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Study Links High Testosterone and Prostate Cancer Risk

Researchers last week cautioned older men on the use of testosterone replacement therapy (TRT) after reporting the results of a study in which high levels of testosterone in men over age 50 were associated with a significantly increased risk of prostate cancer. Researchers from Johns Hopkins University and the National Institute on Aging (NIA) presented the data at the American Urological Association annual meeting.

The study analyzed nearly 2,900 serum samples collected over a 40-year period from 794 men participating in the Baltimore Longitudinal Study on Aging. Men with the highest free testosterone index had an 88 percent increased relative risk of prostate cancer compared with men with the lowest levels, says the study's lead author, Dr. J. Kellogg Parsons.

Dr. Howard L. Parnes, chief of the Prostate and Urologic Cancer Research Group in the National Cancer Institute's (NCI's) Division of Cancer Prevention, agrees that the questions about prostate cancer risk and TRT are legitimate. "The concern is not limited to men at particularly high risk for prostate cancer," he says. "That's not just based on the results of this study, but on what we know of the biology of prostate cancer in general. These data are consistent with those concerns."

Testosterone has been shown to promote tumor growth in men with

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Director's Update

Trans-Institute Angiogenesis Research Program Launched

In February, the U.S. Food and Drug Administration (FDA) approved bevacizumab (Avastin) as a first-line treatment for patients with metastatic colorectal cancer. The approval marked the arrival of an intervention in which the primary mechanism of action is angiogenesis inhibition.

We now can unequivocally say that angiogenesis is not only a critical factor for cancer, but for a host of other diseases. Control and promotion of new blood vessel growth may offer important benefits in revascularization of ischemic tissue, improving diabetic wound healing, and many other conditions. The potential for angiogenesis research to improve so many lives underlies the formation earlier this year of the NIH Trans-Institute Angiogenesis Research Program (TARP). The overarching goal is that a multidisciplinary approach to angiogenesis

Dr. Allen M. Spiegel, Director, National Institute of Diabetes and Digestive and Kidney Diseases

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metastatic prostate cancer, while research dating back to the 1940s has linked severe dips in testosterone to reduced tumor size in the same patient group. By increasing testosterone levels through TRT, clinicians feared that men with inactive prostate cancer cells could be significantly increasing their risk for developing prostate cancer—a fear that these new data appear to buttress.

The U.S. Food and Drug Administration has approved several testosterone therapy products to treat hypogonadism, a state of extremely low testosterone levels that can cause symptoms such as loss of bone density and muscle mass and erectile dysfunction. There is some uncertainty, however, about what represents true hypogonadism and how many men really require TRT. Despite this uncertainty, there were more than 1.75 million prescriptions for testosterone therapy products in 2002, an increase of 170 percent from 1999. More than 85 percent of these prescriptions were for men under 65, according to IMS Health.

"That is a worrisome trend," says Dr. Parnes. "Aside from men who have true hypogonadism, there are little data to support the use of testosterone for symptoms that are often assumed to be related to decreasing levels of testosterone that naturally occur with aging," he says.

There are proponents of using TRT in men who aren't experiencing extreme symptoms associated with hypogonadism, provided that they are closely monitored. In addition, Dr. Parsons' conclusions about TRT, drawn from the prospective data he presented last week, contrast with the results of a review of TRT studies published in the *New England Journal of Medicine* in January. No causal relationship between testosterone replacement and prostate cancer was found.

Nevertheless, there appears to be agreement that more research is needed. Because of the uncertainty surrounding TRT and its growing use, in 2002, NCI and NIA asked the Institute of Medicine (IOM) to analyze the available research on TRT and provide recommendations on whether and how to proceed with research into its use in men aged 65 and older.

In a report released last November, the IOM's expert committee on this issue concluded that, because of uncertainty about many issues surrounding testosterone and its effects on men's health, small studies that prove TRT is effective are needed before any large-scale trials addressing safety are launched. According to an NIA spokesperson, the institute is continuing to evaluate the IOM report, and early-phase clinical trials are planned. ◆

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research will accelerate the discovery of new interventions for a variety of diseases and conditions.

