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AML Prognosis Linked to Activated Cell Signaling Pathways

A new prospective study involving 188 adult patients with acute myelogenous leukemia (AML) has demonstrated what many researchers had suspected but not necessarily proven: In cancer cells, multiple intracellular signal transduction pathways that affect functions such as cell death and proliferation are simultaneously activated. Beyond that, however, was a more unexpected finding: The more of these pathways that are activated, the worse a patient's prognosis.

The findings, say the research team that conducted the study, strongly suggest that when one of these pathways is activated as a result of a genetic mutation or some other mechanism, other important signaling pathways that influence cancer cell development and proliferation—pathways that would typically be static or only mildly active in a normal bone marrow or white blood cell—also become activated, often referred to as "crosstalk."

One other finding, said the study's lead author, Dr. Steven M. Kornblau from the University of Texas M.D. Anderson Cancer Center, further supports this contention.

"We found that patients were far more likely to have all of [the path-

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Director's Update

Dr. Anna Barker, NCI Deputy Director for Advanced Technologies & Strategic Partnerships

Guest Director's Update by Dr. Anna Barker

The Biomarkers Consortium: A Unique Public-Private Partnership to Advance 21st Century Medicine

Last week marked the launch of an unprecedented public-private research partnership called the Biomarkers Consortium. This unique partnership will design and perform clinical studies to validate biological markers that are deemed to be of value in accelerating the development and regulatory review processes for new drugs, biologics, and technologies to treat, detect, and prevent a variety of diseases, including cancer.

The Consortium was created by the Foundation for the National Institutes of Health (FNIH), the National Institutes of Health (NIH), the Food and Drug Administration (FDA), the Pharmaceutical Research and Manufacturers of America, the Biotechnology Industry Organization, and several nonprofit organizations. In a rare move, an initial group

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ways] turned on, or none turned on," Dr. Kornblau explained. "That was pretty good evidence for crosstalk."

Evidence of extensive crosstalk could have significant implications for the development of new targeted treatments for AML and possibly other cancers, he argued. If a compound only inhibits a single target in one of these pathways, the other pathways can continue to fuel the cancer.

"There's a lot of redundancy in these pathways and a lot of ways to get from point A to point B," Dr. Kornblau said.

Published in the October 1 issue of the journal *Blood*, the results may help explain what many researchers have considered a substandard performance of the molecularly targeted agents already in clinical use, said Dr. Jerry Radich of the Fred Hutchinson Cancer Research Center.

"This underlines what we've suspected for a while," he said. "Within a cell there is a complicated system of checks and balances, and to become a leukemia cell so many things have to go wrong…that it will be very difficult to target one unique pathway and kill all of the cells."

Dr. Kornblau and his colleagues conducted the study by analyzing peripheral blood or bone marrow samples from patients with newly diagnosed AML being treated at M.D. Anderson between 1999 and 2004. The team focused their analysis on the signaling pathways—PKCα, RAS/Raf/MEK/ERK, and PI3K/AKT—that they and others have previously identified as being highly active in AML patients.

Activation of each individual pathway correlated not only with overall survival, but also with the ability to achieve complete remission and remission duration.

To overcome this crosstalk, said Dr. Kornblau, increased cooperation between industry and academic investigators to conduct studies and clinical trials that test several agents with different targets is desperately needed.

Dr. Radich agreed. "It's going to take a change in how investigators, pharmaceutical companies, and the FDA look at these things," he said.

To date, intellectual property and regulatory hurdles have made it very difficult to conduct such studies, Dr. Kornblau said.

But according to Dr. James Zwiebel, acting chief of NCI's Investigational Drug Branch, NCI is making progress in this area. "We have executed

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of drug and biotech firms that are normally competitors have shown significant vision in donating funds and expertise to FNIH in support of this important initiative.

At a joint press conference on October 5, leaders of the agencies and organizations announced that $1.2 million has been committed to date by the Consortium's funding members, which include, in addition to those listed above: the Alzheimer's Association; AstraZeneca; Bristol-Myers Squibb; GlaxoSmithKline; the Leukemia & Lymphoma Society; Johnson & Johnson; Eli Lilly & Company; Pfizer Inc.; and F. Hoffmann-La Roche.

