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Eliminating the Suffering and Death Due to Cancer

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Studies Find Potential Biomarkers for Ovarian, Head and Neck Cancers

Two new studies demonstrate the promise that proteomics holds for advancing cancer care, particularly efforts to improve cancer prevention. Both studies found potential biomarkers that signal the early presence of two forms of cancer for which preventive efforts have proven especially difficult, ovarian cancer and head and neck squamous cell cancer (HNSCC). In both cases, researchers relied on mass spectrometry—a type of technology that allows molecules to be detected even in minute quantities—to analyze proteins for potential biomarkers.

In a study published in the January 2004 issue of *Disease Markers*, researchers analyzed the low-molecular-weight portion of plasma serum samples from patients with ovarian cancer. They found biomarkers bound to large circulating carrier proteins that were 100 percent predictive of ovarian cancer. In addition, biomarkers bound to the protein albumin had a distinct pattern from those bound to other carrier proteins, suggesting that albumin could prove to be an important target for future diagnostic research.

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Director's Update

RO1 Pay Line for 2004: 20th Percentile

Last week, President Bush signed into law the FY 2004 Omnibus Appropriations Bill. This legislation included the appropriations bill that funds the Department of Health and Human Services, including all NIH agencies. For NCI, the bill provides a budget of $4.77 billion, an increase of $178 million, or 3.9 percent, over FY 2003. Within the omnibus package, however, were provisions that required two rescissions, of which NCI's share is $31 million. As a result, the final FY 2004 budget increase for NCI is $147 million, or 3.2 percent.

Program	1998–2003 Funding Increases
Research Project Grants	$828 million (67%)
SPOREs	$92 million (298%)
Cancer Centers	$121 million (90%)
Intramural Research	$255 million (58%)
Cooperative Groups	$66 million (71%)

The good news is that we remain at a historically high level of NCI funding for cancer research. The challenge is that the 3.2 percent increase means there are limited funds for new initiatives or program expansions. In fact, as a result of cost-of-living adjustments, an increasing number of noncompeting grants, and assessments to support the NIH Roadmap Initiative and other centralized activities, we are effectively operating with a budget

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(*Potential Biomarkers continued from page 1)*
The biomarker analysis process used in the study is unique, explained lead author and NCI researcher Dr. Arpita I. Mehta, because it focuses on an abundant target, unadulterated large proteins. In the search for biomarkers, carrier proteins like albumin, which are found in high abundance in plasma, have typically been separated out of the samples to be analyzed, he explained. But with the method used in the study, he added, "We can examine what is stuck to these large proteins when we look for cancer biomarkers, instead of throwing them out from the beginning." This is significant, the researchers found in the study, because carrier proteins act "as a reservoir to accumulate the biomarker over time," increasing the biomarker concentration to such an extent where even conventional diagnostic tests can detect their presence.

"We no longer are searching for a single protein that may be diagnostic for cancer, but rather a host or combination of protein markers that could be much more accurate," noted Dr. Lance Liotta, co-director of the NCI-Food and Drug Administration Clinical Proteomics Program.

The program's other co-director, Dr. Emanuel Petricoin, agreed that the finding is an important advance. "Based on this discovery, investigators could uncover thousands of biomarkers never before known to exist in the blood," he said.

In related news, in an NCI-funded study published in the January 2004 issue of the *Archives of Otolaryngology*, researchers from Eastern Virginia Medical School and Penn State College of Medicine used the same form of mass spectrometry employed in the ovarian cancer study—known as SELDI—to search for HNSCC biomarkers. HNSCC represents 5 percent of all U.S. cancers. The researchers screened blood serum samples from 99 patients with HNSCC, 25 "healthy" smokers (smoking is a well-established risk factor for HNSCC), and 102 healthy controls. Several biomarkers were found that were present more commonly in patients with HNSCC than in healthy smokers or control patients. The team then developed a classification system based on the biomarkers that could distinguish between patients with HNSCC and the two other subject groups with 80 to 92 percent accuracy. The presence of known HNSCC tumor markers could also be detected using this analytical technique.

