THE CANCER LETTER

Vol. 17 No. 40
Oct. 18, 1991

Price $205 Per Year US, Canada.
$230 Per Year Elsewhere

P.O. Box 15189 Washington, D.C. 20003 Telephone 202-543-7665

Taxol Released On Compassionate Use Basis To Centers; Ohio, Columbia Begin Treatment

NCI has begun releasing taxol to cancer centers on a compassionate use basis for treatment of refractory ovarian cancer. Ohio State Univ. and Columbia Univ. Comprehensive Cancer Center have begun treating patients with the drug under an approved protocol. NCI intends to release one kilogram of the drug this year, enough to treat at least 500 patients. "We've been urging cancer centers to speed up the process of

(Continued to page 2)

In Brief

Li, Gart Retire From NCI; Clifford Heads Diet Branch; ASTRO Meeting Nov. 4-8 In Washington

FREDERICK LI, chief of Clinical Studies Section of the Clinical Epidemiology Branch in NCI's Div. of Cancer Etiology and one-half of the Li-Fraumeni syndrome, has retired. . . . **JOHN GART,** chief of the Mathematical Statistics & Applied Mathematics Section in DCE's Biostatistics Branch, also retired. . . . **CAROLYN CLIFFORD** was officially appointed chief of the Diet & Cancer Branch, in NCI's Div. of Cancer Prevention & Control. . . . **AMERICAN SOCIETY** for Therapeutic Radiology & Oncology annual meeting is scheduled for Nov. 4-8 at the Sheraton Washington in Washington, D.C. For information contact Michael Bernstein, ASTRO, phone 703/648-8900. . . . **"GENETIC MECHANISMS** of Cancer" is the topic for M.D. Anderson Cancer Center's annual basic science colloquium, to be held Oct. 29-Nov. 1 in Houston. For information contact the center's Office of Conference Services, phone 713/792-2222. . . . **COSMETIC FIRM** Gale Hayman Inc. will donate a portion of sales of the fragrance "Beverly Hills" to Dana-Farber Cancer Institute to support breast cancer and AIDS research. . . . **"WE WILL NOT CELEBRATE** the National Cancer Act," NCI Director Samuel Broder told the National Cancer Advisory Board. "We will celebrate when our mission is accomplished." NCAB is planning an event that will focus on the scientific achievements in cancer research to mark the 20th anniversary of the Act. . . . **GEZA JAKO,** President's Cancer Panel member, called the attention of the NCAB to the interview of Broder in **The Cancer Letter** Sept. 20 and 27 issues. "In this interview Dr. Broder expressed his philosophy and outlined the direction for our National Cancer Program. I found his views similar in many respects to those I tried to express while serving on the NCAB." Jako congratulated Broder on the upcoming third anniversary of his selection as NCI director and called him a "wise, realistic and democratic leader."

Taxol Released On Compassionate Basis For Refractory Ovarian Cancer

(Continued from page 1)

approval. We are waiting for them to submit their protocols," NCI Div. of Cancer Treatment Director Bruce Chabner told the National Cancer Advisory Board at its recent meeting. "We decided to do it this way--it's a rather novel experiment--because cancer centers have been asking for this responsibility, so we are giving it to them."

Bristol-Myers Squibb Co. has harvested half of its goal of 750,000 pounds of Pacific yew bark so far this year, which would make available about 25 kilograms of taxol, enough to treat about 12,000 patients, Chabner said.

NCI Director Samuel Broder said he hoped that every comprehensive cancer center, at least, and some clinical centers would participate "in some way" in the taxol program.

"We hope they will be enthusiastic about helping us, particularly in the distribution of taxol, so that we do not have a central government authority making decisions about who should get taxol and who shouldn't," he told the NCAB. "We want to put this out into the community."

In response to remarks by Board member Fred Becker cautioning that taxol is a very toxic drug and is not a "panacea," Broder responded that, "From my personal point of view, not speaking for the FDA, this drug would be approvable tomorrow under an NDA for indication of refractory ovarian cancer based on what we already know."

