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Senate Approves 15% Increase For NIH; House Passes 5.6% Raise, But Favors More

The Senate last week approved an appropriations bill that would give NIH an unprecedented \$2.7 billion increase over the current year, boosting the Institutes' budget to \$20.5 billion.

Earlier, the House passed a bill that symbolically gave NIH the same increase. The House resorted to an unusual symbolic gesture since the allocation left little elbowroom for the Labor, HHS and Education Subcommittee, which limited the appropriation to the amount proposed by

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In Brief:

Eye Institute Director Kupfer Steps Down; UICC Begins Web-Based Surgical Pathology

CARL KUPFER, the first and only director of the National Eye Institute, stepped down after 30 years at NIH. Among his accomplishments at NEI, Kupfer began the National Eye Health Education Program, a partnership of voluntary organizations and government agencies that conduct public and professional education programs on vision health and safety. He established an Office of Biometry and Epidemiology and launched the landmark diabetic retinopathy study, setting a standard for modern clinical trials in vision research. Kupfer, an elected member to the Institute of Medicine of the National Academy of Sciences, will continue to see patients as part of his clinical research activities at NIH. "His leadership has made NEI, today, the largest and most comprehensive vision research center in the world," said NIH Acting Director **Ruth Kirschstein**. . . . **INTERNATIONAL UNION AGAINST CANCER** began its Telepathology Consultation Centre, an Internet advisory and consultation project for oncological surgical pathology, which allows for the exchange of opinions, digital images and up-to-date information in tumor diagnostics on the Web. The center, a collaboration with Siemens AG Medical Engineering and Siemens MEDSTAGE technology, will be coordinated from Berlin, Germany, by **Manfred Dietel**, professor at the Charité University Hospital, Institute of Pathology and chairman of the UICC-TPCC project. Inquiries: e-mail uicc-tpcc@charite.de ; Web site <http://www.uicc.org/telepathology>. . . . **V. CRAIG JORDAN**, the Diana, Princess of Wales Professor of Cancer Research at the Robert H. Lurie Comprehensive Cancer Center of Northwestern University, received an Honorary Fellowship Award of the faculty of medicine at University College Dublin, Ireland June 17. The award recognizes Jordan for his work in the development of tamoxifen and raloxifene.

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Congress Approves Upper, Lower Bounds For NIH Budget

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the President. The actual House appropriation for NIH was limited to \$18.8 billion, or \$1.06 billion above the current year.

Thus, before leaving Washington for the July 4 weekend, Congress approved both the upper bound and the lower bound of what the fiscal 2001 appropriation will be. If the ultimate appropriation defaults to the Senate level, NIH would receive a third consecutive increase of 15 percent. If the actual House level prevails, the increase will be only 5.6 percent.

The Senate bill provides \$3.804 billion for NCI, a funding level that is \$299 million above the President's proposal and \$492.4 above the budget for the fiscal year 2000. The House bill provides \$3.794 billion for the Institute, \$289 million above the President's budget and \$482 million above the current budget.

An amendment to the Senate bill would require NIH to draft a plan for recovering a "reasonable rate of return" from profits that pharmaceutical companies make on products developed through government-funded research. The amendment was filed by Sen. Ron Wyden (D-OR). It would require the NIH director to draft guidelines for reimbursement of the government for an unspecified percentage of profits.

The text of the Senate report for NCI appears on page 2. The House report appears on page 5. Cancer-related provisions contained elsewhere in the two reports are summarized on page 7.

The report language reflects Congressional priorities, and therefore serves as something of a gauge of effectiveness of lobbying by interest groups that take their causes to the Hill. While compliance with the report language is not obligatory, government agencies usually create at least an appearance of carrying out the mandates.

