

PreventionPOST

September 2003

VOLUME 5/ISSUE 2

NEWSLETTER OF THE NCI DIVISION
OF CANCER PREVENTION



IN THIS ISSUE

Division of Cancer Prevention's
Inaugural Scientific Advances
Symposium a Great Success 1

Cancer Prevention and the
All-Ireland-National Cancer
Institute Cancer Consortium 2

History of Cancer Prevention:
Alice Stewart, Cancer
Prevention Pioneer 3

Cancer Prevention
Fellowship Program 4

Moving into the Era
of Cancer Preemption 5

Staff Orientation
Project Team 6

Results of the Prostate
Cancer Prevention Trial
with Finasteride 6

Exfoliated Cells, Bioactive
Food Components, and Cancer
Prevention Workshop 7

DCP Awardees 8

PreventionPOST Credits 8

Transitions 9

Preventing Cancer:
The Future of Cancer
Nursing Practice 10

DCP Calendar of Events 11

Division of Cancer Prevention's Inaugural Scientific Advances Symposium a Great Success

THE SAS PROJECT TEAM



The first-ever staff-wide DCP Scientific Advances Symposium was held at the Bethesda Marriott in February.

To stimulate information sharing and internal collaborations and to identify Divisional research goals, the Division of Cancer Prevention (DCP) convened its first-ever, staff-wide Scientific Advances Symposium, February 4–5, 2003. Biomarker nomenclature and identification, agent development, and energy balance were three of the research opportunities targeted for additional collaborations.

During a follow-up meeting on March 20, Division Director Peter Greenwald, M.D., Dr. P.H., further described DCP initiatives in terms of the NCI's challenge goal of eliminating suffering and death due to cancer by 2015. DCP's leadership role in research in the areas of early detection, prevention, and prediction was articulated. Strategic paths and milestones through the processes of discovery, development, and delivery were laid out for the future.

Potential Divisional priorities that had emerged from the two-day Symposium and responses from individual staff surveys were enumerated during the second meeting. These were compiled into about thirty bulleted points reflecting staff suggestions for scientific

opportunities and Divisional processes. Five groups then assembled to concurrently discuss the key crosscutting themes: biomarker nomenclature, biomarker development, agent development, enhancement of the agent pipeline, and energy balance/obesity.

In the plenary session of the second meeting, each group reported its findings. The Biomarker Nomenclature Group came up with a team definition of "biomarker" as "an informative biological measurement/observation" and offered these categories of biomarkers: early detection; risk (acquired versus inherited); effect (intermediate endpoint and surrogate endpoint); and safety/toxicity. The Group recommended that NCI triage literature reviews and reviews of existing NIH guidelines.

continued on page 5



Members of one of four breakout groups identify and discuss Division Opportunities at the February SAS.



Cancer Prevention and the All-Ireland-National Cancer Institute Cancer Consortium

DOUGLAS L. WEED

Cancer prevention research, training, and related health promotion activities will soon benefit from an initiative undertaken by a unique partnership—a consortium—among the governments of Northern Ireland, Ireland, and the United States. The All-Ireland-National Cancer Institute (NCI) Cancer Consortium seeks to intensify cooperation among the three participating countries in all aspects of cancer research, treatment, and prevention.



A Brief History of the Ireland-Northern Ireland-NCI Cancer Consortium

In 1999, at a historic ceremony in Belfast's Stormont Castle, key government, scientific, and medical leaders signed an agreement to work together to create a new cooperative approach to cancer (1). Programs in the following key areas were to be developed through this cooperative group — the Ireland-Northern Ireland-NCI Cancer Consortium:

- Education and training
- Treatment and research
- Information dissemination
- Epidemiology
- Cancer prevention
- Surveillance
- Early detection
- Quality control
- Interactions aimed at enhanced public health and patient care

Initial efforts of the Consortium focused upon the establishment of a clinical trials network among cancer centers and hospitals in Ireland and Northern Ireland, scholar exchange and training between institutions in the three countries, information technology enhancements designed to enable collaboration on clinical trials, and data sharing and collaboration among the island's two cancer registries. An example of high-tech information enhancement is the implementation of Telesynergy™ at Belfast City Hospital and St. Luke's Hospital in Dublin. This multimedia medical imaging workstation system enables scientists at multiple locations to simultaneously interact with one another. Recently, the cancer registries in the north and the south cooperated to produce the first joint report on incidence and mortality for the island of Ireland (2,3). The Consortium has also created several unique training opportunities, including a clinical trials training program for oncology nurses, a cancer epidemiology fellowship program, and a summer training program in cancer prevention and control. More information on these ongoing efforts can be found on the Consortium's website at www.allirelandnci.org.



Cancer Prevention Training and the All-Ireland-NCI Consortium

Creating an infrastructure for cancer prevention research activities is a long-term goal of the All-Ireland-NCI Consortium. Building research capacity requires a cadre of well-trained prevention research specialists. Training is therefore crucial to the future of cancer care and prevention in Ireland and is a high priority for the Consortium.

The Consortium's support of the NCI's Summer Curriculum in Cancer Prevention is of special note. In the summers of 2001, 2002, and 2003, physicians, nurses, scientists, and public health and health care professionals from Northern Ireland and from the Republic of Ireland have attended the longstanding courses on cancer prevention and control sponsored by the NCI's Division of Cancer Prevention. This summer Curriculum is an integral part of a postdoctoral fellowship program at the NCI—the Cancer Prevention Fellowship Program—and includes a four-week course on the Principles and Practice of Cancer Prevention and Control and a one-week course on Molecular Prevention. These courses are designed to provide state-of-the-art information on current research and practice programs across the entire discipline of cancer prevention. Funding for the summer training experience was provided by the Health Research Board (Republic of Ireland) and by the Research and Development Office (Northern Ireland).

