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Study Explores Health Benefits and Cost-Effectiveness of HPV Vaccinations and Screening Strategies

The most cost-effective strategy for human papillomavirus (HPV) vaccination and screening would initiate vaccinations at age 12, followed by cytology screening for HPV every 3 years beginning at age 25, according to the results of a new computer-based modeling study. This approach would reduce mortality due to cervical cancer by 94 percent compared with no intervention at all, concluded the study's authors, Dr. Sue J. Goldie from the Harvard School of Public Health and colleagues, in the April 21 *Journal of the National Cancer Institute*.

In the study, the cost-effectiveness of various vaccination strategies for two of the most oncogenic HPV strains (16 and 18) and screening—alone and in combination—were examined. All vaccinations were begun at 12 years of age; screenings began at 18, 21, 25, 30, or 35 years of age, with screening intervals ranging from 1 to 5 years. The researchers modeled varying effectiveness of the vaccines ranging from 70 percent to 100 percent. The next most cost-effective strategy, which resulted in an 89.7 percent reduction in mortality, involved a combination of vaccination with screening every 5 years beginning at age 21.

Vaccination at 12 years of age would allow for a later age of screening initiation and less frequent screening intervals than are currently recommended, the authors concluded. Under current U.S. Preventive Services Task Force recommendations, a woman should begin cervical cancer screening 3 years after she begins having sexual intercourse, but no later than age 21; subsequently women should be

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Director's Update

A Model for Addressing Health Care Disparities

In late March, the trans-HHS Cancer Health Disparities Progress Review Group (PRG) released its report, *Making Cancer Health Disparities History*. The report includes recommendations to the U.S. Department of Health and Human Services (HHS) intended to significantly reduce cancer health disparities in the United States.

Last week I had the honor of officially presenting the PRG's final report to the recently formed HHS Health Disparities Council. The council, which is charged with establishing a coordinated, HHS-wide approach to battling health care disparities, will review the report and decide which recommendations can and should be pursued.

Reports describing health care disparities are not new; however, this report was unique in several respects. First, HHS Secretary Tommy Thompson requested that the National Cancer Institute (NCI) lead an HHS-wide review of cancer health disparity reduction initiatives. The report was to include recommendations that HHS could use to make swift progress in reducing cancer health disparities. Second, a federal steering committee, including representatives from HHS agencies,

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(HPV continued from page 1)
screened at least once every 3 years.

Persistent HPV infection is the major cause of cervical cancer, and HPV DNA has been found in more than 99 percent of all cervical cancers. Although there are more than 100 strains of HPVs, 4 strains—HPV 16, 18, 45, and 31—account for about 75 percent of all of the cervical cancers diagnosed each year.

Researchers have been developing and studying the efficacy of HPV vaccines against these high-risk strains. Although no HPV vaccines have been approved by the U.S. Food and Drug Administration, data from clinical trials have produced encouraging results. An 18-month placebo-controlled phase II clinical trial of an HPV 16 vaccine, for example, demonstrated 100 percent efficacy in preventing persistent HPV 16 infection and associated cervical lesions.

With phase III clinical trials underway for both HPV 16 and HPV 18 vaccines, many researchers are investigating how best to implement a combined strategy of primary vaccination against HPV and secondary screening for prevention of cervical cancer.

"While phase III trials provide valuable information about the short-term efficacy of vaccination on HPV infection, decades of follow-up would be necessary to directly observe the ultimate impact of vaccination on cervical cancer mortality," said Dr. Martin Brown, chief of NCI's Health Services and Economics Branch. "The complex trials designed to evaluate combination programs of vaccination and subsequent testing regimens would be logistically infeasible and prohibitively expensive."

Computer-based mathematical modeling, the study authors explained, "can be a useful tool, in conjunction with vaccine efficacy trials, to incorporate data from multiple sources, to extrapolate clinical and economic data beyond the time horizon of a clinical study, to evaluate more strategies than are possible in a single clinical trial, and to assess the relative costs and benefits of alternative policies (screening and/or vaccination) in reducing mortality from cervical cancer."

"Studies such as this one," cautioned Dr. Brown, "try to extrapolate based on currently available data, and there is always a degree of uncertainty about their conclusions."

The authors noted several quantitative limitations to this work; however, a study using a different model, published last year in the *Journal of the American Medical Association*, reached the same general conclusions about an HPV vaccination and screening strategy. ◆

(Director's Update continued from page 1)
participated side by side with representatives from the scientific and health policy communities in the progress review process and in formulating the final recommendations.

