

Linkage

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Accelerating Innovation in Cancer Research Through Epidemiology

An Invited Presentation to the President's Cancer Panel, October 2010

Epidemiology continues to shape the research agenda for preventing cancer and understanding its causes. New epidemiological research will differ dramatically from previous research in its sheer size and scale, the technologies used, and the strong connections to other biomedical disciplines. By focusing on the most informative study populations, using new techniques for measuring genetic and environmental influences, and exploiting the emerging markers of cancer, including early disease and premalignant changes, we can accelerate the pace of discovery.

Study Populations

The most pressing requirement currently in the United States concerns the specific populations to study. Ideally, we want prospective data and samples of the general population because collecting them well before diagnosis eliminates many biases. We need simpler and less expensive ways to gather data about study participants over the course of their lives. We need access to their medical histories, routine medical visits, and tests as well as opportunities to take and store biological samples for use in specific nested studies. Assembling a large general population cohort with these key features from scratch may be impractical, but we may be able to create one within an existing, comprehensive medical care delivery system.

In a few countries, medical care data systems allow researchers to link outcomes, such as cancer occurrence, precancerous lesions, and survival, quickly and efficiently to the wide range of potential influences for all residents. In the United States, prepaid health plans, including those of Kaiser, Mayo, Geisinger, and the Department of Veterans Affairs, have conducted studies of cancer etiology and prognosis. To build a study population that is large and diverse enough to support prospective research in the



Patricia Hartge

DCEG Linkage

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United States, however, we likely need to include participants from more than one health care plan.

In addition to conducting prospective studies set in the general population, we will still need to study unusual populations because they can illuminate the causes of cancer and other major diseases. We will accomplish this type of research by identifying, enrolling, and following groups of people with specific exposures or genetic influences that may affect carcinogenesis: workers who clean up after man-made and natural disasters, families with distinctive genetic abnormalities (e.g., Li-Fraumeni syndrome or *BRCA* mutations), and patients exposed to a new drug or regimen.

Studying these special populations provides insights into long-term effects that are present but harder to observe among the general population because of lower doses and risks, lower frequency of genetic variants, or simply lack of measurement or documentation. For cohort studies of special populations, we not only can track health events, but we also can collect and store biological and environmental samples for focused studies.

Similarly, we must continue to conduct case-control studies, those in-depth examinations of patients with a particular cancer compared to their counterparts from the community at risk who did not develop the malignancy. Many new approaches are evolving within the basic case-control design, principally with vastly increased use of biological specimens, some collected within moments of cancer diagnosis. Case-control studies have only begun to exploit the mapping techniques and databases that can link participants' histories of homes and jobs to hundreds of associated environmental exposures.

Genetic and Environmental Interaction

Although genetic influences on cancer risk have been recognized for many years, high-throughput genotyping involving genome-wide association studies has transformed research on the etiology of cancer and many other diseases. This technological breakthrough and the agnostic search for signals have opened up avenues for research that otherwise would have remained hidden for years. For instance, we may not know why a variant in a “gene desert” (a stretch of DNA devoid of protein-encoding genes) is consistently associated with risks of breast, prostate, and several other cancers, but we must infer that an important model of genes and cancer induction needs major revision.

Metabolomics (the study of small-molecule metabolites in cells, tissues, and organisms) and proteomics (the study of all the proteins in cells, tissues, and organisms) may turn out to be even more revolutionary than genomics, but that is not clear yet. The mutable measures of metabolism may be more sensitive and accurate in tracking the triggers and stages of cancer development, but their dynamic nature will also make it harder to establish the correct time to perform sampling and to do it reliably. With that caution in mind, metabolomics and proteomics remain two of the most important avenues to pursue in the near term.

“Exposome” is a general term for broadly capturing the wide variety of exposures—radiation related, infectious, chemical, and physical—that a person experiences in the environment. It is too soon to know how this approach will evolve in practice, but it offers great conceptual appeal.

In the meantime, we are experiencing many technical changes that are accelerating the pace of research through the use of small, portable devices. Mobile phones and other handheld units are just beginning to revolutionize the collection of epidemiologic data. For instance, built-in GPS (global positioning system) locators yield data that we can link to geographic databases. Snapshots of plates of food link to nutrition databanks. Surveys of daily diet and exercise can be smartphone applications. Self-sample kits can be used in remote locales. Accelerating such simple technical adaptations offers great promise, in parallel with the hoped-for big-science breakthroughs to sample the entire exposome.

Cancer Outcomes: Precancer, Diagnosis, Prognosis

In recent years, we have experienced important changes in how we assess cancer, how we classify it, and how we view its natural history. First, as a result of refinements in classifying tumor pathology, we are distinguishing among cancers of the same organ and classifying them by etiology as well as prognosis. For example, we recognize the distinct etiology and behavior of estrogen receptor–positive and –negative breast cancers. Second, we are working with a gradually expanding list of recognized precursors, from colon polyps to Barrett’s esophagus, that may suggest ways to screen populations and prevent cancer. Third, we often can accelerate epidemiologic study because the precursor may arise years before the cancer does.

To explore the outcome side of the equation, many etiological studies are expanding to include the evaluation of survival. Randomized clinical trials



Managed care organizations offer integrated data for improved medical care and advanced epidemiologic research. (Photograph credit: Daniel Sone)

(RCTs) have rigorously tested the effects of an intervention on survival, but they are now gradually incorporating observational (nonrandomized) components, including assessment of genotypes, smoking, obesity, and other factors. For years, many observers have advocated the leveraging of RCTs despite the major logistical challenges that this would pose. With newer methods and advances in information technology, more RCTs will include elements of observational research that are focused on both etiology and prognosis.

The Organizational Impact of Future Research

Big science, team science, and consortia dot the cancer research landscape. The questions we need to ask often require numerous study participants, expertise from multiple scientific disciplines, and efforts that are too large for one institution to conduct alone. NCI has led the effort to create consortia for cohort, case-control, and family studies, enterprises that have been and will continue to be critical for accelerating research to discover the causes of cancer. ■

—Patricia Hartge, Sc.D.

A Note on the President’s Cancer Panel

The President’s Cancer Panel was established by law to monitor the development and execution of the activities of the National Cancer Program and to report on its progress directly to the President of the United States. The panel, which comprises three people, two of whom are distinguished scientists or physicians, meets four times per year. Over the years, DCEG scientists have presented to the panel on a variety of subjects related to the causes of cancer and the means of prevention. More information on meetings of the President’s Cancer Panel can be found at <http://go.usa.gov/1Gd> (case sensitive).

STUDYING EXPOSURE ASSESSMENT AND CANCER RISK: IOWA AND BEYOND

Laura Beane Freeman, Ph.D., of the Occupational and Environmental Epidemiology Branch (OEEB), is currently studying about 57,000 farmers and 32,000 of their spouses in her work as co-principal investigator of DCEG's Agricultural Health Study (AHS). Her connection to the topic may be more personal than that of most researchers: Dr. Beane Freeman grew up on a farm in Iowa.

Having a working knowledge of daily life on a farm has helped Dr. Beane Freeman relate the work practices of farmers and their families to possible occupational and environmental exposures. In fact, she often includes photos of her family members tending corn, soybeans, and cattle in her presentations.

When she arrived at Iowa State University as a college freshman, she had aspirations of becoming a veterinarian. But toward the end of her undergraduate

career, "I was literally paging through course catalogs for graduate school and came across the description of a department of epidemiology. A light bulb went on. The idea of being able to link people's exposures in everyday life to disease, of having a potential impact on public health, was really appealing to me."

After graduating from Iowa State, she went on to earn an M.S. in preventive medicine and a Ph.D. in epidemiology at the University of Iowa. Her doctoral work focused on the relationship between contaminants in drinking water and cancer risk. In 2005, Dr. Beane Freeman joined NCI's Cancer Prevention Fellowship Program. She has since found a home in OEEB, where she became a tenure-track investigator in 2009. "My colleagues are the people whose papers I was reading as a graduate student," she said. "It's amazing to me that I now work with them on a daily basis."



Laura Beane Freeman

The feeling is mutual. According to **Michael C.R. Alavanja, Dr.P.H.**, a senior investigator in OEEB, "Laura is an indispensable member of the AHS team. She has a combination of outstanding research and management skills and a wonderful sense of humor."

The AHS, a collaborative effort of NCI, the National Institute of Environmental Health Sciences, the National Institute for Occupational Safety and Health, and the Environmental Protection Agency, operates in Iowa and North Carolina. During its first phase, AHS researchers recruited private pesticide applicators, farmers, and farmers' spouses and collected baseline information. During the second phase, researchers collected data through telephone interviews, cell samples from cheek swabs, and dietary questionnaires.

Now in the study's third phase, AHS researchers are collecting more follow-up data to elucidate changes in health status, farming practices, and use of pesticides since enrollment. "Farmers

ENVIRONMENTAL EXPOSURES AND WOMEN'S HEALTH

In October, **Melissa Friesen, Ph.D.**, a tenure-track investigator in the Occupational and Environmental Epidemiology Branch, was a featured speaker in the Environmental Exposures and Women's Health seminar, part of a series sponsored by the NIH Office of Research on Women's Health. Dr. Friesen presented on "Occupational exposures and cancer risk: Women are not just small men." Her theme was that occupational risks for men and women should be assessed separately because gender differences in physical size, breathing and heart rates, body fat levels, and hormonal and other changes over time may result in different exposure levels that affect risk but are not accounted for in current assessment methods.



Melissa Friesen

To view Dr. Friesen's presentation, go to <http://go.usa.gov/1f4> (case-sensitive).

overall are healthier than the general population, but they have elevated risks for certain cancers. Trying to figure out why is an important question,” Dr. Beane Freeman said. In November 2010, she and her AHS colleagues received an NIH Plain Language Award for *The Agricultural Health Study Update 2009*, a publication developed to inform members of the AHS cohort. The awards are part of an NIH-wide initiative to promote the use of plain language in all materials created for the public or within government.

Dr. Beane Freeman has led and collaborated on many studies conducted using the AHS cohort. Highlights include studies evaluating the cancer risks associated with occupational exposure to numerous pesticides, with high body mass index (BMI), and with the interactions between BMI and pesticide use. In addition, she collaborated on a study of prostate cancer that evaluated the relationship of specific pesticide use to inherited variants on chromosome 8q24, an area identified to be associated with prostate cancer risk through genome-wide association studies.

Another area of focus for Dr. Beane Freeman is the study of populations exposed to formaldehyde, a chemical that is used heavily in industrial and other occupational settings. As the principal investigator of the NCI Cohort of Workers in Formaldehyde Industries, the largest cohort study of workers exposed to formaldehyde, she has investigated the potential association of formaldehyde exposure to the risk of leukemia and other lymphohematopoietic malignancies. She and her colleagues also have carried out studies of cancer risk among funeral industry professionals, whose work includes exposure to formaldehyde. In 2010,

she received an NIH Merit Award for her work on the relationship of formaldehyde exposure to cancer risk.

“Farmers overall are healthier than the general population, but they have elevated risks for certain cancers. Trying to figure out why is an important question.”

Dr. Beane Freeman is also studying the association of drinking water contaminants to bladder cancer risk. As a co-investigator on the New England Bladder Cancer Study, she has contributed to the development of a comprehensive arsenic exposure assessment to evaluate risks associated with bladder cancer. Dr. Beane Freeman is also leading efforts to further examine whether

disinfection by-products, which are compounds formed when organic matter reacts with chemicals used to disinfect drinking water, are associated with bladder cancer.

A common theme in Dr. Beane Freeman’s research is the reliance on exposure assessment. “The measurement of exposure provides the foundation for our research into occupational and environmental risk factors for cancer, so it’s important to have the highest quality possible,” she said.

Outside DCEG, Dr. Beane Freeman spends time with her husband and two children, ages seven and four. An avid reader, she is revisiting books from her childhood by sharing them with her kids. A recent favorite? *The Chronicles of Narnia* series. ■

—Nancy Volkers, M.A.

NEW FELCOM REPRESENTATIVES READY TO SERVE

Postdoctoral fellows **Phoebe Lee, Ph.D.**, Laboratory of Translational Genomics, and **Alison Mondul, Ph.D.**, Nutritional Epidemiology Branch, have been selected to serve as DCEG’s new representatives to the NIH Fellows Committee (FelCom) for the coming year, taking over from **Mercy Guech-Ongcy, Ph.D.**, Infections and Immunoepidemiology Branch, and **Gila Neta, Ph.D., M.P.P.**, Radiation Epidemiology Branch. Dr. Neta will continue working on the FelCom Mentoring Subcommittee until this year’s



Phoebe Lee and Alison Mondul.

survey is completed, and Dr. Guech-Ongcy will continue serving as the cochair of this subcommittee and as an at-large representative. FelCom has succeeded in enhancing communication among fellows across the NIH community and has served as a liaison to leaders of research training programs that affect the fellowship experience. More information about FelCom is available at <http://felcom.od.nih.gov>.

CHRISTIAN KRATZ INVESTIGATES CANCER PREDISPOSITION SYNDROMES

To date, cancer predisposition syndromes have not been fully defined. Helping to fill in the gaps, however, is **Christian Kratz, M.D.**, a tenure-track investigator in the Clinical Genetics Branch (CGB). “By studying individuals with rare genetic cancer predispositions, one can learn a lot about cancer biology in general,” Dr. Kratz said.

Dr. Kratz is especially interested in Noonan, Costello, and cardiofaciocutaneous syndromes, all of which involve inherited mutations in oncogenes that are also frequently mutated in cancer cells. Because these defects are germline events, the changes have to be relatively mild or have effects later in life for the embryo to survive. Survival, however, does not mean normal development. “It’s an interesting connection because not only do the patients I study have a predisposition for cancer, but they also have a developmental disorder,” Dr. Kratz said.

One syndrome that Dr. Kratz is now studying is familial pleuropulmonary blastoma (PPB), a rare and little-studied disease that leads to childhood lung sarcoma and a range of other rare tumors. It is caused by a germline mutation in the *DICER1* gene that disrupts microRNA production. MicroRNAs regulate gene expression in the body, and Dr. Kratz’s research promises to offer insight into their biology and their role in cancer. In 2010, Dr. Kratz received an NIH Bench-to-Bedside Award to study PPB.

Dr. Kratz is also leading a study on familial testicular cancer. Compared to disorders that are due to a mutation in a single gene, familial testicular cancer appears to be a more complex disease that is caused by a combination of risk

alleles in conjunction with environmental factors. The familial form of testicular cancer serves as a good disease risk model because the risk variants are stronger than those found in other cancers. Identifying the genetic causes of familial predisposition to testicular cancer may help researchers better understand the biology of this tumor and identify men with an increased risk.

Dr. Kratz was originally trained as a pediatrician in Germany, where he became particularly interested in patients with developmental syndromes associated with cancer. He took a postdoctoral research fellowship in the Department of Pediatrics at the University of California, San Francisco, where he performed molecular studies on childhood myeloid malignancies. Upon returning to Germany, Dr. Kratz worked as an attending physician at the University of Freiburg, continuing to treat children with cancer. During that time, he also studied genetic syndromes predisposing to leukemia and identified germline mutations in the *KRAS* oncogene as a cause of both Noonan and cardiofaciocutaneous syndromes. At CGB, which Dr. Kratz joined in 2009 as a tenure-track investigator, he enjoys the opportunity to devote himself more fully to research.