More information for these courses can be found on the following websites: www.allirelandnci.org and www3.cancer.gov/prevention/pob/courses.

All-Ireland Prevention Workshops: the Consortium's Newest Initiative

Consistent with the goal of the Consortium to enhance all aspects of cancer prevention research, training, and related health promotion activities across Ireland, a Prevention Working Group was created; Dr. Douglas Weed of the NCI serves as its chair. With broad membership from the scientific, research, and policy communities, this newest Consortium working group has as its mission to enhance coordination and cooperation on cancer prevention on an all-island basis at all levels—primary, secondary, and tertiary—through training, strategy development and implementation, shared knowledge, and monitoring mechanisms. Continuing support for the summer prevention training at the NCI is high on its list of priorities, but it has also decided that a series of All-Ireland Cancer Prevention Workshops on the island is an important initiative. The purpose of these workshops is to provide a forum for bringing together physicians, nurses, scientists, and health

continued on page 12

KATHLEEN FOSTER

Alice Stewart, Cancer Prevention Pioneer

1906-2002



“You need some resistance and criticism to bring out the good work.”

Alice Stewart
1906-2002

Alice Stewart, a British epidemiologist, challenged the establishment's beliefs on radiation safety and was responsible for the prevention of untold numbers of radiation-induced cancers, primarily childhood leukemia. Born in Sheffield, England, in 1906, Alice was one of eight children and a daughter of physician parents. Both her mother and father were pediatricians practicing under the Dickensonian conditions of overpopulated slums, crowded orphanages, and rampant infectious disease. Her parents were revered for their commitment to child welfare and for their work to improve conditions in the community. Their example made a lasting impression on Alice, who dedicated her life to protecting the well-being of modern society through her research on radiation-induced cancer.

Although distinguished as a clinician in her early career, Stewart shifted her focus in 1941 when she joined Oxford University to work for the government's war effort. While studying the health of munitions workers, she uncovered a correlation between TNT exposure and the suppression of blood cell formation. This success encouraged Stewart to redirect her energies towards epidemiology, then known as social medicine. She joined the Institute of Social Medicine at Oxford, where she pursued a lifelong interest in the causes of childhood cancer.

The 1950s may be remembered as an idyllic time of innocence compared to the global unrest of today's news. However, it was also an era defined by the arms race and the threat of a nuclear holocaust. To offset public fears, the U.S. Atomic Energy Commission (AEC) was launching an offensive of another type. Their public relations campaign presented a benign and accommodating image to the burgeoning nuclear power industry. It promised that atomic power would be abundant and cheap, providing a road map to world peace. At the same time, the emerging science of nuclear medicine was ready to enthusiastically embrace atomic technology. Out of this brave new world emerged such practices as the radiation of infants with “enlarged” thymus glands, pelvimetry (the x-ray of pregnant women to determine the size of their pelvis for delivery), and the irradiation of adolescents for the treatment of teenage acne. It was within this milieu that Stewart conducted her most important and controversial work.

Collaborating with statistician George Kneale, the pair collected data on childhood malignancies and their relationship to family history, parental occupations and social class, infectious

diseases, and vaccination. In 1956 their research led to the publication of the Oxford Survey of Childhood Cancer. This revolutionary report found that the children who died of cancer had been subjected to x-rays *in utero* twice as often as healthy children with no history of radiation exposure. Unfortunately, this groundbreaking report was disregarded by radiologists of the time, who continued the practice of x-raying pregnant women until the 1970s.

As a result of her research in the munitions plants of the 1940s, Stewart maintained an interest in occupational health. In 1974 she was invited to the U.S. to analyze the effects of radiation on the health of nuclear workers at Hanford, in Washington State. These workers had worked on the production of plutonium for the Manhattan Project, which led to the creation of the atomic bomb. At that time radiation standards were obtained by extrapolating from data obtained on Japanese who had survived the explosion of the atomic bombs in Hiroshima and Nagasaki. However, Stewart's research contradicted these assumptions and instead found that the workers' cancer risk was about twenty times higher than allowed for by international safety guidelines. The AEC became alarmed by the implications of Stewart's report and tried to confiscate the data, forcing her to flee to England with the study results. The Commission later challenged her results, asserting that Hanford workers had a lower rate of cancer than U.S. citizens of comparable age. Stewart explained that the AEC's assessment was biased by the “healthy worker effect,” a phenomenon similar to the one allowing particularly resilient Japanese to survive their A-bomb exposure.

Stewart's accomplishments reflect the multiple challenges that she had to negotiate during her long and productive career. Not only was she one of a vanguard of women physicians in a male-dominated profession, she also helped to define the science of epidemiology. In an era that was celebrating the ascendancy of atomic energy, Stewart raised the alarm concerning the management of this incredibly powerful resource. Contrary to prevailing theories on radiation safety, she collected the data that overwhelmingly supported her hypothesis: there is no threshold below which radiation exposure is rendered harmless. Simply stated, the risk of cancer is in direct proportion to the contact with radiation.