NCI has long been at the forefront of research and development of biomarkers for use in diagnosis and treatment for a variety of cancers. In fact, the first projects to be undertaken by the Consortium will be two clinical trials developed by NCI in collaboration with FDA and the Centers for Medicare and Medicaid Services. These projects will evaluate the use of fluorodeoxyglucose-positron emission tomography (FDG-PET) as a tool to measure treatment response in non-Hodgkin lymphoma and lung cancer. Dr. Gary Kelloff, of NCI's Cancer Imaging Program, provides a brief summary of these studies in this issue of the *NCI Cancer Bulletin*.

NCI will be responsible for the overall management of these studies and will oversee the national clinical research groups that will execute these projects. We will provide $1.5 million toward the lung study and approximately $2.25 million of in-kind support for the lymphoma study. The studies will also be funded by grants to FNIH totaling $7.5 million over 5 years. Thus far, $3.75 million has been raised from several private partners and others are expected to join this effort.

Although we are early in the development of imaging tools as biomarkers, this research holds the potential to be used not only in the diagnosis of cancer, but also in monitoring and potentially serving as a predicting marker for response to therapy.

In the future, the Biomarkers Consortium will pursue additional projects in several other disease states including major depression, diabetes, and cardiovascular disease. As FNIH Chairman Dr. Charles A. Sanders noted last week, "Rapid realization of the aims of the Biomarkers Consortium is beyond the capacity of any single sector of our nation's healthcare enterprise. It requires the expertise of all stakeholders—government, industry, patient groups, academia, and other private groups." ◆

Cancer Research Highlights

Antibiotic May Be Effective Against an Ocular Lymphoma

A new study suggests that a common antibiotic may be an effective treatment for a rare form of lymphoma that occurs in and around the eyelid, even if the patient is not infected with the bacterium that has been linked to this particular cancer.

Published in the October 4 *Journal of the National Cancer Institute* (*JNCI*), the 27-patient prospective clinical trial by Italian researchers found that the antibiotic doxycycline could induce complete or partial tumor regression in patients with ocular adnexal MALT lymphoma (OAL), including those with newly diagnosed cancer or who had relapsed after previous radiation or chemotherapy treatments.

Some of the same researchers, including lead author Dr. Andres J. M. Ferreri of the San Raffaele H. Scientific Institute in Milan, had previously shown a link between OAL and infection with *Chlamydia psittaci* (*Cp*). In this study, however, some patients responded to a 3-week course of treatment with doxycycline even if they were *Cp*-negative. Of the *Cp*-positive patients, 7 of the 11 responded to doxycycline treatment, while 6 of the 16 *Cp*-negative patients responded.

Two years after treatment, 66 percent of patients were disease free. Because of the short follow-up with some patients and the fact that "a sizeable fraction of OAL patients experienced slow and gradual tumor regression" after treatment, the authors argued that the results may underestimate doxycycline's true impact.

The responses seen in *Cp*-negative patients could have multiple interpretations, the authors noted. It could mean the patients are truly *Cp*-positive but the bacterium's DNA levels were too low and could not be detected by the PCR test they used, or it could be that other doxycycline-sensitive bacteria are associated with OAL.

The findings, they concluded, need to be confirmed in larger studies.

NPRL2 Gene Influences Cisplatin Resistance

New research from the University of Texas M.D. Anderson Cancer Center and Southwestern Medical Center suggests that loss of function of the tumor-suppressor gene *NPRL2* may play an important role in cisplatin resistance in non-small-cell lung cancer (NSCLC). The study was published in the October 1 *Cancer Research*.

In 40 NSCLC cell lines, expression of the NPRL2 protein correlated with cisplatin sensitivity; most cell lines that had little or no NPRL2 protein expression were resistant to the chemotherapy drug. The authors then used nanoparticle-mediated gene transfer to force the expression of NPRL2 in several of the cell lines, both in the presence and absence of cisplatin. The combination of NPRL2 and cisplatin synergistically inhibited tumor-cell growth in cisplatin-resistant cell lines. The combination also caused a significant and synergistic increase in cell death.

The investigators then tested the combination of nanoparticle-delivered NPRL2 and cisplatin in mice bearing NSCLC xenografts established from cisplatin-resistant cell lines. Again, the combination significantly and synergistically inhibited tumor growth and increased cell death, more so than either the NPRL2 nanoparticles or cisplatin delivered alone. Total tumor volumes were reduced more than 90 percent in mice receiving the combination of treatments.

"Our results suggest that NPRL2 has potential…as a molecular therapeutic agent for enhancing and resensitizing the response of nonresponders to cisplatin treatment," stated the authors. They also suggest that expression of the gene may have potential as a biomarker for the prediction of cisplatin response in NSCLC.