Dr. Kratz plans to initiate a clinical protocol for cancer patients with rare underlying genetic syndromes. “If someone with a genetic syndrome develops cancer, this is usually not random,” Dr. Kratz said. By characterizing the syndrome in a clinical setting, it may be possible to identify a causal genetic defect that may have significance beyond the rare syndrome. For example, one of Dr. Kratz’s patients



Christian Kratz

had Börjeson-Forssman-Lehmann syndrome and developed T-cell leukemia. Dr. Kratz and his colleagues hypothesized correctly that the gene underlying the syndrome, *PHF6*, was relevant to the leukemia. Ultimately, Dr. Kratz and another group found that mutations of *PHF6* represent an important factor in leukemogenesis.

Studying cancer predisposition syndromes may have implications beyond cancer. We can learn how conserved molecular pathways contribute not only to oncogenesis, but also to growth, cognitive function, and development. Moreover, such disorders may serve as model diseases in which the underlying germline mutation represents the cancer-initiating event that leads to cancer through acquisition of additional genetic hits. Studying cancer risks in these patients is also important for appropriate genetic counseling and early cancer detection. Finally, there is a chance that newly developed targeted cancer therapies may be used to improve the clinical course in patients with certain genetic syndromes. ■

—Erin M. Fults

DIRECTOR RECEIVES TWO PRESTIGIOUS AWARDS

In November 2010, **Joseph F. Fraumeni, Jr., M.D.**, DCEG Division Director, received two major awards for his work in cancer research.

The American Cancer Society (ACS) awarded Dr. Fraumeni the Medal of Honor for Cancer Control at a ceremony held during its annual meeting in Atlanta, Georgia. The Medal of Honor is the society's highest honor; two other scientists were similarly honored during the meeting for their contributions to basic and clinical research, respectively. The three recipients were chosen by the ACS National Awards Committee.

The American-Italian Cancer Foundation, a nonprofit organization that supports cancer research, education, and control, awarded Dr. Fraumeni the Alexander Bodini Prize for Scientific Excellence in Medicine. The prize is awarded annually to two scientists in recognition of important discoveries in cancer biology, prevention, diagnosis, or treatment. The day after the award ceremony, Dr. Fraumeni gave an award lecture on "Genes and the environment in cancer causation" at the Memorial Sloan-Kettering Cancer Center in New York City.

Both awards emphasized Dr. Fraumeni's epidemiologic and interdisciplinary research into the causes of cancer. These include his work in genetics that led to the discovery, with his colleague Dr. Frederick Li, who recently retired from the Dana-Farber Cancer Institute in Boston, Massachusetts, of a familial multiple-cancer syndrome associated with inherited mutations in the *p53* tumor suppressor gene, now known as Li-Fraumeni syndrome. Also recognized



Joseph Fraumeni

was Dr. Fraumeni's role in identifying environmental hazards through studies of high-risk populations pinpointed by the mapping of cancer mortality at the

county level across the United States. Several findings from these studies have guided public health policies aimed at cancer prevention and control. ■

CHRISTINA PERSSON WINS FIRST-PLACE STUDENT POSTER AWARD

Christina Persson, Ph.D., a visiting fellow in the Hormonal and Reproductive Epidemiology Branch (HREB), won the first-place award for best student poster at the American College of Epidemiology's annual meeting in San Francisco, California. Her poster, titled *Risk of liver cancer among male U.S. veterans with cirrhosis*, was coauthored by **Danny Carreon, M.S.** (HREB); **Barry I. Graubard, Ph.D.**, Biostatistics Branch (BB); **Gloria Gridley, M.S.**, formerly of BB; **Katherine A. McGlynn, Ph.D., M.P.H.** (HREB); and **Sabah M. Quraishi, M.P.H.** (HREB).

DCEG HOSTS VISITING SCHOLAR JAMES CERHAN

DCEG welcomed Dr. James R. Cerhan as a Visiting Scholar in September. Dr. Cerhan is an international leader in the fields of cancer and genetic epidemiology, with a focus on chronic lymphocytic leukemia (CLL) and non-Hodgkin lymphoma (NHL). He is professor and chair of the Mayo Medical School's Division of Epidemiology and co-leader for the Genetic Epidemiology and Risk Assessment Program at the Mayo Clinic Comprehensive Cancer Center.

Dr. Cerhan obtained his B.A. in anthropology from the University of Iowa and spent time in Papua New Guinea as a research fellow with the Papua New Guinea Institute of Medical Research. He then returned to the University of Iowa, where he obtained his M.D. and a Ph.D. in epidemiology.

Dr. Cerhan's research has focused primarily on the role of environmental, lifestyle, genetic, and other potentially



Patricia Hartge, Robert Hoover, James Cerhan, and Shelia Hoar Zahm.

causative factors in the etiology of NHL and CLL as well as on factors that predict outcomes. He has partnered with DCEG and other collaborators on studies of breast, colorectal, and prostate cancers as well as myeloid leukemia. Dr. Cerhan is actively involved in the

InterLymph Consortium as well as the NCI Cohort Consortium, where he currently serves on the Secretariat.

His two-day visit, hosted by **Patricia Hartge, Sc.D.**, Deputy Director of the Epidemiology and Biostatistics Program, began with a seminar titled "Is there a role for vitamin D in non-Hodgkin lymphoma etiology or prognosis?" In his presentation, Dr. Cerhan gave an overview of clinical and epidemiologic data on vitamin D and the risk of NHL. Epidemiologic studies have suggested a reduced risk with increased exposure to sunlight, a major source of vitamin D. According to Dr. Cerhan, however, results have been mixed in studies looking at either dietary supplementation of vitamin D or circulating vitamin D levels and risk of NHL. Recently, the NCI Cohort Consortium's Vitamin D Pooling Project revealed a null association between NHL and circulating vitamin D levels.

Dr. Cerhan also discussed early results on factors affecting prognoses for

DCEG INVESTIGATORS PRESENT RESEARCH TO THE NCAB

At its December meeting, the National Cancer Advisory Board (NCAB) performed its annual review of NCI's Intramural Research Program. **Joseph F. Fraumeni, Jr., M.D.**, Division Director, described the broad scope of DCEG's research activities, and then the following four principal investigators presented the latest findings from their specific research areas:

Amy Berrington de González, D.Phil., Radiation Epidemiology Branch: "Cancer risks from medical radiation exposure."

Stephen J. Chanock, M.D., Chief of the Laboratory of Translational Genomics and Director of the Core Genotyping Facility: "Genome-wide association studies and the road ahead."

Eric A. Engels, M.D., M.P.H., Infections and Immunoepidemiology Branch: "The burden of cancer in immunosuppressed people in the U.S."

Sharon A. Savage, M.D., Clinical Genetics Branch: "Understanding telomere biology through studies of dyskeratosis congenita."

At the end of the meeting, several NCAB members remarked on the high level of scientific accomplishment that was evident in the presentations.

NHL and CLL based on his work as co-principal investigator on the Lymphoma Specialized Program of Research Excellence (SPORE) Developmental Research Project. The SPORE project found that vitamin D deficiency in patients was associated with inferior event-free survival, lymphoma-specific survival, and overall survival for certain NHL subtypes.

Following the seminar, **Shelia Hoar Zahm, Sc.D.**, Deputy Director of DCEG, presented Dr. Cerhan with the DCEG Visiting Scholar Award for his leadership and vision in the fields of epidemiology and public health.

During his visit, Dr. Cerhan participated in several meetings with special interest groups at DCEG. In one of these meetings, he joined **Lindsay M. Morton, Ph.D.**, Radiation Epidemiology Branch (REB), and members of the Second Malignancy and Cancer Survival Group for a discussion on the interface of observational epidemiology and randomized trials in the assessment of cancer prognosis and other outcomes. The investigators discussed sources of data, how to upgrade study methodology to address changing questions, and ways of meeting the challenges of outcome-oriented versus exposure-oriented research.

Also during his visit, Dr. Cerhan met with **Martha S. Linet, M.D., M.P.H.**, Chief of REB; **Eric A. Engels, M.D., M.P.H.**, Infections and Immunoepidemiology Branch; and **Mark Purdue, Ph.D.**, Occupational and Environmental Epidemiology Branch, who led a meeting of the Lymphoid Malignancy Interest Group. The discussion focused on studies of lymphoid malignancies in Asia, relationships of these diseases to HIV/AIDS and other immunosuppressed populations, molecular classification, and improvements in

methodology. In addition, Dr. Cerhan also joined **Stephanie J. Weinstein, Ph.D.**, Nutritional Epidemiology Branch, and members of the Vitamin D Interest Group, who hosted a roundtable discussion on vitamin D and cancer. Discussions centered on the Vitamin D Pooling Project; a recent reanalysis of data from NHANES (the National Health and Nutrition Examination Survey) on serum vitamin D; and issues of study design, including the importance of using absolute values of circulating vitamin D rather than categories for making comparisons.

Dr. Cerhan also participated in an informal brown bag luncheon with DCEG tenure-track investigators and fellows, hosted by Dr. Hartge, who noted that “Dr. Cerhan has been extremely

successful in guiding and mentoring young scientists to meet the challenges of research while maintaining work-life balance.” Many questions were posed during the luncheon about navigating the way to scientific independence and determining a research focus; in addition, Dr. Cerhan gave some job interviewing tips.

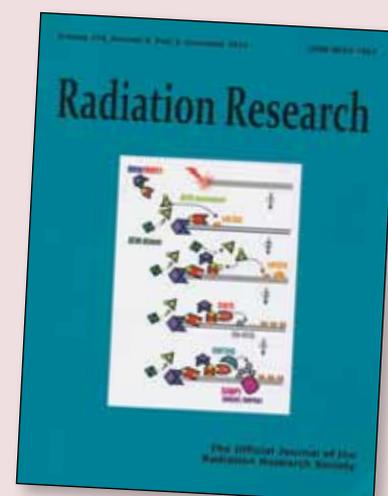
At the end of the two-day visit, Dr. Zahm observed that “without Dr. Cerhan’s leadership and collaborative spirit, the consortial studies involving DCEG would not have advanced to the level that they are at today.” Dr. Cerhan thanked DCEG investigators for a stimulating exchange of ideas and hospitality and expressed a desire for continued partnerships. ■

—Victoria A. McCallum, M.P.H.

RESEARCH PUBLISHED FROM RADIATION CONFERENCE

The December 2010 (2) issue of *Radiation Research*, the official journal of the Radiation Research Society, featured a series of papers that were presented at a conference titled Late Health Effects of Ionizing Radiation: Bridging the Experimental and Epidemiologic Divide. The conference was organized in 2009 by **Elaine Ron, Ph.D.**, of the Radiation Epidemiology Branch (REB), and Dr. Peter Jacob of the Helmholtz Zentrum München, Institute of Radiation Protection, along with other members of the scientific organizing committee, including **Martha S. Linet, M.D., M.P.H.**, Chief of REB.

The conference’s goals were twofold: (1) to identify important gaps and controversies in radiation-related health effects research and (2) to stimulate more integrated research through interdisciplinary approaches. The conference brought together epidemiologists involved in evaluating disease risks from radiation exposure of various kinds (occupational, environmental/accidental, and medical) and laboratory investigators interested in defining the radiation mechanisms involved. REB members who contributed articles to the conference included **Amy Berrington de González, D.Phil.**; **Alina V. Brenner, M.D., Ph.D.**; **Ethel S. Gilbert, Ph.D.**; **Kwang Pyo Kim, Ph.D.**; **Ruth A. Kleinerman, M.P.H.**; Dr. Linet; **Evgenia Ostroumova, M.D., Ph.D.**; **Dale L. Preston, Ph.D.**; Dr. Ron; and **Steven L. Simon, Ph.D.**



Radiation Research featured articles from the radiation conference.

DCEG HOSTS WORKSHOP ON LI-FRAUMENI SYNDROME

In November, the Clinical Genetics Branch (CGB) of DCEG hosted almost 200 researchers, clinicians, genetic counselors, and members of affected families for a workshop on Li-Fraumeni syndrome (LFS). **Joseph F. Fraumeni, Jr., M.D.**, Director of DCEG, and his colleague Dr. Frederick Li, who recently retired from the Dana-Farber Cancer Institute in Boston, Massachusetts, first described LFS in a 1969 publication identifying four extended families in which many of the family members—adults and children—developed diverse primary cancers.

The goals of the conference were to bring together leaders in research on LFS to share recent clinical and genetic findings, to form a clinical research



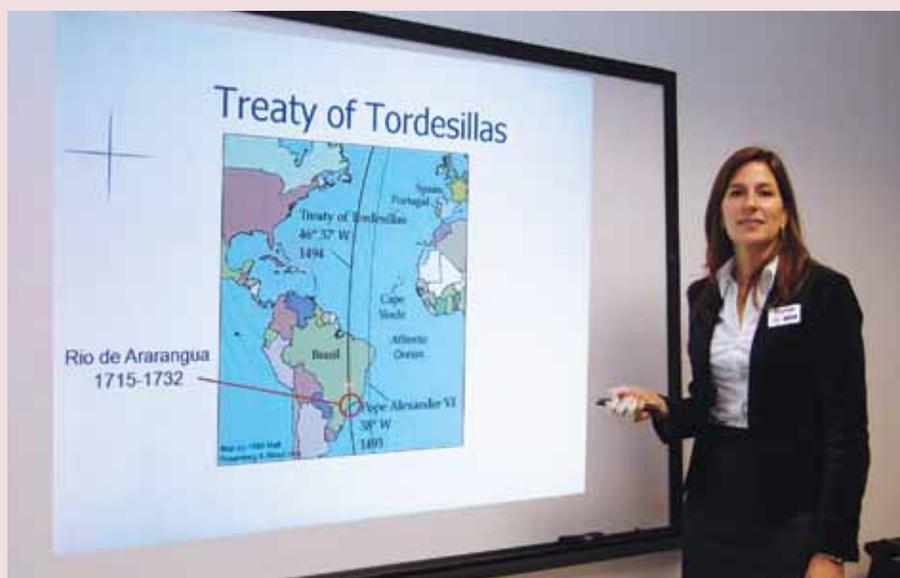
Workshop participants included researchers, clinicians, patient families, and advocates, who shared experiences and information and discussed how they could work together against Li-Fraumeni syndrome in the future.

consortium to pursue promising leads in prevention and early detection, and to empower affected families

to help set the research agenda as well as foster the formation of a family support group.

LI-FRAUMENI SYNDROME IN BRAZIL

At the recent Li-Fraumeni Syndrome Workshop, Dr. Maria Isabel Waddington Achatz of São Paulo, Brazil, described her fascinating studies of high-risk families in southeastern Brazil. She estimated that in this region, 1 in every 300 people is the carrier of a distinctive founder mutation in *TP53*—most likely brought to Brazil by a Portuguese settler after the Treaty of Tordesillas in 1494.