Senate Report:

Behavioral science research. The committee commends NCI for expanding its infrastructure to fund behavioral and population research in cancer prevention, treatment, and control. NCI is encouraged to expand its investigation of the effective provision of mental health services to improve the course of cancer treatment and to aid in the adjustment to cancer survivorship. NCI is also encouraged to build upon its collaborations with the National Institute on Drug Abuse to more thoroughly investigate issues of youth tobacco use. In particular, the committee is interested in expanding health promotion research focused on children and youth, and interdisciplinary research on tobacco addiction and cessation. The committee also encourages NCI to expand its research on adherence to treatment regimens and to health-promoting behaviors such as physical activity and healthy diet.

Bone disease. The committee encourages the NCI to study the role of angiogenesis in metastasis of breast and prostate cancer to the bone. In addition, the Institute is encouraged to develop experimental genetic animal models that replicate the process of human cancer metastasis to the bone in humans, and to explore why bone is a preferential site for metastases.

Breast cancer. The committee strongly urges the Institute to continue to expand breast cancer research and to devote the highest possible funding level to finding the causes and cures for this disease.

Cancer and minorities. The committee remains concerned over recent statistics citing higher incidences of cancer among the native Hawaiian population. In comparison to other ethnic and racial groups, native Hawaiians have the highest incidence of the most common forms of cancer, such as breast, colon, and lung cancer. The committee encourages continued research in the areas of prevention and



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Founded Dec. 21, 1973, by Jerry D. Boyd



detection, utilizing nurse practitioners in community-based centers for screening and education for the underserved populations.

Complementary and alternative cancer therapies. The committee expects NCI to work collaboratively with the National Center for Complementary and Alternative Medicine to support expanded research on promising complementary and alternative cancer therapies as well as on their integration with traditional therapies. Thousands of Americans are turning to these therapies and consumers will benefit from the rigorous scientific review of these therapies. The committee would like to be briefed on the progress of the Institute's efforts prior to the next appropriations cycle.

DES. The committee continues to strongly support increased efforts to study and educate the public and health professionals about the impact of exposure to the synthetic hormone diethylstilbestrol.

The committee expects NCI to continue its support of research in this area. In addition, the committee has included sufficient funds for NCI, through a contract it has developed with CDC, to implement a national education program for consumers and health professionals. The committee expects NCI and these other agencies to continue to consult with organizations representing individuals impacted by DES as they carry out DES research and education efforts.

Esophageal and stomach cancer. Both cancers disproportionately affect minority populations, especially African-Americans and Hispanics. The committee urges the National Cancer Institute in conjunction with the National Institute of Diabetes, Digestive and Kidney Disorders to augment its efforts in these areas, and to focus resources on the genetic aspects of these cancers; diagnostic tests for genetic abnormalities and prevention efforts; the modulation and understanding of epithelial injury and repair; environmental factors; and the development and treatment of Barrett's syndrome in patients with gastroesophageal reflux disease.

Head and neck cancer. It has been brought to the committee's attention that there is a need to develop molecular markers that are predictive of the presence or likelihood of regional metastasis in patients with head and neck cancer. Such molecular markers would not only provide useful prognostic information but would identify patients at risk who could benefit from early elective treatment of the regional lymph nodes. The Institute is urged to expand

its research support in this important area.

Health communication and basic biobehavioral research. The committee is pleased with NCI's long range planning and commitment to train new cancer control scientists, as well as to provide opportunities for senior investigators to contribute their expertise to a new area of research. The committee is also pleased to recognize the addition of two new programmatic research elements: health communication and basic biobehavioral research. The committee further commends NCI for continuing to expand the pool of behavioral scientists on NCI program staff to ensure an optimal balance in the administration of this progressive research portfolio.

Hepatocellular carcinoma. It has been brought to the committee's attention that there is a need to determine the mechanism and the natural history of the development of hepatocellular carcinoma in patients with hepatitis C. The committee encourages the Institute to develop a comprehensive research portfolio in this area and looks forward to learning of the progress made in this area prior to next year's hearing.

Imaging systems technologies. The committee is encouraged by progress made by NCI following its August 1999 conference on biomedical imaging and urges NCI to continue to take a leadership role with the Health Care Financing Administration and the FDA to avoid duplicative reviews of new imaging technologies which may prevent their benefits from reaching patients on a timely basis.

