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HIV Drugs Show Promise Fighting Cancer in Preclinical Studies

NCI investigators have shown that nelfinavir (Viracept) and two other protease inhibitors, drugs developed and approved to fight HIV infection, may have a role in treating cancer. The research illustrates the promising strategy of broadening the use of these inhibitors that have already shown efficacy against HIV/AIDS to include cancer treatment.

Results published in the September 1 *Clinical Cancer Research* showed that three of six drugs used to treat HIV/AIDS also inhibit an important target in cancer, Akt, stopping the growth of cancer cells, not only *in vitro*, but also when those cells are transplanted into mice.

These results have encouraged Dr. Phillip Dennis, whose laboratory in the Medical Oncology Branch of NCI's Center for Cancer Research (CCR) conducted the study, to begin a phase I trial, testing nelfinavir in people with a wide range of solid tumors that have progressed after treatment with standard therapies.

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Breaking News

Two studies report results on finasteride and prostate cancer. See story on page 3.

Director's Update

Creating a Bridge to Success

Improving the translation of promising laboratory findings into the clinic is a top NCI priority. One of the most important mechanisms by which NCI helps bring new interventions to patients and clinicians is the Small Business Innovation Research (SBIR) program, which was created by Congress to strengthen the role of small, innovative companies in federally supported research and development.

Traditionally, venture capital firms, larger pharmaceutical and biotechnology companies, and other private investors have provided the investments that these small businesses needed to advance a product through the stages of commercial development. Over the past decade, however, small businesses have struggled to secure such funding. It has been reported that last year only 5 to 6 percent of biomedical deals into which U.S. venture capital firms entered were with companies in the formative stages.

This reluctance has only exacerbated the difficulty small businesses have in bridging what has come to be known as the "valley of death": the period between the basic and preclinical work that produces a potentially promising new intervention and the later-stage research and development, including phase I and II clinical trials, that will

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"Based on the *in vitro* work, we're hopeful that giving patients larger doses of nelfinavir than are used to treat HIV will be effective against their cancers," said Dr. Dennis. In phase I trials, researchers are determining how much of the drug can be safely given—the maximum tolerated dose—and how the drug actually works in the body.

At the same time, a phase I/II study testing nelfinavir in patients with liposarcoma is also underway.

To determine whether a group of protease inhibitors presently FDA-approved for treating HIV/AIDS also might be applicable to cancer, Dr. Dennis' team performed a number of experiments with cell cultures and tumor-bearing mice. First, the researchers found that nelfinavir was most potent against a panel of non-small-cell lung cancer lines. Second, in the NCI60 panel of cell lines drawn from nine different types of cancer, three HIV protease inhibitors inhibited cell growth. Nelfinavir was again most potent, showing activity against all cancer types tested. In mice, nelfinavir inhibited the growth of two types of lung cancers.

"We're not convinced that Akt is the critical target of nelfinavir therapy because the effect on that pathway is transient," said Dr. Dennis. "But we were able to show with biomarkers that this treatment impacts tumor growth, in part by inducing apoptosis," the normal process of programmed cell death to eliminate old or damaged cells.

The scientists made an interesting discovery about nelfinavir. When tumor cells in mice were treated with this protease inhibitor, some cells that did not die by apoptosis still died by a nonapoptotic process. Drug treat-

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determine whether that intervention reaches the market.

This dearth of funding and support has stalled or greatly delayed development of many potentially important new products. Recognizing the negative impact of this trend on patients, NCI is implementing a targeted strategy to help small businesses through the valley of death.

First, we are creating new "SBIR Phase II Bridge Awards" intended to both provide and attract funding to help companies during this transition period.

To qualify for these awards, which are modeled on a National Science Foundation (NSF) program, the small business must secure matching private funds. Because NCI will be sharing in the financial risks of the technology development, we believe these awards will attract both private investors and strategic partners—relationships critical to the ultimate success of the small business. In fact, in a recent NSF study of their program, the commercialization success rate for SBIR Phase IIB awardees was more than double that of those firms who had only received a Phase II award.