"SELDI protein fingerprinting represents a paradigm shift from traditional cancer diagnostic approaches," the researchers concluded, and "may allow for the development of a reliable screening test for the early detection and diagnosis of HNSCC, as well as the potential identification of tumor biomarkers." ◆

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that is $2.7 million less than last year's operating budget. This means that every decision to fund something new requires a decision not to fund something else.

Overall, the NIH budget doubled between 1998 and 2003. Over that same period, NCI's budget increased 81 percent. These unprecedented increases, which spanned two administrations, greatly benefited the cancer community. In fact, from 1998 to 2003, all major NCI programs saw significant increases, ranging from 58 percent to nearly 300 percent (see table, page 1).

We now have entered a period where similar budget increases are unlikely. To educate members of our advisory boards about issues related to allocation of resources in 2004 and beyond, on January 26, for the first time ever, we convened members of the three primary NCI chartered Federal advisory committees: the National Cancer Advisory Board, the Board of Scientific Advisors, and the Board of Scientific Counselors.

During the Joint Boards retreat, I presented participants with an overview of the NCI 2004 budget, how budget increases over the past five years have shaped the current portfolio, and what the FY 2004 appropriations may mean for current and future initiatives. To illustrate the nature of the financial decisions we are likely to face in FY 2005 and beyond, we examined the impact on various NCI programs of hypothetical scenarios that limited annual budget increases to 2 percent. We examined the potential impact this could have on high-priority areas, such as maintaining the RO1 pay line at the highest possible percentile, ensuring that training remains a priority, and cultivating the next generation of cancer researchers.

Preparing ourselves for this process was invaluable and ultimately helped us make important decisions about the current fiscal year. Overall, we will be funding more than 5,000 Research Project Grants (RPGs) in FY 2004—the most in NCI history! More than 1,430 of these RPGs come from competing applications. In addition, we will allocate $113 million of our $147 million budget increase to support the RPG noncompeting, or type 5, grants at their committed level.

Specifically, the NCI is committed in FY 2004 to maintain the pay line for the independent competing RO1 investigator initiated grant at the 20th percentile. The tradeoff to achieve these targets is to reduce the recommended budget for competing RPGs by approximately 18 percent on average. Consideration will be given to

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lessening the impact of reductions on smaller grants and new investigators.

It is important to stress that we are taking other steps to address increasing costs in the face of limited budget increases, including the redeployment of internal operating funds. As a start in this process, I have asked each NCI division to implement a 5 percent reduction from last year's budget. Funding allocations for other NCI programs are being finalized. NCI will also reduce its staffing level (defined as FTEs, or full time equivalents) by approximately 5 percent by 2005 in order to operate within assigned FTE ceilings.

As we move forward, we are undertaking a strategic review of all current programs and initiatives at NCI to determine which should be terminated or scaled back and, in turn, how to redeploy those funds to more strategically focused areas. This will provide division directors with more flexibility to shift resources into areas of compelling need and/or that are more closely aligned with achieving our 2015 challenge goal of eliminating the suffering and death due to cancer.

All of this said, let me be clear that, as a community, we will continue to push forward, using the resources at our disposal as effectively and efficiently as possible. Our ability to work effectively in partnership with other organizations in the cancer research and care communities, and in the larger community, is more critical now than ever.

We have set an ambitious goal. Although we are no longer in an era of double-digit annual increases, I am confident that with the careful, strategic investment of our financial and intellectual resources, we will achieve this noble aim by 2015. ◆

Andrew C. von Eschenbach, M.D.
Director, National Cancer Institute

Cancer Research Highlights

Researchers Explore the Future of Nanotechnology and Cancer Imaging

On Jan. 28, 2004, NCI convened a symposium to explore how nanotechnology can foster strategies to target cancer. Although several specific technologies were discussed, the goals of the meeting were to identify state-of-the-art approaches for advancing cancer imaging through nanotechnology, as well as pinpointing barriers to accelerating progress of this field.