The committee is aware of the great potential for improved patient care and disease management represented by molecular imaging technologies, especially positron emission tomography through its ability to image the biology of many kinds of cancer and other diseases.

The committee continues to support NCI's increased emphasis on examining the molecular basis of disease through imaging technologies such as PET and MicroPET. The committee continues to encourage the large scale testing of women for breast cancer and of men for prostate cancer to demonstrate and quantify the increased diagnostic and staging capabilities of PET relative to conventional diagnostic and staging technologies including mammography.

Lymphoma. The committee is pleased that the NCI is committed to conducting a progress review group on lymphoma. The PRG on lymphoma will



afford NCI and other Federal agencies the opportunity to evaluate current research and determine future needs in lymphoma research. The committee requests that NCI be prepared to report to the committee at the fiscal 2002 hearings on the progress of the PRG on lymphoma and the development of a prioritized national research agenda for lymphoma.

Multiple myeloma. The committee is pleased that MM was included in an NCI Progress Review Group and looks forward to hearing about the Institute's plans for the PRG findings at next year's hearing. The committee continues to strongly urge support to address epidemiological and other data gathering activities relevant to MM and coordinate efforts with the Centers for Disease Control and Prevention, the Office of Rare Diseases, the Office of Research and Minority Health, and NIEHS.

The committee encourages the Institute to disseminate information and educate the public and health professionals about the symptoms of and treatment for MM.

Neurofibromatosis. The committee encourages NCI to strengthen its NF research portfolio in such areas as further development of animal models, natural history studies, therapeutic experimentation and clinical trials. The committee also urges NCI to continue to coordinate its efforts with other Institutes engaged in NF research and be prepared to report on the status of the NF research portfolio at its fiscal year 2002 appropriations hearing.

Nutrition Therapy. It has been brought to the committee's attention that a recent Institute of Medicine report found that Medicare beneficiaries undergoing cancer treatment may also benefit from nutrition therapy aimed at controlling side effects or improving food intake.

However, many of the cancer trials conducted to date are skewed toward younger persons even though older persons comprise the majority of cancer patients. Recent studies have shown that older persons could benefit and should be included in more aggressive cancer treatment, given that the number of older persons is expected to dramatically increase over the next few years.

The committee encourages the Institute to conduct research to assess changes in patient quality of life as a result of nutrition intervention. The committee further encourages the Institute to conduct randomized clinical trials of older cancer patients are necessary to determine whether a relationship exists between nutrition support and clinical outcomes for

cancer patients.

Ovarian and cervical cancer. The committee strongly urges NCI to expedite current research on screening methods to detect, diagnose, and identify staging of ovarian cancer. The committee encourages the Director of the NCI to fully fund the four ovarian cancer SPOREs in fiscal year 2001 and potentially issue a new request for applications for additional ovarian cancer SPOREs.

The committee also believes that identification of a cost-effective screening strategy could result in earlier diagnosis for women and higher cure rates. Similarly, NCI is strongly urged to accelerate research in cervical cancer.

Pancreatic cancer. The five-year survival rate for pancreatic cancer, 4 percent, is the lowest of all cancers. The committee is concerned that pancreatic cancer is not diagnosed until advanced stages when treatment options are limited and largely ineffective. The committee expects the NCI to be prepared to report at next year's hearing on the Institute's commitment to support the development of early detection methods, improved surgical techniques, effective chemotherapy, and new drugs for pancreatic cancer and to support public education efforts concerning pancreatic cancer.

Primary Immunodeficiency Diseases. The relationship between primary immune disease and cancer is an area that is ripe for scientific investigation. The committee notes that NCI co-sponsored a symposium in March 2000 bringing together some of the top experts in this field. It is hoped that this symposium will lead to the development of a strong research agenda in this field. In addition, the committee is aware of the commitment of NIH to the national education and awareness campaign.

The committee commends the Institute for its commitment to this campaign and the role these efforts will play in assuring the earliest possible diagnosis of primary immunodeficiency and of any cancers that may stem from it.