Fanconi Anemia Gene Linked to Breast Cancer Risk

A gene that is mutated in some patients with the blood disease Fanconi anemia may also be a risk factor for breast cancer. Researchers estimate that certain mutations in the gene *BRIP1* result in a twofold increase in breast cancer risk. This puts the gene in a class with two other breast cancer susceptibility genes, *CHEK2* and *ATM*, which may predispose a woman to cancer only in the presence of other genetic or environmental risk factors. By comparison, mutations in the breast cancer susceptibility genes *BRCA1*, *BRCA2*, and *TP53* confer a 10- to 20-fold increased risk of the disease.

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Dr. Nazneen Rahman of the Institute of Cancer Research in Sutton, U.K., and her colleagues discovered the gene by analyzing proteins that interact with the proteins of known breast cancer susceptibility genes. The BRIP1 protein interacts with the breast-cancer associated protein BRCA1, according to findings published online October 10 in *Nature Genetics*.

The researchers screened for *BRIP1* mutations in 1,212 women with breast cancer who lacked mutations in *BRCA1* and *BRCA2*. They found 9 women who had "truncating" mutations in *BRIP1,* which probably inactivate the BRIP1 protein; only 2 of 2,081 women without breast cancer in a comparison group had such mutations. Several of the *BRIP1* mutations they detected had been reported in patients with Fanconi anemia.

Like other breast cancer susceptibility genes, *BRIP1* may play a role in repairing damaged DNA. The researchers predict that "other genes involved in DNA repair processes may also be involved in breast cancer susceptibility." Together, the known breast cancer susceptibility genes are estimated to account for up to 25 percent of the familial, or inherited, risk of the disease, leaving most of the risk unexplained.

New Estimate: Smoking Reduction Central to Cancer Mortality Decline in Men

Between 1991 and 2003, the nation's overall cancer death rate decreased by nearly 12 percent. Now, in a paper published in the October 1 *Tobacco Control*, researchers from the American Cancer Society provide an estimate of the contribution of decreased smoking to this important trend.

Drs. Michael Thun and Ahmedin Jemal first compared the observed overall cancer death rate to the lung cancer death rate between 1991 and 2003. In men, the overall cancer death rate dropped by 16 percent, but the lung cancer death rate dropped even more precipitously (by 20 percent); 40 percent of men's decreased overall cancer death rate can be attributed to their decreased rate of lung cancer. In contrast, while the overall cancer death rate among women decreased by 11.6 percent, the lung cancer rate increased by 9.6 percent, preventing a larger drop in the overall female cancer rate.

Lung cancer death rates largely reflect smoking prevalence from decades past. While male smoking prevalence began a steady decline in the mid-1960s, female smoking prevalence began declining steadily only in the mid-1980s. Reflecting this, the male lung cancer death rate has been declining for some time, while the lung cancer death rate for women is still climbing, although at a slower rate than in the past.

Drs. Thun and Jemal also estimate that about 146,000 lung cancer deaths among men were prevented or postponed between 1991 and 2003 because of earlier declines in smoking rates. They conclude that "the payoff from past investments in tobacco control has only just begun," but caution that "sustained progress in tobacco control is essential if we are to continue to make progress against cancer."

Racial Disparities Persist in Endometrial Cancer

African American women with advanced stage endometrial cancer have lower survival rates than white women with the disease even when both groups receive similar treatments, according to a study published online September 25 in *Cancer*.

Previous studies on the disparities in outcomes and survival for African American women with endometrial cancer have suggested that the poorer prognosis was due to differences in treatment, noted researchers led by Dr. G. Larry Maxwell of Walter Reed Army Medical Center. "The objective of the current study was to determine whether race influenced the survival of patients with advanced endometrial cancer," they note.

The retrospective study analyzed data from 169 African American women and 982 white women who were participants in 4 randomized treatment trials conducted by the Gynecologic Oncology Group, where the patients received "contemporary chemotherapy regimens that included doxorubicin." The pooled data revealed that African American women were more likely to have papillary serous histology Stage IV disease and higher tumor grade compared with white women; survival was also worse among African American women than among white women (median survival: 10.6 months vs. 12.2 months, respectively). The study results were initially presented at a gynecological cancer conference in 2005 (See *NCI Cancer Bulletin*, March 29, 2005).