Nanotechnology refers to the interactions of cellular and molecular components and engineered materials—typically clusters of atoms, molecules, and molecular fragments—with dimensions that are normally, though not exclusively, smaller than 100 nanometers.

Attending the symposium were experts representing 35 cancer centers, engineering programs, and companies. NCI Director Dr. Andrew C. von Eschenbach spoke about creating NCI's Cancer Nanotechnology Plan for developing platforms, standards, and innovative research and training for this emerging field.

The meeting, led by Dr. Lee Hartwell, director of the Fred Hutchinson Cancer Research Center, Dr. Mauro Ferrari, of Ohio State University, and NCI's Drs. Daniel Sullivan and Peter Choyke, featured methods to develop nanoscale contrast agents for multimodal imaging techniques, including optical, nuclear, ultrasonographic, and magnetic resonance techniques. Experts emphasized a need to establish standardized testing methods to enable comparisons of the applicability of various nanoparticles to different imaging tasks, such as molecular tumor cell recognition.

Participants identified the barrier of the lack of identified targeting molecules, which would provide better specificity for any imaging agent. Researchers also pointed to the lack of an established commercialization pathway for clinically applied cancer imaging agents as a major obstacle.

NCI-supported investigators have created nanotechnology platforms that hold promise for simultaneously diagnosing and treating cancer. Some of the fruits of these projects are in preclinical studies designed to lead to human clinical trials. NCI is also developing programs that apply nanotechnologies as tools for systematic interrogation of cellular and molecular processes of basic cancer biology.

C-Reactive Protein Linked to Increased Risk of Colon Cancer

People with inflammatory bowel disease tend to have an increased risk for colon cancer. Conversely, research last summer showed that people who take nonsteroidal anti-inflammatory drugs have a decreased risk for the disease.

A new study in the Feb. 4, 2004, *Journal of the American Medical Association* by Dr. Thomas P. Erlinger and colleagues at the Johns Hopkins Medical Institutions shows that persons with elevated levels of C-reactive protein (CRP) were more than twice as likely to develop colorectal cancer. The investigators followed nearly 23,000 adults for up to 11 years and found that those who were diagnosed with colon cancer during that time had had

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(*Cancer Highlights continued from page 3)*
elevated CRP levels when they entered the study in 1989. CRP is a marker of inflammation already linked to increased risk of heart disease.

"If these findings are confirmed, it could provide new insights into the mechanisms underlying colorectal cancer, a new tool for risk identification/stratification, and a new target for colorectal cancer prevention," said Dr. Ernest Hawk, chief of the Gastrointestinal and Other Cancer Research Group, NCI Division of Cancer Prevention.

Targeted Cancer Inhibitor Enhances Tumor Cell Radiosensitivity

NCI scientists have demonstrated that MS-275, a chemical proven to inhibit tumor cell growth *in vivo*, provides the added benefit of enhancing radiation-induced tumor cell killing. MS-275 inhibits histone deacetylase (HDAC), a protein that plays a critical role in modulating chromatin structure and regulating gene expression. HDAC is a protein target for chemotherapeutic agents because of its aberrant activity in tumor cells that causes the repression of tumor suppressor genes. In their study, published in the January 1 issue of *Cancer Research*, Dr. Kevin Camphausen and colleagues directly correlate the radiosensitizing effect to molecular events in the cell and suggest that this is due to inhibition of repair of DNA double-strand breaks.

The results were verified on two cancer cell lines, glioma and prostate carcinoma, which indicates that this may be a generally applicable strategy for enhancing tumor cell radiosensitivity in combined radio- and chemotherapy. MS-275 has recently entered into phase I clinical trials, and this work may aid in the design of *in vivo* combination therapy protocols. However, its applicability to other clinically relevant HDAC inhibitors will require further investigation. ◆

Special Report

Complementary and Alternative Medicine at NCI

In the last 5 years, NCI's research expenditures for complementary and alternative medicine (CAM) have more than tripled, from a total of $28.2 million in FY 1998 to $94.3 million in FY 2003. NCI's Office of Cancer Complementary and Alternative Medicine (OCCAM) is largely responsible for the institute's growing research agenda in CAM related to cancer prevention, diagnosis, treatment, symptom management, and rehabilitation. Established in October 1998 and directed by medical oncologist Dr. Jeffrey White, OCCAM also acts as NCI's link to the public, the CAM community, and cancer researchers regarding CAM and cancer.