Prostate Cancer. The committee urges the NCI and other institutes to aggressively increase efforts that will lead to the development of new treatments, new preventives, and new interventions with the potential to improve or extend the lives of men touched by prostate cancer.

Increased use of serum analysis for prostate-specific antigen has led to an increased detection rate. However, only 30 percent of early stage disease



will progress to clinically relevant disease within the lifetime of the patient.

The committee encourages NCI to develop methods to identify those patients at risk of progression who would benefit most from aggressive therapy, while sparing low-risk patients the morbidity resulting from aggressive treatment of slow-growing disease. The committee also encourages NCI to carry out clinical trials that will determine whether yearly screening for prostate cancer using the PSA blood test will decrease mortality from prostate cancer.

NCI has identified the need to restructure the clinical trials program to make it faster, more flexible, more easily accessible to patients, and more responsive to key therapeutic questions. The committee encourages NCI to test new systems that will identify the best trials, improve trial planning, speed trial activation, and improve availability of trials to patients.

The committee encourages NCI to implement programs to assist investigators in academia and in small businesses in getting compounds with promise for treatment and prevention of prostate cancer into clinical testing using NCI's existing development resources. Several key treatment questions must be addressed.

The committee urges NCI to initiate clinical trials that will optimize hormonal and chemotherapeutic approaches for the most common clinical presentations of prostate cancer. The incidence and severity of prostate cancer varies in different ethnic populations. African-American men are more than twice as likely to die of prostate cancer than Caucasian men. In African-American men, prostate cancer is also generally more advanced at the time of diagnosis.

Chinese men living in China have incidence and mortality rates that are 3 to 10 times lower than U.S. men. Reasons for the large racial difference in risk are currently unclear.

The committee urges NCI to conduct studies to identify risk factors for prostate cancer in several populations, including African-Americans and Chinese. The committee also encourages NCI to study the associations of dietary patterns with prostate cancer, and variations in the role of diet in different racial and ethnic groups.

The committee is encouraged by NCI's collaborations with the Department of Defense in fighting this devastating disease, and urges NCI to continue to strengthen and expand its prostate cancer

research portfolio.

The committee further expects the NCI to accelerate spending on prostate cancer, and consult closely with the research community, clinicians and patient groups to identify promising new avenues of basic and clinical research.

Transdisciplinary tobacco use research centers. The committee commends the Institute for its collaboration with the National Institute on Drug Abuse and private foundations in establishing seven new Transdisciplinary Tobacco Use Research Centers.

These Centers establish critical links across diverse scientific disciplines to evaluate new models of nicotine addiction; hereditary factors in vulnerability, treatment success, and deleterious consequences of tobacco use; cultural determinants of successful prevention efforts; treatment resistant populations; and determinants of relapse.

House Report:

Bone Disease. The committee encourages NCI to study the role of angiogenesis, the growth of new blood vessels, in the metastasis of breast and prostate cancer to the bone through all available mechanism, as appropriate, including the development of experimental genetic animal models that replicate the process of human cancer metastasis to the bone and exploring why bone is a preferential site for metastases.

Breast Cancer. The development of advanced imaging technologies including medical infrared imaging derived from the U.S. military and NASA, and other optical and non-invasive modalities which, when converged with emerging treatments such as angiogenic therapy, can be incorporated into comprehensive systems for the early detection and treatment of breast cancer. NCI is encouraged to explore this approach to disease management.

Childhood Skeletal Malignancies. While mortality rates among children with skeletal cancers have improved dramatically over the past decade, little remains known about factors that contribute toward the development of such tumors. The committee encourages NCI to enhance the level of scientific knowledge of Osteosarcoma, Ewing's sarcoma, and related malignancies affecting connective tissue that often result in limb loss through all available mechanisms, as appropriate, including a consensus conference to develop a research agenda.