Maria Isabel Waddington Achatz

LFS is a rare, inherited condition that predisposes people to a variety of cancers, often with unusually early onset and frequently with multiple cancers in the same person. Typical cancers seen in families with classical LFS are bone and soft tissue sarcomas, breast cancers, brain tumors, leukemia, and adrenocortical cancer. Other families with similar, but not exactly the same, patterns of cancer comprise the category of Li-Fraumeni-like (LFL). Although a significant proportion of families with LFS and some with LFL have mutations in the *TP53* gene, which codes for the p53 protein, a tumor suppressor crucial in many cellular processes, the responsible genetic mutations in some families have not yet been identified.

The workshop attendees included approximately 80 individuals from LFS families who gathered to discuss their personal experiences with LFS and to brainstorm about the messages that they

wanted to share with researchers and other families. On the following day, the families, clinicians, and scientists met in a plenary session to hear presentations from Dr. Louise Strong of the University of Texas M.D. Anderson Cancer Center in Houston, Texas, who is a pioneering LFS researcher; Dr. David Malkin of the Hospital for Sick Children in Toronto, Canada, who discovered that inherited *TP53* mutations were associated with LFS; and other investigators from the United States, Canada, South America, and Europe.

The LFS family members expressed gratitude to the clinical scientists for caring for their families and strongly encouraged all researchers to move forward rapidly with their investigations. “We have to look at this workshop as a gathering of one big family working

against this devastating disease to find a cure,” said Oliver Wyss, a patient and advocate whose immediate family members have all been affected. Participants also explored the topic of genetic counseling as well as the psychosocial and bioethical aspects of having LFS in the family.

“We have to look at this workshop as a gathering of one big family working against this devastating disease to find a cure.”

Conference organizers **Sharon A. Savage, M.D.**, and **Phuong Mai, M.D., M.S.**, both of CGB, were enthusiastic about the workshop and the potential for future progress,

as was Dr. Fraumeni. “This is an exciting time for research on LFS,” he commented. “The new consortium of investigators that pools expertise and resources, combined with the development of an advocacy organization to support families, holds great promise for this important field of study.”

An archived video of the full meeting is available online at <http://go.usa.gov/16c> (case sensitive).

CGB is currently accepting referrals for a dedicated LFS clinical research protocol. Additional information about the NCI LFS program and the clinical research workshop can be found at <http://lfs.cancer.gov>. ■

—June Peters, M.S., C.G.C.

CHANGING LEADERSHIP AT THE INSTITUTIONAL REVIEW BOARD

In December, Nancy Potischman, Ph.D., a nutritional epidemiologist in the Applied Research Program of the Division of Cancer Control and Population Sciences, finished a two-year term as chair of the NCI Special Studies Institutional Review Board (SSIRB). She was succeeded as chair by **Catherine Schairer, Ph.D.**, Biostatistics Branch.

In an additional change to SSIRB, **Lynn Sayers**, the SSIRB protocol coordinator since 1996, officially retired in December. **Susan Privot**, Office of the Director, the SSIRB executive secretary, described Ms. Sayers as having a wealth of expertise and being a joy to work with. “All of the investigators loved her,” she said. “She will certainly be missed.”

“We want to thank both Lynn Sayers and Nancy Potischman for their outstanding service to the SSIRB,” said **Joseph F. Fraumeni, Jr., M.D.**, Director of DCEG. Dr. Schairer, the incoming chair, promised that “the SSIRB will continue in Dr. Potischman’s tradition of keeping things as transparent and as easy as possible for the scientists, while still protecting human subjects.”

As a part of that process, Dr. Schairer plans to promote education about the IRB and to post checklists and IRB requirements on the DCEG intranet to provide easy access. Scientists will be apprised of any changes to IRB regulations, particularly in regard to genomic research and associated privacy issues. Finally, Dr. Schairer hopes to get feedback from investigators who have any concerns or questions about the IRB process.

Dr. Schairer brings to the SSIRB considerable research experience, primarily in breast cancer etiology. She has conducted landmark research on menopausal hormone replacement therapy and cancer risk, particularly with the estrogen/progestin regimen. She is currently directing a collaborative study of inflammatory breast cancer within high-risk populations in North Africa.



Nancy Potischman and Catherine Schairer.

—Victoria A. McCallum, M.P.H.

DCEG FELLOWS AWARDS FOR RESEARCH EXCELLENCE

The DCEG Fellows Awards for Research Excellence (D-FARE) provide funding for travel to conferences to fellows who have made exceptional contributions to research projects. These fellows' contributions might include formulating research ideas, developing study designs, conducting fieldwork and analysis, or interpreting results. Each of the recognized fellows also must have had a major role in drafting a manuscript. Special consideration is given to projects in which fellows demonstrate growth beyond the discipline of their previous training.

The D-FARE program was established because scientific meetings are integral to the fellowship experience. The awards enable a greater number of fellows to participate in meetings, where they present their work, hear about new scientific developments, and establish vital connections with other scientists.

This year, six D-FARE winners were chosen from a record number of 23 applicants, who were judged by members of an ad hoc DCEG

committee. The \$1,500 travel awards for this fiscal year (FY) were announced in October 2010, and funds must be used by the end of FY2011.

The 2010 D-FARE recipients are:

Cari Meinhold Kitahara, M.H.S., Radiation Epidemiology Branch (REB): "Obesity and thyroid cancer risk among U.S. men and women: A pooled analysis of five prospective studies."

Stephanie Lamart, Ph.D. (REB): "Improvements in estimating radiation doses among patients treated with I-131 for hyperthyroidism."

Jacqueline Major, Ph.D., Nutritional Epidemiology Branch (NEB): "Impact of neighborhood socioeconomic deprivation on the association between meat intake and mortality indices."

Alison Mondul, Ph.D. (NEB): "Genetic determinants of serum retinol levels: A genome-wide association study."

Gila Neta, Ph.D., M.P.P. (REB): "Common genetic variants related to genomic integrity and risk of papillary thyroid cancer."

David Wheeler, Ph.D., M.P.H., Occupational and Environmental Epidemiology Branch: "Spatial-temporal cluster analysis of non-Hodgkin lymphoma in the NCI-SEER study of this tumor." ■

CHANGE IN LEADERSHIP FOR DCEG'S COMMITTEE OF SCIENTISTS

In December, **Katherine A. McGlynn, Ph.D., M.P.H.,** Hormonal and Reproductive Epidemiology Branch, stepped down as chair of the DCEG Committee of Scientists (COS) after three-and-a-half years. She has been succeeded by **Christian C. Abnet, Ph.D., M.P.H.,** Nutritional Epidemiology Branch.

During Dr. McGlynn's time as chair, the COS focused its attention on improving the technology transfer process, an important component of DCEG's highly collaborative research program. The DCEG Technology Transfer Committee was created with representatives from each branch and works closely with **Marianne K. Henderson, M.S.,** Chief of the Office of Division Operations and Analysis, to streamline the process of developing material and data transfer agreements. Recently, the COS has also worked on issues involving the new NCI building at Shady Grove in Gaithersburg, Maryland. The committee's efforts have helped ensure that all Division staff are represented and informed about new building developments.

The COS advises the Division Director about issues that affect the ability of DCEG scientists to conduct research, to further their career development, and to enhance their overall scientific environment. Since the Division was created in 1995, the COS has made numerous major contributions to the quality of work life for all scientific staff in the Division.



Christian Abnet and Katherine McGlynn.

SCIENCE WRITERS' SEMINAR ON HPV AND CERVICAL CANCER

In October, NCI's Office of Media Relations hosted a Science Writers' Seminar on human papillomavirus (HPV) and cervical cancer. NCI's leading experts on HPV-related cancers addressed journalists from across the nation about the natural history of HPV and new HPV-based technologies for prevention and screening of cervical cancer.

Douglas Lowy, M.D., NCI Deputy Director, provided an overview of the history of cervical cancer screening. He discussed the impact of identifying the role of HPV in cervical cancer etiology: "HPV has been linked as the major causative agent for virtually all cases of cervical cancer. We understand how this cancer comes about, perhaps more than any other tumor," he said.

Continuing the discussion, **Mark Schiffman, M.D., M.P.H.**, a senior investigator in the Clinical Genetics Branch, presented the natural history of HPV. He clarified the relation of HPV infection to carcinogenesis and the mechanism involved. "Getting infected with HPV is extremely common, so common that it doesn't mean much. Persistence of that virus, not clearing it over the course of a couple of months—that is uncommon and is associated with subsequent cancer risk," he said.

Dr. Schiffman stressed the importance of monitoring the progression of HPV from initial infection to clearance or persistence and the development of precancerous lesions. "Infection has to persist in order to develop precancerous lesions, which then progress to invasive cancer," he explained. He also emphasized the importance of adapting cervical cancer prevention efforts in concordance with the age patterns and natural history of HPV.



Presenters at the Science Writers' Seminar on HPV: (from left) Douglas Lowy, Allan Hildesheim, Diane Solomon, John Schiller, and Mark Schiffman.

Diane Solomon, M.D., Acting Chief of the Breast and Gynecologic Cancer Research Group, NCI Division of Cancer Prevention, described screening methods for cervical cancer. She outlined the techniques for evaluating cervical cytology with Papanicolaou (Pap) testing and discussed their drawbacks in triaging cytologic abnormalities. She described the strengths and limitations of HPV-based testing, including its reliability and capacity for risk discrimination of HPV infections, and closed her remarks with strategies for cervical cancer screening in the future.

Shifting the theme to prevention, **Allan Hildesheim, Ph.D.**, Chief of the Infections and Immunoepidemiology Branch, addressed the role of HPV vaccines. He reviewed the development and licensure of the vaccines and current guidelines for their use. He then discussed post-vaccination immunity, including efficacy of the vaccine, duration of protection, and cross-protection against other HPV genotypes.

"These vaccines are very effective. The data show very high levels of antibodies following vaccination, much higher than we see after a natural infection,"

he said. Dr. Hildesheim also touched on use of the vaccines in populations not currently targeted for vaccination, such as males and older women, and issues related to efficacy and cost-effectiveness for vaccinating these people.

In further discussion, John Schiller, Ph.D., Head of the Neoplastic Disease Section, NCI Center for Cancer Research, presented data on topical microbicides that prevent infection with HPV and their potential for preventing HPV transmission. He discussed his research on chemical compounds that may act as potential HPV inhibitors, including carrageenan, an algae-based compound used in several household products.

The seminar ended with an opportunity for journalists to ask questions. Many of them commented that the seminar provided valuable background information that would assist in their reporting about HPV-related cervical cancer.

Archived recordings of the presentations are available at <http://go.usa.gov/1wl> (case sensitive). ■

—Jennifer Loukissas, M.P.P.,
and Saloni Nayar, M.P.H.

DCEG TRAINING AND FELLOWSHIP OPPORTUNITIES

DCEG's workforce is a dynamic mix of predoctoral and postdoctoral fellows, early-career scientists, experienced researchers/mentors, and support staff. The Office of Education (OE), created in 1999 by **Joseph F. Fraumeni, Jr., M.D.**, Division Director, and led by **Jackie Lavigne, Ph.D., M.P.H.**, Chief of OE, oversees training and career development for various levels of scientific staff, coordinates the recruitment of fellows, develops and oversees training partnerships with schools of public health and departments of epidemiology, and evaluates training policies and practices.

Fellows comprise about one-third of the Division's workforce, and they make valuable contributions to DCEG's research program. Since its inception, the DCEG fellowship program has grown to more than 100 participants. Today, the Division takes pride in offering training and research opportunities at both the postdoctoral and predoctoral levels; those at the predoctoral level include doctoral candidates, fellows who have obtained a master's or baccalaureate degree, and summer students.

Recruitment

The recruiting of highly qualified candidates takes place on university campuses, at scientific meetings, online, or wherever else OE staff can begin a conversation with potential fellows.

For example, OE staff members actively participate in the annual NIH Graduate Student Research Festival, which brings approximately 200 doctoral students to NIH. Students compete for the opportunity to attend, and over the course of two days, they present posters, hear about NIH, and interview with NIH



Kristin Kiser and Jackie Lavigne.

scientists. During this time, DCEG holds a special event for students interested in epidemiology and genetics. For the 2011 festival, Dr. Lavigne has accepted the honor of serving as the chair of the planning committee.

Graduate Partnerships and Doctoral Opportunities

As a way to interest graduate students in cancer epidemiology and genetics, OE has established partnerships with the Yale University School of Public Health, the Johns Hopkins University (JHU) Bloomberg School of Public Health, and the George Washington University (GWU) School of Public Health and Health Services. The Yale partnership was established under a TU2 institutional training grant, which provides full tuition and stipend benefits during the student's didactic phase of doctoral work at Yale. These students then come to DCEG and are supported by an NCI stipend to conduct research for their dissertation with mentors who usually come from the Nutritional Epidemiology Branch or the Occupational and Environmental Epidemiology Branch.

The two JHU partnerships are with the departments of epidemiology and biostatistics. These partnerships differ slightly from the one with Yale, offering talented students some DCEG tuition support during the didactic period and then matching them with an investigator in any DCEG branch for work on their dissertation while providing NCI stipend support. Finally, the GWU partnership is analogous to the programs at JHU, targeting highly talented students interested in cancer epidemiology.

At the NIH level, DCEG has been an enthusiastic participant in the NIH/Oxford/Cambridge Scholars Program, which offers graduate students the opportunity to collaborate on research with mentors at NIH and either Oxford or Cambridge University in the United Kingdom, earning a doctoral degree along the way. DCEG has recently had four highly successful graduate students come through this program.

Many of the talented young scientists in the predoctoral programs remain in DCEG as postdoctoral fellows.

Hallmarks of a DCEG Fellowship

A fellowship in DCEG offers many special benefits, with fellows at all levels having opportunities to design, carry out, analyze, and publish research on the genetic and environmental causes of cancer. All postdoctoral fellows begin with a primary mentor; as they become established in their research, they are encouraged to explore opportunities with other investigators within the Division and NCI, and they gain experience with a variety of research topics and methods. At interviews, the candidates are often struck by the collegial atmosphere of the Division, the opportunity to work with different mentors, and the dedicated support provided by OE to the fellowship community.

Recognizing the importance of developing a network of trusted collaborators and creating an interactive fellowship community, OE has initiated a variety of activities for fellows, which are described below.

Fellows Monthly Colloquia: OE supports the DCEG fellows in organizing monthly colloquia on a broad range of topics, including tips on writing and publishing papers, conducting cost-efficient research, mining published literature, and maintaining a work-life balance.

Career Development Seminars: In conjunction with other divisions of NCI, DCEG fellows participate in the planning and organizing of monthly seminars focused on career development topics.

Fellows Annual Symposium: Fellows often gain hands-on experience in organizing scientific workshops by serving on the planning committee for the Annual DCEG Fellows Symposium. The symposium is a full-day, off-site

FELLOWS' APPRECIATION WEEK

In commemoration of National Postdoctoral Appreciation Week, OE collaborated with the NCI Cancer Prevention Fellowship Program to sponsor a Fellows' Appreciation Breakfast, which included fellows at all levels of training. The event, which provided an opportunity to recognize fellows for their contributions to NCI, included invited guests **Joseph F. Fraumeni, Jr., M.D.**, DCEG Director; **Shelia Hoar Zahm, Sc.D.**, DCEG Deputy Director; and David E. Nelson, M.D., M.P.H., Director of NCI's Cancer Prevention Fellowship Program. In their remarks, all three had inspiring words for the fellows who attended this special event.