OCCAM has been building bridges between CAM practitioners and the cancer research community by creating funding opportunities to test CAM approaches using scientifically rigorous research methods, working with other NCI programs to facilitate testing of CAM approaches to cancer management, helping CAM researchers jump the hurdles in the grant application process, and investigating research challenges unique to CAM approaches. In addition, OCCAM collaborates with other governmental and nongovernmental organizations, such as the National Center for Complementary and Alternative Medicine, on cancer CAM issues. OCCAM also supports high-quality CAM cancer research and information dissemination through three program areas focusing on research, practice assessment, and communications.

Through its Research Development and Support Program (RDSP), OCCAM has expanded the funding opportunities for research in cancer CAM. RDSP staff assist investigators in identifying funding opportunities and provide assistance in the pre- and post-review periods of grant application. In addition, the program director, Dr. Wendy Smith, coordinates NCI CAM programs and initiatives designed to stimulate research in cancer CAM as well as activities to develop the foundation of the science in cancer CAM research. RDSP activities have included the establishment of an expert panel on methodologies in cancer CAM symptoms research, an invited speaker series, and a workshop to assist investigators in preparing grant applications in cancer CAM. Summaries of the information from these endeavors are available at the OCCAM Web site.

One grant recently added to the RDSP portfolio supports a collaboration between the University of Texas M. D. Anderson Cancer Center in Houston and the Cancer Hospital at Fudan University in Shanghai. Together, these institutions are developing the International Center for Traditional Chinese Medicine for Cancer. This center will study herbal products, acupuncture, and mind-body interventions such as qi gong.
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(*Special Report continued from page 4)*

OCCAM's Practice Assessment Program, managed by Colleen Lee, reviews retrospective and prospective data on cancer patients treated with unconventional therapies. The most well-known component of the Practice Assessment Program is the Best Case Series Program, which provides an opportunity for CAM practitioners to share information about their successes. Practitioners are asked to submit documentation and original pathology slides and radiographic films on patients who have had objective antitumor responses while receiving unconventional therapies. Therapies that show promise may undergo further study with support from NCI. Such a study is being planned as a follow-up to a case series presented by the P. Banerji Homeopathic Research Foundation in Calcutta, India.

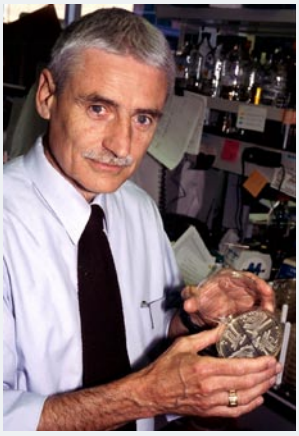
OCCAM's Communications Program, managed by Anne Washburn, develops and disseminates information about NCI program initiatives, funding opportunities, and educational materials via the OCCAM Web site and through outreach to the cancer patient community. This program also assesses the opinions and interests of cancer researchers, CAM practitioners, and cancer patients regarding CAM research and assesses information needs via surveys and focus groups. Results from these explorations will be used to develop programs that are most helpful for cancer patients and health care providers and researchers.

For more information about OCCAM and NCI's CAM activities please visit http://cancer.gov/cam. ◆

A Conversation with Dr. Lee Hartwell

Highlighting the Potential of Advanced Technologies in Early Cancer Detection

Dr. Lee Hartwell received the Alfred G. Knudson award for research in cancer genetics at the NCI Intramural Investigator Retreat on Jan. 16, 2004, in Adelphi, Md. Dr. Hartwell, who is best known for his work on characterizing the complex cellular mechanisms that regulate cell division, received a Nobel Prize in Physiology or Medicine in 2001. In addition to his contributions to basic scientific research, as director of the Fred Hutchinson Cancer Research Center in Seattle, Wash., over the past six years, Dr. Hartwell has focused on supporting the development of practical interventions to help reduce the death and suffering of cancer patients.