DES Education. The committee understands



that a plan for expanded DES education activities has been developed by CDC, the Office of Women's Health, and groups representing individuals affected by DES. The committee urges NCI to review this plan within a reasonable timeframe and collaborate with CDC on its implementation. The committee also urges NCI to ensure that public information pamphlets developed by NCI are readily made available to consumers.

Endometrial and Cervical Cancer. The committee encourages NCI to conduct a programmatic review of the research portfolios in endometrial and cervical cancer and enhance research in areas of discovery that are not currently being funded through all available mechanisms, as appropriate, including requests for applications for SPORes.

Esophageal and Stomach Cancer. Both cancers disproportionately affect minority populations, particularly African Americans and Hispanics. The committee encourages NCI, in collaboration with NIDDK, to enhance efforts in this area.

Lung Cancer Screening. Lung cancer remains one of the most common cancers and usually responds poorly to treatment because most cases are not found until the tumors are large enough to cause symptoms. Current screening and early detection methods are limited, but new technologies, such as helical CT scanning, are being disseminated and may assist in the ability to save or prolong the lives of lung cancer patients. The committee encourages NCI to examine these technologies and their usefulness in early diagnosis and patient treatment.

Lymphoma. The committee understands that NCI is committed to conducting a progress review group on lymphoma. This will give NCI and other Federal agencies the opportunity to evaluate current research and determine future needs. The committee requests that the Director of the Institute be prepared to provide a progress report at the fiscal year 2002 appropriations hearing.

Marine Mammals Research. Sharks, skates, and rays seem to have an unusually low incidence of cancer and the potential for bioactive molecules to inhibit disease process in humans. The committee encourages NCI to study the immune systems and bioactive cell and tissue molecules of these marine animals to understand their resistance to cancer and the potential development of more effective therapies to inhibit cancer in humans.

Molecular Markers. The development of molecular markers that are predictive of the presence or likelihood of regional metastasis in patients with head and neck cancer would provide useful prognostic information as well as identify patients at risk who could benefit from early elective treatment to the regional lymph nodes. NCI is urged to expand research in this area.

Multiple Myeloma. The committee is pleased that multiple myeloma was included in an NCI progress review group and looks forward to hearing about the Institute's plans for the groups findings at the fiscal year 2002 appropriations hearing. The committee continues to urge NCI to support epidemiological and other data gathering activities relevant to MM and to coordinate efforts with CDC, NIEHS, the Office of Rare Diseases, and the Office of Research on Minority Health. The committee encourages the Institute to disseminate and educate the public and health professionals about the symptoms of and treatment for MM.

National Occupational Research Agenda. The committee encourages NCI to work with the National Institute for Occupational Safety and Health to enhance research in relevant National Occupational Research Agenda priority areas such as Cancer Research Methods, Special Populations at Risk, Mixed Exposures, Risk Assessment Methods, and Exposure Assessment Methods.

Neurofibromatosis. The committee encourages NCI to strengthen its NF research portfolio in such areas as further development of animal models, natural history studies, and therapeutic experimentation and clinical trials. The committee also urges NCI to continue to coordinate its efforts with other Institutes engaged in NF research.

Ovarian Cancer. The committee commends NCI for moving forward to fully fund two ovarian cancer SPORes and partially fund two other ovarian cancer SPORes in fiscal year 2000. The committee encourages NCI to fully fund all SPORes this fiscal year and requests that the Director of the Institute be prepared to give a progress report at the fiscal year 2002 appropriations hearing.

Primary Immune Deficiency Diseases. The committee notes that NCI held a symposium in March 2000 to investigate the relationship between primary immune deficiency diseases and cancer. It is hoped that this will lead to the development of a research agenda in this field. In addition, the committee is aware of the commitment of NCI to the national education



and awareness campaign sponsored by the Jeffrey Modell Foundation. This commitment will play a significant role in assuring the earliest possible diagnosis of primary immunodeficiency and of any cancers that may stem from it.