One of the most remarkable aspects of this report is that it represents the first time that NCI's PRG process was used to review and produce recommendations on such a large-scale problem as cancer health disparities. The PRG process, created by NCI, was designed to provide periodic state-of-the-science reviews and recommendations on specific cancer sites such as prostate and lung cancer. The PRG recommendations are produced as a result of a standard, disciplined, broad process that incorporates a comprehensive literature review and a concept-mapping technique, as well as the traditional contributions of expert panels. The successful adaptation of the PRG process to cancer health disparities opens the door to using the process to review and provide recommendations for other health disparities.

As a member of the trans-HHS Cancer Health Disparities PRG, I am proud of the product that our group produced. It offers priority areas that need to be addressed, with recommendations that span the spectrum from the practical (e.g., expand screening for breast, cervical, and colorectal cancer) to the conceptual (e.g., ensure that *every* cancer patient has access to state-of-the-science care).

The PRG understood that our recommendations must and will be considered in the context of real-world practicality. Every recommendation cannot simply be implemented tomorrow. Some will require legislative action; others would require structural changes within HHS; and all must compete for limited funding. I think I can safely speak for the entire PRG when I say that implementing even some of the report's recommendations will help reduce cancer care disparities. To read the full report, visit www.chdprg.omhrc.gov.

My presentation to the HHS Disparities Council happened to occur during National Minority Cancer Awareness Week. Earlier in the week, I had the opportunity to do an interview on a popular, Washington, D.C.-based African American radio station to talk about how the staggering obesity rates in the African American community are further exacerbating many African Americans' already increased risk of cancer. Simple outreach efforts like radio interviews, op-ed articles in the local newspaper, and community events will also be very important components of any effort to decrease disparities in cancer. No matter what actions are taken on the Federal level, each of us must continue to spread the word in our communities about the threat that cancer poses to *all* Americans and the most effective ways to prevent, diagnose, and treat it. ◆

Dr. Mark Clanton
Deputy Director, Cancer Care and Delivery Systems, NCI

Cancer Research Highlights

Signaling Pathways Controlling c-Myc Degradation Shown to Affect Oncogenic Transformation of Human Cells

In the April issue of *Nature Cell Biology*, Dr. Elizabeth Yeh and colleagues describe a sequence of molecular events that regulates the stability of the c-Myc protein, a transcription factor essential for normal cell proliferation that modulates the expression of genes involved in cell-cycle control, differentiation, and apoptosis. c-Myc is overexpressed in many human cancers, and when too much of the c-Myc protein accumulates by failing to degrade, it contributes to oncogenesis.

Scientists have known that activation of the Ras signaling pathway stabilizes the normally short-lived c-Myc protein and that deactivation of Ras signaling allows degradation of the protein via the ubiquitin-proteasome pathway. Yeh and colleagues have elucidated the mechanisms that control this sequence of events—specifically, the sequential phosphorylation of two highly conserved amino acid residues, serine 62 (Ser 62) and threonine 58 (Thr 58).

During Ras activation, the c-Myc protein is phosphorylated at Ser 62, which stabilizes it, allowing its effects on the cell to become amplified. To ensure that the subsequent increase in the amount of protein is temporary, Ser 62 phosphorylation triggers a cascade of molecular interactions that culminate with the phosphorylation of Thr 58. This second phosphorylation event tags the protein for degradation. The authors conclude, therefore, that "the role of the interrelated phosphorylation and dephosphorylation events is to ensure that Ras-mediated amplification of c-Myc protein levels is indeed transient and self-limited."

Several types of cancer—including Burkitt's lymphoma and all cancers caused by retroviruses—have been found to possess the form of the c-Myc protein that is mutated at Thr 58. As the authors observe, "at least one functional consequence of c-Myc stabilization in human cells is to sensitize the cells to transformation and tumorigenesis."

Halting of Antitobacco Campaign Increases Youth Smoking Susceptibility

The discontinuation of an aggressive advertising campaign aimed at reducing tobacco use in teens increased the number of adolescents susceptible to cigarette smoking, according to a new study from University of Miami and NCI researchers. Six months after a comprehensive Minnesota state antitobacco campaign ceased in July 2003 due to massive cutbacks in funding for antismoking programs, the number of adolescents who said they would smoke sometime in the next year increased from 43.3 percent to 52.9 percent.

