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National Cancer Quality-of-Care Study Reports Mixed Findings

Initial management of breast and colorectal cancer care in the United States is generally “consistent with evidence-based practice,” but with substantial variations in quality across the nation and low adherence in many quality measures that suggest “opportunities for improvement.”

Those are conclusions from the National Initiative for Cancer Care Quality (NICCCQ) nationwide study lead by the American Society of Clinical Oncology (ASCO). The study was undertaken in response to a 1999 report by the Institute of Medicine that recommended establishing a quality monitoring system for cancer

care. The NICCCQ results were published online this month in advance of the February 1 issue of ASCO’s *Journal of Clinical Oncology*.

NICCCQ examined patterns of care for 1,287 breast cancer and 478 colorectal cancer patients in 5 U.S. cities (Atlanta, Cleveland, Houston, Kansas City, and Los Angeles). To evaluate patient care, the researchers developed “explicit quality measures” of care for breast (36 separate measures) and colorectal (25 measures) cancers spanning diagnosis, surgery, adjuvant therapy, managing treatment toxicity, and posttreatment surveillance.

(continued on page 2)

Director's Update

Bulletin Reaches an Important Milestone

It’s been a little more than 2 years since the launch of the *NCI Cancer Bulletin*. This week we reach our 100th issue, an important milestone not just for the *Bulletin* but, in my view, for the entire institute.

The National Cancer Act includes a mandate for NCI to broadly communicate to the public and the research community about our research efforts and the progress being made against cancer. Our commitment to that directive is evident, whether it’s in our award-winning Web site, our annual progress report, the *NCI Listens and Learns* online forum, or our highly regarded science writers’ seminars, to cite just a few of our activities.

The *Bulletin* has become a very special part of our response to that mandate. It is helping to ensure transparency and provides an ideal avenue to continuously inform our numerous constituencies. The *Bulletin* is the only publication that offers a single source for comprehensive coverage of NCI programs and research; up-to-date stories on important cancer advances; articles on significant trends or potentially groundbreaking research; summaries of open, NCI-sponsored clinical trials; and most especially a direct insight into the thinking and planning among NCI’s leadership as evidenced by the weekly Director’s Update. *(continued on page 2)*

(Quality-of-Care Study continued from page 1)
Patients were then surveyed and provided permission for researchers to review their medical records.

Based on that review and those measures, NICCQ found that breast cancer patients received 85 percent of recommended care and colorectal patients received 77 percent of recommended care. Compared with prior studies, NICCQ results “show strikingly higher adherence to processes of care believed to be essential for improving the outcomes of patients with breast and colorectal cancer,” the researchers summarize. These overall rates of adherence are also higher than those found for care of other noncancer chronic diseases. The researchers note, “It may be that the urgency of a new diagnosis of cancer focuses the attention of patients and providers on assuring treatment in a way that chronic diseases, especially silent ones such as hypertension or diabetes, cannot.”

Nonetheless, “given adherence rates of less than 85 percent on almost half of the quality measures, our results suggest many opportunities to improve the quality of cancer care,” the investigators add. For example, although most of the patients received proper adjuvant chemotherapy after surgery, “patients were often not prescribed a dose of the chemotherapy that was consistent with published regimens, and many began therapy more than 8 weeks after surgery.”

Further, there was significant variation—as much as a twofold difference in some measures—in adherence across the five metro areas for seven of the breast cancer quality measurements and one of the colorectal treatment standards, although no city showed consistently higher adherence than the other locales. As an example, the proportion of breast cancer patients who received proper adjuvant

chemo doses ranged from 32 to 75 percent among the five metro areas.

“Viewed from the perspective of the patient with breast or colorectal cancer, a person with a new diagnosis of cancer has approximately a one in five chance of failing to receive elements of cancer care consistent with the best evidence in the literature and expert-defined standards of clinical practice,” the NICCQ researchers conclude.