Chabner said important new data is emerging about taxol's activity in metastatic breast cancer, as well. Four studies are underway at present. One has been competed at M.D. Anderson Cancer Center in which 25 patients entered who had failed primary therapy for metastatic disease. All were evaluable; there were 11 partial responses and three complete responses. The overall response rate was 56 percent.

"We've looked over the x-rays and the clinical histories and agree with the findings," Chabner said. He noted that, "This abstract, which I think is the most important single clinical trial over the past maybe two years was turned down for presentation at ASCO [American Society of Clinical Oncology annual meeting] and I have not been able to find out why."

Memorial Sloan-Kettering has a trial to confirm taxol's single agent activity in metastatic breast cancer. So far there are six partial responses out of 12 evaluable patients, a 50 percent response rate.

NCI recently began a trial with G-CSF to reverse the leukopenia associated with taxol and with adriamycin as primary therapy in patients previously untreated for metastatic disease. Only four patients are evaluable so far; two have responded and the others are still on treatment and may achieve responses, Chabner said. There is a similar study at M.D. Anderson that began in August.

Other phase 2 trials are underway in colon cancer, non small cell lung cancer, prostate cancer, upper GI tract cancer, and pediatric solid tumors. "We have encouraging early results in lung cancer, both non small cell and small cell lung cancer," Chabner said.

NCI also continues to maintain a treatment referral center for patients who are not eligible for the ovarian cancer protocol to discuss other treatment options.

Supply of the drug continues to be the limiting factor. "The breast cancer studies alone will escalate the need for the drug by 10 fold," Chabner said.

There are estimated to be 20 to 30 million Pacific yew trees on federal lands, and Bristol-Myers is harvesting about 35,000 this year.

NCI has fully funded 13 grants in response to an RFA released last year for synthesis and semisynthesis of taxol. Three additional applications received partial funding through Shannon awards and will receive $100,000 over the next two years.

NCI also is cooperating with the French pharmaceutical firm Rhone-Poulenc on setting up clinical trials of taxotere, a taxol analogue, Chabner said.

Through the NCI grantees, the French firm, and normal market forces, "We feel there will be competition in this field," Chabner said. Bristol-Myers has a CRADA agreement with NCI for the development of taxol. The agreement came under criticism

THE CANCER LETTER

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Subscription rate $205 per year North America, $230 elsewhere. ISSN 0096-3917. Published 48 times a year by The Cancer Letter Inc., also publisher of The Clinical Cancer Letter and AIDS Update.

recently at a congressional hearing chaired by Oregon Congressman Ron Wyden (**The Cancer Letter,** Aug. 9).

"It really is impossible to get a commercial sponsor to undertake development of a product if they don't have some guarantee of market exclusivity, particularly for something that has no patent protection, so we felt that this kind of exclusive arrangement was absolutely essential," Chabner told the NCAB. "We feel this CRADA agreement really is an implementation of the federal Technology Transfer Act, and we think it will be a test case for how an unpatented compound like this can be developed and marketed by a commercial partner."

Highly Toxic Agent

Becker said one problem facing centers that are conducing the taxol trials is "constant bombardment by friends, supporters, distant relatives who haven't talked to us in years suddenly appearing with the thought that this is a panacea they have read about. I think it is important we get a common sense view of it. It is not a panacea. First of all, something that's almost never mentioned is that this is a toxic agent, in fact it is highly toxic. We get very few complete remissions, we get partial remissions."

Chabner countered, "You rarely see complete remissions in patients who have failed other therapies."

"I'm aware of that," Becker said. "There's a connotation given to this that we should be careful about. It should be made known that it is toxic and there will be patients who will not be able to withstand its effects."

"Everything you've said about taxol is true," Broder said. "It does have side effects, and some patients may not be able to take it. But for refractory ovarian cancer, there is a subset of patients who clearly cannot be told, 'The reason you won't get this drug is because we don't know if it will help you.'"