DCEG fellows gathered for the Fellows' Appreciation Breakfast.

event that includes keynote speakers, a poster session, and scientific presentations by fellows.

Fellows Committees: Each year, two fellows represent DCEG on the NIH-wide Fellows Committee. This year, OE has organized a DCEG Fellows Committee to represent and serve the specific interests of fellows within the Division. Fellows also serve on the DCEG Committee of Scientists, which reports to the Division Director on their efforts to enhance the scientific environment for professional staff at all levels.

Many other opportunities exist for fellows to serve on committees across the Division, NCI, and NIH as a whole,

providing experiences for developing leadership skills.

OE's Support of DCEG

DCEG's mission includes training the next generation of scientists in cancer epidemiology and genetics, and Dr. Lavigne, fellowship coordinator **Kristin Kiser, M.H.A., M.S.**, and program assistant **Tess Lee** all strive to achieve this goal by offering personalized support, conscientious mentoring, and opportunities for personal and professional growth.

More information on DCEG fellowships and how to apply can be found at <http://dceg.cancer.gov/fellowships>. ■

—Jackie Lavigne, Ph.D., M.P.H.,
and Kristin Kiser, M.H.A., M.S.

DCEG STAFF RECEIVE NIH MERIT AWARDS

At NCI's annual awards ceremony in November, NCI Director Harold Varmus, M.D., presented NIH Merit Awards to several DCEG staff members in recognition of their accomplishments.

Individual Merit Awards

Laura Beane Freeman, Ph.D., Occupational and Environmental Epidemiology Branch, was recognized for her important scientific contributions to furthering our understanding of the effects of formaldehyde exposure on cancer risk.

Amy Berrington de González, D.Phil., Radiation Epidemiology Branch (REB), was recognized for her groundbreaking work in estimating the radiation-related cancer risks associated with the use of computed tomography scans.

Amanda J. Cross, Ph.D., Nutritional Epidemiology Branch (NEB), was recognized for her leadership of an innovative multidisciplinary research program designed to clarify the etiologic role of red and processed meat consumption in cancer.



NIH Merit Award Winners: (front) Katherine McGlynn, Gladys Glenn, Amanda Cross, Alyssa Voss, Laura Beane Freeman, and Saloni Nayar; (back) Wendy Schneider-Levinson, Catherine McClave, Yikyung Park, and Mark Greene. (Not shown: Amy Berrington de González, Denise Brandenburg, Barry Graubard, Allan Hildesheim, Jennifer Loukissas, Samantha Nhan, Arthur Schatzkin, Rebecca Smith-Bindman, Jorge Toro, Cherie Vitartas, and May Yu.)

Mentoring Awards

Allan Hildesheim, Ph.D., Chief of the Infections and Immunoepidemiology Branch, and **Katherine A. McGlynn, Ph.D., M.P.H.**, Hormonal and Reproductive Epidemiology Branch, received NCI Outstanding Mentor Awards for their exemplary mentoring and guidance of trainees in cancer research. Dr. Cross and **Barry I. Graubard, Ph.D.**,

Biostatistics Branch, received NCI Mentor of Merit Awards for excellence in mentoring and guiding the careers of trainees in cancer research.

NIH Merit Group Awards

The AARP Study Group, including NEB Chief **Arthur Schatzkin, M.D., Dr.P.H.**, and **Yikyung Park, Sc.D.** (NEB), was recognized for its scientific leadership of the NIH-AARP Diet and Health Study Team.

The CancerSPACE Group, including **Wendy Schneider-Levinson**, Office of Communications and Special Initiatives (OCSI), was recognized for its outstanding team contribution in advancing cancer education through the application of innovative simulation technologies to support health professionals seeking to reduce cancer disparities.

DCEG OCSI—including OCSI Chief **Catherine B. McClave, M.S.**; branch members **Jennifer Loukissas, M.P.P.**, **Saloni Nayar, M.P.H.**, **Alyssa Voss**,

DCEG LENGTH OF SERVICE CERTIFICATES

Several Length of Service certificates were awarded to DCEG staff.

Recognized for 30 years of service were:

Michele M. Doody, M.S., Radiation Epidemiology Branch (REB)

Ruth A. Kleinerman, M.P.H. (REB)

Patricia M. Madigan, Hormonal and Reproductive Epidemiology Branch

Shelia Hoar Zahm, Sc.D., Deputy Director of DCEG

Recognized for 20 years of service were:

Alisa M. Goldstein, Ph.D., Genetic Epidemiology Branch

Allan Hildesheim, Ph.D., Chief of the Infections and Immunoepidemiology Branch

M.P.H., and **May L. Yu**; and Samantha Nhan and Cherie M. Vitartas, M.P.H. (both formerly of OCSI)—was recognized for its exceptional scientific reporting and communications activities in support of the DCEG mission.

The NCI Office of Budget and Finance Group, including **Denise Brandenburg** of the Administrative Resource Center, was recognized for outstanding performance and leadership in managing the fiscal year 2009 appropriations.

The PDQ (Physician Data Query) Cancer Genetics Editorial Board, including **Mark H. Greene, M.D.**, Chief of the Clinical Genetics Branch, **Gladys M. Glenn, M.D., Ph.D.**, Genetic Epidemiology Branch (GEB), and Jorge Toro, M.D. (formerly of GEB), was recognized for its excellent work. The PDQ Screening and Prevention Editorial Board, including Rebecca Smith-Bindman, M.D. (formerly of REB), was similarly recognized. ■

DEMETRIUS ALBANES TO CHAIR NIH ETHICS COMMITTEE

In October, **Demetrius Albanes, M.D.**, Nutritional Epidemiology Branch, was chosen to become chair of the NIH Committee on Scientific Conduct and Ethics. His predecessor was Joan Schwartz, Ph.D., formerly the Assistant Director of Intramural Research at NIH, who chaired the committee for over a decade. Dr. Albanes was appointed by Michael Gottesman, M.D., NIH Deputy Director for Intramural Research.

In 1995, the committee was established to help set policies for the NIH Intramural Research Program on scientific ethics issues, to create mechanisms for teaching the principles of scientific conduct, and to establish ways to resolve conflict. In recent years, the committee has been responsible for versions of the *Guidelines for the Conduct of Research in the Intramural Research Program at NIH*, which provides a framework for the ethical conduct of research without inhibiting scientific freedom and creativity. The committee has created a computer-based course in research ethics that new scientific staff must complete to ensure a basic understanding of the policies and regulations governing the responsible conduct of research. Each year, the committee selects a topic for in-person discussions of cases in research ethics in which all research staff participate. The committee also contributes to the ethics column in *The NIH Catalyst*.

As the new chair, Dr. Albanes hopes to work with the committee to assist in maintaining the highest level of scientific ethical conduct across the NIH intramural research program.

Information about the committee can be found at <http://sourcebook.od.nih.gov/comm-adv/sci-conduct.htm>.

DCEG STAFF MEMBERS GRADUATE FROM NCI'S SEED PROGRAM

Neil E. Caporaso, M.D., senior investigator in the Genetic Epidemiology Branch, **Eric A. Engels, M.D., M.P.H.**, senior investigator in the Infections and Immunoepidemiology Branch, and **Jackie Lavigne, Ph.D., M.P.H.**, Chief of the DCEG Office of Education, graduated from NCI's Senior Executive Enrichment and Development (SEED) program in December. This is the fourth time the program has been offered.

Sponsored by the Office of the NCI Director, the SEED program is a yearlong leadership development program for supervisors at the GS-14 level or above. The program offers learning and coaching opportunities designed to help participants hone their leadership competencies, develop interpersonal skills in the workplace, and learn how to network and enhance their

collaborations with other NCI leaders across divisions and program areas.

All three DCEG participants discovered things about themselves and how they approach management; they also learned the value of connecting within a community. "Participating in the SEED program was a fabulous experience," Dr. Lavigne said. "Not only did it provide me with a new and improved set of leadership tools, but it also helped me connect in unexpected ways to an outstanding group of NCI colleagues." Dr. Engels commented, "The program taught me that there are many things that make a great leader, but a key part is to help others grow and achieve their own goals." Dr. Caporaso reflected, "Before I entered SEED, I thought management simply involved timelines, goals, procedures, and the like." He observed, however, that



Jackie Lavigne, Eric Engels, and Neil Caporaso.

"SEED focused squarely on people—initially on each of us, then on how we relate to others, and finally on the dynamics of connection, since nothing happens without engaging others to achieve our common goals."

SCIENTIFIC HIGHLIGHTS

AIDS-RELATED CANCER

AIDS and Age at Cancer Diagnosis

Purpose: To compare ages at diagnosis for non-AIDS-defining types of cancer that occur in both the AIDS and general populations, correcting for possible bias due to the differences in age distribution that underlie these populations. **Methods:** Investigators performed a registry-linkage study using 15 HIV/AIDS and cancer registry databases in the United States. They compared age-at-diagnosis distributions of both populations, adjusting for age and other demographic characteristics. **Results and conclusions:** Although the ages at diagnosis were approximately 20 years younger among persons with AIDS, after adjustment for age differences in the populations, the age at diagnosis for most types of cancer was similar among the AIDS and general populations. Modest age differences remained for a few types of cancer, which may indicate either acceleration of carcinogenesis by HIV or earlier exposure to cancer risk factors. (Shiels MS, Pfeiffer RM, Engels EA. Age at cancer diagnosis among persons with AIDS in the United States. *Ann Intern Med* 2010;153:452–460)

Cancer Risk After AIDS Onset

Purpose: To assess long-term cancer risk among persons with AIDS relative to the general population and the impact of highly active antiretroviral therapy (HAART) on cancer incidence. **Methods:** Records of 263,254 adults and adolescents with AIDS (1980–2004) from 15 U.S. regions were matched to cancer registries to capture incident cancers during years 3 through 5 and 6 through 10 after AIDS onset. Standardized incidence ratios were used to assess risks relative to the general population. Rate ratios were used to compare cancer incidence before and after 1996 to assess the impact of the availability of HAART. **Results and conclusions:** Among the

AIDS population, risk was elevated during the years pre-HAART for two major AIDS-defining cancers—Kaposi sarcoma and non-Hodgkin lymphoma. Incidence of these two cancers declined during the HAART era (1996–2006) while still remaining higher relative to the general population. Risk among the AIDS population was elevated for non-AIDS-defining cancers overall during the HAART era, and increased incidence was observed for anal cancer and Hodgkin lymphoma. Individuals with AIDS remain at substantially increased risk of cancer for up to 10 years after AIDS onset. (Simard EP, Pfeiffer RM, Engels EA. Spectrum of cancer risk late after AIDS onset in the United States. *Arch Intern Med* 2010;170:1337–1345)

ALL CANCERS

Agricultural Health Study Update

Purpose: To add four additional years of data on cancer incidence among participants in the Agricultural Health Study, a study of licensed pesticide applicators and their spouses, which was extended through 2006, and to evaluate all follow-up. **Methods:** Investigators calculated standardized incidence ratios and relative standardized ratios. **Results and conclusions:** An excess of prostate cancer was found for private and commercial applicators. Excesses were observed for lip cancer and multiple myeloma among private applicators from North Carolina and for marginal zone lymphoma among Iowa spouses. Although lower rates of smoking and increased physical activity may contribute to a lower overall cancer incidence, certain agricultural exposures, including pesticides, viruses, bacteria, sunlight, and chemicals, may increase risks for specific cancer sites. (Koutros S, Alavanja MC, Lubin JH, et al. An update of cancer incidence in the Agricultural Health Study. *J Occup Environ Med* 2010;52:1098–1105)

Serum Vitamin D Levels

Purpose: To examine the relationship between prospective measures of serum 25-hydroxyvitamin D (25[OH]D) and total cancer mortality among men and women combined and separately as well as by racial/ethnic groups and site-specific cancers. **Methods:** The authors followed 16,819 participants in the Third National Health and Nutritional Examination Survey (NHANES III) from 1988 to 2006 and used Cox proportional hazards regression models to study associations by collection season and latitude (i.e., summer/higher latitude and winter/lower latitude). **Results and conclusions:** Overall, cancer mortality risks were unrelated to baseline 25(OH)D status among both season/latitude groups, and among non-Hispanic whites, non-Hispanic blacks, and Mexican Americans. In men, risks were elevated at higher levels (e.g., for ≥ 100 nmol/L, relative risk = 1.85 compared with < 37.5 nmol/L). Although risks were unrelated to 25(OH)D among all women combined, risks decreased with increasing 25(OH)D among the summer/higher latitude group. A possible inverse association with colorectal cancer mortality and a positive association with lung cancer mortality were noted among males. These results do not support the hypothesis that 25(OH)D is associated with reduced cancer mortality. Although cancer mortality among females was inversely associated with 25(OH)D in the summer/higher latitude group, cancer mortality at some sites was increased among men with higher 25(OH)D. These findings argue for caution before increasing 25(OH)D levels to prevent cancer. (Freedman DM, Looker AC, Abnet CC, et al. Serum 25-hydroxyvitamin D and cancer mortality in the NHANES III Study [1988–2006]. *Cancer Res* 2010;70:8587–8597)