NCI Deputy Director and Deputy Director for Cancer Care Delivery Systems Dr. Mark Clanton applauded the NICCQ study as the first comprehensive study of cancer quality-of-care issues. It provides new insights to help steer NCI’s strategic initiatives to provide “leadership and research focus that analyzes the systems by which care is delivered and to make quality cancer care more accessible to all patients, especially the underserved and disadvantaged populations,” Dr. Clanton noted. ♦

By Bill Robinson

(Director’s Update continued from page 1)

I think it’s for that very reason that the number of subscribers has increased from 8,000 at its launch to nearly 23,000 subscribers today, many of whom distribute this free publication to members of their organizations. As one reader, a colorectal cancer survivor, kindly wrote in an e-mail: “Is it possible to tell you how much I look forward to your publication each week?” The *Bulletin*, she continued, allows her to keep up to date on cancer research “far more than any other source.”

To ensure that we are meeting our subscribers’ needs, we have conducted two readership surveys, the second of which was just recently completed. The preliminary results of that survey provide some important insights. Two-thirds of the more than

2,000 respondents said the *Bulletin* was very informative. A majority of readers agreed that the *Bulletin* is a very valuable source of information on cancer research and NCI activities, and would recommend it to a friend or colleague.

We also learned from the survey that a diverse audience subscribes to the *Bulletin*. Seven of 10 respondents work in a cancer-related activity, while approximately 19 percent have been touched by cancer as patient, survivor, or caregiver of a cancer patient—up from 12 percent in 2004.

The survey also solicited content ideas and feedback on ways to improve the *Bulletin*. Two already-planned changes include longer, more in-depth Spotlights and regular articles reporting on components of NCI’s intramural research program.

Other suggested changes that we will be considering include more hot-links to information cited in articles, special issues that focus on specific cancers, and layout improvements to enhance the readability of the both the HTML and PDF versions.

I’d like to thank those readers who took their valuable time to respond to the survey and to all of our readers for helping to make the *Bulletin* a success. As always, feedback on the *Bulletin*—praise, criticism, suggestions, questions—is welcome at any time by sending an e-mail to ncican-cerbuletin@mail.nih.gov.

What began as a pilot project has blossomed into a well-respected, well-read publication that responds to an important mandate in the National Cancer Act. We are committed to continuously improving the content and providing the most valuable publication we can. ♦

Dr. Andrew C. von Eschenbach
Director, National Cancer Institute



Spotlight

Growth Factor Gene Tested for Common Cancers

With considerable evidence linking elevated blood levels of the insulin-like growth factor I (IGF-I) to several common cancers, researchers have begun to investigate the gene for this protein.

Three new studies independently test variants of the *IGF1* gene for associations with prostate, breast, or colon cancers. The results suggest that more research in this area is needed and warranted.

In the prostate cancer study, researchers identified a region of the *IGF1* gene that may be related to a modest increased risk of this cancer.

“We have a ‘signal’ coming from the region but have not identified the actual variant that may explain the risk,” says Dr. Matthew Freedman of the Broad Institute of Harvard University and the Massachusetts Institute of Technology, who led the project.

“The goal was to undertake a comprehensive analysis of the gene,” explains Dr. Freedman, “and to see whether inherited variation conferred an increased risk of prostate cancer in a multiethnic population.”

His team tested a panel of 29 variants that represented the common variation of the *IGF1* gene in their study population. The variants are single nucleotide polymorphisms, or SNPs (pronounced “snips”)—places in the

gene where a DNA letter varies from one person to the next.

The SNPs were analyzed using DNA from 2,320 prostate cancer patients and a similar number of healthy individuals. The study is the largest of its kind and included African Americans, Caucasians, Hawaiians, Japanese, and Latinos.

The analysis revealed that two SNPs were significantly overrepresented in the cancer patient group compared with the other group, according to findings in the January 18 *Journal of the National Cancer Institute (JNCI)*.

The association was consistent and of a similar magnitude across the ethnic groups, and therefore does not help explain the disproportionately high incidence rates of prostate cancer among African American men, notes Dr. Freedman.

“This study is the most extensive investigation on this gene so far and does a nice job of assessing the association across ethnic groups,” says Dr. Jing Ma of Harvard Medical School, who investigates *IGF1* and was not involved in the study.