"Our findings suggest that, even when patients with advanced endometrial cancer receive similar therapy, black women have a worse overall survival compared with white women," the researchers comment. "Although the causes of racial disparity in endometrial cancer remain to be elucidated, socioeconomic, biologic, and cultural factors should be investigated to identify the etiologic origins of this multifactorial health care problem." ◆

A Conversation With Dr. Gary Kelloff

Dr. Gary Kelloff is special advisor to NCI's Cancer Imaging Program in the Division of Cancer Treatment and Diagnosis. He is providing scientific input for the FDG-PET Lung and Lymphoma Projects being sponsored by the Foundation for the National Institutes of Health's Biomarkers Consortium (See "Director's Update").

What are the FDG-PET Lung and Lymphoma Projects?

These projects emerged from discussions among NCI, FDA, and the Centers for Medicare and Medicaid Services under the auspices of the Oncology Biomarkers Qualification Initiative (OBQI) announced earlier this year. The three federal health agencies believe that FDG-PET can provide an early indication of therapeutic response that is well correlated with clinical outcomes for chemotherapy in common forms of lung cancer and lymphoma.

FDG (fluorodeoxyglucose) is a glucose analog with a radioactive tracer attached to it. Tumor cells, particularly those from especially aggressive tumors, will consume significantly larger amounts of it than normal surrounding tissue. The result is that FDG's presence can be detected by PET (positron emission tomography) imaging in tumors as small as 1 centimeter.

These FDG-PET clinical trials could have enormous effect on patient management by validating a tool that can identify response to treatment and help in developing new drugs.

What is the focus of the FDG-PET lung study?

The FDG-PET lung project is based on the American College of Radiology Imaging Network phase II study of FDG-PET/CT as a predictive marker of tumor response and patient outcome in non-small-cell lung cancer (NSCLC). Studies have shown that lung cancer tumors have very high rates of glucose utilization and can be imaged efficiently by FDG-PET. The availability of such a sensitive measurement could streamline clinical trials of new treatments for lung cancer and, hence, accelerate new drug approvals.

What is the focus of the FDG-PET lymphoma study?

The FDG-PET lymphoma study is based on the Cancer and Leukemia Group B phase III randomized FDG-PET assessment and comparison of R-CHOP—the standard chemotherapy for diffuse large B-cell lymphomas (DLBCL)—with dose-adjusted-EPOCH-R, a new regimen for DLBCL. FDG uptake has been a significant early predictor of residual or recurrent disease and disease progression, as well as progression-free and overall survival. So far, there are no standardized criteria for PET imaging or established procedures for transmission, storage, quality assurance, and analysis of PET images. This project is a first step in developing the standardized protocols and endpoints that will be needed to move forward.

Will results and data from the FDG-PET projects be made publicly available?

One of the goals of the Biomarkers Consortium is to make the research results and data publicly available as quickly as possible. We expect that the data generated from these projects will be made publicly available through NCI'S Web-based cancer Biomedical Informatics Grid™, which enables the access and sharing of clinical trial data. ◆

Funding Opportunities

Following are newly released NCI research funding opportunities:

Improved Measures of Diet and Physical Activity for the Genes and Environment Initiative

Announcement Number: RFA-CA-07-032
Letter of Intent Receipt Date: Dec. 11, 2006.
Application Receipt Date: Jan. 11, 2007.

This funding opportunity will use the U01 award mechanism. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3542. Inquiries: Dr. Amy F. Subar—subara@mail.nih.gov.

Manufactured Nanomaterials: Physico-Chemical Principles of Biocompatibility and Toxicity

Announcement Number: RFA-ES-06-008
Letter of Intent Receipt Date: Dec. 13, 2006.
Application Receipt Date: Jan. 12, 2007.

This funding opportunity will use the R01 award mechanism. For more information, see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=3543. Inquiries: Dr. Sally S. Tinkle—tinkle@niehs.nih.gov. ◆

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agreements with industry collaborators that have allowed combinations of investigational agents in both preclinical studies and clinical trials," he said.

NCI's Cancer Therapy Evaluation Program is currently sponsoring approximately 130 clinical trials of investigational agent combinations, he added, compared with approximately 15 such trials in 2000. ◆

By Carmen Phillips

Featured Clinical Trial

Adjuvant Biological Therapy for Pancreatic Cancer

Name of the Trial
Phase II Randomized Study of Adjuvant Therapy Comprising Bevacizumab Versus Cetuximab in Combination with Gemcitabine Hydrochloride, Capecitabine, and Radiotherapy in Patients with Completely Resected Carcinoma of the Pancreas (ECOG-E2204). See the protocol summary at http://cancer.gov/clinicaltrials/ECOG-E2204.