TARP was conceived following a visit to NCI by the leadership of the Juvenile Diabetes Research Foundation (JDRF). It quickly grew to include scientists and clinicians from the JDRF; our two institutes; National Eye Institute; National Institute of Neurological Disorders and Stroke; and National Heart, Lung, and Blood Institute. Last week the group hosted a two-day workshop that brought together international leaders (including those from industry) representing different angiogenesis research disciplines.

The workshop provided a forum to examine the state of the science in angiogenesis research as it relates to a variety of pathologic disease states; determine areas of need and overlap among the various disciplines studying angiogenesis; discuss what research could be conducted and how; and discuss novel models, systems, and core resources applicable to or needed by the community. An animal study recently released on the *Nature Medicine* Web site is an excellent example of what we believe to be TARP's potential. In the study, researchers from M.D. Anderson Cancer Center and Baylor College of Medicine applied their knowledge on angiogenesis' role in tumor formation to develop a novel method for tackling obesity. Just as tumors require blood vessels, so do cells in adipose tissue. A protein specifically expressed in the vasculature of white fat tissue was used to target a peptide that causes cell death to that tissue. The method effectively ablated the adipose tissue and yielded rapid weight loss in obese mice without any detectable adverse effects.

The TARP initiative is still in the formative stages, but our intention is to move quickly. NIH representatives to TARP will meet this week to produce an executive summary of the workshop's major themes and develop a proposed staged implementation plan to move the program forward. We hope to include representatives from additional institutes because vasculogenesis is an important physiologic process in all developmental stages and pathophysiologic processes of every tissue.

The formation of TARP is an obvious and needed step. Cancer researchers can learn from diabetes researchers' work on angiogenesis and vice versa. The same is true for nearly any angiogenesis research—advances in one disease area may fuel advances in others. Our goal with this initiative is simple: to share, communicate, and make the most of the resources available to us. ◆

Dr. Andrew C. von Eschenbach
Director, National Cancer Institute
and Dr. Allen M. Spiegel, Director,
National Institute of Diabetes and
Digestive and Kidney Diseases

Special Report

ACRIN Launches Ultrasound Trial in Public-Private Partnership Between NCI and Avon Foundation

The American College of Radiology Imaging Network (ACRIN), with support from the Avon Foundation, has initiated a multicenter clinical trial to evaluate the role of ultrasound as a supplemental screening tool for women with dense breast tissue at high risk for breast cancer. This study is funded by a unique partnership between NCI and the Avon Foundation; data will be collected at 22 institutions across North America with an enrollment goal of approximately 2,800 women.

"Screening Breast Ultrasound for High-Risk Women" (also known as ACRIN 6666) aims to assess the value of integrated whole-breast screening ultrasound combined with mammography in the detection of breast cancer in high-risk women. Study participants will receive annual mammography and radiologist-performed screening ultrasound, with both tests performed and interpreted independently at study entry and at 12- and 24-month time points.

ACRIN is a national cancer research organization sponsored and funded by the Cancer Imaging Program in NCI's Division of Cancer Treatment and Diagnosis, and includes investigators at more than 100 leading medical facilities across North America and other countries. The Avon Foundation is a nonprofit foundation that supports clinical care, research, and education related to breast cancer. It has provided a grant of more than $4 million to ACRIN to support this initiative. The majority of the grant will go toward funding ACRIN 6666. "Avon's support has allowed us to rapidly move forward with a high-priority research study that addresses an important and emerging issue in breast cancer detection," says ACRIN Network Chair, Dr. Bruce Hillman.

A portion of the grant will support the training of an ACRIN-Avon Fellow in clinical trials of breast imaging. The two-year fellowship will provide training in the development, implementation, and analysis of clinical imaging research.

Dr. Wendie Berg of Baltimore, Md., is the principal investigator for ACRIN 6666. She is leading a multidisciplinary team of breast imagers, statisticians, health outcomes specialists, and ACRIN staff in the development and execution of this trial. "Why isn't ultrasound routinely performed to supplement mammography in women with dense breasts?" says Dr. Berg. "The short answer: In some centers, it already is. The data are compelling, indicating that breast cancer detection will be improved and that the cancers found are usually those with good prognoses."

Funding this trial has been challenging because ACRIN was already committed to two large screening protocols, the Digital Mammographic Screening Trial and the National Lung Screening Trial. Dr. Lawrence Bassett and Dr. Carl D'Orsi brought the protocol to the attention of Ms. Marydale Debor, chief advisor to the Avon Breast Cancer Crusade. After reviewing the scientific rationale for the study, the Avon Foundation awarded the grant to ACRIN, enabling investigators to move forward with trial development.