The researchers conclude that compared with the breast cancer susceptibility genes *BRCA1* and *BRCA2*, which confer a high degree of risk but are relatively rare in the general population, *IGF1* variants may confer a low degree of risk but are relatively common.

“One way to think about the statistical evidence,” says Dr. Freedman, “is that if you could eliminate this particular variant from the population you would reduce the prevalence of prostate cancer by approximately 10 percent.”

But at this early stage, the researchers acknowledge that the results need to be replicated, and they have begun to test the SNPs in a much larger population.

In the second new study, this one involving breast cancer, researchers in Europe found a “weak but nominally significant” association between a block of SNPs in *IGF1* and breast cancer risk, particularly among women younger than 55 years old.

The researchers tested 5 SNPs in 800 breast cancer patients and 1,500 others from the European Prospective Investigation into Cancer and Nutrition. The study involved several *IGF1*-related genes and appears in the *British Journal of Cancer*.

Taken together, the American and European studies provide further support for previous findings on IGF-I protein and cancer risk, according to Dr. Ma, who co-authored the 1998 study in *Science* that first linked the blood levels and prostate cancer.

A challenge for the field now, she says, is to determine whether *IGF1* gene variants alter the function of the IGF-I protein in ways that lead to elevated blood levels.

But even the current findings raise the question: Can anything be done for people who might carry adverse variants?

One answer is that testing for these variants in high-risk populations could identify carriers, who could be monitored and who could potentially

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Cancer Research Highlights

Experimental Blood Test for Mesothelioma and Ovarian Cancer

Researchers have developed an experimental blood test that could potentially be used to help diagnose mesothelioma and ovarian cancer if further studies confirm its clinical utility. The test measures levels of a protein called mesothelin that is highly expressed in patients with these cancers.

The researchers used newly developed antibodies to create the test, and they report in the January 15 *Clinical Cancer Research* that mesothelin is shed into blood and can be accurately measured. They analyzed blood from 56 patients with mesothelioma, 21 patients with ovarian cancer, and more than 100 other control samples. Mesothelin levels were elevated in 71 percent of mesothelioma and 67 percent of ovarian cancer patients.

“Our findings suggest that mesothelin is a good biological marker for mesothelioma and ovarian cancer, but the results need to be validated,” says Dr. Raffit Hassan of NCI’s Center for Cancer Research (CCR), who led the study. All of the patients in this study were in the late stages of disease.

The researchers also measured mesothelin levels before and after surgery in six patients with peritoneal mesothelioma and found that the levels dropped off rapidly after surgery. If further studies confirm the findings, the test might be used to monitor disease progression, says Dr. Hassan.

Mesothelioma is an aggressive cancer of the lining of the lungs and the abdo-

men. The disease is difficult to diagnose by conventional imaging studies, and doctors lack routine laboratory tests for monitoring its progression.

Prophylactic Surgery in Women with Lynch Syndrome

A paper published in the January 19 *New England Journal of Medicine* provides the first evidence that prophylactic surgery can prevent gynecologic cancers in women with Lynch syndrome (hereditary nonpolyposis colorectal cancer).

Women with Lynch syndrome have a 40 to 60 percent lifetime risk of endometrial cancer and a 10 to 12 percent lifetime risk of ovarian cancer. This study analyzed a retrospective cohort of women with germline mutations in the genes that cause Lynch syndrome. Of 315 women, 61 underwent prophylactic removal of the uterus (hysterectomy) and 47 underwent prophylactic removal of the ovaries and fallopian tubes (bilateral salpingo-oophorectomy). Some women underwent both procedures.

None of the women who had a prophylactic hysterectomy had developed endometrial cancer by the end of the study, while 69 women in the control group had. Similarly, compared with women who had a bilateral salpingo-oophorectomy, 47 women who did not have the procedure developed ovarian cancer. Only 1 out of 61 women experienced surgical complications.