Becker also suggested what he called "the Becker Plan" for simultaneously ridding the country of tobacco and increasing taxol supplies: Have the Dept. of Agriculture encourage tobacco farmers in states such as North Carolina to grow varieties of taxus. "That way we could kill at least two birds and one senator with one stone," he said.

"The Becker Plan is brilliant in its scope and daring in its vision," Broder responded. He said the plan has one flaw: "It is true that there are poor tobacco farmers that see subsidies, but they are a teeny, teeny, teeny portion of the profit issue. We're talking about a multibillion dollar industry. Very few of the profits of that industry go to the farmers. The main problem we face is that cigarette production is a gigantic industry and astonishingly profitable."

Praise For Chabner, DCT

The larger problem NCI faces with taxol, Broder said, is that the drug may be just the first natural product with a limited supply that shows anticancer activity. "This is a warning shot across the bow," he said. "Many times we have assumed in our development program infinite supply. We really now have this hitting us over the head. I don't know of a more difficult challenge than supply. I think we are going to see this as we get more and more into natural products."

Broder praised Chabner and his staff in DCT for its work in getting the CRADA agreement with Bristol-Myers in place and working with the Interior Dept. and the Agriculture Dept. on the yew harvest.

"We have a long way to go still, but this problem undercuts the caricature of government as a slothful bureaucracy," Broder said. "If you think about what's been done in the last year, at least three governmental agencies that don't usually work with each other were able to get together and break a lot of red tape and come up with results. It had to go up to the relevant Secretary and back down again. It could have sat on somebody's desk."

Board member Sydney Salmon also commended Chabner and NCI. "When I heard your presentation at the first NCAB meeting this year, I didn't think you'd get this far," he said.

NIH Reauthorization Still Lingering, Bills 'Tie Hands' Of NCI Director

Several provisions in the House and Senate bills reauthorizing NIH could create funding and administrative problems for NCI by mandating amounts to be spent in certain fields of research.

In addition, the bills continue to be mired in the controversy over the issue of lifting the ban on fetal tissue research, with a presidential veto threatened of the House bill. The Senate bill does not address the issue, but no action on it has been scheduled.

The House passed in July Rep. Henry Waxman's (D-CA) "NIH Revitalization" bill, H.R. 2507. Sen. Edward Kennedy (D-MA) introduced the Senate version of the bill, S. 1523, also in July. However, according to Kennedy's staff, no further action on the bill has been scheduled yet.

HHS Secretary Louis Sullivan has recommended a presidential veto of the House bill because it removes bans on the use of fetal tissue for research. The secretary also took issue with specific demands in the House bill for research on women's health, saying they were costly and unnecessary.

NIH's authorities officially expired last year. A legislative analyst for NIH said if the reauthorization bill was not passed by the full Congress during this session, certain research and training programs could be stalled.

However, said the analyst, NIH officials expect that the Labor, Health and Human Services Appropriations Act for FY 1992 will authorize continued funding for those programs to allow them to operate for another year without reauthorization.

Several Cancer Programs Targeted

The House bill authorizes $2 billion for FY 1992 and such sums as necessary for FY93 and FY94 for certain NCI programs. Ten percent of the funds are designated for cancer prevention and control. Under current budget figures, the impact of that provision would be to redirect about $47 million from other NCI programs into prevention and control, according to NCI Legislative Liaison Dorothy Tisevich.

At least $50 million must go to breast cancer research (excluding treatment and clinical trials); and the development of a test for ovarian cancer must also be funded.

"I'm concerned about the compartmentalization of these bills," National Cancer Advisory Board Chairman Paul Calabresi said at the Board's recent meeting. "It seems to me they tie the hands of the NCI director."

"We are trying to send the message that greater flexibility is preferable," Tisevich responded.