In addition to the primary goal of evaluating the contribution of supplemental ultrasound, the study will look at the time and resources required to perform screening ultrasound, including induced costs of biopsy and short interval follow-up. Training session modules developed for the study will help ensure consistency among the ultrasound readers. If readers can identify subtle lesions and recognize the vast majority of cancers in the training materials, they should be able to use these techniques with their patients. These training materials will also be widely available to practicing radiologists.

For more information, go to www.acrin.org, Protocol 6666, Screening Breast Ultrasound in High-Risk Women. ◆

A Conversation with Dr. Wendie Berg

Dr. Wendie Berg, a researcher with an M.D. and a Ph.D. in pharmacology, is the principal investigator of the ACRIN 6666 trial. She proposed the study concept and developed the ACRIN 6666 protocol in collaboration with ACRIN investigators. In addition to her research, Dr. Berg practices breast imaging at American Radiology Services-Johns Hopkins Greenspring.

What is the thinking behind using ultrasound as a supplement to mammography screening?

Screening should identify cancers at an early stage, before they are clinically evident. A screening tool must be safe, convenient, cost-effective, widely available, and show a benefit for the participant. Mammography is the gold standard for breast cancer screening; with regular screening, mammography can reduce the number of breast cancer deaths by 48 percent between the ages of 40 and 74. In women with dense breast tissue, more than half of cancers may be difficult to see. Ultrasound may help depict cancers in these women.

What about MRI as a supplemental screening tool?

MRI is being investigated to supplement mammographic screening and preliminary results have shown it depicts early breast cancers not seen on mammography. MRI is limited, however, by high cost, variable patient tolerance, lack of widespread availability of scanner time, a shortage of experienced radiologists, the need for intravenous contrast, and the technical and expertise requirements for biopsying lesions seen only on MRI.

That brings us back to ultrasound. How does ultrasound fit into the supplemental screening picture?

Ultrasound is widely available, relatively inexpensive, and well-tolerated by patients. It is easy to guide biopsy or aspiration of lesions seen only on ultrasound. Research efforts thus far have shown that ultrasound doubles the detection rate of cancer in women with dense breasts and that cancers seen only on ultrasound are almost all small invasive cancers with negative nodes and therefore good prognoses. Ultrasound should be considered a supplement to mammography, not a replacement.

Where do we go from here?

Although several issues are unresolved, it is clear that screening ultrasound warrants further study. The ACRIN 6666 study is designed to address those issues. ◆

Cancer Research Highlights

Lung Cancer Screening Recommendation Updated

The U.S. Preventive Services Task Force has revised a 1996 recommendation that firmly advises against screening for lung cancer, now saying that it is "neither for nor against" using chest X-rays (CXR), low-dose computed tomography (LDCT), sputum cytology, or a combination of these tests for such screening. The task force's revised recommendations were published in the May 4 *Annals of Internal Medicine*.

Researchers examined the data and results from six randomized, five case-controled, and six cohort studies that they deemed fair in quality. Although there was evidence that CXR, LDCT, and sputum cytology screening can detect lung cancer at an earlier stage than in unscreened populations, the studies were not designed to determine whether screening decreases mortality rates from lung cancer.

Lung cancer is fatal in more than 90 percent of affected persons, but survival is directly related to early diagnosis, when patients may not necessarily exhibit any symptoms. Survival rates range from 70 percent at stage I to 5 percent at stage IV. In weighing their recommendation, the report explains, the task force balanced the benefits of screening against the invasive nature of diagnostic testing and the likelihood of false-positive and false-negative results creating harm in the patient population.

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"Current data do not support screening for lung cancer with any method," the task force concluded. "These data, however, are also insufficient to conclude that screening does not work, particularly for women."

The NCI-sponsored National Lung Screening Trial closed enrollment in February 2004 with approximately 50,000 participants, and is comparing spiral CT and standard chest X-ray. It is slated to collect and analyze data for eight years.