The authors acknowledge that their study has several limitations. The data were acquired retrospectively, and the genetic profile of many of the women was not known until after surgery or cancer diagnosis. In addi-

tion, it is not yet clear if a decrease in cancer incidence will translate into an increase in overall survival. However, considering the very high risk in this cohort of women, the authors conclude that prophylactic surgery “is an effective strategy for preventing endometrial and ovarian cancer in women with the Lynch syndrome.”

Diabetes Risk for Colorectal Cancer Shown in Asian Study

A large prospective cohort study of Singapore Chinese men and women found a significantly increased risk among diabetics for developing colorectal cancer, according to a report in the January 18 *Journal of the National Cancer Institute (JNCI)*.

More than 63,000 participants from the Singapore Chinese Health Study enrolled in the study between 1993 and 1998, report researchers from the University of Singapore and the University of Minnesota Cancer Center. Within the group, 5,469 were diagnosed as diabetic before initial enrollment. By the end of the follow-up period in December 2002, 636 enrollees had been diagnosed with colorectal cancer.

Overall, the risk of colorectal cancer was 50 percent higher among diabetics than among nondiabetics, the researchers found. They also observed statistically significant associations between diabetes and colorectal cancer risk among individuals with higher calorie intake and lower levels of physical activity.

“Our results are consistent with the growing body of epidemiologic evidence that links a history of diabetes mellitus (primarily type 2) with colorectal cancer risk,” the investigators comment.

They also note there was “no trend suggesting increasing risk of colorec-
(Highlights continued on page 5)

(Highlights continued from page 4)

tal cancer among diabetics in the higher Body Mass Index (BMI) categories.” That finding is similar to a large Korean study published a year ago, which found that the diabetes and cancer risk link was not tied to obesity (*NCI Cancer Bulletin*, Jan. 18, 2005). “Both Asian populations (i.e., Koreans and Singapore Chinese) are generally lean,” compared with U.S. and European populations, they state. “Therefore, our data suggest that high BMI per se does not drive the diabetes-colorectal cancer association.”

Breast Cancer Risk Increased in *BRCA2* Carriers in Iceland

Following the identification of inherited mutations in the tumor suppressor genes *BRCA1* and *BRCA2*, studies have shown that women with mutations in these genes are at significantly higher risk for breast and ovarian cancers than other women. Results of a retrospective population-based study suggest that at least one specific *BRCA2* mutation (999del5 on exon 9) was four times more likely to appear in breast cancer patients in 2002 (71.9 percent) than it was in 1920 (18.6 percent).

Other trends were also evident when Dr. Laufey Tryggvadóttir from the Icelandic Cancer Registry and colleagues looked at 847 women diagnosed with breast cancer and their close relatives during that period. The risk of death before age 70 doubled in those who had the mutation. Also, their cancers were nearly four times more likely to appear between ages 20–39 than after age 59.

The authors note that the marked increase in risk for the *BRCA2* carriers was similar to the risk for the overall Icelandic population, as well as that of relatives of those with another wild-type *BRCA2* mutation. They suggest that the increase in breast cancer risk

is likely the result of “dramatic changes in lifestyle that occurred during the 20th century,” such as greater overall life expectancy, women maturing biologically at younger ages, and having fewer children at later ages.

The study, published in the January 18 *JNCI*, used data and tissue samples collected from all women in Iceland diagnosed with cancer since 1911.

Study Examines Adjuvant Radiation for Endometrial Cancer

Results of a retrospective analysis of more than 21,000 women with early-stage endometrial cancer demonstrate a significant survival benefit with adjuvant radiation therapy (RT) in subsets of women with high-risk disease. Overall and relative survival were significantly improved in women with stage IC disease with tumor grades 1, 3, and 4, compared with women who did not receive adjuvant therapy. The study appears in the January 25 *Journal of the American Medical Association*.

As opposed to stage IA, in which the tumor is within the inner lining of the uterus, stage IC endometrial cancer has spread into the outer portion of the myometrium, the layer of muscle around the uterus. The higher the grade of the tumor, the more malignant it is considered to be. However, early-stage endometrial cancer is considered to be highly curable with surgery and recurrence risk is generally low.