NIH Director Dr. Elias Zerhouni asked NCI to lead an effort to find ways to optimize the NIH SBIR program. As a result of this evaluation, we are continuing to lead an implementation plan by consolidating management of all NCI SBIR grants and contracts into a new organization called the SBIR Development Center. This organization also will function as a service center to other ICs, providing support in the areas of business development, market research and analysis, and targeted outreach to small businesses eligible to participate in the SBIR program. Through these services, NCI will continue to provide leadership and generate trans-NIH support in driving important new initiatives that will enhance the success of the NIH SBIR program. Development Center project managers will work with small businesses receiving SBIR funds to assist with commercialization strategies, establish milestones, and identify strategic partners. We are recruiting staff with both scientific expertise and experience in the private sector managing technology development through different research phases and planning for commercialization. Michael Weingarten from my staff, who has led the effort to develop new strategies for enhancing the SBIR program, will head this new center.

Third, we are relying more on contracts to spur the development of technologies or interventions in high-priority areas. Historically, more than 90 percent of SBIR funds have been awarded as grants. Over the last 2 years, however, SBIR has been transitioning toward more contracts for technologies NCI would like to see developed that are specifically relevant to cancer research. This year, we have identified 16 technology areas for which contract solicitations were just announced—contracts that will have specific deliverables and milestones to ensure we are getting the most from our investment.

We have implemented an aggressive effort to market the SBIR program at industry, technology, and drug development meetings and events. By reaching out to leaders in the small business community, we will encourage them to compete for these contracts and increase the quality of applicants.

These changes to the SBIR program are intended to enhance innovation and address the gaps in the development pipeline, and it's our belief that patients will be the ultimate benefactors. ◆

Dr. John E. Niederhuber
Director, National Cancer Institute

Cancer Research Highlights

Finasteride Not Linked to High-Grade Prostate Cancers

Finasteride is unlikely to induce high-grade prostate cancers in men who take the drug to prevent the disease, according to two studies in today's *Journal of the National Cancer Institute (JNCI)*.

In 2003, the NCI-sponsored Prostate Cancer Prevention Trial (PCPT) found that finasteride reduced the overall incidence of prostate cancer by 25 percent, but was associated with a small increase in the number of high-grade cancers, which are often aggressive. It was not known whether the drug caused more high-grade prostate cancers or merely facilitated their detection. The new studies suggest the latter.

In the first study, Dr. Yael Cohen of Gamida Cell in Jerusalem and colleagues determined that finasteride reduces the volume of the prostate and therefore increases the likelihood of finding high-grade cancer cells in a biopsy. Finasteride accelerates the detection of high-grade cancer yet may not promote its development, they conclude.

The second study analyzed prostatectomies from the PCPT and found that the relative increase in high-grade tumors in the finasteride group was less than originally believed. The findings further suggest that enhanced detection may have contributed to the increase in high-grade disease in the finasteride group, reported a team led by Dr. M. Scott Lucia of the University of Colorado Health Sciences Center.

More Americans Getting Cancer Information from the Internet

For a growing number of Americans seeking information about cancer, the Internet remains a frequent first source, even though the public's trust in online material may be on the decline, reports a government study.

The report, *Cancer Communication: Health Information National Trends Survey 2003 and 2005*, is based on data from the Health Information National Trends Survey (HINTS), a biennial survey sponsored by NCI's Division of Cancer Control and Population Sciences (DCCPS). First conducted in 2003, HINTS surveys the U.S. civilian adult population to assess trends in the use of health information over time and to study the links between cancer-related communication, knowledge, attitudes, and behavior.

In 2003, 44.9 percent of HINTS respondents reported looking for cancer information for themselves on the Internet; in 2005, 48.7 percent of respondents reported looking for cancer information for themselves online. In addition, in 2003, 23.9 percent of respondents reported "a lot" of trust in health information from the Internet, while this number was somewhat lower in 2005 (18.9 percent). Health care professionals were most frequently identified as a trusted source of information in both 2003 (62.4 percent) and 2005 (67.2 percent).

"The survey is not only a surveillance tool, but can be used to study relationships of how knowledge about health care is dependent on channels of communication," said NCI researcher Dr. Bradford Hesse. The researchers also looked at population estimates of cancer knowledge and beliefs, and worked with statisticians and geographic information systems specialists to create maps to portray regional geographic variation, much like weather maps.

The HINTS report is available at: http://hints.cancer.gov/hints/.