Throughout her long life Stewart combined a sense of social responsibility with a desire to learn the causes of cancer and ways to prevent it. One of her favorite sayings was “truth is the daughter of time.” Although it took a lifetime of research, Stewart succeeded in demonstrating the carcinogenic effects of exposure to low-level radiation. This unpopular truth required a major shift in the perception of nuclear power and full disclosure from the authorities that wielded that power. Fortunately for public health, Alice Stewart persevered. ■

At the Forefront of Training

SUSAN N. PERKINS

By the end of the summer, thirteen second-year Cancer Prevention Fellows are expected to have been awarded a Master of Public Health degree and will have returned to NCI to launch the mentored research projects that will occupy them for the next two years. Returning fellows have received or will receive MPH degrees from Johns Hopkins University (Marie Cantwell, PhD, Yvonne Vargas, MD, and Katehrine Wasson, PhD), George Washington University (Kenneth Hance, PhD, Tamaro Hudson, PhD, and Larissa Korde, MD), Harvard University (Melinda S. Kovacic Butsch, PhD, and Bernard Fuemmeler, PhD, MS), the University of Pittsburgh (Connie Rogers, PhD, and Ashley Smith, PhD), the University of Illinois–Chicago (Christine Holmberg, PhD) and the University of Alabama–Birmingham (Martin Whiteside, DC, PhD). In addition, four first-year fellows who already held an MPH degree or had equivalent training in public health came directly to NCI in June to begin their fellowships: Laura E. Beane-Freeman, PhD, MS, Marla L. Clayman, PhD, MPH, Aimee R. Kreimer, PhD, MS, and Julia Slutsman, PhD. Drs. Slutsman and Wasson are the newest fellows to participate in the Ethics of Prevention and Public Health Track, a specialty track within the Cancer Prevention Program that was initiated in July 2002.

In June incoming Cancer Prevention Fellows participated in a six-day Orientation designed to help acclimate them to both the NCI and to the Fellowship Program. Scheduled sessions included a course in time management, training on the use of Microsoft Outlook and the library online, help with “Plowing through Paperwork,” and advice on how to get the best out of the Fellowship. Fellows also had the opportunity to meet with potential research preceptors from the Division of Cancer Prevention; the Division of Cancer Control and Population Sciences; the Division of Cancer Epidemiology and Genetics; the Center for Cancer Research; the Office of Science Planning and Assessment; and the Office of Communication and Cancer Information Products and Systems.

The Summer Curriculum in Cancer Prevention began on July 7 this year, with eighty-five researchers and clinicians attending the eighteenth annual four-week summer lecture series on Principles and Practice of Cancer Prevention and Control. Attendance at the one-week Molecular Prevention Course in August will also comprise about eighty-five participants. Integrated with fifteen incoming Cancer Prevention Fellows and with researchers from both within and outside NCI are registrants from all over the world. The All-Ireland-NCI Cancer Consortium is sponsoring twenty-seven attendees this year, with nine from Northern Ireland and eighteen from the Republic. They are joined by seventeen additional international participants, with fifteen of these sponsored by the Office of International Affairs/NCI.

The week before beginning the lecture course, fifteen incoming Cancer Prevention Fellows participated in a two-day laboratory

Congratulations to second-year fellow Lila J. Finney Rutten and third-year fellow Mark Parascandola, who were each presented with a Cancer Prevention Research Training Merit Award in June. The Cancer Prevention Fellowship Program makes these awards to recognize Cancer Prevention Fellows who are not only productive scientists but who have also performed noteworthy service to the Program.

Third-year fellow Heather Poetschke Klug received the American Association for Cancer Research-AFLAC Scholar-in-Training Award at the AACR Mouse Models of Cancer Meeting held in Lake Buena Vista, Florida, in February.

Fourth-year fellow David Berrigan won the Best Poster Award at the Annual Meeting of the American Society of Preventive Oncology held in Philadelphia in March.

Fourth-year fellow Jackie Lavigne was granted a Young Investigator Fellowship Travel Award by the conference organizers to present a poster at the Eighteenth Annual Aspen Cancer Conference in July.

ON THE PERSONAL SIDE

Special congratulations to Heather Poetschke Klug and her husband, David, on the birth of their daughter, Hannah Joy Klug, and to Nomeli Nuñez and his wife, Katie, on the birth of their daughter, Veronica Ariela Nuñez. ■

course, held in Building 60. This annual hands-on program is designed to introduce fellows to some sophisticated but fundamental molecular biology techniques, such as the polymerase chain reaction (PCR), DNA (Southern) blotting, and ELISAs and other immunoassays. The primary objective of the lab is to help the fellow who may be unfamiliar with these technologies by providing a laboratory experience that may give him or her greater insights into these and other concepts when they are encountered during the summer lecture series.

As usual, recruitment for the Cancer Prevention Fellowship Program was busy this past spring and early summer. Ms. Susan Winer (OPO) manned booths to promote the program at the Johns Hopkins Bloomberg School of Public Health career fair and at several professional meetings, including the Oncology Nursing Society Meeting, the Digestive Diseases Week Meeting, the American Society of Clinical Oncology Meeting, and the Cancer Health Disparities Summit. The American Association for Cancer Research Meeting, originally set for April in Toronto, Canada, was postponed due to the Severe Acute Respiratory (SARS) outbreak and rescheduled for July in the new convention center in Washington, D.C. ■

Moving into the Era of Cancer Preemption

DORIS BROWNE



NCI Director Andrew von Eschenbach made his first personal visit to the Division of Cancer Prevention on March 12, 2003, to share his thoughts on the mission, function, and structure of the Institute. The session afforded representatives from the Division the opportunity to highlight their research focus and to reflect on key Division activities.