To conduct the study, Dr. David Gaffney of the Huntsman Cancer Institute and University of Utah Medical Center, analyzed data from NCI’s Surveillance, Epidemiology, and End Results program on women with stage IA through IC node-negative endometrial adenocarcinoma. Approximately 19 percent of patients were treated with adjuvant RT.

Previous studies have shown variable results in women with early-stage disease at intermediate and high risk, according to Dr. Gaffney and his colleagues, demonstrating improvements in local control and/or disease-free survival, but not in overall survival. This may be because the prior randomized trials have had “poor accrual and insufficient patient numbers at the time of analysis,” they commented.

“To our knowledge, as the largest reported population analysis of the use of adjuvant radiation therapy in early-stage endometrial adenocarcinoma to date, it is significant that our study reveals an association in both overall survival and relative survival for adjuvant RT in stage IC disease (grades 1 and 3-4 cohorts),” they wrote.

Dr. Ted Trimble of NCI’s Division of Cancer Treatment and Diagnosis, called the study results “provocative,” but cautioned that more information is still needed to determine which early-stage patients are at highest risk for recurrence after surgery and how best to treat them. NCI is planning an endometrial cancer state-of-the-science meeting for late 2006, he said, to help plan future treatment studies. ♦

CCR Grand Rounds

January 31: Clifton Leaf, Senior Editor at Large, Fortune Magazine. “Cancer Epidemiology, Google, and the Dangerous Legacy of GIGO.”

February 7: Dr. Ira Pastan, Chief, Laboratory of Molecular Biology, CCR, NCI. “Immunotoxin Therapy of Cancer: Can Success in Treating Hairy Cell Leukemia Be Extended to Other Cancers?”

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. ♦



Featured Clinical Trial

American Ginseng for Cancer-Related Fatigue

Name of the Trial

Randomized Study of American Ginseng in Patients with Cancer-Related Fatigue (NCCTG-N03CA). See the protocol summary at <http://cancer.gov/clinicaltrials/NCCTG-N03CA>.

Principal Investigators

Drs. Brent Bauer, Charles Loprinzi, Teresa Rummans, Tait Shanafelt, Debra Barton, and Patricia A. Johnson, North Central Cancer Treatment Group

Why is This Trial Important?

Fatigue is a frequently debilitating symptom of cancer, as well as a common side effect of cancer treatment. Many cancer patients report experiencing extreme tiredness, exhaustion, and weakness, often severe enough to negatively affect their quality of life. At present, there are no standard approaches for the treatment of fatigue in cancer patients.

In this clinical trial, researchers are testing three different doses of American ginseng to see if it can help alleviate fatigue in cancer patients who experience fatigue related to their disease or treatment. American ginseng is a perennial herb related to the Asian variety of ginseng, which has been used for centuries in complementary and alternative medicines.



Dr. Brent Bauer

“Ginseng has a history of use in traditional medicine that suggests it may lessen the sense of fatigue that cancer patients experience, and some small studies have indicated that ginseng may have some efficacy as a remedy for fatigue,” said Dr. Bauer. “Consequently, many cancer patients are using ginseng on their own to combat fatigue. By studying ginseng in a controlled setting, we can better determine whether it has a beneficial effect for patients experiencing fatigue and, if there is a negative effect, we’ll be able to better educate patients about the possible danger.”

Who Can Join This Trial?

Researchers want to enroll 280 patients aged 18 and over diagnosed with cancer who are experiencing cancer-related fatigue. See the list of eligibility criteria at <http://cancer.gov/clinicaltrials/NCCTG-N03CA>.

Where Is This Trial Taking Place?

Study sites in the United States are enrolling patients for this trial. See the list of study sites at <http://cancer.gov/clinicaltrials/NCCTG-N03CA>.

Contact Information

See the list of study contacts at <http://cancer.gov/clinicaltrials/NCCTG-N03CA> or call 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>.

(Spotlight continued from page 3)

reduce their risk by making changes to their lifestyles (IGF-I blood levels are influenced by diet and other non-genetic factors).