The Senate reauthorizes NCI for five years, at $2.25 billion in FY92 and such sums as necessary for FY93-FY96. It authorizes $156.6 million for prevention and control and calls for the NCI director, with the consultation of the NCAB, to focus on the causes of and cures for breast cancer and cancers of the female reproductive system. It also mandates the establishment of six breast and prostate cancer centers.

The Senate legislation authorizes $75 million to be spent on these projects for FY 1992, with such sums as necessary for FY 1993-96. The House bill contains no similar provisions.

The House legislation also mandates the director of NIH to establish a program on nutritional disorders, including obesity, to be conducted by NCI and the National Institute on Diabetes and Digestive and Kidney Diseases. The Senate bill has no parallel provision.

"It is very important for us to be sensitive to Congress," NCI Director Samuel Broder told the NCAB. "What happens in these cases is various individuals ask for money but the percentages add up to more than 100 percent. Then you get confusion and misunderstanding. In effect, it makes our job very difficult and neutralizes what constituency groups hoped to accomplish."

AIDS Provisions

The proposed reauthorization bills contain a number of provisions concerning AIDS research. Both the Senate and House versions of the bill require the National Academy of Sciences' Institute of Medicine to conduct a study to determine how new programs that provide expanded access to investigational AIDS therapies have affected public and private clinical research on AIDS and the drug approval process.

NIH is also required to conduct a study and develop recommendations on third-party payers' policies for reimbursing the costs patients incur in clinical trials.

Both bills also require the director of NIH to develop a plan for AIDS research that will cover all NIH institutes; the plan would have to include target completion dates and an estimation of the resources required for the research.

During floor action on the bill, Rep. William Dannemeyer (R-CA), successfully introduced an amendment that requires NIH to fulfill several conditions before conducting surveys of sexual behavior.

Under the provision, NIH would have to seek approval for surveys from a peer review body and an ethical review board, and the director of NIH would have to certify that the data gathered by a survey would be useful in reducing either the incidence of disease or otherwise improve health conditions.

The Senate legislation also gives the AIDS Research Advisory Committee of the National Institute of Allergy & Infectious Diseases the additional responsibility of advising directors of other NIH institutes on AIDS-related research.

Emphasis on Oversight Provisions

Several issues surrounding NIH funding and oversight of research are addressed in the bills.

The House bill allows the HHS secretary to authorize indirect cost expenditures if the award recipient agrees to spend the money in accordance with certain rules specified in the Public Health Service Act and proves that it complied with those rules during the previous fiscal year.

The secretary must approve all requests for reimbursement of building and equipment costs exceeding $3 million. The House bill also mandates that institutions that fail to comply with regulations must repay the funds for indirect costs to HHS with interest.

NIH's Office of Scientific Integrity would be given permanent status by statute in the House version of

the reauthorization. The bill also stipulates that the OSI director has the authority to monitor and conduct investigations and monitor administrative procedures to ensure compliance with regulations.

Another provision in the house legislation calls for the development of regulations to protect "whistleblowers" who call attention to cases of scientific misconduct.

In addition, the HHS secretary is required to issue regulations to protect against financial conflict of interest.

The bill also makes OSI responsible for matters related to conflict of interest; however, Secretary Sullivan objected to that measure, stating that such conflicts were the domain of NIH's Office for Extramural Research.

The Senate version of the reauthorization bill does not contain any provisions on indirect costs, OSI, or financial conflict of interest.

Women's Health

Both the House and Senate reauthorization bills contain language concerning research on women's health. Both continue the operation of NIH's Office of Research on Women's Health within the NIH director's office.

The Senate bill authorizes such sums as necessary for the office for FY 1992-96; the house version contains no funding language.

Both bills also call for the ORWH director to assist in the implementation of a new section of the PHS Act that concerns improving the number of women included in clinical trials.

In the House legislation, the ORWH director would identify research projects in the area of women's health that should be conducted by NIH, recommend an agenda, and advise on the allocation of resources. The bill does not authorize any funds.