Dr. von Eschenbach began his visit with a casual reference to his then-newly unveiled 2015 goal to end suffering and death from cancer by that date by saying, “I’ve sort of sent shockwaves through the cancer community recently.” He noted that “for us to meet that challenge, this Division is smack in the middle of the game,” adding that “we will be reaching out to more effectively leverage what DCP does.”

Dr. von Eschenbach then provided an overview of his plans for NCI, stating that he did not believe in the need for a strategic plan but that he does believe in the need for reassessment. He said, “The NCI is a volcano that has driven the biomedical

research enterprise from the 1971 enactment of the National Cancer Act, and has continued with biomedical research exploding exponentially.” The great success story of the NCI is that it is beginning to understand cancer as a disease process from population science to the era of molecular oncology. Advanced technology has afforded us the opportunity to better understand the cancer process continuum from normal to malignant. “People die with cancer because it goes to a lethal phenotype. The original tumor rarely has that lethality,” he said.

He said, “We are at a strategic inflection in biology, which means a point of unprecedented growth in three key areas related to cancer research: knowledge, technology, and resources. It is the integration and growth of these three sectors that provides for the exponential progress we have seen in the past.” The Division of Cancer Prevention and its activities is the keystone of this effort to broaden the scope of prevention and move towards preemption.

After a year in office, the Director said he appreciates two things every day: “What incredibly gifted and hardworking

continued on page 9

Division of Cancer Prevention's Inaugural Scientific Advances Symposium a Great Success continued from page 1

The Biomarker Development/Validation Criteria Group presented a schema to frame the research:

- Identify a spectrum of biomarkers at various stages of the carcinogenic process, from normal to preneoplastic to neoplastic
- Consider multiple biomarkers for exposure, effect, and specificity
- Establish criteria for biomarker validation and use
- Disseminate biomarker information to the scientific community

The Agent Development Criteria Group outlined the initial junctures in development of preventive agents:

- Identify molecular targets and develop rational combinations of preventive agents
- Conduct preclinical/*in vitro* studies
- Conduct *in vivo*/animal studies
- Conduct Phase I/Phase II/Phase III studies
- Facilitate delivery from bench to bedside

The Group suggested maintaining flexibility and utilizing a “go/no-go guide” in identifying criteria for getting past each decision point. Also, in integrating biomarker information into decision making at various steps, researchers must consider issues related to type of agents, amount of agents, and validation of agents. The Group suggested that DCP broadly use the NCI Cancer Therapy Evaluation Program and other NCI committee resources, as well as pharmaceutical industry models of drug development.

The Enhancing the Agent Pipeline Group listed vital topics in chemoprevention:

- Cross-disciplinary agents, including statins, NSAIDs, and vitamin D
- Molecular targeted agents with, for example, high throughput screening
- Epigenetic targets
- Accelerated development of functional foods
- Common targets and pathways that transcend cancer across diseases
- Accelerated agent development
- Prevention endpoints in treatment trials

The Energy Balance/Obesity Group called for increased DCP participation in the recently formed transdisciplinary NCI Working Group on this topic. DCP initiatives will encompass the spectrum of cancer research within basic science, clinical trials, biorepositories, methodology, and animal models. Expanding DCP’s involvement in this area would also include a call for DCP requests for proposals; creating colloquia, workshops, and an educational primer; and capitalizing on the Community Clinical Oncology Program’s clinical trials network as a mechanism for diffusion of knowledge.

In closing the meeting, Dr. Greenwald announced the creation of three project teams to augment the work of existing project teams: Agent Development, Biomarker Development, and Energy Balance/Obesity. ■

Staff Orientation Project Team

BY JENNIFER GAEGLER, CONVEYED TO PREVENTIONPOST BY GLORIA RASBAND

The Staff Orientation Project Team was created by the Division of Cancer Prevention at the annual *All Hands Retreat* held May 4, 2000 in Annapolis, MD. At the time of the retreat, there was no official orientation process in place to facilitate the transition of new personnel into the Division. Dr. Peter Greenwald, DCP Director, charged staff with developing that process. This new Staff Orientation Project Team developed a mechanism to effectively expedite the transfer of core information to new employees. Since that time NCI has developed an orientation class that all new employees are encouraged to attend on their first day. The NCI Orientation Program, coupled with the DCP Orientation materials in “hard copy” format and (in the near future) on-line format, have successfully met the needs of DCPs new recruits.

Under the leadership of the first project team leader, Judy Smith, a DCP Employee Orientation Binder and a Supervisors Pre-employment Checklist folder were developed. The Orientation Binder is given to each new DCP permanent

(and, when requested, to non-FTE) employee. Over the years the DCP Orientation Binder has evolved into what could be considered a survival guide containing more general “how to” and “where do I find” information. It is divided into sections that cover accounts and passwords needed to perform everyday activities, acronyms, cafeteria locations, conference room reservations, email instructions, general information, ITAS, Listserv information, organizational charts and DCP floor plans, project team information, DCP staff listings, helpful web sites, and helpful information on the employee’s research group.