Researchers at the University of Texas M.D. Anderson Cancer Center, who published the third new study, are trying to identify gene variants associated with an increased risk of colon cancer among individuals with hereditary nonpolyposis colon cancer (HNPCC).

These variants could be used along with information about lifestyle and family history to identify HNPCC patients who might develop colon cancer at a relatively young age, noted Dr. Marsha Frazier, who led the research.

Her team tested an *IGF1* variant consisting of two genetic letters that are repeated for various lengths. The researchers found that shorter length “CA” repeats (fewer than 18) were associated with an earlier onset of colon cancer in their group.

Reporting their findings in the January 18 *JNCI*, the team writes that more research is needed because their study was small (121 patients with HNPCC) and because the association they detected might have been caused by another variant in the gene, such as a SNP.

The researchers may test the 29 SNPs reported by Dr. Freedman on their patients with HNPCC. “A joint study of SNPs along with the CA repeat would help to evaluate which genetic variant is most strongly related to the risk of disease,” says co-author Dr. Christopher Amos. ♦

By Edward R. Winstead

Seminar on Translational Research Slated for February

On February 14, NCI will present the next installment in its continuing series of seminars for science reporters and freelance journalists. “The Basics of Clinical Advances” will describe some recent developments in translational research: laboratory-based cancer research with clinical implications. The seminar will take place at the University of California, San Diego (UCSD) from 11:00 a.m.–1:30 p.m. in the Moores UCSD Cancer Center in La Jolla.

The four scientists who will present are: Dr. Jerry Collins, NCI, “NCI’s role in turning discoveries into medicines;” Dr. Reuben Shaw, Salk Institute for Biological Studies, “How decoding circuitry underlying tumor development may lead to targeted cancer therapies;” Dr. Dwayne Stupack, UCSD, “New opportunities to control tumor spread;” and Dr. Kristiina Vuori, Burnham Institute for Medical Research, “From breakthroughs in the laboratory to the discovery of new drugs: San Diego Center for Chemical Genomics.” To register for the seminar, contact NCI’s Media Relations Branch at 301-496-6641 or at ncipres-sofficers@mail.nih.gov.

TRWG Comment Deadline Extended

The deadline for public comment to NCI’s Translational Research Working Group (TRWG) has been extended until January 27. TRWG is seeking input on key areas from a wide range of individuals and organizations. Anyone wishing to post a comment can do so at <http://www.cancer.gov/trwg>.

ALA Issues Tobacco Control Report

On January 10, the American Lung Association (ALA) released the

American Lung Association State of Tobacco Control: 2005 report, which rates state tobacco control policies in four key areas: tobacco prevention spending, smokefree air laws, cigarette tax, and youth access laws. The report also grades the federal government in four areas: Food and Drug Administration regulation of tobacco products, cessation, cigarette tax, and the Framework Convention on Tobacco Control. The report can be found online at <http://lungaction.org/reports/tobacco-control05.html?tr=y&auid=1328660>.

In the report, ALA issued its “Smokefree Air 2010 Challenge,” calling on state and local policymakers to pass comprehensive smokefree air laws, creating a “smokefree United States” by 2010. Currently, there are nine smoke-free states: California, Connecticut, Delaware, Massachusetts, Maine, New York, Rhode Island, Vermont, and Washington. A “smokefree state” prohibits smoking in most workplaces, including restaurants and bars.

caBIG™ Seminar Series Starts January 26

All NCI and NIH staff—including researchers, research administrators, IT, and other lab support personnel—are invited to attend the seminar series on NCI’s cancer Biomedical Informatics Grid (caBIG™) initiative. The introductory sessions will begin January 26 and run through mid-March at several NIH facilities. The seminar series spans four different topics covering caBIG’s rapidly expanding efforts to create a “World Wide Web” of cancer research. Attendees can pick and choose or

attend all the sessions on: a) caBIG™ overview; b) overview of caBIG™ activities for clinical trials and tissue banking; c) overview of caBIG™ activities for integrated cancer research; and d) caBIG™ interoperability and compatibility basics. For detailed information on seminar topics, dates, times, and locations, go to the caBIG™ Web site at <https://cabig.nci.nih.gov/seminars>.