Post-Surgical Chemo and Radiation Therapy Fares Well in Head and Neck Cancer

The concurrent use of cisplatin and radiation therapy after surgery to remove a tumor in patients with squamous-cell cancer of the head and neck improves disease-free survival compared with radiation therapy alone, according to the results of two new NCI-funded studies. Only one of the two studies, however, yielded an improvement in overall survival; combination therapy was associated with a higher incidence of acute adverse events, but not late adverse effects. Both studies were published in the May 6 *New England Journal of Medicine*.

The research teams coordinated their work and, with the exception of inclusion criteria, both studies followed the same protocol. In the first study, conducted by the European Organization for Research and Treatment of Cancer (EORTC), 167 patients were randomly assigned to receive radiotherapy after surgery "with curative intent" and 167 were assigned to a combination of radiation therapy and cisplatin. In the other trial, conducted by the U.S.-based Radiation Therapy Oncology Group, following surgery 231 patients received radiotherapy alone and 238 received the combination therapy. Only the EORTC trial, however, yielded an improvement in overall survival, with 5-year actuarial estimates of 53 and 40 percent, respectively.

In a related editorial, Drs. Michele I. Saunders and Ana M. Rojas, from University College London and Mount Vernon Hospital (UK), respectively, said the studies "provide a strong basis for the inclusion of concurrent chemotherapy in postoperative regimens of radiotherapy for high-risk patients." Several recent studies, they continued, have indicated that shorter radiotherapy intervals than were used in these trials may improve tumor control and survival. "The next obvious step," they concluded, "is identifying which radiotherapy regimen is most effective."

Laparoscopic Surgery for Colon Cancer Acceptable Alternative to Open Surgery

A multi-institutional study suggests that laparoscopic surgery is a safe, appropriate alternative to open colectomy for colon cancer. In a randomized trial of 872 patients with adenocarcinoma of the colon, patients who had laparoscopically assisted surgery had similar rates of recurrence, disease-free survival, and overall survival compared to the group who underwent traditional open surgery.

The study, published in the May 13 *New England Journal of Medicine*, showed that the laparoscopic patients also recovered faster (5 versus 6 days) and needed less pain medication. In an accompanying editorial, Drs. Theodore Pappas and Danny Jacobs of Duke University, noted that although surgeons have been slow to perform laparoscopic resections, "the surgical landscape is changing. We predict that…more surgeons will use minimally invasive techniques to manage diseases of the bowel. Oncologic surgeons must improve access to minimally invasive surgery because patients expect nothing less."

Mutation May Predict Response to Chemotherapy in Leukemia Patients

According to a report in the May 5 *Journal of the National Cancer Institute*, chronic lymphocytic leukemia (CLL) patients with a mutation in the promoter region of their MCL-1 gene had higher mRNA and protein expression levels of MCL-1, which may be responsible for the poorer response to chemotherapy and the more rapid disease progression observed in these patients. Dr. Oksana Moshynska and colleagues at the University of Saskatchewan discovered that the presence of this 6- or 18-nucleotide insertion in the upstream region of the MCL-1 gene was also associated with shorter overall survival rates of CLL patients.

Scientists had previously correlated high levels of MCL-1 protein with failure to respond to chemotherapy in patients with CLL, the most common form of leukemia in the United States. CLL is not caused by increased proliferation of abnormal cells, as is common in other types of cancers, but by the persistence of abnormal lymphocytes that have prolonged lifespans and do not undergo apoptosis. The MCL-1 protein is known to play a role in apoptosis.

The researchers found the insertion in the promoter of the MCL-1 gene in 17 of 58 CLL patients; these mutations were not observed in the MCL-1 promoter of 18 control subjects. Seven of the 10 patients who did not respond to chemotherapy had mutations in the MCL-1 promoter, and none of the 12 patients with complete or partial response to chemotherapy were found to have these mutations.

The authors of the report noted that further studies, using a larger group of patients, would be needed to
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determine if "the size of the insertion, 6 or 18 nucleotides, has an effect on mRNA and protein expression (of MCL-1) and prognosis."

Smoking Rates Drop in New York City

On May 12 the New York City Department of Health and Mental Hygiene announced a significant decline in the number of smokers in New York City between 2002 and 2003. Data collected by the survey unit at Baruch College on tobacco use and a variety of other health issues showed that the proportion of New Yorkers who smoke dropped from 22 percent in 2002 to 19 percent in 2003. Young adults were found to have the largest decline, with the proportion of those aged 18–24 who smoke decreasing by 22 percent.