In the near future the Orientation Binder and Supervisors Pre-employment Checklist will join other resources for DCP employees on the DCP web pages at <http://www3.cancer.gov/prevention/employees/index.html>

Current members of the Staff Orientation Project Team include Jennifer Gaegler (leader), Jim Crowell (Coordinating Unit Sponsor), Linda Bremerman, Sara Hursen, Barbara Redding, Ellen Richmond, and Linda Wong. ■



Results of the Prostate Cancer Prevention Trial with Finasteride

JACOB KAGAN AND HOWARD PARNES

Prostate cancer is the most common non-dermatologic cancer and the second leading cause of cancer death among American men. It is estimated that, in 2003, there will be 221,000 new cases and 29,000 deaths due to prostate cancer in the U.S. despite recent advances in surgery, radiation therapy, hormone therapy, and chemotherapy. On July 17, 2003, *The New England Journal of Medicine* published the results of a landmark study known as the Prostate Cancer Prevention Trial (PCPT): “The Influence of Finasteride on the Development of Prostate Cancer” (Thompson, *et al.*, *N Engl J Med* 2003; 349: 215-224). This randomized, placebo-controlled, double-blind study demonstrated that finasteride, an FDA-approved drug for the treatment of benign prostate hypertrophy (BPH), reduced the seven-year period prevalence of prostate cancer by nearly 25%.

Finasteride, a synthetic 4-azasteroid compound, is a specific inhibitor of steroid 5 α -reductase type II, an intracellular enzyme that converts testosterone into 5 α -dihydrotestosterone (DHT), the most potent androgen and a major regulator of prostate epithelial cell growth. Lowering DHT levels leads to shrinkage of the enlarged prostate gland and improved urinary function in most men with obstructive symptoms.

The Division of Cancer Prevention of the National Cancer Institute supports all phases of chemoprevention agent devel-

opment. Large, Phase III trials with definitive cancer endpoints, such as the PCPT, represent the most important step in this process. In this study, a total of 18,882 healthy men, aged 55 and older, were randomized to receive finasteride (5 mg/day) or placebo for seven years. Participants were monitored quarterly for side effects and adherence to treatment schedule. Prostate biopsy was recommended if the annual prostate-specific hormone (PSA) level, adjusted for the effect of finasteride, exceeded 4 mg/ml, or if the digital rectal exam (DRE) was abnormal. In addition, all men were asked to undergo an “end-of-study” biopsy after 7 years on study, if they had not been previously diagnosed with cancer and if their PSA and DRE remained normal throughout the trial.

The primary endpoint of the trial was the seven-year period prevalence of prostate cancer. Remarkably, the prevalence of prostate cancer was reduced from 24% to 18% (relative risk reduction of 24.8%, $P < 0.001$), among men receiving finasteride. However, high-grade tumors, Gleason score 7-10, which are typically more aggressive, were detected more frequently among men receiving finasteride (6.4%) than among those receiving placebo (5.1%). Further follow-up will be required to determine whether the high-grade tumors diagnosed among men receiving finasteride behave similarly to those diagnosed in men receiving placebo. ■

Exfoliated Cells, Bioactive Food Components, and Cancer Prevention Workshop

CINDY DAVIS

Diet has been implicated in a myriad of diseases including cancer. A large number of bioactive components in food that are protective at different stages of carcinogenesis in model systems have been identified. Although serum and blood cells have frequently been used to evaluate the adequacy of the diet, these measurements may not always predict effects in target tissues. However, it is often difficult, if not impossible, to obtain samples of the tissue of interest in a noninvasive manner. Thus, there is a need to utilize and validate surrogate markers that would be indicative of the accumulation and activity of bioactive food components within cells of target tissues. Exfoliated or sloughed cells may be useful to study the effects of bioactive food components in target tissues.

To this end, the Division of Cancer Prevention's Nutritional Science Research Group (NSRG) sponsored a one-day workshop entitled, "Exfoliated Cells, Bioactive Food Components, and Cancer Prevention," on May 23, 2003 at the Bethesda Marriott Hotel in Bethesda, Maryland. The purpose of the workshop was to identify and evaluate the strengths and weaknesses of using exfoliated cells for monitoring changes in gene expression, DNA methylation, protein expression, and accumulation of bioactive components; and/or predicting the anticancer effect in target tissues in response to essential and nonessential nutrients. Participants in the workshop included clinicians, nutritionists, and cancer biologists. Because lung, colon, and breast cancers are the three leading causes of cancer-related deaths in the U.S., and because neoplasms at each of these sites have been shown to be modified by dietary components, the workshop focused on the utilization of exfoliated cells from these organs.

The gastrointestinal epithelium undergoes rapid renewal, during the course of which millions of cells are shed into the fecal stream. In fact, stool samples appear to yield a very large quantity of intact epithelial cells: >10 million cells/gram of feces. Changes in dietary habits, such as consumption of a high fiber diet, can significantly increase the colonic epithelial cell yield in the stool. Early studies also suggest that stool-based DNA testing can detect supracolon cancers, including those of the lung, esophagus, stomach, pancreas, and bile duct

(workshop communication).

Lung epithelial cells can be obtained from sputum samples or from bronchoalveolar lavage. Although sputum samples are easier to obtain, cells present in sputum are primarily derived from the large airways. In contrast, bronchoalveolar lavage is useful for obtaining cells from the peripheral airways.

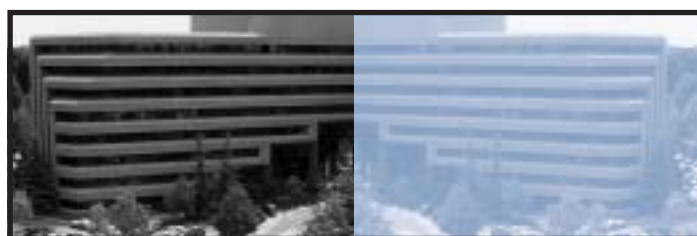
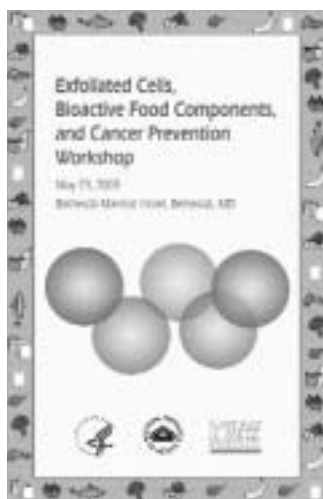
Exfoliated pulmonary epithelial cells may be useful for the early diagnosis of cancer. For example, aberrant p16 gene promoter methylation has been observed in sputum samples prior to the clinical diagnosis of lung cancer (1). Exfoliated epithelial cells from the lung have also been utilized in nutritional studies. Consumption of a lycopene-rich vegetable juice has been shown to be associated with significantly decreased lung epithelial cell DNA damage in healthy volunteers as measured by the COMET assay (2).