In the analysis, published in the April 16 *Morbidity and Mortality Weekly Report*, researchers looked at results from surveys of more than 1,000 teens aged 12 to 17. The surveys, conducted during and after the three-year antitobacco campaign, were devised to gauge teens' awareness. The teens were specifically asked about their awareness of the campaign's Target Market branding and whether they would smoke in the next year.

Studies have shown that comprehensive state antitobacco programs, especially those with strong advertising (i.e., paid media) campaigns, have contributed to the substantial decline in adolescent smoking since 1997, the researchers noted. "These findings suggest that state cutbacks in antitobacco campaigns might increase the susceptibility of youths to smoking, which is a key predictor of adolescent tobacco use," they wrote. "Because tobacco use remains the leading preventable cause of death in the United States, efforts to prevent smoking initiation among youths can have a profound impact on public health."

Trial Testing Rituximab for Indolent NHL Reaches Endpoint Two Years Early

A phase III clinical trial evaluating the anti-CD20 monoclonal antibody rituximab (Rituxan) in patients with relapsed indolent non-Hodgkins lymphoma (NHL) has met its primary endpoints of response rate and progression-free survival two years earlier than expected, the drug's manufacturer, Roche, has announced.

In the trial, which involved sites in 18 countries, 321 relapsed indolent NHL patients were randomly assigned to receive rituximab plus chemotherapy or chemotherapy alone as initial treatment. Responding patients were then randomly assigned to receive either rituximab for two years as maintenance therapy or no further treatment. An interim analysis demonstrated rituximab's superior efficacy in both parts of the trial. With chemotherapy alone, the median point for time to progression of the disease was 15 months, while chemotherapy plus rituximab extended this to 27 months. ◆

Special Report

Pushing Boundaries with Team Science

The following is the first article in a two-part series on how NCI is promoting transdisciplinary research and team science. Part two will cover some of the important epidemiology and population consortium initiatives that NCI is participating in/funding that stretch across multiple disciplines.

Whenever the key impediments to rapid progress in cancer research are discussed, the "silo approach" to research—investigators working only with others in their same discipline—is invoked. Those trying to span the divide between different research disciplines and work collaboratively often find themselves frustrated by roadblocks, including difficulties securing funding or lack of basic infrastructure to support a project that requires diverse expertise.

The launch of initiatives such as the cancer Biomedical Informatics Grid and the Integrative Cancer Biology Program has shown that team science is clearly a top priority at NCI (see *NCI Cancer Bulletin*, March 2 and Feb. 24, respectively). "Significant research advances will increasingly result from interdisciplinary and multidisciplinary teams working together to solve complex problems in cancer," says Dr. J. Carl Barrett, director of the NCI Center for Cancer Research (CCR).

The CCR, for example, was created in 2001 based on this very thinking, merging two NCI intramural divisions devoted to basic and clinical sciences.

"This structure increases interactions among basic, translational, clinical, and population scientists facilitating the translation of basic science discovery to the clinical setting," says Dr. Barrett. "An inherent goal of the CCR is to create an environment in which investigators are rewarded for creativity and for engaging in collaborative interdisciplinary and multidisciplinary research."

This approach to research is already bearing impressive fruit. The collaboration between CCR and Food and Drug Administration (FDA) researchers on the clinical proteomics program, for instance, has generated important findings that may lead to new tests that can detect prostate and ovarian cancer in the earliest stages. The success of the NCI-FDA proteomics program, according to the program's co-director, Dr. Lance Liotta, is a result of work by a broad spectrum of scientists: basic biologists, biomedical engineers, pathologists, device experts, and many others.

The NCI-FDA clinical proteomics team is planning to add a nanotechnology component to the process, which already relies on another sophisticated form of technology, mass spectroscopy. By combining the two, Dr. Liotta says, the team believes it can develop "a highly sensitive test applicable to early diagnosis for a variety of cancers."

The NCI-sponsored Lymphoma/Leukemia Molecular Profiling Project, led by Dr. Louis Staudt from the CCR Metabolism Branch, also owes much of its success to its transdisciplinary approach. Researchers with expertise in genomics, molecular biology, pathology, clinical investigation, information technology, and statistics have all contributed to this exciting project, which is using DNA microarray technology as a potential method for individualizing cancer diagnosis and treatment.

The team science concept is by no means limited to NCI intramural programs. NCI extramural programs are also getting involved. For example, NCI is helping to bring a transdisciplinary approach to a very promising area of investigation, cancer imaging research, says Dr. Daniel C. Sullivan, associate director for the NCI Cancer Imaging Program, part of the Division of Cancer Treatment and Diagnosis.