The Senate bill also calls for a Center for Women's Health Research to be established by the beginning of 1994 and emphasizes the office's role in coordinating extramural and intramural research on women's health, especially aging processes.

Fetal Tissue Research

The House language on the use of human fetal tissue in biomedical research remains one of the most contentious points in that legislation.

Waxman has tried through several avenues to overturn the moratorium on the use of human fetal tissue for research that was instituted for an indefinite period by HHS in 1989. The House reauthorization bill calls for an end to the ban on research with human fetal tissue, and outlines specific guidelines and limitations for fetal tissue transplantation research.

According to the bill, HHS can conduct or support such research for therapeutic purposes using tissue from either miscarried, aborted, or stillborn fetuses with the informed consent of the mother.

The bill states that no official of the executive branch can prohibit HHS from conducting or supporting research on the transplantation of human fetal tissue for therapeutic purposes in accordance with rules outlined in the PHS Act.

The bill does deem it illegal to specify the use such tissue from an induced abortion for a particular recipient.

Although the Senate bill does not address this topic, if the provisions on the use of human fetal tissue are allowed to stand in the final version of the bill it may be vetoed by the president.

The House legislation also requires the Director of NIH and a coordinating committee to prepare a plan for development of research methods that do not require the use of animals, reduce the number used, or reduce pain and distress. The group would also develop a plan for testing these new methods and training researchers in their use.

The plan must be presented to Congress by Oct. 1, 1992. The Senate bill contains no similar provision.

Cancer Control Progress, Challenges, Mark ACS Observance Of Cancer Act

Progress in cancer control over the last 20 years and the challenges ahead were the themes of a recent congressional hearing marking the 20th anniversary of the passage of the National Cancer Act.

Harold Freeman, past president of the American Cancer Society and current chairman of the President's Cancer Panel, NCI Director Samuel Broder, and several cancer survivors testified before the House Subcommittee on Health & the Environment, chaired by Rep. Henry Waxman (D-CA), late last month.

After the hearing, 54 cancer survivors, each representing an ACS division, were honored at a luncheon with members of Congress, and then attended a private reception hosted by Vice President and Mrs. Quayle.

Among the survivors were 12-year-old Justin Singer, a pancreatic cancer survivor; Paul Calabresi, chairman of the National Cancer Advisory Board, diagnosed with metastatic head and neck cancer in 1975; Sen. Connie Mack, a skin cancer survivor; Rep. Barbara Vucanovich, a breast cancer survivor; two laryngeal cancer survivors, singer Mary Wells and actor Jack Klugman; and Melanie McElhinney, a 10-year survivor of osteogenic sarcoma.

In his testimony, Freeman listed some of the accomplishments in cancer control since the National Cancer Act was signed in 1971: fewer amputations in patients diagnosed with osteosarcoma, increase in survival of acute lymphocytic leukemia from 28 percent 20 years ago to 50 percent, 91 percent five year survival of early breast cancer, up from 85 percent, 71 percent five year survival of prostate cancer, up from 50 percent, and five year survival of all types of cancer increased from 30 percent to 50 percent.

"This means that at least 77,000 more people this year will beat cancer--largely because of the national commitment to the conquest of this disease stimulated by the signing of the National Cancer Act 20 years ago," Freeman said.

Not only did the Act mobilize the federal government, Freeman said. It also mobilized the public and ACS. The Society's research funding rose to $90 million last year, but when adjusted for inflation, the overall funding level has been fairly constant over the years. With an "amazing increase" in the number of grant applications the Society receives--approaching the 3,500 mark--a smaller percentage of grants are being funded, 23.7 percent this year, down from 25.6 percent last year and 33.8 percent in 1989.

"Despite these restrictions to scientific inquiry, the infusion of money and talent over the past 20 years has enabled researchers to attain a remarkable level of understanding with regard to cancer. But perhaps the most important and exciting accomplishments are the doors we've opened into whole new areas of science. Entire new areas of research exist now. Their importance to cancer control was virtually unknown 20 years ago: New forms of epidemiology, tremendous new insights into genetics, breakthroughs in the study of viruses, the newly discovered role of hormones, tremendous new knowledge about the body's immune systems.