As co-chair of the National Cancer Advisory Board subcommittee on advanced technologies, Dr. Hartwell is working with NCI to develop strategies to harness these new technologies to make progress against cancer. Advanced technologies, such as nanotechnology, imaging, and proteomics, are demonstrating exciting potential. In his acceptance speech for the Knudson award, Dr. Hartwell emphasized his particular commitment to applying such technologies to improve the early detection of cancer.

The benefits of early cancer detection are well known. For example, the 5-year survival rate for colorectal cancer is nearly 90 percent for early stage local disease as compared with 9 percent for later stage disease that has spread to distant organs. Using early biomarkers, scientists from Fred Hutchinson have improved survival rates for esophageal cancer and chronic myeloid leukemia.

Dr. Hartwell highlighted in his acceptance speech the promise of one particular advanced technology: clinical proteomics. He believes that scientists will be able to detect cancer at its earliest stages by taking advantage of largely untapped resources in serum and plasma—protein fragments either free or attached to large carrier proteins.

Scientists estimate that between 100,000 and 1 million proteins and/or protein fragments are present in blood. Of these, fewer than 150 are currently used for diagnostic purposes in FDA-approved tests. However, early clinical proteomic studies are promising. Researchers using mass spectrometry and other analytical tools can distinguish the plasma protein patterns in breast, prostate, and ovarian cancer patients from patterns observed in normal individuals. In order to capitalize on this potential, Dr. Hartwell advocates developing a transdisciplinary network of researchers to systematically identify peptides and proteins critical to cancer processes using a model organism. ◆

Funding Opportunities

Strategic Partnering to Evaluate Cancer Signatures

RFA-CA-04-015
Letter of Intent Receipt Date: June 22, 2004
Application Receipt Date: July 22, 2004

NCI invites investigators to form strategic partnerships that will bring together the multidisciplinary expertise and resources needed to determine how information derived from comprehensive molecular analyses can be used to improve patient care and, ultimately, patient outcomes. This RFA focuses on the translation of promising molecular profiles to clinical application, with primary goals of confirming, refining, and evaluating the molecular signatures and developing robust clinical assays.

For more information see http://cri.nci.nih.gov.

Inquiries: James W. Jacobson, jacobsoj@mail.nih.gov; Tracy G. Lugo, lugot@mail.nih.gov ◆

Featured Clinical Trial

Study of Antiangiogenic Therapy for Kidney Cancer

Name of the Trial

Phase III Randomized Study of Interferon alfa-2b with or without Bevacizumab in Patients with Advanced Renal Cell Carcinoma (CALGB-90206). See the protocol summary at http://cancer.gov/clinicaltrials/CALGB-90206.

Principal Investigators

Dr. Brian Rini of the University of California-San Francisco Comprehensive Cancer Center and Dr. Simon Tanguay of the National Cancer Institute of Canada.

Photo Courtesy of Christine Jegan

Dr. Brian Rini
Principal Investigator

Why Is This Trial Important?

Renal cell cancer, also known as kidney cancer, can often be cured if it is diagnosed and treated when still localized to the kidney and the immediately surrounding tissue. However, the prognosis for patients with advanced renal cell cancer is poor.

Interferon alfa-2b is a standard initial treatment for advanced kidney cancer and may have an antitumor effect via multiple mechanisms. In addition to stimulation of the immune system, interferon may decrease blood vessel formation to tumors, a process called angiogenesis. Adding another antiangiogenic agent such as bevacizumab (Avastin™) may improve the effectiveness of this initial kidney cancer treatment. Bevacizumab is an antibody that attaches to and neutralizes vascular endothelial growth factor (VEGF), the major pro-angiogenic protein. This trial will compare the effectiveness of interferon alfa-2b plus bevacizumab versus interferon alfa-2b alone in treating patients who have advanced renal cell carcinoma.