Racial Differences in Breast Tumors May Reflect Biology

A large study confirms recent reports that African American women are more likely than white women to have breast tumors that are estrogen receptor (ER)-negative, which are often aggressive and do not respond to antiestrogen therapies such as tamoxifen. A primary reason for the racial differences may be biological, researchers reported at the 2007 Breast Cancer Symposium in San Francisco.

African American women are more likely to die of breast cancer than white women, even though they are less likely to develop the disease. Lack of access to care and other factors are thought to contribute to the disparity. The new study suggests a role for biology: More aggressive tumors were found to be more common in black women than white women in all stages of disease and in each age category, even among women over age 80.

This study differs from previous reports mainly in its larger scale. Dr. M. Catherine Lee of the University of Michigan Comprehensive Cancer Center and her colleagues analyzed

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170,000 cases of breast cancer in the National Cancer Data Base, a tumor registry that collects cancer data from more than 1,400 hospitals in all 50 states and Puerto Rico.

For women with invasive cancers, ER-negative tumors were significantly more common in African American women: 39 percent of black women had ER-negative tumors, compared with 22 percent of white women. Black women were also diagnosed at a younger average age (57 for black women vs. 62 for white women) and at a later stage than white women.

Hypnosis before Breast Cancer Surgery Reduces Pain, Cost

Women who received a brief hypnosis intervention before breast cancer surgery spent less time in the operating room and reported significantly less pain and discomfort after surgery than women who did not undergo hypnosis, reports a study published in the September 5 *JNCI*.

Investigators at Mount Sinai School of Medicine randomly assigned 200 women scheduled to undergo surgical breast biopsy or lumpectomy to either a hypnosis group or a control group. Women in the hypnosis group received a scripted 15-minute hypnosis session within 1 hour of surgery from psychologists trained in the use of hypnosis in the medical setting. Women in the control group spent an equal amount of time with the psychologists within an hour of surgery to talk and receive emotional support.

Because the women knew their group assignment, the investigators took several precautions to reduce potential bias, including blinding anesthesiologists and surgeons to the group assignments and using research assistants unaware of the group assignments to collect the women's perception of pain and discomfort.

Women in the hypnosis group required significantly less of the anesthetic propofol and the analgesic lidocaine, the doses of which are adjusted for individual patients during surgery. Although use of pain medication after surgery did not differ between groups, women in the hypnosis group reported significantly less pain intensity, pain unpleasantness, nausea, fatigue, discomfort, and emotional upset.

Women in the hypnosis group also spent about 10 and a half fewer minutes in surgery. On average, the surgical procedures cost about $770 less per patient in the hypnosis group, mostly due to reduced time in surgery.

Another Role for microRNAs: Suppressing Tumors

A number of recent studies have suggested that microRNAs are involved in suppressing tumors. These small RNA molecules, which regulate the activity of multiple genes, are increasingly recognized as important players in cell signaling.

The studies found that a family of three microRNA genes—the miR-34 family—is switched on by the tumor-suppressor gene *p53* in response to DNA damage and cellular stress. The studies come to the same conclusion: microRNAs are an important component of the *p53* network, and their loss may contribute to some cancers.

The most recent study, in the August 7 *Current Biology,* reported that the activity of two miR-34 genes was often compromised in human lung cancer. The genes were much less active than normal in 6 of 14 non-small-cell lung cancers that the researchers examined. Experiments in cells and mice showed that restoring the missing gene activity prevented some abnormal cell growth.

"These findings add one more piece to the *p53* puzzle," says lead researcher Dr. Guido Bommer of the University of Michigan School of Medicine. "*p53* is the major player in responding to DNA damage or other potentially harmful cellular stress, and we believe these microRNAs mediate a significant part of *p53*'s function."

The results confirm other recent studies, including two in the June 8 *Molecular Cell*. One team reported that miR-34a is commonly deleted in human cancers and frequently absent in pancreatic cancer cells, while another found that in the absence of miR-34a, cells may not initiate *p53*-mediated cell death and thereby avoid progressing to cancer.

Finally, a report in the June 28 *Nature* found that miR-34 genes may play a role in causing cell death as well as inducing a state of growth arrest that normally occurs when cancer genes

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Watch Your E-Mail Box!