Dr. Jordan Berlin

Principal Investigators
Dr. Jordan Berlin, ECOG; Dr. Arthur William Blackstock, CALGB; Dr. Andrew Lowy, SWOG; and Dr. Robert McWilliams, NCCTG

Why This Trial Is Important
Pancreatic cancer is one of the most deadly types of cancer, with fewer than 4 percent of patients surviving 5 years or longer. The best chance for long-term survival is complete surgical removal (resection) of the tumor. However, even resectable patients face a high likelihood of recurrence. To help improve the outcome for patients with resectable pancreatic cancer, doctors currently treat these patients with postoperative (adjuvant) chemotherapy and radiation therapy.

In this trial, patients with completely resected pancreatic cancer will receive adjuvant chemotherapy and radiation therapy plus additional treatment with either bevacizumab or cetuximab. Bevacizumab and cetuximab are biological agents that target different proteins that are thought to be important for tumor growth and spread. Bevacizumab blocks the activity of vascular endothelial growth factor (VEGF), a protein used by some tumors to form new blood vessels. Cetuximab blocks the activity of epidermal growth factor receptor (EGFR), a protein that promotes cell growth and proliferation.

"Our primary goal with this trial is to assess the safety of these biologic therapies in combination with standard adjuvant treatment," said Dr. Berlin. "Additionally, we hope to see some measures of effectiveness that we can build on in future studies."

Who Can Join This Trial
Researchers will enroll 126 patients with pancreatic cancer that has been completely removed by surgery within the previous 4–8 weeks. See the list of eligibility criteria at http://cancer.gov/clinicaltrials/ECOG-E2204. This trial is eligible for special Medicare coverage.

Study Sites and Contact Information
Study sites in the U. S. are recruiting patients for this trial. See the list of study contacts at http://cancer.gov/clinicaltrials/ECOG-E2204 or call NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237) for more information. The toll-free call is confidential. ◆

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

Notes

CISNET Breast Cancer Modeling Monograph Available

JNCI has released a new monograph, *The Impact of Mammography and Adjuvant Therapy on U.S. Breast Cancer Mortality (1975–2000): Collective Results from the Cancer Intervention and Surveillance Modeling Network* (CISNET).

Results of the CISNET breast cancer consortium study, initially published in 2005, showed that about half the decline in U.S. breast cancer mortality could be attributed to adjuvant therapy and half to mammographic screening.

The *JNCI* monograph provides more detail than previously available on how the modelling was done by each of the seven groups involved in this study, common inputs shared by all of the groups, and a comparison of results. Information on how to obtain the monograph can be found at http://jncicancerspectrum.oxfordjournals.org/jncimono/.

CCR Grand Rounds

October 24: Dr. Lee M. Ellis, Professor of Surgery and Cancer Biology, The John E. and Dorothy J. Harris Professor in Gastrointestinal Cancer Research, University of Texas M.D. Anderson Cancer Center. "VEGF Biology: Beyond Angiogenesis."

October 31: Dr. John Barrett, Chief, Stem Cell Allotransplantation Section, Hematology Branch, National Heart Lung and Blood Institute. "How Can We Improve the Antileukemic Effect of Allogeneic Stem Cell Transplantation?"

CCR Grand Rounds are held 8:30 to 9:30 a.m. at the NIH campus in Bethesda, Md., in the Clinical Center's Lipsett Amphitheater. ◆

Presidential Proclamation for Breast Cancer Awareness in October

The White House has issued a presidential proclamation designating October as National Breast Cancer Awareness Month. For information from NCI on breast cancer, go to http://www.cancer.gov/cancertopics/types/breast.

Researchers Honored by Myeloma Foundation

The multinational team of scientists who developed the "Bank on a Cure" project of the International Myeloma Foundation will be honored at the foundation's anniversary gala on October 21. Dr. Dalsu Baris, a scientist in NCI's Division of Cancer Epidemiology and Genetics, is a member of the "Bank on a Cure" team. The project collects and catalogs DNA samples from multiple myeloma patients and their families, which are then analyzed for genetic variations that may contribute to a predisposition to the disease or may influence the response to a specific treatment.

Nutrition and Cancer Lecture Slated for October 23

Dr. Sheila Bingham of the Medical Research Council Dunn Human Nutrition Unit, Cambridge, United Kingdom, will be the featured speaker in the NCI/NIH Stars in Nutrition & Cancer lecture series. Dr. Bingham will discuss "Nutritional and Molecular Biomarkers in Diet and Cancer Epidemiology." The lecture will take place on October 23 from 3:00–5:00 p.m. in the Lipsett Amphitheater in the NIH Clinical Center. The lecture is free and registration is not required.