"But the promise held by this new knowledge will only be realized if a heightened sense of national urgency about cancer control exists."

Freeman listed some "obstacles" in cancer control progress:

--The promise of secondary cancer prevention through early detection technology, such as mammography, "has been largely unrealized because of underuse by patients and physicians." Also, many Americans do not have health insurance that will pay for these procedures. About 100,000 deaths could be avoided through early detection.

--Poor Americans have a 10 to 15 percent lower five year cancer survival rate than the more affluent. "Are we as a society waging war only for those who can pay for the guns and the ammunition?" Freeman asked.

Gallup Survey: Cancer Most Feared Disease

As part of the commemoration, ACS released the results of a Gallup survey of 1,045 Americans that found cancer is the disease they fear the most. AIDS and cancer were most frequently cited (31 percent and 28 percent) by respondents when asked to name the most important health problem facing Americans generally, but cancer (13 percent) was felt to touch more Americans personally that AIDS (3 percent).

The majority of those surveyed (59 percent) said they were either somewhat likely (42 percent) or very likely (17 percent) to get cancer. Overall, 42 percent said that chances of being cured would be good (31 percent) or excellent (28 percent), but a greater proportion (44 percent) believed their chance of cure was fair or poor.

"The '70s and '80s were the decades of the biological revolution--an explosion of basic scientific knowledge, especially in cell biology," Freeman concluded. "The '90s could be the decade of therapeutic translation of these and other biological advances directly into day to day patient care, provided a heightened level of commitment exists."

Broder, in his testimony, highlighted the special authorities granted to NCI by the National Cancer Act, and its accomplishments:

"--The President's Cancer Panel monitors the program and reports directly to the President any impediments to the implementation of the National Cancer Program.

"--The National Cancer Advisory Board reviews research supported by NCI and provides advice and guidance to the director on resource allocation, areas of emphasis, and Institute policies.

"--The Act requires the director to make an annual assessment of the National Cancer Program and to report on the scientific opportunities available and the resources required. This is done through the Bypass Budget.

"--The Act has encouraged development of important biomedical research programs across the U.S. and has supported the research of many outstanding American scientists. NCI can count 30 Nobel laureates among its grantees

"--The basic research supported by the Act is leading to a unified theory of cancer. There have been fundamental discoveries about oncogenes and tumor suppressor genes and these have led to an increasing understanding of phenomena such as metastasis, as well as to new preventive, diagnostic, and treatment strategies."

Long Term Plan For Center Grants, Cap Needed, NCAB Committee Says

The National Cancer Advisory Board's Committee on Cancer Centers has agreed that without major increases in the cancer centers program budget, some type of restriction on the size of center core grants may be necessary to ensure long term growth in the program.

The committee, at its recent meeting, reviewed charts prepared by the Cancer Centers Branch staff showing the core grants of each cancer center in relation to the size of its peer reviewed research base.

The centers with the largest core grants do not necessarily support a larger proportion of peer reviewed research. In fact, for the two centers with the largest core grants, Fox Chase and Memorial Sloan-Kettering, the opposite is true. Their grants are larger mainly because they are two of the oldest cancer centers. *(See charts, next page.)*

Many of the smaller or newer centers, such as Univ. of Virginia, support relatively more peer reviewed research in relation to the size of their core grant.

"There was consensus that clearly there was an inequitable distribution of funds, and if there are no budget increases in centers program, we should come up with some kind of plan," said Brian Kimes, director of the Centers, Training & Resources Program.

The NCAB committee and its chairman, John Durant, will work with NCI staff to develop four or five models for caps on center core grants, including a total dollar cap and various ratio caps. The models would be presented early next year to the NCAB.