Keep an eye out for an e-mail next week asking you to complete an online survey about the *NCI Cancer Bulletin*.

By completing this short questionnaire, you'll help us to better meet the needs of our readers. Your feedback is vital in shaping future issues of the *Bulletin*.

All survey responses are confidential and respondents can choose to answer or skip any questions in the survey. For more information, please contact Nina Goodman at goodmann@mail.nih.gov or 301-435-7789. ◆

Spotlight

Decision Aids Give Patients More Say in their Cancer Care

Recently, interactive programs have become available in print and online to help patients take a more active role in their health care, from choosing a treatment plan with their physician, to identifying late effects and follow-up care after treatment ends.

Tools such as these are an attempt to address shortfalls of the U.S. health care system, many of which were outlined in a recent Institute of Medicine report. By enabling patients to communicate effectively with their providers about the benefits and risks of cancer treatment, as well as the possible consequences that should be monitored, these tools could be a helpful cancer care supplement.

One such tool published online this past July, called OncoLife, was developed by a team of oncology nurses and physicians from OncoLink.org, the Web-based cancer resource of the Abramson Cancer Center of the University of Pennsylvania. Using a computer, patients or clinicians can check boxes and select options from drop-down menus according to type of cancer and treatments received. The program generates a summary of the possible treatment side effects—secondary cancers, bone-density loss, infertility, and cognitive problems, for example—which is called a Survivorship Care Plan.

"My oncology nurse actually fills these out for each one of my patients and we hand it to them as they enter

the cancer treatment process," says Dr. James Metz, editor-in-chief of OncoLink and assistant professor and chief of clinical operations in the Department of Radiation Oncology at the University of Pennsylvania.

OncoLife tracks information about its users so that the system can evolve according to their needs, as well as with the latest updates to treatment information, explains Dr. Metz, who notes that the first update to OncoLife is expected in the next few months.

"We are seeing a 'perfect storm' in health care that is going to drive increased demand for these technologies," says Dr. Brad Hesse, chief of NCI's Health Communications and Informatics Research Branch. The advent of widespread electronic health records and a predicted surge toward direct-to-consumer marketing of health care are all moving Americans toward a do-it-yourself attitude, he explains.

Research also supports the concept of patients becoming more actively involved in decisions about their cancer care. Several studies with breast cancer patients, for example, have shown that when a woman was involved in the decisions surrounding her treatment plan, she was more likely to be satisfied with the result and with her life than if she had not been involved in the decision. This was regardless of the treatment she received or her outcome in the years that followed.

There are some concerns, though, with a possible lack of human interaction when patients begin to rely upon decision tools. The most recent data from NCI's Health Information National Trends Survey (HINTS) show an increasing preference for health information that comes directly from a person, rather than from an inanimate source such as online

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Online Decision Aids

Dozens of Web-based decisions tools are making their way from the laboratory to the public. For more information about and examples of these tools, visit…

NCI's list of Cancer Risk Prediction resources

The Harvard Disease Risk site, which includes cancer

OncoLink, a source of survivorship care plans

ASCO Survivorship Resources

The Lance Armstrong Foundation's LIVE STRONG Cancer Treatment Summary

NCI Benchmarks article on Passport for Care, an Internet-based Survivorship Care Plan ◆

Featured Clinical Trial

HIV Protease Inhibitor Therapy for Liposarcoma

Name of the Trial
Phase I/II Study of Nelfinavir Mesylate in Patients with Recurrent, Metastatic, or Unresectable Liposarcoma (CHNMC-04090). See the protocol summary at http://cancer.gov/clinicaltrials/CHNMC-04090.

Principal Investigator
Dr. Warren Chow, City of Hope Comprehensive Cancer Center

Dr. Warren Chow

Why This Trial Is Important
Liposarcoma is a malignant tumor that develops in fat tissue. It is one of the most common types of soft tissue sarcoma in adults. Although surgery and radiotherapy may be used successfully to treat localized tumors, treatment of advanced liposarcoma rarely results in a cure.

Nelfinavir, a drug used in the treatment of human immunodeficiency virus (HIV) infection, may be able to help stop the growth of liposarcoma. Nelfinavir is a protease inhibitor, a type of drug that interferes with the ability of certain enzymes (proteases) to break down proteins, which is a process that is necessary for some cells and viruses to reproduce.