For more information, go to http://www.cancer.gov/prevention/stars3/index.html or e-mail trujille@mail.nih.gov.

Save the Date for caBIG™ Annual Meeting

The cancer Biomedical Informatics Grid™ (caBIG™) Annual Meeting will take place February 5–7, 2007 at the Wardman Park Marriott Hotel in Washington, D.C. The meeting will feature more than 80 scientific presentations, technology demonstrations, and interactive sessions for real-time contributions to caBIG™ activities. For information about the 2007 meeting, go to https://cabig.nci.nih.gov/2007caBIGconference/. Information about caBIG™ can be found at https://cabig.nci.nih.gov. ◆

Special Issue on Cancer Survivorship

Next week, the *NCI Cancer Bulletin* will publish a special issue. Among other things, the issue will highlight the 10th anniversary of NCI's Office of Cancer Survivorship and provide information on NCI research in the areas of childhood cancer survivors, mental and physical health of cancer survivors, and issues facing cancer caregivers. The issue will also contain a list of resources and links for researchers, clinicians, patients, and families. ◆

Community Update

Improving Patient-Reported Outcomes in Clinical Trials

The endpoint typically used to measure the effectiveness of a cancer treatment in clinical trials is whether the intervention helps patients live longer. As new therapies lead to a growing number of cancer survivors and patients increasingly receive multiple treatments, the use of survival as an endpoint has become problematic because it can be difficult to accurately determine the specific impact of each intervention. Consequently, other reliable endpoints are needed, and researchers have sought patient input in developing other measures of clinical benefit, including patient-reported outcomes (PRO) related to quality of life.

More than 200 researchers joined representatives from the health care industry, patient advocacy organizations, and government to discuss the evolving field of PRO at the September 20–21 PRO Assessment in Cancer Trials (PROACT) conference. NCI's Division of Cancer Control and Population Sciences, Division of Cancer Prevention, and Division of Cancer Treatment and Diagnosis (DCTD) cosponsored the conference with the American Cancer Society.

Conference goals included identifying when, where, and how PRO assessment brings significant value to a clinical trial; developing guidelines for PRO assessment and data collection; identifying research studies and application projects that would improve health-related quality of life (HRQOL) and symptom measurement in cancer clinical trials; and identifying issues for implementing PRO research in NCI-sponsored clinical trials, including those addressed by NCI's Clinical Trials Working Group (CTWG).

CTWG developed a plan to restructure NCI clinical trials around new and effective priorities. Dr. James Doroshow, CTWG chair and DCTD director, noted that CTWG's plan included a focus on symptom management and HRQOL. "NCI is committed to supporting research in symptom management and health-related quality of life," he said.

With representation from the cancer community, CTWG's Symptom Management and HRQOL Steering Committee will identify the resources needed to support PRO measures in national treatment trials in which NCI has a role. Dr. Doroshow said he expects the steering committee to have a strong influence on the criteria NCI uses to review quality-of-life studies, as well as on the PRO aspects of many trials conducted by the cooperative groups and community oncology programs. The first steering committee meeting will take place in the spring of 2007.

At the PROACT conference, the application and value of symptom and HRQOL data in NCI-sponsored phase I, II, and III treatment and symptom management trials were explored through in-depth case studies. Both learning opportunities and instances in which PRO yielded valuable information for decisions about cancer care, third-party payment, and drug approval were identified.

Based upon these case studies, conference participants began to identify best practices for using PRO measures to ensure that the most important HRQOL studies can be incorporated quickly into NCI-sponsored trials.

Conference presentations will be available in the near future at: http://outcomes.cancer.gov. ◆

Featured Meetings and Events

A calendar of scientific meetings and events sponsored by the National Institutes of Health is available at http://calendar.nih.gov ◆

The *NCI Cancer Bulletin* is produced by the National Cancer Institute (NCI). NCI, which was established in 1937, leads the national effort to eliminate the suffering and death due to cancer. Through basic, clinical, and population-based biomedical research and training, NCI conducts and supports research that will lead to a future in which we can identify the environmental and genetic causes of cancer, 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://www.cancer.gov. Contact the *NCI Cancer Bulletin* staff at ncicancerbulletin@mail.nih.gov.