Film on Childhood Cancer to Air on Public TV

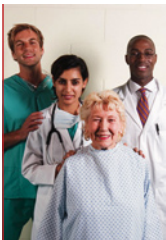
A Lion in the House, a 4-hour documentary that follows 6 years in the lives of five families fighting childhood cancer, will be broadcast on public television stations nationwide on June 21–22. A portion of the film was shown last year on the NIH campus

(See *NCI Cancer Bulletin*, October 26, 2004.) NCI is 1 of 20 national sponsors participating in a national outreach campaign to increase awareness of childhood cancer, cancer health disparities, and survivorship and end-of-life issues. NCI’s Office of Communications, Center to Reduce Cancer Health Disparities, and Office of Survivorship are advising the campaign. For additional information about the film, go to <http://www.itvs.org/outreach/lioninthehouse>.

NCI Exhibits at AAAS

Look for NCI at booth 103 in the exhibit hall at the American Association for the Advancement of Science annual meeting in St. Louis on February 16–20. Attendees can learn about clinical trials, funding, and training opportunities at NCI. Publications and other resources for researchers will be available at the booth. ♦





Cancer Center Profile

MIT Center for Cancer Research

Director: Dr. Tyler Jacks • 77 Massachusetts Avenue, Room E17-110,
Cambridge, MA 02139-4307 • Phone: 617-253-6403
Web site: <http://web.mit.edu/ccr/>

Background

Since its founding in 1974 by Professor and Nobel Laureate Dr. Salvador Luria, the MIT Center for Cancer Research (CCR) has been funded by NCI as a basic-science Cancer Center. Its mission is to apply the tools of basic science and technology to understanding how cancer is caused, progresses, and responds to treatment. The MIT CCR currently has 30 members, including 2 Nobel laureates, 12 members of the National Academy of Sciences, and 5 Howard Hughes Medical Institute Investigators. Its overall work force has approximately 500 staff, including more than 175 postdoctoral fellows, more than 175 graduate students, and approximately 75 undergraduate students. In addition to their research in areas such as cancer biology, chemistry, engineering, and computer science, most of the Center's faculty members collaborate on research with outside clinical centers and hospitals.

Research Activities

Investigators at the MIT Center for Cancer Research conduct basic-sci-



ence research. In addition to working with material from human tumors and tumor-derived cell lines, MIT CCR investigators work with mice, fruit flies, zebra fish, and yeast—organisms in which the fundamental cellular processes are shared with humans—to help answer questions about the development and behavior of cancer cells in human patients.

Using this approach, the MIT CCR has pioneered technologies that are now part of the standard practice in cancer research and patient treatment. Some examples include identifying the first oncogene, cloning the first tumor suppressor gene, and transforming the first normal human cell into a cancer cell. By identifying the molecules Abl and Her2/neu as potential targets for

cancer therapy, MIT CCR researchers helped lay the groundwork for the development of the cancer drugs Gleevec (imatinib) and Herceptin (trastuzumab), respectively.

Other Notable Programs

The MIT Center for Cancer Research is part of NCI's Mouse Models of Human Cancer Consortium, a group of investigators at more than 70 institutions worldwide that collaborate on the development, characterization, and distribution of mouse cancer models for the benefit of the broader scientific community.

The MIT CCR also participates in the NCI Integrative Cancer Biology Program. This program involves a multi-investigator grant to support the application of mathematical and computer-modeling methods, such as those common in the engineering disciplines, to the study of cancer. MIT is one of only nine centers in the country that receive funding from this NCI initiative.

The MIT CCR also administers the MIT-Harvard Center for Cancer Nanotechnology Excellence, one of only seven that are funded by NCI. Through this initiative, researchers at MIT are pursuing nanotechnology that will enable cancer detection and monitoring, as well as allow targeted delivery of drugs and imaging agents. ♦

Featured Meetings and Events

A calendar of scientific meetings and events sponsored by the National Institutes of Health (NIH) 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>.

NCI Cancer Bulletin staff can be reached at ncicancerbulletin@mail.nih.gov.