In HIV-infected patients, nelfinavir often interferes with the growth of fat cells. This characteristic led researchers to test the drug on liposarcoma cells in the laboratory. The research showed that nelfinavir slowed the growth of liposarcoma cells and caused them to undergo apoptosis (programmed cell death).

In this trial, researchers will test nelfinavir in patients with advanced liposarcoma to see if it helps shrink their tumors. They will also seek to establish the drug's maximum tolerated dose and its pharmacokinetics (fate of the drug in the body) in these patients.

"Currently, we don't have very many options available to treat liposarcoma that recurs or metastasizes," said Dr. Chow. "We need to develop a new therapy that targets the key molecular pathways of this cancer. Nelfinavir is a drug that is already FDA approved and has shown promise in laboratory tests, and so we hope to see evidence of clinical activity in this trial."

Who Can Join This Trial
Researchers will enroll 40 patients with confirmed diagnoses of recurrent, metastatic, or unresectable liposarcoma. See the list of eligibility criteria at http://cancer.gov/clinicaltrials/CHNMC-04090.

Study Site and Contact Information
This trial is taking place at the City of Hope Comprehensive Cancer Center in Duarte, CA. For more information, call the City of Hope's Clinical Trials Office toll free at 1-800-826-4673 or e-mail becomingapatient@coh.org. ◆

An archive of "Featured Clinical Trial" columns is available at http://cancer.gov/clinicaltrials/ft-all-featured-trials.

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or on paper.

"We are living in a new world where patients and survivors are expected to take greater responsibility for their health, and we're not all comfortable with that," says Dr. Julia Rowland of NCI's Office of Cancer Survivorship. "Some older cancer survivors, and those from different cultural backgrounds, for example, are more comfortable with a more paternalistic model of care; they expect their doctors to be the key decision makers when it comes to choices in their cancer care," she explains.

Low literacy and low numeracy—that is, what numbers associated with risk, such as percentages and "chances," really mean—are other factors that could render otherwise helpful information useless, or possibly alarming, in unattended hands. For this reason, the IOM report recommends that health care professionals review survivorship care plans with patients during a formal discharge consultation.

Dr. Wendy Nelson, a program director in NCI's Basic and Biobehavioral Research Program, notes that NCI is funding several projects to examine how technology can help patients access and understand health information. "Decision aids are not a panacea," she says. "They have the potential to be useful adjuncts for patient-physician decision making. However, we still have a lot to learn about how decision aids work and how they are being used, even as we develop them." ◆

By Brittany Moya del Pino

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are activated accidentally.

Ovary Removal Linked to Cognitive Problems, Dementia

Women who had one or both ovaries removed before menopause for noncancer reasons faced an increased risk of developing cognitive problems or dementia later in life, according to a new study. But women who underwent estrogen replacement therapy until at least age 50 after having their ovaries removed were not at increased risk. The study supports the hypothesis that there may be a "critical age window for the protective effects of estrogen on the brain," the researchers write in the September 11 issue of *Neurology*.

The study included nearly 3,000 women, who were followed for more than 25 years. Dr. Walter Rocca of the Mayo Clinic and his colleagues studied 813 women who had 1 ovary removed, 676 women who had both ovaries removed, and a comparison group of women who did not have their ovaries removed when the study began. About half the women had their ovaries removed because of a benign condition, such as cysts or inflammation; the others had their ovaries removed prophylactically to prevent ovarian cancer. Women who had the procedure for ovarian cancer or another estrogen-related cancer (usually breast cancer) were excluded because of their high risk of death shortly after surgery.

The researchers suggest three possible mechanisms to explain the association they observed. First, ovary removal may cause an estrogen deficiency that initiates biological changes leading to the elevated risk. Second, the association may involve a deficit of progesterone or testosterone rather than estrogen secreted by the ovaries. Third, the association may be caused by susceptibility genes that independently increase both the risk of ovary removal and cognitive impairment or dementia.

The study's strengths include the long follow-up and the fact that the women were representative of the general population. Its limitations include the use of telephone interviews to assess cognitive abilities and an overall interview participation rate of 62 percent. In addition, the surgeries were done between 1950 and 1987, when surgical practices and estrogen use may have differed from today.