ALL-CAUSE MORTALITY

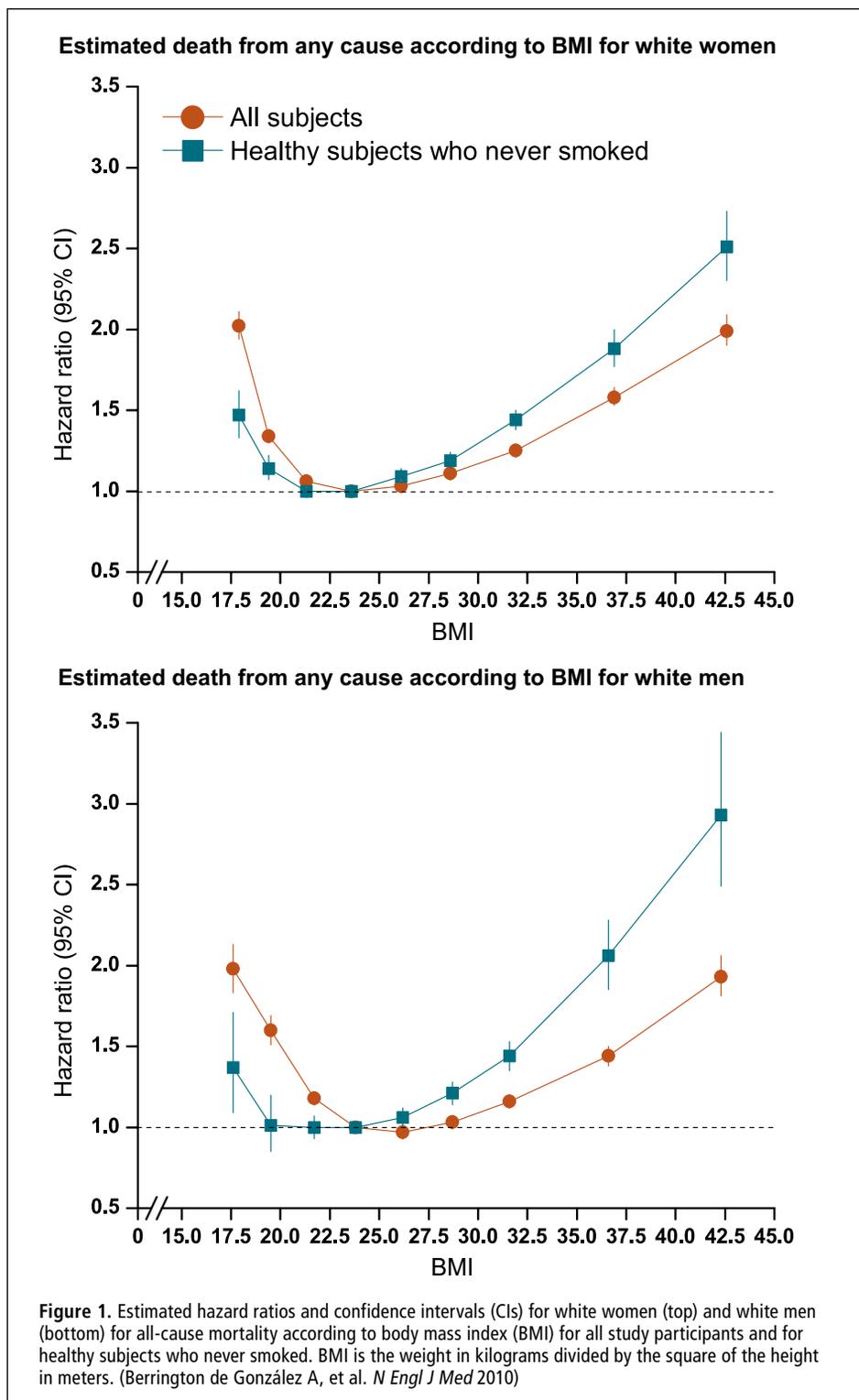
Effects of Body Size

Purpose: To provide stable estimates of the all-cause mortality risks associated with being overweight, obese, and morbidly obese, minimizing any distortion caused by such factors as smoking or prevalent disease, and also to assess the optimal body mass index (BMI) range with respect to mortality. **Methods:** Cox regression was used to estimate hazard ratios (HRs) and 95% confidence intervals for associations between BMI (weight in kilograms per height in meters squared) and all-cause mortality, adjusting for age, study, physical activity, alcohol consumption, education, and marital status in pooled data from 19 prospective studies encompassing 1.46 million white adults, 19 to 84 years of age (median, 58 years). **Results and conclusions:** The median baseline BMI was 26.2. During a median follow-up period of 10 years, 160,087 deaths were identified. Among healthy participants who never smoked, there was a J-shaped relationship between BMI and all-cause mortality. HRs for BMI below 20.0 were attenuated with longer-term follow-up. In white adults, overweight, obesity, and possibly underweight are associated with increased all-cause mortality due to excesses of cardiovascular disease and cancer. All-cause mortality was generally lowest with a BMI of 20.0 to 24.9 (see Figure 1). (Berrington de González A, Hartge P, Cerhan JR, et al. Body-mass index and mortality among 1.46 million white adults. *N Engl J Med* 2010;363:2211–2219)

BLADDER CANCER

Disinfection By-products and Gene Variants

Purpose: To investigate the combined influence of disinfection by-product (DBP) exposure and polymorphisms in glutathione S-transferase (*GSTT1*, *GSTZ1*) and cytochrome P450 (*CYP2E1*) genes in the metabolic pathways of



selected by-products on bladder cancer risk. **Methods:** Using a hospital-based case-control study in Spain, the authors estimated average exposures to trihalomethanes (THMs) from age 15 years onward for each subject based on residential history and municipal

water sources. The authors estimated the effects of THMs and *GSTT1*, *GSTZ1*, and *CYP2E1* polymorphisms on bladder cancer using adjusted logistic regression models. **Results and conclusions:** THM exposure was positively associated with bladder cancer. Associations between

THMs and bladder cancer (see Figure 2) were stronger among subjects who were *GSTT1* +/+ or +/- versus *GSTT1* null, *GSTZ1* rs1046428 CT/TT versus CC, or *CYP2E1* rs2031920 CC versus CT/TT. The consistency of these findings with experimental observations of *GSTT1*, *GSTZ1*, and *CYP2E1* activity strengthens the hypothesis that DBPs cause bladder cancer and suggests possible mechanisms and classes of compounds likely to be implicated. (Cantor K, Villanueva CM, Silverman DT, et al. Polymorphisms in *GSTT1*, *GSTZ1*, and *CYP2E1*, disinfection by-products, and risk of bladder cancer in Spain. *Environ Health Perspect* 2010;118:1545–1550)

Genome-wide Association Study

Purpose and methods: To conduct a multi-stage genome-wide association study of bladder cancer with a primary scan of 591,637 single nucleotide polymorphisms (SNPs) in 3,532 cases and 5,120 controls of European descent from five studies, followed by a replication strategy including 8,382 cases and 48,275 controls from 16 studies.

Results and conclusions: In a combined analysis, the authors identified three new regions associated with bladder cancer on chromosomes 22q13.1, 19q12, and 2q37.1. Findings indicated that rs1014971 maps to a non-genic region of chromosome 22q13.1, rs8102137 on 19q12 maps to *CCNE1*, and rs11892031 maps to the *UGT1A* cluster on 2q37.1. The authors confirmed four previously identified loci on chromosomes 3q28, 4p16.3, 8q24.21, and 8q24.3, validated previous candidate associations for the *GSTM1* deletion and a tag SNP for *NAT2* acetylation status, and found interactions with smoking in both regions. (Rothman N, García-Closas M, Chatterjee N, et al. A multi-stage genome-wide association study of bladder cancer identifies multiple susceptibility loci. *Nat Genet* 2010;42:978–984)

Serum Vitamin D Levels

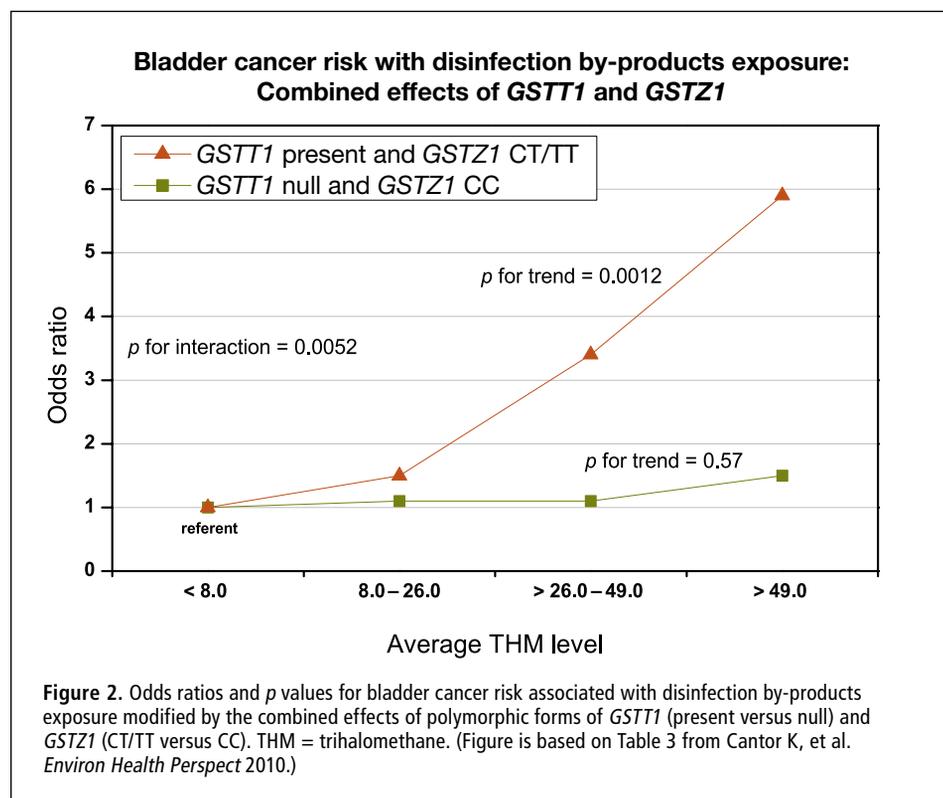
Purpose: To examine the association between prospective measures of circulating concentration of 25-hydroxyvitamin D (25[OH]D)

with the risk of bladder cancer. **Methods:** Within the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study, a randomized controlled trial to determine the effects of the two dietary supplements on cancer incidence among male smokers, 250 bladder cancer cases were randomly sampled by month of blood collection; controls were matched to cases on age at randomization and date of blood collection. Conditional logistic regression was used to estimate odds ratios and 95% confidence intervals of bladder cancer by *a priori* categories of baseline serum 25(OH)D and by season-specific quartiles. **Results and conclusions:** After multivariable adjustment, the authors found that lower 25(OH)D was associated with an increased risk of bladder cancer. Similarly, increased risks for the lowest vitamin D category were observed when season-specific quartiles were used. In this prospective study of male smokers, lower serum 25(OH)D was associated with an increased risk of bladder cancer. (Mondul AM, Weinstein SJ, Männistö S, et al. Serum vitamin D and risk of bladder cancer. *Cancer Res* 2010;70:9218–9223)

BREAST CANCER

Non-recreational Physical Activity

Purpose: To prospectively examine non-recreational physical activity and sedentary behavior in relation to breast cancer risk among 97,039 postmenopausal women in the NIH-AARP Diet and Health Study. **Methods:** Researchers identified 2,866 invasive and 570 *in situ* breast cancer cases recorded between 1996 and 2003 and used Cox proportional hazards regression to estimate multivariate relative risks (RRs) and 95% confidence intervals. **Results and conclusions:** Routine activity during the day at work or at home, which included heavy lifting or carrying versus mostly sitting, was associated with reduced risk of invasive breast cancer



among postmenopausal women (RR = 0.62), suggesting that certain activities taking place outside of recreation time present additional opportunities for increasing physical activity and reducing sedentary behavior among postmenopausal women. (George SM, Irwin ML, Matthews CE, et al. Beyond recreational physical activity: examining occupational and household activity, transportation activity, and sedentary behavior in relation to postmenopausal breast cancer risk. *Am J Public Health* 2010;100:2288–2295)

CERVICAL CANCER

Antibody Levels and Risk of Subsequent HPV Infections

Purpose: To evaluate whether antibodies generated following natural infection with human papillomavirus (HPV) 16 and HPV 18 are associated with reduced risk of subsequent cervical infection by the same or related HPV types. **Methods:** The authors analyzed data from the control group of the ongoing Costa Rica HPV 16/18 Vaccine Trial. Serum samples taken at enrollment were tested for total HPV 16/18 antibodies and multiple cervical specimens taken over four years of follow-up were tested for type-specific HPV DNA. The authors compared rate ratios of newly detected cervical HPV 16 or 18 infection among women whose serum tested positive for HPV antibodies and women whose serum tested negative for HPV antibodies, adjusting for age, education, marital status, lifetime number of sexual partners, and smoking. **Results and conclusions:** After controlling for risk factors associated with newly detected HPV infection, high HPV 16 antibody titer at enrollment was associated with a reduced risk of subsequent HPV 16 infection. Similarly, high HPV 18 antibody titer at enrollment was associated with a reduced risk of subsequent HPV 18 infection. (Safaeian M, Porras C, Schiffman M, et al. Epidemiological study of anti-HPV 16/18

seropositivity and subsequent risk of HPV 16 and 18 infections. *J Natl Cancer Inst* 2010;102:1653–1662)

Chlamydia Trachomatis in Precancer/Cancer

Purpose: To assess the role of *Chlamydia trachomatis* in cervical premalignancy and to determine if and how that association might be affected by human papillomavirus (HPV) infection. **Methods:** Investigators identified women with prevalent and incident histological cervical intraepithelial neoplasia grade 2 (CIN 2), grade 3 (CIN 3), or cervical cancer (CIN 2+), in the Costa Rica Natural History Study, and recruited control subjects from the same study. They examined samples gathered at the time of enrollment for *C. trachomatis* DNA and immunoglobulin G (IgG) status, as well as for HPV DNA. They then investigated the possible association between *C. trachomatis* and CIN 2+, restricting the analysis to women who were positive for carcinogenic HPV DNA at enrollment. **Results and conclusions:** No association was found between *C. trachomatis* status at enrollment and prevalent or incident CIN 2+. Previous reports of an association between *C. trachomatis* and cervical premalignancy may be related to confounding by HPV status or an increased susceptibility to HPV infection among women positive for *C. trachomatis*. (Safaeian M, Quint K, Schiffman M, et al. *Chlamydia trachomatis* and risk of prevalent and incident cervical premalignancy in a population-based cohort. *J Natl Cancer Inst* 2010;102:1794–1804)

DIGESTIVE TRACT CANCERS

Relation to Autoimmune Disease

Purpose: To evaluate risks of alimentary tract cancers associated with a broad range of autoimmune diseases. **Methods:** The authors calculated relative risks (RRs) using Poisson regression in an analysis of 96,277 alimentary

tract cancers among 4.5 million male veterans followed for up to 26.2 years. **Results and conclusions:** An excess risk of cancer was seen in the organs affected by autoimmune disease, such as primary biliary cirrhosis and liver cancer (RR = 6.01); pernicious anemia and stomach cancer (RR = 3.17); and ulcerative colitis and small intestine, colon, and rectal cancers (RR = 2.53, 2.06, and 2.07, respectively). A history of celiac disease, reactive arthritis (Reiter disease), or systemic sclerosis was associated with increased risk of esophageal cancer (RR = 1.86–2.86). A decreased risk of multiple cancers was associated with a history of multiple sclerosis. Findings support the importance of localized inflammatory processes in carcinogenesis. (Landgren AM, Landgren O, Gridley G, et al. Autoimmune disease and subsequent risk of developing alimentary tract cancers among 4.5 million U.S. male veterans. *Cancer* 2010; Nov 2 [E-pub ahead of print])

ESOPHAGEAL CANCER

Oral Bisphosphonate Use

Purpose: To investigate the relationship between bisphosphonate use and esophageal cancer risk as previously reported. **Methods:** Data were extracted from the U.K. General Practice Research Database to compare esophageal and gastric cancer incidence in a cohort of 41,826 patients treated with oral bisphosphonates between 1996 and 2006 with incidence in 41,826 members of a control cohort. Mean follow-up time was 4.5 years in the bisphosphonate cohort and 4.4 in controls. Cox proportional hazards modeling was used to calculate adjusted hazard ratios for cancer risk in bisphosphonate users compared with nonusers, adjusting for potential confounders. **Results and conclusions:** A total of 116 esophageal or gastric cancers (79 esophageal) occurred in the bisphosphonate cohort and 115 (72 esophageal)

occurred in the control cohort. The incidence of esophageal and gastric cancer combined was 0.7 per 1,000 person-years of risk in both cohorts; the incidence of esophageal cancer alone in the bisphosphonate and control cohorts was 0.48 and 0.44 per 1,000 person-years of risk, respectively. No difference was seen in risk of esophageal or gastric cancer by duration of bisphosphonate intake. (Cardwell CR, Abnet CC, Cantwell MM, et al. Exposure to oral bisphosphonates and risk of esophageal cancer. *JAMA* 2010;304:657–663)