Prostate Cancer. Cancer of the prostate is the most commonly diagnosed nonskin cancer in America and tends to disproportionately affect men who are members of minority groups. If detected early, it can be treated successfully with no negative impact on the cancer survivor's quality of life. However, existing forms of detection are insufficient, and available treatments frequently result in erectile dysfunction, urinary problems, or other disorders and disruptions that negatively impact the patients quality of life. The committee urges NCI to place an increased priority on research, through all available mechanisms, as appropriate, including clinical trials, that result in earlier, more reliable detection methods and more effective and less disfiguring treatment regimes.

Rural Poor in Health Disparities Research. While studies have shown that certain diseases effect minority groups, economic status may also have an impact on health outcomes. For example, the rural poor have a high incidence of cancer. The committee urges NCI to include the rural poor population in its efforts to eliminate health disparities.

Urological Cancers. The committee is pleased with the new initiatives in prostate cancer now underway; however, research in other urologic cancers such as kidney and bladder cancer needs to be enhanced. The committee urges NCI to develop a plan to expand its research programs for other urologic cancers and take advantage of new knowledge that has been acquired about cancer diagnosis and treatment.

Other Highlights

The cancer-related highlights of the of the of the two bills follow:

—Citing a recent study report by General Accounting Office, the Senate report urges NIH to “adopt GAO’s recommendations to implement the requirement that phase III clinical trials be designed and carried out to allow for the valid analysis” by sex. The Senate report also urges NIH to improve tracking data system on the inclusion of women and minorities in clinical trials. The House and Senate reports asked for update on their efforts to include more women in trials and encourage researchers to analyze data by sex.

—The Senate report urges NIH to address the problems of cancer in minorities. The report directs NIH to: “(1) develop and proceed with a 5-year strategic plan to implement the recommendations in the 1999 Institute of Medicine study ‘The Unequal Burden of Cancer’; (2) establish benchmarks, program evaluations, and accountability procedures; (3) allocate necessary resources to address IOM identified priorities; and (4) substantially increase the funding for: (a) population, behavioral, socio-cultural, communications and community-based research; (b) recruiting and training efforts to attract more candidates from ethnic minority and medically underserved populations in all areas of cancer research; and (c) cancer data collection, management and interagency coordination of data collection, with special support for the NCI Surveillance, Epidemiology, and End Results program.

—The Senate bill gives Centers for Disease Control and Prevention \$3.2 billion, \$168 million above its current budget. The House bill, symbolically, gives CDC \$3.6 billion, about \$395 million more than its current budget.

The report of the Senate committee urges CDC to: (1) increase funding for the prostate, colorectal, and other cancer screening programs and to document the barriers to access and implementation of cancer screening among minorities and the underserved and to document the linkages between detection, treatment and follow up to screening; (2) increase funding for the National Program of Cancer Registries, the Behavioral Risk Factors Surveillance Survey, the National Health Nutritional and Examination Survey to ethnic minority and medically underserved populations; (3) establish a cancer epidemiology research training program to provide training in designing and conducting multidisciplinary population-based basic and applied cancer epidemiology; (4) calls for CDC-sponsored “randomized clinical trials of older cancer patients... to determine whether a relationship exists between nutrition support and clinical outcomes; (5) “encourages” CDC to consider a study on Cape Cod to probe potential links between breast cancer and pollutants in the environment.

—The House report says initial peer review groups at NIH “tend to be dominated by researchers from institutions and geographic areas that receive relatively large shares of NIH funding” and do not represent the entire research community. “In order to address this concern, the committee requests that



the NIH staff who are involved in the peer review of grant applications should seek broadly, through various sources that, for example, search the scientific and medical research literature, to identify individuals who might serve on initial peer review groups," the report states.

—The House report urges the National Institute of Environmental Health Sciences to "enhance its research efforts into the environment's role in the development of breast cancer." This would include studying potential factors including air and water quality, pesticides, diet, or electromagnetic fields. The report also suggests that collaborate with NCI, through participation in the progress review group, to study whether environmental factors play a role in the causation of lymphoma.