Nevertheless, the findings should lead to a reassessment of prophylactic removal of the ovaries in premenopausal women and of the use of estrogen treatment following ovary removal, the researchers say. "The results of this study are important for the majority of women who do not have an increased risk of ovarian cancer," says Dr. Rocca. "Women should consult with their physicians when considering the risks and benefits of prophylactic removal of the ovaries, and when considering treatment afterwards."

Genes and Environment Initiative Announces First Grants

NIH has selected the first projects to be funded as part of the Genes, Environment and Health Initiative (GEI), a unique collaboration between geneticists and environmental scientists. To identify genetic risks, researchers will use the rapidly evolving technologies used in genome-wide association studies to focus on common conditions, such as tooth decay, heart disease, cancer, and diabetes. The environmental component will begin by developing new technologies that accurately measure personal exposures with small, wearable sensors that can be used to assess environmental agents. The final component of the research strategy is to determine whether the effect of genetic variants that increase disease risk is different in the presence of environmental exposures.

In the first year, NIH will fund 8 genome-wide association studies, 2 genotyping centers, a coordinating center, and more than 30 environmental technology projects. NCI's DCCPS is the lead agency for the "Improved Measures of Diet and Physical Activity" component of the initiative. ◆

(HIV Drugs continued from page 2)

ment put stress on the endoplasmic reticulum (ER), the part of a cell where proteins are made, which triggered a process known as autophagy in which cells under stress digest themselves.

ER stress and autophagy are cellular processes that are gaining importance in cancer research because researchers suspect that impaired autophagy may contribute to cancer development. Markers of ER stress and autophagy will be useful for studying nelfinavir in clinical trials for cancer patients.

"The need for expedited development of effective cancer therapies is critical," said Dr. Dennis. "Repositioning drugs that are already FDA-approved for use in patients could greatly accelerate the development of new cancer therapies. Our data suggest that, given its wide spectrum of activity, nelfinavir could be successfully repositioned as a cancer therapeutic." ◆

By Addison Greenwood

Notes

Pioneer Awards Symposium to Take Place in September

The NIH Director's Pioneer Awards Symposium will be held on September 19 in the Natcher Conference Center on the NIH campus in Bethesda, MD. The meeting will feature the announcements of the 2007 Pioneer Award recipients and presentations by the 2006 winners.

Part of the NIH Roadmap for Medical Research, the NIH Director's Pioneer Award (NDPA) Program is a high-risk research initiative of the Research Teams of the Future theme. First announced in FY 2004, 9 awards were made in September 2004, and 13 awards each were made in 2005 and 2006. NDPA is designed to support individual scientists of exceptional creativity who propose pioneering approaches to major challenges in biomedical and behavioral research. The term "pioneering" is used to describe highly innovative and potentially transformative approaches with the potential to produce an unusually high impact, and the term "award" refers to a grant for conducting research, rather than a reward for past achievements. Additional information about the Pioneer Awards and the symposium is available at http://nihroadmap.nih.gov/pioneer/index.aspx.

NCAB Meeting Slated for September 17 & 18

The National Cancer Advisory Board (NCAB) will meet on September 17 and 18 in Room 6C10 of Building 31 on the NIH campus in Bethesda. Overflow rooms, available for closed circuit viewing, include 6C7 and 11A10 in Building 31. The meeting will be videocast at http://videocast.nih.gov.

HIV/AIDS Research Symposium Set for November

On November 1 and 2, NCI's Center for Cancer Research is sponsoring a symposium, "HIV/AIDS Research at the National Cancer Institute: A Record of Sustained Excellence," in the Masur Auditorium on the NIH campus. The symposium will celebrate the achievements in HIV/AIDS research by NCI scientists and discuss future developments in the effort to combat HIV/AIDS. Sessions will include AIDS malignancies, HIV virology and molecular pathogenesis, immunology/immunopathology, vaccines/immunotherapy, epidemiology, and drug development/resistance. Registration is free and can be completed online at http://web.ncifcrf.gov/events/hivaidsresearch2007/register.asp. For additional information, please contact Karen Kochersberger at kochersbergerks@mail.nih.gov or 301-228-4027.