Cell sampling techniques from the mammary gland do not appear to be as advanced as for the colon or lung. Only a limited number of cells can be recovered from the mammary gland using nipple aspirate fluid and ductal lavage techniques. One of the main questions addressed at the workshop concerned whether it is necessary to obtain samples from the same duct in cancer prevention studies. If not, other breast cell sampling techniques can be considered, including core needle biopsy or fine needle aspiration, which may yield more cells. The choice of breast sampling technique for epithelial cells will depend on the study question and local expertise. Nevertheless, mammary epithelial cells present in nipple aspirate fluid have been utilized for cytology, DNA amplification, DNA methylation, and protein expression.

Preparation of an Executive Summary from the workshop is in progress. The summary will be available on the NSRG web site: <http://www3.cancer.gov/prevention/nutrition/index.html>. ■

References

1. Harden SV, Tokumaru Y, Westra WH, et al. Gene promoter hypermethylation in tumors and lymph nodes of stage I lung cancer patients. *Clin Cancer Res* 2003; 9:1370-1375.
2. Arab L, Steck-Scott S, and Fleishauer AT. Lycopene and the lung. *Exp Biol Med (Maywood)* 2002; 227:894-899.



DCP home base: Executive Plaza

GLORIA RASBAND AND SUSAN N. PERKINS



Dr. Peter Greenwald

Congratulations to **Dr. Peter Greenwald** (OD) upon his election as Fellow of the American Society for Nutritional Sciences. Among many other accomplishments, his selection was in recognition of his longtime leadership in advancing the science of cancer prevention, especially as it relates to nutrition. The awards ceremony was held at the Experimental Biology Annual Meeting in San Diego in April 2003.



Dr. Diane Solomon

The Uniformed Services University for Health Sciences awarded **Dr. Diane Solomon** (BGCRCG) the University Medal for "Distinguished Faculty." The medal was presented in May 2003 for service to the University as Adjunct Faculty for Teaching. Dr. Solomon will also receive the 2003 Papanicolaou Award from the American Society of Cytopathology (ASC). Given in recognition of lifetime contributions to the field of cytopathology, this award is the ASC's highest honor.



Dr. Elizabeth Jeffery

Dr. Elizabeth Jeffery (NSRG) received the Kenneth P. DuBois Award, given "in recognition of her contribution to the science and practice of toxicology." It was presented at the Annual Spring Meeting of the Midwest Regional Chapter of the Society of Toxicology, held in Lincolnshire, Illinois, in May 2003.



Dr. Shine Chang

The NIH Office of Evaluation awarded **Dr. Shine Chang** (OPO) funding under the One Percent Evaluation Set-Aside Program to participate in a training course on "Designing Effective Program Evaluations."



Dr. Leslie Ford

Dr. Leslie Ford (OD) received the 2003 NIH Director's Group Award as a member of the Hormone Therapy Task Force. The group was recognized at the Annual Director's Awards Ceremony in June for "leadership related to the Hormone Therapy Workshop with special focus on planning, execution, and follow-up."

Gloria Rasband (OD) received the DCEG Special Recognition Award for her continuing service in managing the Executive Plaza South Library for DCCPS, DCEG, and DCP.

Kudos to everyone on these commendable accomplishments! ■

Prevention**POST**



DCP Newsletter Project Team

EDITORIAL GROUP:	DESIGN/WEB GROUP:	PRINTING/DISTRIBUTION GROUP:
Susan Perkins (Editor-in-Chief), Cindy Davis, Graça Does, Grant Izmirlian, Ann O'Mara	Doris Browne, Kathleen Foster	Jacob Kagan, Doug Midthune, Gloria Rasband

The DCP Newsletter Project Team welcomes new members Cindy Davis and Ann O'Mara!

PreventionPOST
 Newsletter of the Division of Cancer Prevention
 National Cancer Institute
 Executive Plaza North, Suite 3109
 6130 Executive Boulevard, MSC-7361
 Bethesda, Maryland 20892-7105

Back issues of the *PreventionPOST* may be seen online at <http://www3.cancer.gov/prevention/about.html#pp>

We would like you to join us in welcoming new staff to DCP:



Dr. Graça Dores has joined the Office of Preventive Oncology as Associate Director for Clinical Prevention Research Training in the Cancer Prevention Fellowship Program (CPFP). She is a board-certified hematologist/oncologist who entered the CPFP as a Cancer Prevention Fellow in 1999. Her research interests include prevention of second primary cancers and lymphohematopoietic cancers.