"NCI funds centers that support basic and translational research in molecular imaging," he explains. "This funding includes centers that perform imaging for researchers who do not have expertise in this area—making this new technology available to more scientists. As part of the funding, these centers are required to form multidisciplinary teams."

In addition to his work in the imaging program, Dr. Sullivan has teamed with several other National Institutes of Health (NIH) researchers to develop a new model for NIH funding of consortium research projects. This model was recently approved for use by Dr. Norka Ruiz Bravo, the NIH deputy director for extramural research. (See page 5.)

"The silos are slowly fading away," says Dr. Barrett. "With this cross-fertilization of ideas, we will witness a revolution in research that will allow us to more effectively prevent, detect, diagnose, and treat cancer." ◆

A Conversation with Dr. Daniel C. Sullivan

Dr. Daniel C. Sullivan, associate director for the NCI Cancer Imaging Program, and several other NIH researchers developed a new model for NIH funding of consortium research projects. This model was recently approved by Dr. Norka Ruiz Bravo, the NIH deputy director for extramural research. Dr. Sullivan talks about this new funding model with the NCI Cancer Bulletin.

Why is this new funding model for team science needed?

Right now there are only a couple of ways that NIH can fund a team project. In every case, only a single principal investigator is recognized in the grant, and other team members do not get recognized in their academic institutions for their contributions. Also, under current NIH mechanisms, transdisciplinary teams must structure an application to fit the mission of a single institute, which often imposes artificial constraints on their projects. This model eliminates those constraints.

So how does it work?

Under this model, a team would submit a single application consisting of a bundle of different applications for each individual project within the larger project. The entire application gets a single score, but each project would be funded individually by different NIH institutes and have its own grant number. An outside special emphasis panel convened by the NIH Center for Scientific Review would review the entire application. Staff from the appropriate institutes would serve as the management team to administer the entire consortium after it has been funded.

Initially, any projects for which this model can be used will have to be identified through an RFA or program announcement. The NIH Interdisciplinary Road Map Committee will most likely be the first to use this new model.

Are there other efforts under way to promote team science?

There is a lot going on. The NIH Interdisciplinary Research Committee is one example. The NIH Bioengineering Consortium (BECON) has created a committee on interdisciplinary research and team science. Then there is a new subcommittee of the Committee of Science in the White House Office of Science and Technology Policy. This subcommittee, the Research Business Models Subcommittee, is investigating a variety of ways to improve the climate for team science. It is quite a serious effort. More information on its work is available at http://rbm.nih.gov.

So there are lots of things going on across NIH and the Federal government. But this particular consortium idea is one of the first very specific pragmatic proposals to provide a new funding mechanism for investigators. ◆

Funding Opportunities

Novel Technologies for *in vivo* Imaging (SBIR/STTR)

PA-04-094
Application Receipt Dates: Dec. 1, 2004; Apr. 1, 2005; Aug. 1, 2005

NCI and other NIH institutes invite applications for the development and delivery of novel image acquisition or enhancement technology and methods for biomedical imaging and image-guided interventions and therapy. NCI is focused on imaging *in vivo* for cancer pre-conditions and cancer screening, diagnosis, progression, treatment monitoring, recurrence, and surrogate endpoints. The focus includes the discovery, development, and delivery of cancer-specific imaging technologies, and optimization and validation of imaging technologies for cancer applications. This PA replaces PAR-03-125.

This PA will use the SBIR/STTR award mechanism.

Inquiries: Dr. Guoying Liu, guoyingl@mail.nih.gov; Dr. Keyvan Farahani, farahank@mail.nih.gov; Dr. James A. Deye, deyej@mail.nih.gov; and Dr. Houston Baker, bakerhou@mail.nih.gov

Novel Technologies for *in vivo* Imaging (R21/R33)

PA-04-095
Application Receipt Date: Jul. 1, 2005

NCI invites applications for the development and delivery of novel image acquisition or enhancement technologies and methods for biomedical imaging and image-guided interventions and therapy that may incorporate limited pilot or clinical

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(Funding Opportunities continued from page 5)
feasibility evaluations using either pre-clinical models or clinical studies. This initiative is primarily intended to facilitate technologies for early detection, screening, diagnosis, image-guided interventions, and treatment of various diseases. This PA replaces PAR-03-124.