"This is the first phase III trial investigating a possible survival benefit from bevacizumab for kidney cancer," said Dr. Rini. "Because bevacizumab specifically blocks VEGF, a protein that is important in tumor angiogenesis and overexpressed as a result of the inherent biology of renal cell carcinoma, we believe that this type of therapy will be a major new therapeutic force in the treatment of the disease."

Who Can Join This Trial?

This trial seeks to enroll 700 patients age 18 and older with advanced renal cell carcinoma. See the full list of eligibility criteria for this trial at http://cancer.gov/clinicaltrials/CALGB-90206.

Where Is This Trial Taking Place?

Study sites in the United States and Canada are enrolling patients in this trial. See the list of study sites at http://cancer.gov/clinicaltrials/CALGB-90206.

Who to Contact

See the list of study contacts at http://cancer.gov/clinicaltrials/CALGB-90206 or call the NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237). The call is toll-free and completely confidential. ◆

Notes

AAAS Newcomb Cleveland Prize Awarded to NCI Researcher

Dr. Shiv Grewal, senior investigator at the NCI Laboratory of Molecular Cell Biology, has been awarded the Newcomb Cleveland Prize by the American Association for the Advancement of Science (AAAS). The Newcomb Cleveland Prize, established in 1923, is AAAS's oldest award. It is given each year to the author(s) of an outstanding paper published in the journal *Science*. Dr. Grewal received the award for two study reports he authored with colleagues: "Establishment and maintenance of a heterochromatin domain" and "Regulation of heterochromatic silencing and histone H3 lysine-9 methylation by RNAi." Both were published in 2002. Much of Dr. Grewal's laboratory's research focuses on how the tangled core of DNA and protein within cells, called chromatin, is controlled or affected by nongenetic factors and how this affects the organization and structure of the human genome. This is the second time Dr. Grewal has been recognized by AAAS. In 2002, when he was at Cold Spring Harbor Laboratory, studies published by Dr. Grewal and others on the role of "small RNAs" in controlling gene expression were lauded by *Science* as the "Breakthrough of the Year."

CCR Newsletter Wins Excellence Award

The Center for Cancer Research (CCR) scientific newsletter, *Frontiers in Science*, won an Excellence Award in the 2003 Society for Technical Communication publications competition. The newsletter was judged excellent in terms of its content and organization, editing, and visual design. The mission of the newsletter is to foster scientific communication within NCI's CCR, with objectives to promote awareness of cutting-edge scientific results coming from CCR; foster scientific collaborations; familiarize staff with resources, services, and technologies; and provide brief administrative updates.

NCI Investigator Featured Speaker at NIH Director's Seminar

On Jan. 23, Dr. Lino Tessarollo, a principal investigator in the NCI Mouse Cancer Genetics Program, was the featured speaker at the NIH Director's Seminar Series. The title of Dr. Tessarollo's talk was "Dissecting neurotrophins' function *in vivo*: Lessons from engineered mouse models." Research into neurotrophins has generated increased interest because, in addition to their developmental role on proliferation and survival of neurons, they appear to have a wide range of effects on malignant cells and, in some cases, correlate with patient prognosis.

NCI-FDA Proteomics Program Featured at Science Writers' Seminar

The NCI-Food and Drug Administration (FDA) Clinical Proteomics Program was featured last week at an NCI-sponsored science writers' seminar. The seminar, the sixth such event held by NCI, is an effort to help educate reporters who regularly report on cancer issues for the cancer community and the public at large. At the core of the proteomics program, as program co-director Dr. Lance Liotta explained, is the search for biomarkers, molecules inside the body that may signal the early presence of cancer. "The old way or the existing way for finding biomarkers is not working," added the program's other co-director, Dr. Emanuel Petricoin. "We can continue down that road or we can try to change it up a bit." The NCI-FDA Clinical Proteomics Program has shown impressive results to date detecting cancer biomarkers using advanced technologies like mass spectroscopy (see related report on page 1). The results of this work are already being applied to early-stage clinical trials. Dr. Elise Kohn, a principal investigator in the NCI Laboratory of Pathology, described several of the trials. The advances being made through the NCI-FDA Clinical Proteomics Program, she said, are moving clinicians toward being able to provide more "targeted molecular medicine" that "treats the individual, not the cancer."