Elaine Trujillo has joined the Nutritional Science Research Group as a nutritionist. She comes to DCP from Boston, where she was the Research Dietitian for the Metabolic Support Service, Brigham and Women's Hospital, Harvard Medical School. Elaine holds B.S. and M.S. degrees in Nutritional Sciences from the University of Delaware and Texas Woman's University, respectively. Over the past fifteen years she has functioned as a clinical nutritionist with a focus on critical illness, nutrition support, and obesity, and during the past five years has also been actively involved in clinical nutrition research that focuses on markers of nutritional status and nutritional supplements for cancer patients.



Dr. Padma Maruvada is a new Program Director in the Cancer Biomarkers Research Group. She joins DCP from the Intramural division of the National Institute of Diabetes and Digestive and Kidney Diseases.



BEST WISHES TO:

Dave Kausal recently retired from the Prostate and Urologic Cancer Research Group. He was also the photographer for the *PreventionPost*, and we wish our colleague well in all his new endeavors. ■

Moving into the Era of Cancer Preemption continued from page 5

people are employed" at NCI and "how much people depend on us to deliver products and services." He wants to know specific things that he can do to help us do our jobs better. Dr. von Eschenbach emphasized the importance of increasing the diffusion of research products into the clinical setting and shortening the timeline from bench to bedside. He is also committed to collaborative efforts with the Food and Drug Administration, concentrating efforts and reviews on research trial design, infrastructure, and enabling technology, such as bioinformatics, to enhance moving away from prevention towards preemption through a seamless, integrated process.

Select DCP staff made presentations on "Arachidonic Acid Metabolism as a Target for chemoprevention" - Eva Szabo (LUACRG); "Agent Development Process/Toxicology/RAPID" - Dr. Izet Kapetanovic (CADRG); "Phase III Prostate Cancer Prevention Trials" - Dr. Howard Parnes (PUCRG); "Molecular Profiling in Phase II Chemoprevention Trials" - Dr. Asad Umar (GOCRG); and "Evaluating Biomarkers for Early Detection of Cancer" - Dr. Stuart Baker (BRG). The Cancer Prevention

Fellowship Program was discussed by Dr. Doug Weed (OPO), and two of its fellows made presentations, Dr. Jennifer Eng-Wong on "Effect of Raloxifene on IGF Pathway in Premenopausal Women at High Risk for Breast Cancer," and Dr. David Berrigan on "Transdisciplinary Approaches to Energy Balance and Cancer Prevention." The meeting closed with a discussion and demonstration of the Protocol Information Management System (PIMS) by Linda Parreco (PIO) and Jen Flach (PIO). Dr. von Eschenbach then made a tour of the DCP offices with Dr. Greenwald, who introduced Division staff members.

We have been issued the "challenge goal" to eliminate suffering and death due to cancer by 2015. Our efforts and accelerated activities will help to attain this goal through discovery, development, and delivery. These three components of the NCI portfolio, if harvested appropriately, will provide significant benefit to cancer patients and to the public at large. Kudos to Dr. von Eschenbach and to the staff of DCP for its leadership in the field of cancer prevention— and preemption. ■

Preventing Cancer: The Future of Cancer Nursing Practice

KATHLEEN FOSTER

Division of Cancer Prevention nurses presented the cancer prevention message to the annual gathering of oncology nurses this May 2003. The Oncology Nursing Society (ONS) Congress accepted a proposal formulated by the DCP Nursing Education Working Group on chemoprevention research and clinical trials. ONS is the largest professional specialty nursing organization, with a membership of greater than 30,000 registered nurses and other healthcare providers. Its mission is to foster "excellence in patient care, education, research, and administration in oncology nursing." The theme for this year's Congress, held in Denver, Colorado, was appropriately titled, "Climbing Our Mountains."



Linda Parreco, Ellen Richmond, and Judy Smith respond to questions from the audience.

In an effort to increase awareness of the work of the Division, the group developed a presentation on the importance of chemoprevention clinical trials in decreasing cancer incidence. The DCP Nursing Education Working Group is comprised of Kathleen Foster, Margaret House, Rose Mary Padberg, Linda Parreco, Ellen Richmond, Anne Ryan, and Judy Smith. The goal of this group is to impart cancer prevention information to healthcare professionals nationwide, thus utilizing the additional advantage of informing nurses who often have established relationships with communities and patients and their families. In the instance of oncology nurses, their patients are often known to be at increased risk for recurrent disease, or they may have an inherited cancer risk, thus making them ideal candidates to participate in chemoprevention research.



Rose Mary Padberg, R.N., M.A.

Rose Mary Padberg provided the introduction for the session by explaining the mission of the group and the experience of the three speakers. Next, Linda Parreco laid the foundation for the ONS instructional session in her presentation by defining the meaning of cancer prevention. She went on to depict current public and professional percep-

tions, as well as misconceptions of the field of chemoprevention. Linda outlined the Federal government's role in the development of prevention programs, and described the selection and testing of agents for chemoprevention trials. Her talk concluded with an explanation of the role of NCI and DCP in the development and investigation of promising chemoprevention agents.

Ellen Richmond addressed the scientific evidence underlying chemoprevention research. She described the current understanding of carcinogenesis, explaining the process from DNA mutation through tumor formation and metastasis. Ellen went on to illustrate the important role of molecular targets in the development of chemoprevention agents and completed her lecture with examples of some of these key agents and their mechanisms of action.



Judith L. Smith, R.N., M.S.N.

Judy Smith rounded out the panel presentation by describing how the groundbreaking field of cancer prevention will impact the nursing profession. Describing important clinical trials that changed the course of scientific thinking, Judy outlined the path of discovery that chemoprevention research has taken through the design and management of these landmark trials. She further prepared

her listeners by providing web sites as educational resources for future reference.