This PA will use the NIH R33 Exploratory Developmental Phase II Award and the combined R21/R33 Phased-Innovation Award mechanisms. For more information see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=2021.

Inquiries: Dr. Guoying Liu, guoyingl@mail.nih.gov; Dr. Keyvan Farahani, farahank@mail.nih.gov; Dr. James A. Deye, deyej@mail.nih.gov; and Dr. Houston Baker, bakerhou@mail.nih.gov

Additional Genotyping for the Human Haplotype Map

RFA-HG-04-005
Letter of Intent Receipt Date: May 28, 2004
Application Receipt Date: Jun. 25, 2004

This RFA solicits applications for a cooperative agreement to augment the International HapMap Project by supporting the genotyping of approximately 2.25 million SNPs across the genome in 270 samples from 4 populations, at high quality and at a cost of about 1 cent per genotype. The data from this effort will contribute to the development of a map, called the HapMap, of the haplotype patterns in the human genome and of a set of SNPs that are informative about these patterns and the associations among the SNPs.

This RFA will use the NIH U54 Specialized Center Cooperative Agreement award mechanism. For more information see http://cri.nci.nih.gov/4abst.cfm?initiativeparfa_id=2023.

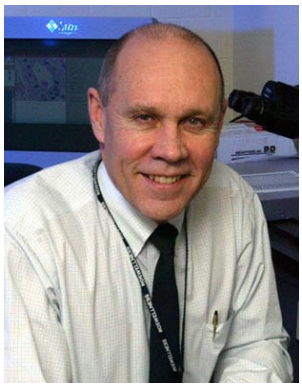
Inquiries: Dr. Wendy Wang, wangw@mail.nih.gov ◆

Featured Clinical Trial

Chemoprevention Trial for Men at High Risk for Prostate Cancer

Name of the Trial
Phase III Randomized Study of Selenium as Chemoprevention of Prostate Cancer in Patients with High-Grade Prostatic Intraepithelial Neoplasia (SWOG-S9917). See the protocol summary at http://cancer.gov/clinicaltrials/SWOG-S9917.

Principal Investigators
Dr. Jim Marshall, Southwest Oncology Group; Dr. David Jarrard, Eastern Cooperative Oncology Group; and Dr. William Robert Lee, Cancer and Leukemia Group B.



Dr. Jim Marshall
Principal Investigator

Why Is This Trial Important?
Prostate cancer is an important source of morbidity and mortality among men in the industrialized world. High-grade prostatic intraepithelial neoplasia (HGPIN), a condition characterized by abnormal and uncontrolled growth of the ductal cells of the prostate, may be a precursor to prostate cancer.

Intake of the dietary supplement selenium is believed to protect against prostate cancer. Researchers are interested in determining whether a daily dose of selenium might prevent prostate cancer from developing among men with HGPIN.

"HGPIN is very likely a premalignant lesion for prostate cancer, so it is important to find a chemopreventive agent that will be effective for this high-risk group," said Dr. Marshall. "Selenium supplementation shows promise, so we need to know if it might prevent HGPIN from developing into prostate cancer."

Who Can Join This Trial?
Researchers seek to enroll 465 patients aged 40 or over with a diagnosis of HGPIN and no evidence of cancer. See the full list of eligibility criteria for this trial at http://cancer.gov/clinicaltrials/SWOG-S9917.

Where Is This Trial Taking Place?
Study sites in the United States and Puerto Rico are enrolling patients in this trial. See the list of sites at http://cancer.gov/clinicaltrials/SWOG-S9917.

Who to Contact
See the list of study contacts at http://cancer.gov/clinicaltrials/-S9917 or call the NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237). The call is toll free and completely confidential. ◆

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

Notes

June Cancer Survivorship Conference

Cutting-edge survivorship research will be featured at the Second Biennial Cancer Survivorship research conference, "Pathways to Health After Treatment," June 16-18, 2004 in Washington, D.C. The conference, co-sponsored by NCI and the American Cancer Society, will highlight new findings about the long-term and late effects of cancer and its treatment, as well as behavior change interventions for survivors. Also on the agenda are presentations concerning the Institute of Medicine reports on policy implications of cancer survivorship, and the recently released National Action Plan for Cancer Survivorship from the Lance Armstrong Foundation and the Centers for Disease Control and Prevention. In addition, the latest President's Cancer Panel report will be discussed, which focuses on the challenges of living beyond diagnosis and treatment of cancer.