LEUKEMIA AND LYMPHOMA

Monoclonal B-cell Lymphocytosis in Families

Purpose: To describe the characteristics of monoclonal B-cell lymphocytosis (MBL) among 505 first-degree relatives of chronic lymphocytic leukemia (CLL) patients in 140 high-risk families. **Methods:** The authors report results of multi-parameter flow cytometry among relatives with no personal history of lymphoproliferative disease from families with at least two cases of CLL. **Results and conclusions:** Seventeen percent of relatives had MBL. Age was the most important determinant, with a 61% probability of developing MBL by age 90 years. MBL clustered in certain families, but in a manner independent of the number of known CLL cases in a family. Males had a higher risk than females for MBL. MBL patients had higher mean absolute lymphocyte and B-cell counts than those with a normal B-cell immunophenotype. These findings show that MBL occurs at a very high rate in high-risk CLL families. Both the age and gender distribution of MBL resemble that of CLL, implying a shared inherited risk. (Goldin LR, Lanasa MC, Slager SL, et al. Common occurrence of monoclonal B-cell lymphocytosis among members of high-risk CLL families. *Br J Haematol* 2010;151:152–158)

Susceptibility to Follicular Lymphoma

Purpose: To identify susceptibility loci for non-Hodgkin lymphoma subtypes. **Methods:** The authors conducted a three-stage genome-wide association study. **Results and conclusions:** They identified two variants associated with follicular lymphoma at 6p21.32 (rs10484561 and rs7755224), supporting the idea that major histocompatibility complex genetic variation influences follicular lymphoma susceptibility. The authors also found confirmatory evidence of a previously reported association between chronic lymphocytic leukemia/small lymphocytic lymphoma and rs735665. (Conde L, Halperin E, Akers NK, et al. Genome-wide association study of follicular lymphoma identifies a risk locus at 6p21.32. *Nat Genet* 2010;42:661–664)

LUNG CANCER

SNPs in RNA-mediated Interference

Purpose: To investigate the role of single nucleotide polymorphisms (SNPs) in the RNA-mediated interference machinery involved in microRNA (miR) maturation in lung cancer. SNPs in genes involved in miR biogenesis may affect miR expression in lung tissue and be associated with the induction and progression of lung cancer. **Methods:** The authors analyzed 12 SNPs in *POLR2A*, *RNASEN*, and *DICER1* genes in 1,984 cases and 2,073 controls from the Environment And Genetics in Lung cancer Etiology (EAGLE) study. They investigated miR expression profiles in 165 lung adenocarcinoma (AD) and 125 squamous cell carcinoma tissue samples from the same population, and used logistic and Cox regression models to examine the association of individual genotypes and haplotypes with lung cancer risk and survival. **Results and conclusions:** A haplotype in *RNASEN* (*Drosha*) was associated with shorter lung cancer survival (hazard ratio = 1.86). In AD cases, a SNP within the same haplotype was

associated with reduced *RNASEN* messenger RNA expression and with expression changes of miRs known to be associated with cancer. Inherited variation in the miR-processing machinery can affect miR expression levels and lung cancer-specific survival. (Rotunno M, Zhao Y, Bergen AW, et al. Inherited polymorphisms in the RNA-mediated interference machinery affect microRNA expression and lung cancer survival. *Br J Cancer* 2010;103:1870–1874)

OSTEOSARCOMA

Chromosome 8q24 Variation

Purpose: To explore the role of the 8q24 chromosomal region in osteosarcoma risk. **Methods:** Researchers conducted an association study of common single nucleotide polymorphisms (SNPs) across this region, genotyping 214 tag SNPs in 99 osteosarcoma cases and 1,430 controls. Additive, dominant, and recessive genetic models were evaluated using unconditional logistic regression to estimate odds ratios (ORs). **Results and conclusions:** Analyses of nine SNPs previously associated with cancer did not show strong associations. Of the remaining 205 SNPs, 7 were statistically significant in one or more genetic models; the most significant association was observed for the additive effect of the minor allele at rs896324 (OR = 1.75, 95% confidence interval = 1.13–2.69, $p = 0.01$). This study suggests that several SNPs in 8q24 may be associated with osteosarcoma, but the susceptibility observed was modest. (Mirabello L, Berndt SI, Seratti GF, et al. Genetic variation at chromosome 8q24 in osteosarcoma cases and controls. *Carcinogenesis* 2010;31:1400–1404)

OVARIAN CANCER

Risk Variants Identified

Purpose: To identify single nucleotide polymorphisms (SNPs) associated with variation in the time from invasive epithelial ovarian cancer (EOC) diagnosis

to death. **Methods:** The authors conducted a three-phase genome-wide association study of EOC survival in 8,951 EOC patients with available survival time data and a parallel association analysis of EOC susceptibility. **Results and conclusions:** Two SNPs at 19p13.11, rs8170 and rs2363956, showed evidence of association with survival, but they did not replicate in phase three. However, the same two SNPs demonstrated genome-wide significance for risk of serous EOC. Expression analysis of candidate genes at this locus in ovarian tumors supported a role for the *BRCA1*-interacting gene *C19orf62*, also known as *MERIT40*, which contains rs8170, in EOC development. (Bolton KL, Tyrer J, Song H, et al. Common variants at 19p13 are associated with susceptibility to ovarian cancer. *Nat Genet* 2010;42:880–884)

PANCREATIC CANCER

Body Mass Index

Purpose: To study whether the positive association of body mass index (BMI) with pancreatic cancer risk is modified by age, sex, smoking status, physical activity, and history of diabetes. **Methods:** In a pooled analysis of seven prospective cohorts, comprising 458,070 men and 485,689 women, and including 2,454 incident pancreatic cancer patients, the authors used Cox proportional hazard regression models to estimate risks. **Results and conclusions:** For every 5 kg/m² increase in BMI, the relative risk (RR) was 1.06 (95% confidence interval = 0.99–1.13) for men and 1.12 for women. The aggregate analysis (including data from the seven cohorts) showed that compared with normal weight, the adjusted RR was 1.13 for overweight (BMI = 25 to < 30) and 1.19 for obesity class I (BMI = 30 to < 35). Tests of interactions of BMI effects by other risk factors were not significant, but the incremental risk elevation with BMI was not observed among current smokers (*p* for interaction = 0.08). The

findings suggest that a high BMI is an independent risk factor of pancreatic cancer. (Jiao L, Berrington de González A, Hartge P, et al. Body mass index, effect modifiers, and risk of pancreatic cancer: a pooled study of seven prospective cohorts. *Cancer Causes Control* 2010;21:1305–1314)

PROSTATE CANCER

Pesticides and Chromosome 8q24 Variation

Purpose: To evaluate the interaction among pesticide use, genetic variation on chromosome 8q24, and risk of prostate cancer among 776 cancer cases and

1,444 controls from the Agricultural Health Study. **Methods:** The authors estimated odds ratios (ORs) and 95% confidence intervals (CIs) for interactions among 211 8q24 variants, 49 pesticides, and prostate cancer risk. **Results and conclusions:** The ORs for a previously identified variant, rs4242382, and prostate cancer increased with exposure to the organophosphate insecticide fonofos, with per allele ORs of 1.17 (CI = 0.93–1.48) for non-exposed, 1.30 (CI = 0.75–2.27) for low exposure, and 4.46 for high exposure. A similar effect modification was observed for three

MAJOR EDITORIALS, COMMENTARIES, AND REVIEWS BY DCEG SCIENTISTS

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Gage JC, Castle PE. Preventing cervical cancer globally by acting locally: If not now, when? *J Natl Cancer Inst* 2010;102:1524–1527

Gerstenblith MR, Goldstein AM, Tucker MA. Hereditary genodermatoses with cancer predisposition. *Hematol Oncol Clin North Am* 2010;24:885–906

Gerstenblith MR, Shi J, Landi MT. Genome-wide association studies of pigmentation and skin cancer: A review and meta-analysis. *Pigment Cell Melanoma Res* 2010;23:587–606

Gibson TM, Ferrucci LM, Tangrea JA, Schatzkin A. Epidemiological and clinical studies of nutrition. *Semin Oncol* 2010;37:282–296

Gierach GL, Brinton LA, Sherman ME. Lobular involution, mammographic density, and breast cancer risk: Visualizing the future? *J Natl Cancer Inst* 2010;102:1685–1687

Kratz CP, Mai PL, Greene MH. Familial testicular germ cell tumours. *Best Pract Res Clin Endocrinol Metab* 2010;24:503–513

McMaster ML, Landgren O. Prevalence, clinical aspects, and natural history of IgM MGUS. *Cytometry B Clin Cytom* 2010;78(Suppl. 1):S91–S97

Lerro CC, McGlynn KA, Cook MB. A systematic review and meta-analysis of the relationship between body size and testicular cancer. *Br J Cancer* 2010;103:1467–1474

Moore SC, Gierach GL, Schatzkin A, et al. Physical activity, sedentary behaviours, and the prevention of endometrial cancer. *Br J Cancer* 2010;103:933–938

Sinnott B, Ron E, et al. Exposing the thyroid to radiation: A review of its current extent, risks, and implications. *Endocr Rev* 2010;31:756–773

Savage SA, Bertuch AA. The genetics and clinical manifestations of telomere biology disorders. *Genet Med* 2010;12:753–764

Vineis P, Schatzkin A, Potter J. Models of carcinogenesis: An overview. *Carcinogenesis* 2010;31:1703–1709

Ziegler RG, Faupel-Badger JM, Sue LY, Fuhrman BJ, et al. A new approach to measuring estrogen exposure and metabolism in epidemiologic studies. *J Steroid Biochem Mol Biol* 2010;121:538–545

other organophosphate insecticides and one pyrethroid insecticide. Subjects with three or four risk alleles at rs7837328 and rs4242382 among ever fonofos users had about three times the prostate cancer risk of subjects who had no risk alleles and had never used fonofos. (Koutros S, Beane Freeman LE, Berndt SI, et al. Pesticide use modifies the association between genetic variants on chromosome 8q24 and prostate cancer. *Cancer Res* 2010;70:9224–9233)

RENAL CANCER

One-carbon Metabolism Biomarkers

Purpose: To investigate the association between serum biomarkers of one-carbon metabolism and risk of renal cell carcinoma (RCC) in the prospective Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study of male smokers.

Methods: Prediagnostic folate, vitamin B₆, vitamin B₁₂, riboflavin, cysteine, and homocysteine concentrations were measured in fasting serum from 224 incident RCC cases and controls. Conditional logistic regression was

used to calculate adjusted odds ratios and 95% confidence intervals. **Results and conclusions:** Subjects in the lowest serum folate quartile had a significantly increased RCC risk compared to those with higher serum folate; other biomarkers were not related. Deficient folate status may increase RCC risk, but studies of women and non-smokers are needed. (Gibson TM, Weinstein SJ, Mayne ST, et al. A prospective study of one-carbon metabolism biomarkers and risk of renal cell carcinoma. *Cancer Causes Control* 2010;21:1061–1069)

TESTICULAR CANCER

Marijuana Use

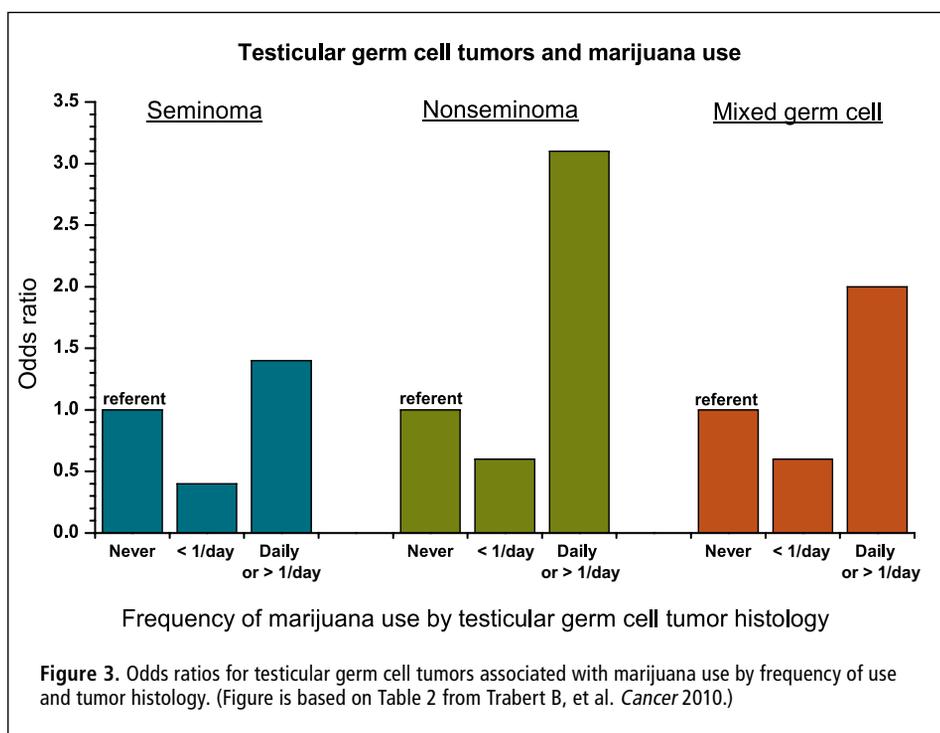
Purpose: To evaluate the relation between marijuana use and testicular germ cell tumors (TGCTs) in a hospital-based, case-control study. **Methods:** TGCT patients diagnosed between January 1990 and October 1996 ($n = 187$) and male friend controls ($n = 148$), all between the ages of 18 and 50 years, were enrolled in the study. The authors

investigated associations of marijuana use and TGCTs, adjusting for age, race, prior cryptorchidism, cigarette smoking, and alcohol intake. **Results and conclusions:** Overall, patients with TGCTs were more likely to be frequent marijuana users (daily or greater) compared to controls. Histological analyses revealed that patients with nonseminoma were more likely than controls to be frequent users and long-term (10+ years) users (see Figure 3). An association between frequent marijuana use and TGCTs, particularly for nonseminomas, was consistent with the findings of a previous report. (Trabert B, Sigurdson AJ, Sweeney AM, et al. Marijuana use and testicular germ cell tumors. *Cancer* 2010; Oct. 5 [E-pub ahead of print])

THYROID CANCER

Body Mass Index and Physical Activity

Purpose and methods: To investigate the relationship of body mass index (BMI) and physical activity to thyroid cancer in a prospective cohort of 484,326 U.S. men and women, followed from 1995/1996 to 2003. **Results and conclusions:** During 3,490,300 person-years of follow-up, 352 incident cases of thyroid cancer were documented. Participants who were overweight or obese had a greater risk of thyroid cancer, particularly papillary thyroid cancers, than normal weight subjects. A relation was suggested for follicular and anaplastic thyroid cancers based on small numbers, but not for medullary thyroid cancers. The positive relationship of BMI to total thyroid cancer was mainly evident for men, but the test for interaction was not significant. Physical activity was not associated with thyroid cancer. (Leitzmann MF, Brenner A, Moore SC, et al. Prospective study of body mass index, physical activity and thyroid cancer. *Int J Cancer* 2010;126:2947–2956)



DCEG PEOPLE IN THE NEWS

Christian C. Abnet, Ph.D., M.P.H., Nutritional Epidemiology Branch (NEB), gave a talk in October on “Esophageal cancer—A changing perspective in light of the obesity epidemic” at the Cancer and Obesity Conference in Valencia, Spain. He also gave a talk in November at the Harvard School of Public Health in Cambridge, Massachusetts, titled “The etiology of esophageal cancer.”