The information on chemoprevention was received enthusiastically by this audience of oncology nurses, many of whom have been pioneers in the field of oncology nursing. Regrettably, the experience of this group has frequently been with patients who are



Kathleen Foster, Rose Mary Padberg, Margaret House, Anne Ryan, Ellen Richmond and Linda Parreco celebrate the success of their program.

at the end stages of the disease spectrum. A look at the future of cancer prevention provided a message of hope for these health care providers and valuable information to take back to the communities in which they practice. ■



Remember when? Although the dog days of summer are now upon us, only six months ago Executive Plaza was a winter wonderland. Photos by Dave Kausal, February 5, 2003

RECENT, ONGOING, AND UPCOMING DCP EVENTS

DATE	TOPIC	DESCRIPTION	WEBSITE
SEPTEMBER - JUNE 2003-2004	Colloquia Series	The Office of Preventive Oncology presents a Colloquia Series on Wednesdays from 11:00 a.m. to noon.	http://www3.cancer.gov/prevention/pob/fellowship/colloquia.html
JUNE 26-27, 2003	Free Radicals: The Pros and Cons of Antioxidants	The purpose of this workshop is to summarize current understanding of, and identify major gaps in, our knowledge about the role of antioxidants in cancer prevention and tumor biology and their interactions with conventional chemotherapy and radiotherapy.	http://www3.cancer.gov/prevention/frpca2003/index.html
JUNE 23-25, 2003	The Eighth Early Detection Research Network Steering Committee	Early Detection Research Network Steering Committee met to share information on current ongoing projects, including biomarkers validation studies, EDNR development of bioinformatics tools, review of the EDNR Associate members' contributions to EDNR, and a workshop on "Moving Biomarkers from Development to Validation and Commercialization."	http://www3.cancer.gov/prevention/edrnsteering8/index.html
JULY 7-AUGUST 1, 2003	Principles and Practice of Cancer Prevention and Control Course	This annual four-week summer course focuses on the concepts, methods, issues, and applications related to the principles and practice of cancer prevention and control. Participants have the opportunity to gain a broad-based perspective of these subjects, including resources, data, methods, and theories.	http://www3.cancer.gov/prevention/pob/courses/principles.html
JULY 31, 2003 3:00 P.M., LISTER HILL AUDITORIUM	Advances in Cancer Prevention Lecture	<i>Cancer Prevention: A European Perspective</i> Dr. Elio Riboli, International Agency for Research on Cancer, Lyon, France	http://cancer.gov/prevention/pob
AUGUST 4 - 8, 2003	Molecular Prevention Course	This annual course provides a strong background in the molecular biology and genetics of cancer as well as an overview of the basic laboratory approaches applied to cutting-edge research in the fields of molecular epidemiology, bionutrition, chemoprevention, biomarkers, and translational research.	http://www3.cancer.gov/prevention/pob/courses/molprev.html
AUGUST 17-22, 2003	Gordon Research Conference: New Frontiers In Cancer Detection & Diagnosis	Discussions focused on detection of cancer and cancer risk using molecular profiling, proteomics, and epigenomics approaches, as well as different models and computational tools for data analysis.	http://www.grc.uri.edu/programs/2003/newfront.htm
OCTOBER 19-22, 2003	All-Ireland Cancer Conference Ireland-Northern Ireland - NCI Cancer Consortium	The scientific conference will feature distinguished speakers from throughout Ireland, Northern Ireland, and the U.S. It will be open to oncologists, researchers, nurses, students, and other health care professionals with an interest in learning about and enhancing cancer research on the island of Ireland.	http://www.allirelandnci.org/newmeetings.asp

professionals from Northern Ireland, the Republic of Ireland, and the NCI (including NCI-supported academic and research institutions) to discuss state-of-the-art research findings for selected topics in cancer prevention and control and to discuss how these findings can best be translated into medical and public health practice. These workshops will benefit both the research and practice professional communities. The first of these workshops took place in May 2003 and focused upon smoking cessation and prevention.

Acknowledgements

This article would not have been possible without the support and encouragement of the Prevention Working Group of the Consortium: Drs. Kevin Balanda, Ruth Barrington, Margaret Boyle, Brian Gaffney, Fenton Howell, Scott Leischow, Elizabeth Mitchell, Liam Murray, Patricia Riordan, and Kathy Rowe.

Parts of this article were reproduced with kind permission from the Health Promotion Agency for Northern Ireland. Original article appeared in issue 18 of *Promoting Health, The Journal of Health Promotion for Northern Ireland*, December 2002. ■

Address for Correspondence:
Douglas L. Weed, M.D., M.P.H., Ph.D.
Dean, Education and Training
Chief, Office of Preventive Oncology
Director, Cancer Prevention Fellowship Program
Division of Cancer Prevention
National Cancer Institute
Executive Plaza North
Suite 3109
6130 Executive Blvd
Rockville, MD 20852
USA
Phone: 301-496-8640
Fax: 301-402-4863
E-mail: dw102i@nih.gov

References

1. Johnston PG, Daly PA. The NCI-Ireland Consortium: a unique international partnership in cancer care. *Oncologist* 2001; 6:453-458.
2. Walsh PM, Comber H, Gavin AT. All-Ireland Cancer Statistics: a joint report on incidence and mortality for the island of Ireland. March, 2001. National Cancer Registry (Ireland) and Northern Ireland Cancer Registry.
3. Ireland-Northern Ireland-National Cancer Institute Cancer Consortium. Cancer Research Across Borders. Annual Report 2000-2001.

CARTOON

GRAÇA DORES