Menthol Cigarettes Research Conference Summary Available

An executive summary is now available on the "First Conference on Menthol Cigarettes: Setting the Research Agenda," held in March 2002 in Atlanta, Ga., and sponsored by eight organizations, including NCI and the Centers for Disease Control and Prevention. The summary presents background information on the use of menthol in cigarettes and identifies areas for further research. Topics include the emergence of menthol cigarettes, the importance of research on these tobacco products, and concerns about the marketing of menthol cigarettes to African Americans in the United States, as these cigarettes are the choice of 70 percent of black smokers. The full conference proceedings will be available in February 2004 in a special supplement to the journal *Nicotine & Tobacco Research*.

The executive summary is designed for researchers, scientists, and tobacco control practitioners. It can be accessed online at http://dccps.nci.nih.gov/tcrb/MethnolExecSumRprt4_10-16.pdf. A limited number of print copies can be ordered at no cost through NCI's Publications Locator at https://cissecure.nci.nih.gov/ncipubs or by calling NCI's Cancer Information Service toll-free at 1-800-4-CANCER (1-800-422-6237). ◆

Featured Meetings

This is a list of selected scientific meetings sponsored by NCI and other organizations. For locations and times and a more complete list of scientific meetings, including NCI's weekly seminars and presentations open to the public, see the NCI Calendar of Scientific Meetings at http://calendar.cancer.gov.

2004 NCI Advisory Committee Upcoming Meetings January-March

Date	Advisory Committee
Feb 17-19	National Cancer Advisory Board
Mar 15-16	Clinical Sciences and Epidemiology—Subcommittee 1, Board of Scientific Counselors, NCI
Mar 15-16	Basic Sciences—Subcommittee 2, Board of Scientific Counselors, NCI
Mar 15-16	NCI Board of Scientific Advisors

Selected Upcoming Meetings of Interest

Date	Meeting	Speaker(s)
Feb 4-7	Sixth International Conference on Pain and Chemical Dependency	Dr. Harold P. Freeman, Director, Center to Reduce Cancer Health Disparities
Feb 11-13	Scientific & Technological Advances in Cancer Research: Integrated Approaches to Effective Detection, Prognosis and Treatment of Cancer	Dr. J. Carl Barrett, Director, Center for Cancer Research
Feb 12-14	Tumor Prevention and Genetics 2004	Dr. Peter Greenwald, Director, Division of Cancer Prevention
Feb 25-26	Central Florida Health Care Coalition's 11th Annual National Conference	Dr. Ellen Feigal, Acting Director, Division of Cancer Treatment and Diagnosis
Feb 26-28	The Last Miles of the Way Home: National Conference to Improve End-of-Life Care for African Americans	Dr. Harold P. Freeman, Director, Center to Reduce Cancer Health Disparities

NCI Exhibits

NCI Exhibits are presented at various professional and society meetings. Further information about the NCI Exhibits Program can be found at: http://exhibits.cancer.gov.

This *NCI Cancer Bulletin* is produced by the National Cancer Institute (NCI). NCI, which was established in 1937, leads a national effort to eliminate the suffering and death due to cancer. Through basic and clinical biomedical research and training, NCI conducts and supports research that will lead to a future in which we can prevent cancer before it starts, identify cancers that do develop at the earliest stage, eliminate cancers through innovative treatment interventions, and biologically control those cancers that we cannot eliminate so they become manageable, chronic diseases.

For more information on cancer, call 1-800-4-CANCER or visit http://cancer.gov.

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