Blanche P. Alter, M.D., M.P.H., Clinical Genetics Branch (CGB), spoke on bone marrow failure syndromes at the Children’s National Medical Center in Washington, D.C., and at both the University of Texas M.D. Anderson Cancer Center and Baylor College of Medicine in Houston, Texas. She also gave talks on Fanconi anemia at Howard University School of Medicine in Washington, D.C., and at the 22nd Annual Fanconi Anemia Research Fund Scientific Symposium in Minneapolis, Minnesota, and on dyskeratosis congenita at the 2010 Annual Family Meeting at Camp Sunshine in Casco, Maine, in October.

Amanda Black, Ph.D., M.P.H., Epidemiology and Biostatistics Program (EBP), attended the 13th Biennial Meeting of the International Gynecologic Cancer Society held in Prague, Czech Republic, to give a presentation on the ovarian component of the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial.

Wong-Ho Chow, Ph.D., Occupational and Environmental Epidemiology Branch, replaced **Philip E. Castle, Ph.D., M.P.H.**, formerly of the Hormonal and Reproductive Epidemiology Branch (HREB), on the committee to update the NIH Health Disparities Strategic Plan and Budget.

Neal D. Freedman, Ph.D., M.P.H. (NEB), gave a talk at The Liver Meeting hosted by the American Association for the Study of Liver Diseases in Boston, Massachusetts, titled “Coffee is associated with virologic response in chronic hepatitis C: Findings from the Hepatitis C Long-Term Treatment against Cirrhosis Trial (HALT-C).” At the same meeting, **Thomas R. O’Brien, M.D., M.P.H.**, Infections and Immunoepidemiology Branch (IIB), spoke on “An *IL28B* genotype-based model for personalized prediction of response to pegylated-interferon-alfa and ribavirin in the treatment of chronic hepatitis C.”

Mitchell H. Gail, M.D., Ph.D., Biostatistics Branch, gave talks on breast cancer risk models at the 75th anniversary celebration of the George Washington University’s Department of Statistics in September and at the University of Texas

M.D. Anderson Cancer Center’s Symposium on Cancer Research 2010: Personalized Cancer Therapy and Prevention in Houston, Texas, in October.

Gretchen L. Gierach, Ph.D. (HREB), gave a presentation on “Mammographic density and breast cancer survival” at the October Breast Cancer Surveillance Consortium meeting in Seattle, Washington.

James J. Goedert, M.D. (IIB), gave a presentation titled “HIV tropism and decreased risk of breast cancer” at the 12th Annual International Meeting of the Institute of Human Virology at Tropea, Calabria, Italy, in October. At the same meeting, **Sam M. Mbulaiteye, M.D.** (IIB), spoke on “Epidemiology of AIDS-related malignancies: Current knowledge and opportunities for etiological studies in the setting of HIV treatment programs.”

SPRING 2010 INTRAMURAL RESEARCH AWARDS

DCEG Intramural Research Awards are competitive funding opportunities designed to foster creative, interdisciplinary research by fellows and tenure-track investigators. Funding may be up to \$50,000 per proposal. Of the many excellent proposals submitted for the spring 2010 competition cycle, the winners and their proposals were as follows:

Laufey Amundadottir, Ph.D., Laboratory of Translational Genomics: *Integrating transcriptome and association analyses in pancreatic cancer.*

Paula Hyland, Ph.D., M.P.H., Genetic Epidemiology Branch: *Genome-wide analysis of histone modifications in melanoma-prone families.*

Sarah Nyante, Ph.D., Hormonal and Reproductive Epidemiology Branch: *Changes in mammographic breast density and breast cancer outcomes among women treated with tamoxifen.*

Members of the NCI Board of Scientific Counselors evaluate proposals based on their potential for significant scientific or public health impact, innovation, interdisciplinary nature, ability to achieve the objectives within the proposed time frame and resources, and programmatic relevance to DCEG’s mission.

In October, **Lynn R. Goldin, Ph.D.**, Genetic Epidemiology Branch (GEB), gave a presentation titled “The use of whole exome sequencing to identify rare susceptibility variants in cancer prone families” at the International Genetic Epidemiology Society meeting in Cambridge, Massachusetts. At the same meeting, **Alisa M. Goldstein, Ph.D.** (GEB), presented a talk titled “Realities and limitations of coverage in current whole-exome sequencing capture approaches.” Dr. Goldstein also cochaired a scientific session, “Resequencing and rare variants II: Methods.”

Alisa M. Goldstein, Ph.D. (GEB), was the moderator for a scientific session titled “Finding high-risk susceptibility gene variants using newer analytical and genomic tools” in November at the 60th annual meeting of the American Society of Human Genetics in Washington, D.C. Dr. Goldstein opened the session with an overview presentation, “Improved strategies for detecting susceptibility gene variants.” At the same meeting, **Xiaohong Rose Yang, Ph.D., M.P.H.** (GEB), gave a talk titled “Combining linkage, array-CGH and high-throughput sequencing approaches to find high-risk susceptibility gene variants.”

At the MIT Alumni Club’s dinner and talk on Cancer Research Internationally: Challenges and Promise in Washington, D.C., **Allan Hildesheim, Ph.D.**, Chief of IIB, gave a presentation on “Nasopharyngeal carcinoma in Asians: How we can explore the virus link to reduce cancer burden”; **Ann W. Hsing, Ph.D.** (IIB), gave a talk on “Prostate cancer: Men in Ghana compared with African Americans”; and **Aimee Kreimer, Ph.D.** (IIB), gave a presentation on “Cervical carcinoma: The role of the HPV vaccine in the developing world.”

Ann W. Hsing, Ph.D. (IIB), gave presentations on “Clinical trials for rare cancers in international settings: The role of epidemiology” and “Cholangiocarcinomas: Epidemiology and etiology” at the First International Meeting on Clinical Trials of Rare Cancers, held on the NIH campus in December.

Paula Hyland, Ph.D., M.P.H. (GEB), presented a poster titled “DNA polymorphisms in sex hormone pathway genes and risk of esophageal squamous cell carcinoma” at the Ninth Annual American Association for Cancer Research International Conference on Frontiers in Cancer Prevention Research held in Philadelphia, Pennsylvania, in November.

In August, **Jill Koshiol, Ph.D.** (IIB), gave a lecture on cancer vaccines at the Johns Hopkins University Montgomery County Campus in Rockville, Maryland. Also that month, Dr. Koshiol gave a presentation on “Evaluating chronic immune stimulation in lymphomagenesis” at the Marshfield Clinic Research Foundation in Marshfield, Wisconsin. At NCI’s Cancer Prevention and Control Colloquium in Rockville, Maryland, she spoke on “Human papillomavirus as a target for cancer prevention.”

ANDRÉ BOUVILLE, EMINENT RADIATION DOSIMETRIST, RETIRES

André Bouville, Ph.D., head of the dosimetry unit in the Radiation Epidemiology Branch, retired in January after 26 years with NCI. Born in France, Dr. Bouville obtained his Ph.D. in physics at the Université Paul Sabatier in Toulouse in 1970. He was Scientific Secretary of the United Nations Scientific Committee on the Effects of Atomic Radiation from 1970 to 1972 and remained as a consultant to that committee until 2000. From 1972 to 1984, Dr. Bouville was employed in France by the Institute for Radiological Protection and Nuclear Safety, where he contributed to a number of environmental and dosimetric studies related to nuclear facilities.

Dr. Bouville joined NCI in 1984 as a senior radiation physicist and was involved in the estimation of radiation doses resulting from radioactive fallout from atmospheric nuclear weapons tests and the Chernobyl accident. He is recognized as a world-class leader in the field of radiation dosimetry, and his contributions to the estimation of radiation exposure in study populations have contributed enormously to the success of the NCI radiation epidemiology program. His major projects have included studies of thyroid disease among children exposed to radioactive fallout from the Chernobyl accident and



André Bouville

leukemia among the cleanup workers, studies of populations exposed to nuclear weapons tests in the United States and the former Soviet Union, and a wide variety of other radiation research projects related to environmental and medical exposures. After retirement, Dr. Bouville plans to take an 80-day trip around the world and will return to DCEG on a part-time basis to complete projects and mentor junior scientists.

Christian Kratz, M.D. (CGB), spoke on “Ping-pong between clinical genetics and oncogenetics—JMML as an example” in November at a research course in pediatric hematology in Aarhus, Denmark.

In October, **Sam M. Mbulaiteye, M.D.** (IIB), gave a presentation on “Human herpes virus 8 and Kaposi sarcoma epidemiology in Ugandan and other populations” at the Epidemiology and Biostatistics Unit, Aviano Cancer Center, in Aviano, Italy.

In October, **Katherine A. McGlynn, Ph.D., M.P.H.** (HREB), gave a talk on “Endocrine disrupting chemicals and testicular germ cell tumors: Human data” at the Seventh Copenhagen Workshop on Carcinoma-in-situ Testis and Germ Cell Cancer in Denmark. At the same workshop, **Christian Kratz, M.D.** (CGB), gave a presentation on “Familial testicular germ cell tumors: Does a distinct syndrome exist?” **Michael B. Cook, Ph.D.**, and **Britton Trabert, Ph.D.** (both of HREB), presented posters at the workshop titled “Age-period-cohort analysis of testicular germ cell tumors by race, histology and stage” and “Impact of classification of mixed germ cell tumors on incidence trends of nonseminoma in the United States,” respectively.

Mary L. McMaster, M.D. (GEB), spoke on “Host and environmental factors in familial Waldenström macroglobulinemia” at the Sixth International Workshop on Waldenström’s Macroglobulinemia in October in Venice, Italy.

Thomas R. O’Brien, M.D., M.P.H. (IIB), gave several presentations, including a talk on “Identification of genetic variants in *IL28B* (IFN-lambda) as major predictors of response to IFN-alfa therapy for chronic hepatitis C” at the Immuno-Oncology Biomarkers 2010

and Beyond: Perspectives from the iSBTC/SITC Biomarker Task Force Symposium in Bethesda, Maryland; a presentation on “Viral hepatitis and genomic medicine” for an American Association for the Study of Liver Diseases postgraduate course; and a presentation on “Applying genomics to hepatitis B and hepatitis C” at the George Washington University School of Public Health and Health Services in Washington, D.C.

Yikyung Park, Sc.D. (NEB), gave a talk at the AARP national member event Life@50+ in Orlando, Florida, titled “What has the NIH-AARP Diet and Health Study found so far?”

Sharon A. Savage, M.D. (CGB), gave a presentation on “Dyskeratosis congenita: Inheritance and genetic counseling” in Bethesda, Maryland, at the first meeting of Dyskeratosis Congenita Outreach, a family support group. At the annual American Society of Hematology (ASH) meeting in Orlando, Florida, her abstract “Mutations in *TCAB1* cause dyskeratosis congenita” was chosen for presentation in the “Best of ASH” session that concluded the meeting.

In November, **Mark E. Sherman, M.D.** (HREB), gave a talk titled “Predicting the past: Unraveling the pathogenesis of endometrial cancer” for the Mayo Oncology Society in Rochester, Minnesota.

Douglas Stewart, M.D. (CGB), received the 2010 “Make a Difference Award” from Neurofibromatosis, Inc. Mid-Atlantic in recognition of his work on neurofibromatosis. He also gave presentations on “Ten things every adult should know about their NF1” and “New tricks from an old dog: The promise of personalized medicine in NF1” at Duke University in Durham, North Carolina, in November.

Rachael Stolzenberg-Solomon, Ph.D., M.P.H., R.D. (NEB), gave a lecture at the University of Pittsburgh Medical Center Gastrointestinal Conference 2010 titled “Does vitamin D play a role in colorectal and pancreatic cancer prevention?”

Philip R. Taylor, M.D., Sc.D. (GEB), gave a talk in December at Johns Hopkins University in Baltimore, Maryland, titled “Chemoprevention of cancer: Fundamentals of clinical oncology for public health practitioners.”

In conjunction with the NCI Cohort Consortium annual meeting in Atlanta, Georgia, in November, **Britton Trabert, Ph.D.** (HREB), held a meeting of the Male Breast Cancer Pooling Project investigators, and **Katherine A. McGlynn, Ph.D., M.P.H.** (HREB), held a meeting of the Liver Cancer Pooling Project investigators.

In October, **Rebecca Troisi, Sc.D.** (EBP), gave a talk at the Slone Epidemiology Center at Boston University titled “Practical issues in international research studies: Mongolia project.”

Several Core Genotyping Facility (CGF) staff received 2010 SAIC-Frederick, Inc. Achievement Awards. All awards were based on peer nominations and competitive committee evaluations. **Meredith Yeager, Ph.D.**, received the Norman Salzman Mentoring Award. **Kevin B. Jacobs** and **Zhaoming Wang** received an Outstanding Achievement Team Award for work on the CGF Genome-Wide Association Studies and Analysis team. The CGF Project Management team, including **Laurie Burdett, Ph.D.**, **Aurelie Vogt**, and **Jeff Yuenger, M.S.**, won a Cost Savings Award.

COMINGS . . . GOINGS



Peter Aka

Peter Aka, Ph.D., joined the Infections and Immunology Branch (IIB) as a visiting fellow. Dr. Aka attended the University of Brussels in Belgium, where he completed his M.Sc. in pharmaceutical medicine; his M.P.H. and M.Sc. in molecular biology and biotechnology, respectively; and his Ph.D. with a specialty in genetics. He has been a senior scientific officer with the Genetics Group at the Medical Research Council Unit in The Gambia since 2006. In IIB, Dr. Aka will conduct research on the immunogenetics of malaria in Burkitt lymphoma under the mentorship of **Sam M. Mbulaiteye, M.D.**, and on host gene polymorphisms influencing control of hepatitis virus infections and liver cancer risk under **Thomas R. O'Brien, M.D., M.P.H.**



Bryan Bassig

Bryan Bassig, M.P.H., joined the Occupational and Environmental Epidemiology Branch (OEEB) as a postbaccalaureate fellow. He

received an M.P.H. in chronic disease epidemiology from Yale University in New Haven, Connecticut. In OEEB, Mr. Bassig is working with **Qing Lan, M.D., Ph.D., M.P.H.**, **Nathaniel Rothman, M.D., M.P.H., M.H.S.**, and **H. Dean Hosgood, III, Ph.D.**, on molecular epidemiology studies of occupational

and environmental exposures in addition to etiologic studies of non-Hodgkin lymphoma.



Clara Bodelon

Clara Bodelon, Ph.D., M.S., joined the Genetic Epidemiology Branch (GEB) as a postdoctoral fellow.