To accomplish this, New York City implemented effective evidence-based policies to increase the cost of tobacco products and ensure that workplaces have air free of tobacco smoke. The city also introduced programs to help smokers quit. Dr. Scott Leischow, acting associate director of Behavioral Research of NCI's Behavioral Research Program, asserts, "If we could achieve the reductions on a national scale that have been reported in New York City, we would have about five million fewer smokers—and in that one year we would take a major step toward reducing the pain, suffering, and premature death from tobacco-related cancers." ◆

In the May 11 issue of the *NCI Cancer Bulletin*, the receipt dates for applications for PA-04-103 were incorrect. The correct dates are June 1, 2004; Oct. 1, 2004; Feb. 1, 2005; June 1, 2005; Oct. 1, 2005; Feb. 1, 2006.

Legislative Update

Witnesses Cite Importance of Participation in Clinical Trials

The House Government Reform Committee held a hearing on May 13 to examine the barriers to full participation in cancer clinical trials by eligible adults. Committee Chairman Tom Davis (R-Va.) began the hearing by noting that while 20 percent of adults with cancer are eligible for clinical trials, only 3 percent actually participate in them, too few to answer important questions about cancer treatment.

Dr. Michaele Christian, associate director of the Cancer Therapy Evaluation Program in NCI's Division of Cancer Treatment and Diagnosis described NCI's clinical trials program and initiatives to educate patients and community physicians about clinical trials through the Clinical Trials Education Series, the Cancer Information Service, and the clinicaltrials.gov Web site, the latter of which lists all government-sponsored trials and is designed to list industry-sponsored clinical trials as well. Dr. Richard Pazdur, director of the Division of Oncology Drug Products in the Center for Drug Evaluation and Research in the U.S. Food and Drug Administration (FDA) spoke about the FDA's efforts to expedite approval of cancer therapies and to work with other scientific and clinical organizations to increase participation of cancer patients in clinical trials.

One concern raised by members of the congressional committee was the pharmaceutical industry's reluctance to list all of their clinical trials on clinicaltrials.gov. The site is designed to provide regularly updated information about federally and privately supported clinical research on human volunteers. Speculation at the hearing was that some of the reluctance by companies to list their trials on clinicaltrials.gov may have to do with confidentiality concerns of the companies. It was reported during the hearing that many private trials are found on company Web sites, but with limited or incomplete information about patient eligibility and treatment protocols.

A second group of witnesses—Dr. Andrew Pecora of the Hackensack University Medical Center, Dr. Robert Comis of the Coalition of National Cancer Cooperative Groups, and Ms. Ellen Stovall of the National Coalition for Cancer Survivorship—described in detail some of the barriers to clinical trial participation. They said that lack of education and awareness by physicians and patients about the value of clinical trials was a major obstacle, noting that only 15 percent of adult cancer patients were aware that clinical trials participation was available to them.

The witnesses also noted that many patients, particularly those from minority populations, often distrust the type of treatment they will receive and fear the health risks involved. Patients commonly perceive that clinical trials are the last resort for treatment of aggressive cancer. Uncertainty about health insurance coverage is also a barrier to participation. ◆

Notes

Bruce, Castro Recognized for Achievements

NCI's Christina Bruce and Nelvis Castro each received the 2004 Hispanic Women Executives Recognition Award from the National Association of Hispanic Federal Executives earlier this month. The award honors and recognizes the talent and professionalism of Hispanic career executives in the federal government.

Ms. Bruce is director of NCI's Office of Workforce Planning. In 2002 she created the StarCatcher/StarGazer system, a Web site used at recruitment outreach events. More recently she championed the creation of the NCI Introduction to Cancer Research Careers program.

Ms. Castro has served as acting director of the NCI Office of Communications since December 2002. In this capacity, she is responsible for the internal and external communication activities of the institute and provides the infrastructure for a range of technology-driven communications.

New RNAi Resource

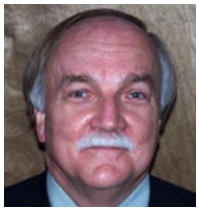
NCI's Division of Cancer Biology, in collaboration with its Office of Cancer Genomics, has supported the development of a large short hairpin RNA (shRNA) library, under the direction of Dr. Greg Hannon at Cold Spring Harbor Laboratory. The library is designed for human genes, but about one-third of the constructs can also silence mouse genes.