Kimes emphasized that it may not be necessary to implement a cap anytime soon, that planning for one is a long term process, and any cap would be implemented gradually.

"Our intent in bringing this to your attention is to figure out where we're going to be 10 years from now," Kimes told the committee. "We're trying to anticipate the future."

Without increases in the centers budget, which has been flat or actually declining in real dollars over the past several years, NCI will continue to struggle with funding a declining number of centers and/or funding core grants at less than full recommended levels. At present, it is difficult for new or smaller centers to enter the program, Kimes said.

The process of examining the core grants in relation to the research base began about two years ago. The issue has been discussed at workshops with center directors and with the NCAB committee.

The new charts, which used information contained in the centers' grant applications, show the ratio of the core grant to the center's other NCI support, all peer reviewed support, and all NCI support to total peer reviewed support. Kimes called it an "intellectual examination of the data."

Other NIH institutes have total dollar caps on center grants. "We felt it would be most reasonable to base a cap on the size of the research base," Kimes said. "Perhaps there should be a ratio that things max out at. The core should have some relationship to the research base."

NCAB member Sydney Salmon agreed. "We have to say the early birds got the worm and over the years they got compound interest. There is a limit."

"I agree, but I just don't know how to figure out the optimal limit," said Board member Walter Lawrence.

The committee also discussed new core grant guidelines that NCI staff have been working on for more than a year. The NCAB is scheduled to review and approve the guidelines at its next meeting in November so they will be in place for grant applications that are due in February.

The rewritten guidelines are a response to a "first wave" of letters from 31 center directors who reviewed a draft of the guidelines this summer (**The Cancer Letter,** July 12). Kimes said he called every director who had made substantive comments. "We've learned a lot about what are the problems of cancer centers today," he said.

Mainly the tone of the document was changed from being "directive" to "helpful," Kimes said. "We've revised it so it is more helpful. Directors don't like to be told how to run their centers."

The Div. of Cancer Biology, Diagnosis & Centers Board of Scientific Counselors also has to approve the guidelines, Kimes said. There are five center directors on that board.

"We want this document to be an educational tool for new staff and new people," Kimes said. "It is written longer in areas where there was a lot of confusion. The real intent was to add flexibility and to be clear so everybody knows what they are being reviewed for."

NCI Contract Awards

Title: Chemical synthesis of C14, H3 and S35 labeled anti-AIDS and anticancer agents
Contractor: Moravek Biochemicals Inc., Brea, CA; $48,000.

Title: Cellular and molecular studies of human hepatocarcinogenesis in China
Contractor: Cancer Institute, Chinese Academy of Medical Sciences, $180,000.