Dr. Bodelon received a Ph.D. in mathematics from Boston University in Boston, Massachusetts, and an M.S. in epidemiology from the University of Washington in Seattle, Washington. In GEB, under the mentorship of **Maria Teresa Landi, M.D., Ph.D.**, Dr. Bodelon will investigate the association between inflammation pathways and lung cancer risk, survival, and drug-related toxicity. She also will explore new statistical approaches to establishing the etiology and progression of lung cancer.



Kevin Brown

Kevin Brown, Ph.D., joined the Laboratory of Translational Genomics (LTG) as a tenure-track investigator. Dr. Brown received a

Ph.D. in genetics from George Washington University in Washington, D.C. He then pursued postdoctoral training in the laboratory of Dr. Jeffrey Trent at the Translational Genomics Research Institute (TGEN) in Phoenix, Arizona. During this time, Dr. Brown extended his work in microarray analysis to gene

expression profiles in Alzheimer disease and other neuromuscular disorders. In 2005, Dr. Brown was appointed associate investigator in human genetics at TGEN and was later promoted to investigator. He currently leads the analytical effort of the next-generation genome-wide association study (GWAS) on melanoma. He also conducts fine mapping of regions discovered in the melanoma GWAS using next-generation sequence technologies.

Philip E. Castle, Ph.D., M.P.H., left the Hormonal and Reproductive Epidemiology Branch (HREB) to become the first Executive Director of the American Society for Clinical Pathology Institute and Center for Health Services Research in Washington, D.C., where he will initiate a health services research program. He also plans to continue collaborating with DCEG researchers on human papillomavirus (HPV) and cervical cancer studies.



Yu-Cheng Chen

Yu-Cheng Chen, Ph.D., joined OEEB as a visiting fellow. Dr. Chen was trained in industrial hygiene at the National Cheng Kung University in Taiwan. His graduate research has focused on polycyclic aromatic hydrocarbons and dioxin exposures in occupational settings. Before coming to DCEG, he was a visiting scholar at the University of Minnesota School of Public Health in Minneapolis, Minnesota, where he developed estimates of historical exposure levels for cohorts of nickel smelter workers and chemical industry

workers. Working with **Melissa Friesen, Ph.D.**, Dr. Chen will continue his research on occupational exposure assessment methods.



Megan Clarke

Megan Clarke, M.S., joined the Clinical Genetics Branch (CGB) as a predoctoral fellow. Ms. Clarke received her M.S. in bio-

chemistry and molecular biology with a concentration in reproductive and cancer biology from the Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland, in 2010. In CGB, she will be working with **Mark Schiffman, M.D., M.P.H.**, and will be the primary coordinator of an HPV genomics project.



Alexander Fischer

Alexander Fischer joined OEEB as a postbaccalaureate fellow. He received his B.S. in biochemistry and a B.A. in Spanish, with

a minor in statistics, from the University of Maryland, College Park. As an undergraduate, Mr. Fischer worked on research projects involving the epidemiology of minority health, health disparities, and culturally competent care at the University of Maryland's School of Public Health. In OEEB, he will work on the New England Bladder Cancer Study, focusing on biological markers in relation to bladder cancer, under the mentorship of **Dalsu A.N. Baris, M.D., Ph.D.**



Naomi Frank

Naomi Frank joined LTG as a post-baccalaureate fellow under the mentorship of **Laufey Amundadottir, Ph.D.** Ms.

Frank obtained her B.S. in biology from the University of Maryland, College Park. Her project with LTG includes working on genomic and functional characterization of the *NR5A2* gene, which was identified by PanScan.



Allison Guttman

Allison Guttman joined CGB as a postbaccalaureate fellow. Ms. Guttman received a B.A. from the University of Rochester in

Rochester, New York, where she studied biology and public health. In CGB, she will be working with **Jennifer T. Loud, R.N., C.R.N.P., D.N.P.**, Deputy Chief of CGB, on the development of several analytic data sets pertaining to breast imaging and other branch studies.

Rolando Herrero, M.D., Ph.D., completed his sabbatical with IIB, during

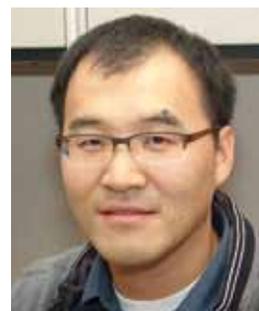
which he conducted analyses of data from the Costa Rica HPV Vaccine Trial to evaluate vaccine efficacy and the impact of vaccination. He has returned to the Proyecto Epidemiológico Guanacaste, Fundación INCIENSA, in San José, Costa Rica.



Jane Kim

Jane Kim joined LTG as a postbaccalaureate fellow under the mentorship of **Laufey Amundadottir, Ph.D.** Ms. Kim

obtained her B.S. in molecular, cell, and developmental biology from the University of California, Los Angeles. In LTG, she will be working on genomic and functional characterization of genes in the chromosome 13 susceptibility locus identified by PanScan.



Dong-Hee Koh

Dong-Hee Koh, M.D., Ph.D., joined OEEB as a visiting fellow. Dr. Koh completed his M.D., M.P.H., and Ph.D. in

public health at Yonsei University in Seoul, Korea, with

BRISEIS KILFOY RECEIVES POSTER AWARD

In August, **Briseis Kilfoy, Ph.D.**, a postdoctoral fellow in the Occupational and Environmental Epidemiology Branch, won the Outstanding Abstract by a New Investigator award from the International Society for Environmental Epidemiology (ISEE) at ISES–ISEE 2010, the 2010 Joint Conference of the International Society of Exposure Science (ISES) and ISEE in Seoul, Korea. Dr. Kilfoy presented a poster titled *Nitrate from drinking water and prevalence of abnormal thyroid conditions among the Old Order Amish in Pennsylvania*. Her DCEG mentor and coauthor is **Mary H. Ward, Ph.D.**

a specialty in occupational medicine. He has been a researcher at the Korea Occupational Safety and Health Agency since 2006. While at OEEB, Dr. Koh will focus on retrospective exposure assessment methods to assess exposure to metals in case-control studies under the mentorship of **Melissa Friesen, Ph.D.**



Gabriel Lai

Gabriel Lai, Ph.D., joined the Nutritional Epidemiology Branch (NEB) as a Cancer Prevention Fellow. Dr. Lai received his M.H.S. and

Ph.D. in epidemiology from the Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland. His interests focus on diet, energy metabolism, and cancers, including those occurring in Asian populations. While in NEB, Dr. Lai will work with **Neal D. Freedman, Ph.D., M.P.H.**, to examine the relationship between diet and energy metabolism in liver and other cancers.

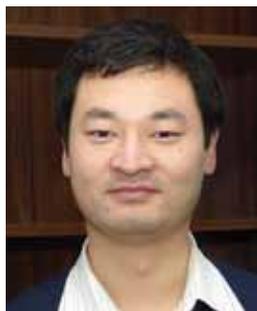


Phoebe Lee

Phoebe Lee, Ph.D., joined LTG as a post-doctoral fellow. She received a Ph.D. in molecular genetics and microbiology at Duke University

in Durham, North Carolina. Dr. Lee's doctoral research involved studying the mechanism underlying reciprocal mitotic recombination using the model organism *Saccharomyces cerevisiae*. As a fellow in LTG, she will be working under the mentorship of **Stephen J. Chanock, M.D.**, Chief of LTG and

Director of the Core Genotyping Facility (CGF). Dr. Lee will be conducting functional validation studies for single nucleotide polymorphisms identified in cancer-specific GWAS.



Peng Li

Peng Li, Ph.D., joined the Biostatistics Branch (BB) as a visiting postdoctoral fellow in September 2010. He received his Ph.D. in statistics from Nankai University in Tianjin, China, and then joined the mathematics department at the Capital Normal University in Beijing, China, as a lecturer. In BB, Dr. Li is working with **Jianxin Shi, Ph.D.**, on detecting short germline copy number variations in GWAS and testing associations between the copy number variations and cancer risks.



Sarah Locke

Sarah Locke, M.S., M.S.P.H., joined OEEB as an occupational hygiene specialist. Ms. Locke has an M.S. in entomology from

the University of California, Davis, and an M.S.P.H. with an industrial hygiene emphasis from the University of Utah in Salt Lake City, Utah. Before joining OEEB, she was a field industrial hygienist and most recently a senior industrial hygienist at Westat in Rockville, Maryland. Ms. Locke will provide support to OEEB projects that evaluate occupational risk factors in epidemiologic studies under the mentorship of **Melissa Friesen, Ph.D.**



Patricia Luhn

Patricia Luhn, Ph.D., M.P.H., joined HREB as a Cancer Prevention Fellow. Dr. Luhn received a Ph.D. in biochemistry and cell and developmental biology from Emory University in Atlanta, Georgia, and an M.P.H. from Johns Hopkins University in Baltimore, Maryland. In HREB, Dr. Luhn will focus on the epidemiology of gynecological cancers under the mentorship of **Nicolas Wentzensen, M.D., Ph.D., M.S.** Dr. Luhn plans to evaluate host methylation profiles of cervical precancer and cancer in the Study to Understand Cervical Cancer Early Endpoints and Determinants (SUCCEED) and to conduct molecular epidemiologic projects in the Polish Ovarian and Endometrial Cancer Case-Control Study.



Alexander Pemov

Alexander Pemov, Ph.D., M.D., joined CGB as a senior biologist contracted through Kelly Services to work with **Douglas Stewart, M.D.**

Dr. Pemov obtained his Ph.D. in biology from the Engelhardt Institute of Molecular Biology, Russian Academy of Sciences, in Moscow, Russia. He joined Dr. Stewart's group at the National Human Genome Research Institute in 2005. Dr. Pemov will continue his work with Dr. Stewart in the lab of Brigitte Widemann, M.D., of NCI's Center for Cancer Research. In his new assignment with DCEG, Dr. Pemov will focus on whole-genome sequencing of neurofibromatosis type 1-associated tumors.

Carolina Porras, Ph.D., left IIB at the completion of her fellowship to return to Costa Rica, where she is a co-investigator on the Costa Rica HPV Vaccine Trial.



Vikrant Sahasrabudde

Vikrant Sahasrabudde, M.B.B.S., Dr.P.H., joined HREB as a visiting fellow. He comes to HREB from Vanderbilt University

in Nashville, Tennessee, where he has been an assistant professor in the Department of Pediatrics, Division of Infectious Diseases, since 2007. He received his medical training from the University of Pune in India and his M.P.H. and Dr.P.H. from the University of Alabama at Birmingham. In HREB, he will work with **Nicolas Wentzensen, M.D., Ph.D., M.S.**, on the impact of HIV infection on HPV natural history and on screening approaches for prevention of HPV-related cancers.



Wendy Schneider-Levinson

Wendy Schneider-Levinson joined the Office of Communications and Special Initiatives to become the Managing

Editor of *DCEG Linkage*. She previously worked in NCI's Office of Communications and Education, where she served as a communications liaison, planning and coordinating communications programs and services for DCEG, the Center for Cancer Research, and other NCI offices.

Ms. Schneider-Levinson received a B.A. from Pennsylvania State University and has extensive professional experience developing both internal and external communications for private industry. In addition to working on *DCEG Linkage*, she will be updating content on the DCEG public-facing web site.



Nilabja Sikdar

Nilabja Sikdar, Ph.D., joined LTG as a research fellow after completing his postdoctoral fellowship at the Genetics

and Molecular Biology Branch of the National Human Genome Research Institute under the mentorship of Dr. Kyungjae Myung. Dr. Sikdar obtained his Ph.D. from the Indian Statistical Institute in Kolkata, India. In LTG, his work will focus on a chromosome 11 project for prostate, renal, and breast cancers under the direction of **Stephen J. Chanock, M.D.**, Chief of LTG and Director of the CGF.

Alessandro Villa, D.D.S., left IIB after completing his fellowship to become a research fellow at the University of Milano in Italy.

NCI INTRAMURAL RETREAT HIGHLIGHTS

At the NCI Intramural Scientific Investigators Retreat in January, **Demetrius Albanes, M.D.**, Nutritional Epidemiology Branch (NEB), received the NCI Women Scientist Advisors (WSA) Mentoring and Leadership Award. The WSA recognized Dr. Albanes for showing strong mentoring of women scientists and for providing them with opportunities for scientific leadership. Over the years, Dr. Albanes has provided invaluable career guidance and mentoring to many young scientists, ranging from summer interns to predoctoral and postdoctoral fellows, staff clinicians and scientists, and tenure-track investigators. The NCI WSA acts as a forum to address issues relevant to women scientists, helps provide mentoring and skill building/career development resources, and ensures that women serve on search committees.



WSA Cheryl Winkler with award recipients Nancy Colburn (Center for Cancer Research) and Demetrius Albanes. (Photograph credit: Ernie Branson)

At the NCI Intramural Scientific Investigators Retreat, two DCEG tenure-track investigators were invited to give short presentations during the retreat's plenary sessions. **Christian C. Abnet, Ph.D., M.P.H.** (NEB), presented on "Esophageal and gastric cancer: A genomic anastomosis?" and **Sharon A. Savage, M.D.**, Clinical Genetics Branch, spoke on "Dyskeratosis congenita as a model for understanding telomere biology."

A TRIBUTE TO ELAINE RON

Elaine Ron, Ph.D., a senior investigator in the Radiation Epidemiology Branch (REB), died of cancer on November 20, 2010, at her home in Bethesda, Maryland. She was 67.

Dr. Ron was renowned as one of the leading experts in the field of radiation epidemiology and in the causes of thyroid cancer, and she was a great champion of women in science. Over the course of her career, she authored more than 200 peer-reviewed scientific publications and mentored researchers from around the world. She leaves as a legacy numerous junior investigators who were inspired by her example.

Throughout her career, Dr. Ron conducted groundbreaking research. In her earliest work in Israel, for example, she identified the long-term cancer effects of radiation treatment for tinea capitis, a fungal infection of the scalp.

Dr. Ron joined NCI in 1986 and served as Chief of REB from 1997 to 2002. She served on numerous international committees, including the International Commission on Radiation Protection, the Scientific Council of

the International Agency for Research on Cancer, and the Public Health Committee of the American Thyroid Association.

“Elaine contributed enormously to our understanding of the cancer risks associated with radiation,” reflected **Joseph F. Fraumeni, Jr., M.D.**, DCEG Director. “Her interests included studies of the atomic bomb survivors in Japan, residents of the former Soviet Union exposed to the radioactive compounds from the Chernobyl accident, and patients exposed to diagnostic and therapeutic radiation. In addition to addressing the biological mechanisms of disease, Dr. Ron was keenly focused on the public health and policy implications of her research.”

Dr. Ron’s scientific achievements included a landmark study of cancer risks among patients treated with radioactive iodine for hyperthyroidism and the first international effort to pool epidemiologic data on thyroid cancer. To address growing public concerns about the risks of diagnostic radiation, she recently launched a major investigation into the potential adverse effects



Elaine Ron

of CT screening among children and young adults.

Dr. Ron was viewed as a role model based on her personal qualities as well as her scientific achievements and mentoring. As noted by **Shelia Hoar Zahm, Sc.D.**, Deputy Director of DCEG, “Elaine was passionate about fighting injustice. Whether it was promoting equity for women scientists at work, preventing cruelty to animals, or advancing human rights around the globe, she refused to accept the status quo.” ■

—Jennifer Loukissas, M.P.P.



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