RNA interference (RNAi) molecules "knock down" specific genes and can be used to perform functional studies of their gene product. Among the common effectors of RNAi are small interfering RNAs (siRNA), micro RNA (miRNA), and shRNAs.

The shRNAs are inserted into a novel shuttling retroviral vector system that allows the insert to be moved rapidly into other vectors. The first 8,000 clones were released in March 2004 and another 12,000 clones will be released by the end of May. Information about the clones, their targets, and where they can be obtained can be found at http://cgap.nci.nih.gov/RNAi. This is a work in progress as new shRNA are being constructed and the vector system continues to be enhanced. Updates will be posted on the Web site as they become available.

Developmental Therapeutics Program Gets New Leader

Dr. Joseph E. Tomaszewski has been appointed acting associate director for the Developmental Therapeutics Program (DTP) in NCI's Division of Cancer Treatment and Diagnosis. He will oversee research, resources, and databases related to preclinical drug discovery and development. For the past 13 years, Dr. Tomaszewski has been chief of DTP's Toxicology and Pharmacology Branch, where he was responsible for the preclinical toxicological and pharmacological evaluation of most new cancer drugs developed by NCI. He has helped evaluate more than 130 diverse clinical candidates, leading to 77 investigational new drug applications and 4 new drugs approved by the FDA. Dr. Tomaszewski fills the spot left by Dr. Edward Sausville, who recently left NCI to join the University of Maryland Greenebaum Cancer Center.



NCI Trains Advocates in Peer Review

NCI piloted a peer-review training session for 24 of its Consumer Advocates in Research and Related Activities (CARRA) members May 10-12. The pilot training, designed to help advocates become more effective peer review participants, was well received and NCI plans additional sessions. Since the program began in 2001, more than half of the 224 requests made by NCI staff have been for advocate involvement in peer review. In just one example, CARRA members were included alongside scientists on NCI's Head and Neck Cancer SPORE application review.

NCI created CARRA to draw upon the experience of people affected by cancer, through their participation in NCI's operational activities. A group of 200 CARRA members is available to assist NCI staff in a wide range of NCI activities. See http://liaison.cancer.gov/CARRA for further information about the CARRA program. ◆

Complete the *NCI Cancer Bulletin* Survey

From now through May 27, you'll have the opportunity to give us your feedback about the *NCI Cancer Bulletin* by completing an online reader survey at http://www.cancer-bulletin-survey.org.

Survey responses will be confidential and you can choose to answer or skip any questions in the survey. For more information, please contact Nina Goodman at goodmann@mail.nih.gov or at (301) 435-7789.

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.

NCI Advisory Committee Upcoming Meetings

Date	Advisory Committee
June 2-3	National Cancer Advisory Board
June 24-25	NCI Board of Scientific Advisors

Selected Upcoming Meetings of Interest

Date	Meeting	NCI Speakers
May 18-20	Working Together to Address the Unequal Burden of Cancer—Reaching Special Populations in the Mid South to Lessen Cancer Disparities: Sharing Innovative Ideas and Sustaining Outcomes	Dr. Harold P. Freeman, Director, Center to Reduce Cancer Health Disparities; Mary Anne Bright, Acting Deputy Director, Office of Communications; Frank Jackson, Program Director, Disparities Research Branch, Center to Reduce Cancer Health Disparities
May 19-20	UCLA Molecular Toxicology Seminar	Dr. J. Carl Barrett, Director, Center for Cancer Research
June 5-8	40th American Society of Clinical Oncology Annual Meeting	Please refer to the NCI Calendar of Scientific Meetings at http://calendar.cancer.gov
June 6-9	BIO 2004 Annual International Convention	Dr. Anna Barker, Deputy Director, Advanced Technologies and Strategic Partnerships; Dr. Kathleen Carroll, Clinical and Extramural Sciences Unit, Technology Transfer Branch
June 14-16	3rd Annual Early Detection Research Network Scientific Workshop	Dr. Andrew C. von Eschenbach, Director
June 15	Second Scientific Forum on Cancer and Other Tobacco Related Diseases	Dr. Mark Clanton, Deputy Director, Cancer Care and Delivery Systems

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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