—The Senate gives a \$31.1 million increase to the National Center for Complementary and Alternative Medicine, boosting its budget to \$100.1 million. The House gives the center a more modest \$9.9 million increase, which would top off the budget at \$78.9 million.

The Senate report directs the center to develop a model curriculum for the alternative medicine education of health care professionals and to support "field investigations" and a "program for the collection and evaluation of outcome data on promising alternative therapies, including new clinical trials of herbal and other [alternative] therapies."

The House report urges the Center to fund post-graduate fellowships to train physicians in integrative medicine and help design medical school curricula on integrative medicine.

—The House report urges NIH to study potential connections between religiousness and health.

"Given the religiousness of the U.S. population, as well as the increasing amount of research demonstrating the importance of religious commitment in addressing chronic and serious illnesses, the NIH is encouraged to enhance research in this area," the report says. "This research may prove helpful in reducing health care costs, increase longevity, improve the quality of life for chronically and seriously ill patients, and reduce risky lifestyles. Also, with some evidence of the enhancement of longevity for those who regularly attend church, synagogue, and mosque, it is useful to understand this prevalent population factor in preventing and coping with illnesses and improving the quality of life and clinical outcomes."

Funding Opportunities:

Program Announcements

PA PAR-00-102: Planning Grants: National Programs of Excellence in Biomedical Computing

Letter of Intent Receipt Date: Oct. 27, Feb. 27, and June 27 annually; Application Receipt Date: Nov. 27, March 27, and July 27 annually

Participating Institutes and Centers of NIH invite applications for P20 planning grants that lead to the establishment of National Programs of Excellence in Biomedical Computing, which will use NIH P20 Exploratory Grant mechanism, to promote research and developments in biomedical information science and technology that will support rapid progress in areas of scientific opportunity in biomedical research. Biomedical computing or biomedical information science and technology includes database design, graphical interfaces, querying approaches, data retrieval, data visualization and manipulation, data integration through the development of integrated analytical tools, synthesis, data archiving, data exchange, tools for electronic collaboration, and computational research including the development of structural, functional, integrative, and analytical models and simulations.

Inquiries: Richard Swaja, Office of Extramural Research, 1 Center Dr, Rm 152, Bethesda, MD 20892-0152, phone 301-402-2725; fax 301-496-0232; e-mail swajad@od.nih.gov

PA-00-117: Innovations in Biomedical Information Science and Technology: Phased Innovation Award

Letter of Intent Receipt Dates: Oct. 27, Feb. 27, and June 27 annually; Application Receipt Dates: Nov. 27, March 27, and July 27 annually

Participating Institutes and Centers of NIH invite applications for innovative research in biomedical information science and technology to promote the progress of biomedical research. The PA will utilize the Phased Innovation Award Mechanism R21/R33.

Inquiries: Same as preceding PA.

PA-00-118: Innovations in Biomedical Information Science and Technology: SBIR/STTR Initiative

Application Receipt Dates: Nov. 27, March 27, and June 27 annually

Participating Institutes and Centers of the NIH invite applications for innovative research in biomedical information science and technology to promote the progress of biomedical research. The program will use the Small Business Innovation Research and Small Business Technology Transfer mechanisms and will be run in parallel with a program of identical scientific scope that will use the newly-created Phased Innovation Award mechanism TPA-00-109.

Inquiries: Same as preceding PA.



BREAST CANCER RESEARCHER

Indiana University Cancer Center, IU School of Medicine, is seeking a breast cancer basic researcher for appointment at the assistant, associate, or professor level. The successful applicant will have a Ph.D. degree or equivalent, be qualified for a tenure track position, and have received extramural research funding. Position includes a generous start-up package including an endowed chair. Research focus should be breast cancer; the applicant will have a primary appointment in an appropriate basic science or clinical department. There are abundant opportunities for collaboration. Applicants should send C.V. and description of research and arrange for three letters of recommendation to be forwarded to:

Stephen D. Williams, M.D.

Indiana University Cancer Center

535 Barnhill Dr. #455

Indianapolis, IN 46202

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