pain and Symptom Management Team, hospital nurses, social workers, pharmacists and chaplains are included in team consults as are psychiatrists.

In addition, families benefit from the services. "Palliative care often provides a relief for the patient's family—they don't have to pretend people aren't ill or dying," Usher says. "They can join the patient in coping or planning and have an opportunity to get ready."

All palliative care patients don't have terminal illnesses. "Some patients—particularly those with cancer—seek our care because of the pain involved in their treatments," Usher explains. "We manage their symptoms, like pain, or their emotional needs, like frustration, so they can get better faster."

"This type of care is important because all of us will eventually be faced with a life-limiting illness," Bernard says. "Care by physicians and other health care providers for people at this point in their life has often been underemphasized both in training and in practice."

Hanson elaborates. "In general in the U.S., we don't do a good job meeting the needs of patients with extreme symptoms and suffering, or diseases we can't cure." UNC is on the front end of the movement to bring palliative care into the patient experience.



(Left to right): Dr. Steve Bernard, Barbara Usher and Dr. Laura Hanson.

"We walk with the patient and family, side by side with the attending physician team to develop satisfactory outcomes that meet not only medical, but all patient needs," Usher concludes. "With palliative care, we try to bring a little peace and joy." ●

Briefs

Gene-Silencing Process Reveals Parts of Genetic Machinery

UNC scientists have discovered that RNA interference (RNAi), a common gene silencer, can be exploited to rapidly identify parts of the machinery that makes RNAi work. With further research, the finding could have important implications for treating cancer and other serious illnesses. By injecting pieces of laboratory-produced, double-stranded RNA into worms, the researchers "silence" just about any gene they want depending on the composition of the RNA they choose.

Whether RNAi works similarly in humans is not yet clear, but since it appears so far to function essentially the same way in diverse animals, that's a good bet, according to Bob Goldstein, assistant professor of biology and Lineberger faculty member. Once RNA interference is mostly or entirely understood in organisms like the worm, scientists might be able to turn off gene expression at will, including genes responsible for cancer and various genetic disorders.

A report appeared in the journal *Proceedings of the National Academy of Sciences*. Graduate student Nate Dudley, Goldstein and biology postdoctoral

fellow Jean-Claude Labbe carried out the research.

Study Reveals Benefits of Lay Health Advisers in Boosting Mammography

Women with leadership qualities who dispensed health information in local communities without pay succeeded in boosting the number of older black women in eastern North Carolina who underwent mammography by 6 percent, according to a study conducted by University of North Carolina at Chapel Hill Schools of Public Health and Medicine and the UNC Lineberger Comprehensive Cancer Center. Such volunteers, known as lay health advisers, increased the number of lowest-income black women who took the sometimes life-saving test by 11 percent.

The study's goal was to evaluate the effectiveness of the North Carolina Breast Cancer Screening Program, a UNC-based network of advisers intended to boost screening among rural black women over age 50. The National Cancer Institute funded the project as part of the Lineberger Center's Specialized Program of Research Excellence (SPORE).

"Even though African-Americans are less likely than whites to develop breast cancer, as a group they are more likely to die from it," said Jo Anne L. Earp, professor and chair of health behavior and health education and study leader. "Among the

reasons are that they are screened less often, and their breast cancers are detected at later, more advanced stages."

"Our new study demonstrates that although intensive, a lay health adviser network intervention, supplemented by efforts to increase access and quality, appears effective and may be the best community-based approach for increasing mammography use among these women," said Earp, who also is Lineberger member.

A report appeared in the *American Journal of Public Health*. Other UNC report authors include Drs. Eugenia Eng, professor of health behavior and health education; Michael S. O'Malley, associate director of the Lineberger Center; Mary Altpeter, associate director of the UNC Institute on Aging; and Bahjat Qaqish, associate professor of biostatistics. Also involved were Drs. Garth Rauscher of the University of Chicago and Linda Mayne and Holly F. Mathews of East Carolina University.

The U.S. Centers for Disease Control and Prevention funded the state-administered Breast and Cervical Cancer Screening Program to provide mammography for women who could not afford it. Medicare pays for mammograms and PAP smears for women over age 65. The National Cancer Institute, the Susan G. Koman and Kate B. Reynolds funds have also supported the UNC project.