Besides showcasing the most up-to-date science in cancer survivorship, the conference includes a grant application training workshop for junior researchers, and a survivor-researcher mentor program for cancer survivors and advocates. See the full conference description and registration information at http://www.blsmeetings.net/2010/.

Additional FY '04 Funding Provided for SPOREs

NCI has provided additional funding for the Specialized Programs of Research Excellence (SPOREs) for FY 2004. This will allow NCI to raise the pay line from 185 to 195. The added funds will support additional SPOREs for research into gastrointestinal cancer, brain tumors, and ovarian cancer, as well as convert a pancreatic cancer planning grant to a fully funded SPORE. More specific information about the awards is forthcoming.

Updated Nausea and Vomiting Guidelines Released

Both patients and physicians now have updated guidelines on how to prevent and treat nausea and vomiting caused by chemotherapy or radiation therapy. Approximately 50 percent of cancer patients experience these two symptoms when treated for cancer.

Developed by the National Comprehensive Cancer Network and the American Cancer Society (ACS), with assistance from the University of Nebraska Medical Center, the guidelines address nausea and vomiting related to chemotherapy and radiation therapy. The guidelines include decision trees for choosing therapies to relieve nausea and vomiting, the potential for various cancer therapies to cause nausea and vomiting, and types of antinausea drugs and other suggestions for self-care.

"Cancer patients and their families now have the reliable, specific, and easy-to-understand information they need to make timely and well-informed decisions about this critical health care issue," said Dr. Ralph Nance, ACS national volunteer president. The updated guidelines can be found on the ACS Web site at http://www.cancer.org.

New Spanish-language Publications Available

Two publications in NCI's popular "What You Need to Know About…" series are now available in Spanish: *Lo que usted necesita saber sobre el cáncer de próstata* (What You Need To Know About Prostate Cancer) and *Lo que usted necesita saber sobre el cáncer de seno* (What You Need To Know About Breast Cancer). To order copies, go to http://cancer.gov/publications or call the NCI's Cancer Information Service at 1-800-4-CANCER.

Wickner Elected to National Academy of Sciences

On April 20, Dr. Sue Wickner of NCI's Laboratory of Molecular Biology was elected to the National Academy of Sciences. Election to membership in the academy is one of the highest honors bestowed to U.S. scientists or engineers and signifies their distinguished and continued contributions to original research.

Dr. Wickner received her Ph.D. from Albert Einstein College of Medicine and was a postdoctoral fellow with Dr. Martin Gellert in the National Institute of Diabetes and Digestive and Kidney Diseases before moving to NCI.

Dr. Wickner has done classic work on the biochemical mechanisms of multicomponent energy-dependent cellular machines essential for DNA replication, protein remodeling, and proteolysis. Her earlier work was at the forefront of the characterization of proteins and complexes required for DNA replication. Her work on ATP-dependent molecular chaperones demonstrated a direct role of co-chaperones in substrate targeting and protein remodeling. Her more recent work demonstrated that a family of ATPases, Clps or Hsp100s, represents a new class of molecular chaperones and that chaperones act directly in ATP-dependent proteolysis.

Dr. Wickner was elected to the American Academy of Arts and Sciences in 2002 and elected a fellow of the American Association for the Advancement of Science in 2001. ◆

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
Jun 1-3	National Cancer Advisory Board
Jun 24-25	NCI Board of Scientific Advisors

Selected Upcoming Meetings of Interest

Date	Meeting	NCI Speakers
Apr 26-28	Milken Institute Global Conference 2004: Prospering in a Changing World	Dr. Andrew C. von Eschenbach, Director
Apr 29	Racial, Ethnic and Socioeconomic Disparities in Health: Implications for Action Conference	Dr. Harold P. Freeman, Director, Center to Reduce Cancer Health Disparities
Apr 29	Massachusetts Biotechnology Council's Annual Biotechnology Meeting & Trade Exposition	Dr. Anna D. Barker, Deputy Director, Advanced Technologies and Strategic Partnerships
Apr 29-30	2nd National Steps to a HealthierUS Summit	Dr. Andrew C. von Eschenbach, Director; Mary Anne Bright, Acting Deputy Director, Office of Communications
May 12-15	Association of Oncology Social Work 20th Annual Conference—Finding Our Voice: The Power of Oncology Social Work	Dr. Harold P. Freeman, Director, Center to Reduce Cancer Health Disparities

NCI Exhibits

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

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

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

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