Biomarkers Meeting in Brussels

On November 15–17, NCI will cosponsor the first annual meeting on "Molecular Markers in Cancer" in Brussels, Belgium. The other cosponsors are the European Organisation for Research and Treatment of Cancer and the American Society for Clinical Oncology.

The purposes of this meeting are to accelerate progress in the fight against cancer and to improve international scientific collaboration between Europe and the United States in the rapidly advancing field of cancer markers.

This meeting will bring together clinicians, pathologists, laboratory scientists, statisticians, and representatives from the pharmaceutical industry as well as regulatory agencies. A tutorial open to selected young oncologists and representatives from the pharmaceutical industry will take place before the meeting, on November 14. Additional information is available at http://www.eortc.be/seminar/enasco2007/default.htm. ◆

Funding Opportunities

For a complete listing of current NCI funding opportunities, please go to the HTML version of today's NCI Cancer Bulletin at http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_091107/page7. ◆

70 YEARS OF EXCELLENCE IN CANCER RESEARCH

If Memory Serves…

When the United States entered World War II, many laboratory and animal technicians enlisted or were drafted into the Armed Forces. Many of these technicians had originally obtained their jobs through the Works Progress Administration. After the war, many used the G.I. Bill of Rights to further their education, going on to become physicians or other medical professionals. ◆

For more information about the birth of NCI, go to http://www.cancer.gov/aboutnci/ncia.

Community Update

Online Resource To Help Medical Responders During Radiation Emergencies

Six years ago today, the terrorist attacks on America triggered a mobilization of national defense, preparedness, and resources that has no historical blueprint to follow. Plans to counter one of the most menacing threats—radiation contamination by nuclear explosion, "dirty" bomb, or some other device—have been developed with the help of NCI experts in radiation medicine.

The medical community around the globe has learned a great deal about how best to respond when people are exposed to radiation, based on decades of clinical experience with mass casualty radiation events: the atomic bombs dropped on Hiroshima and Nagasaki, nuclear reactor accidents such as Three Mile Island and Chernobyl, and accidental exposures during the transport of radioactive material.

The dilemma is that such knowledge resides primarily among experts and specialists, of which there are a limited number, and these experts may be especially scarce if the emergency were catastrophic and widespread. Also, the rarity of such an event means that up-to-date information is the optimal solution for health care providers.

This potential disconnect is addressed by Radiation Event Medical Management (REMM), a new Web site developed by planners, physicians, radiation specialists, and other subject matter experts working with the Office of the Assistant Secretary for Preparedness and Response (ASPR) in the U.S. Department of Health and Human Services (HHS) in collaboration with the National Library of Medicine (NLM). The Web site was originally conceptualized by experts from NCI, ASPR, and NLM and the unique system was created by Dr. Judith Bader of NCI and a team from NLM (led by Florence Chang and colleagues).

REMM RADIATION EVENT MEDICAL MANAGEMENT
REMM.nlm.gov

Several of the key personnel on this project are on detail from NCI, including team leader Dr. Norman Coleman of NCI's Radiation Research Program in the Division of Cancer Treatment and Diagnosis.

"REMM was established to provide just-in-time information and guidance on diagnosis and treatment to health care providers—primarily physicians—who do not have formal radiation medicine expertise," explains Dr. Coleman.

He emphasizes that REMM is just one piece of the large government network being assembled by HHS and the Department of Homeland Security. Dr. Coleman and the REMM team are part of the Office of Preparedness and Emergency Operations (OPEO). Rear Admiral W. Craig Vanderwagen is the assistant secretary for preparedness and response; the OPEO team is led by Drs. Kevin Yeskey and Ann Knebel. In OPEO, they plan for the unthinkable regarding chemical, biological, radiological, and nuclear events and scenarios, as well as planning for natural disasters.

Part of REMM's solution to this challenge is a series of decision-tree algorithms for the nonexpert physician to follow at the scene. Because access to the Internet may be compromised during an emergency, the core of REMM also comes in the form of a diagnostic and treatment toolkit that can be downloaded in advance and stored on a local computer or storage device.

For REMM, the expert NLM content team gathered guidelines, protocols, procedures, and background from scores of sources, inside and outside of the federal government, and from scientific sources abroad. The initial Web site was reviewed by some 50 subject specialists from around the world and continues to be enhanced. ◆

By Addison Greenwood