Protein Identifies Damage to DNA

A protein called ATR that senses damage to DNA has been found to kick-start the body's natural repair system, UNC researchers discovered.

Ultraviolet radiation, pollution and chemother-

apy cause mistakes in DNA that must be repaired before the cell divides and propagates the mutations, leading to cancer or other problems, said Aziz Sancar, Kenan professor of biophysics and biochemistry, and a Lineberger member.

Redundant proofreading and repair systems exist that pinpoint the affected genetic sequences, cut them away and build them back right.

"ATR appears to act as a switch that starts the repair process and also stops cells from proliferating while they are being repaired," Sancar said. "This new work is not going to cure cancer by itself, but it is a significant step forward." Now that the protein's role is known, other scientists can screen for drugs that act on it.

A report appeared in the journal *Proceedings of the National Academy of Sciences*. Authors are Sancar, postdoctoral associates Keziban Unsal-Kacmaz and Alexander M. Makhov and Jack D. Griffith, Kenan professor of microbiology and immunology and a Lineberger member.

Long Island Breast Cancer Study Project UnCOVERS Small Risk from Environmental Contaminants

Exposure to air-polluting polycyclic aromatic hydrocarbons (PAHs) in the environment appears to elevate women's risk of breast cancer by a modest 50 percent in Suffolk and Nassau counties, N.Y., a new much-anticipated study indicates. The Long Island Breast Cancer Study Project, one of the largest and most comprehensive environmental epidemiologic studies ever done on that cancer, uncovered no increased rate of the illness among area

women who might have been exposed to organochlorine compounds. The project is now part of the UNC Lineberger's SPORE in breast cancer.

"The goal of this population-based, case-control study was to determine whether breast cancer incidence in women in these two counties was associated with exposures to environmental contaminants," said Dr. Marlie Gammon, deputy director of UNC's Environmental Health and Susceptibility Center in the School of Public Health and a UNC Lineberger Center member.

"What we observed did not support that possibility strongly."

Starting with more than 3,000 women in this federally mandated research, scientists looked at blood samples taken from hundreds of new breast cancer patients and comparable women without breast cancer who served as controls.

In their work on polycyclic aromatic hydrocarbons, which are known to cause mammary tumors in laboratory rats, researchers focused on PAH-DNA "adducts"—chemicals attached to the genetic material known as DNA. PAHs are inhaled through air pollution, including automobile and airplane exhausts and cigarette smoke, and are ingested by eating selected foods, including grilled and smoked foods.

Except for the possible 50 percent increase in the risk of breast cancer associated with the highest levels of hydrocarbon adducts, "there was no increased risk of breast cancer with increasing adduct levels, nor was there a positive association between adduct levels and two of the main sources of PAHs," she said. "Those are active or passive cigarette smoking and consumption of grilled and smoked

foods. Our data indicate that PAH-DNA adduct formation may influence breast cancer development, although the association does not appear to be dose dependent and may have a threshold effect.

"These somewhat ambiguous findings shed some doubt on a clear cause-and-effect association," Gammon said. "The study team is continuing to investigate this issue on Long Island through additional research focused on the possibility of individual responses to environmental exposures."

In their research on organochlorines, including the pesticide DDT, its metabolite DDE and industrial compounds known as PCBs, scientists found no evidence supporting an association between those environmental toxins and heightened risk of breast cancer, she said. Analyzing blood samples from 646 patients and 429 control subjects, they showed such factors as breastfeeding, weight, menopausal status, length of residence on Long Island and form of breast cancer made no difference. Nor was there any increase in breast cancer associated with individual PCB variations, known as congeners. Included was the possibility that such chemicals played an earlier, subtle role in tumors.

A report appeared in the journal *Cancer Epidemiology, Biomarkers & Prevention*. Besides Gammon, scientists involved are from the Mailman School of Public Health at Columbia University, Mount Sinai School of Medicine and others from Columbia, the State University of New York at Stony Brook, Cornell Medical Center and Long Island hospitals.

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