CANCER CENTERS ORDERED BY SIZE OF THE CORE GRANT

CANCER CENTER	Type	Core	Core/NCI	Core/Peer	Peer w/o Core	Ratio NCI to Peer
CLINICAL/COMPREHENSIVE/BASIC						
SLOAN-KETTERING INSTITUTE FOR CANCER RES	COMP	8494986	0.431933	0.275339	30852825	0.637458
INSTITUTE FOR CANCER RES. (FOX CHASE)	COMP	6837092	0.552711	0.350437	19510175	0.634033
FRED HUTCHINSON CANCER RESEARCH CENTER	COMP	4035445	0.13497	0.098879	40812142	0.732599
DANA-FARBER CANCER INSTITUTE	COMP	3455722	0.144133	0.075333	45872910	0.522659
JOHNS HOPKINS UNIVERSITY	COMP	3136052	0.258534	0.170641	18378042	0.660034
DUKE UNIVERSITY	COMP	3026577	0.293794	0.070544	42903576	0.240113
UNIVERSITY OF ALABAMA	COMP	3020646	0.273508	0.074121	40752961	0.271001
YESHIVA UNIVERSITY - ALBERT EINSTEIN	CLIN	2913197	0.303916	0.1017	28645017	0.334632
UNIVERSITY OF SOUTHERN CALIFORNIA	COMP	2854712	0.121204	0.076601	37267095	0.632003
AMERICAN HEALTH FOUNDATION	BASIC	2831289	0.328629	0.296741	9541281	0.902965
TEMPLE UNIVERSITY - FELS INSTITUTE	BASIC	2710786	0.668207	0.398964	6794564	0.597067
UNIVERSITY OF CALIFORNIA (JONSSON)	COMP	2658626	0.124452	0.041449	64142080	0.333053
COLUMBIA UNIVERSITY	COMP	2591867	0.19827	0.061726	41989665	0.311324
UNIVERSITY OF ROCHESTER	CLIN	2584070	0.52148	0.252212	10245623	0.483647
ST. JUDE CHILDREN'S RESEARCH HOSPITAL	CLIN	2488514	0.400282	0.219259	11349634	0.547762
UNIVERSITY OF WISCONSIN (CLINICAL CTR)	COMP	2282466	0.302073	0.177681	12845867	0.588205
COLD SPRING HARBOR LABORATORY	BASIC	2196838	0.423697	0.195725	11224111	0.461945
UNIVERSITY OF WISCONSIN (MCARDLE LAB)	BASIC	2191190	0.415696	0.308821	7095337	0.742902
WISTAR INSTITUTE OF ANATOMY AND BIOLOGY	BASIC	2156290	0.251779	0.133687	16129355	0.530971
OHIO STATE UNIVERSITY	COMP	2138424	0.385641	0.162593	13152009	0.421617
MASSACHUSETTS INSTITUTE OF TECHNOLOGY	BASIC	1839866	0.483871	0.293419	6270431	0.606399
ROSWELL PARK MEMORIAL INSTITUTE	COMP	1702935	0.091643	0.065018	26191888	0.709468
MAYO FOUNDATION	COMP	1688737	0.216137	0.134162	12587266	0.620727
UNIVERSITY OF PENNSYLVANIA	COMP	1634344	0.178009	0.090259	18107194	0.507051
UNIVERSITY OF NORTH CAROLINA	COMP	1533178	0.150156	0.062887	24380006	0.418809
NEW YORK UNIVERSITY MEDICAL CENTER	CLIN	1519101	0.187219	0.060641	25050833	0.323902
UNIVERSITY OF CHICAGO	CLIN	1516176	0.146664	0.070283	21572541	0.479209
SALK INSTITUTE FOR BIOLOGICAL STUDIES	BASIC	1362404	0.282144	0.17971	7581115	0.636946
UNIVERSITY OF MICHIGAN AT ANN ARBOR	CLIN	1353595	0.07887	0.029346	46125736	0.372078
UNIVERSITY OF COLORADO HLTH SCIENCES CTR	CLIN	1343490	0.218374	0.071296	18843918	0.326484
UNIV OF TEXAS;MD ANDERSON	COMP	1200470	0.048217	0.033392	35951053	0.692534
WAKE FOREST U. BOWMAN GRAY SCHOOL OF MED	COMP	1197065	0.711289	0.118033	10141792	0.165942
DARTMOUTH COLLEGE (NORRIS COTTON CENTER)	COMP	1193088	0.118752	0.075908	15717501	0.639217
WORCESTER FOUNDATION FOR EXPER BIOLOGY	BASIC	1140428	1.149444	0.199854	5706309	0.17387
YALE UNIVERSITY	COMP	1136708	0.059652	0.031049	36610704	0.52049
UNIVERSITY OF ARIZONA	COMP	1129733	0.095812	0.07659	14750408	0.799377
UNIV. OF VERMONT REGIONAL CANCER CENTER	CLIN	1109325	0.3839	0.156898	7070379	0.408693
UNIVERSITY OF PITTSBURGH	COMP	1094768	0.087194	0.02844	38494619	0.326162
ROGER WILLIAMS GENERAL HOSPITAL	CLIN	1003620	0.256546	0.170146	5898579	0.663219
BECKMAN RESEARCH INSTITUTE/CITY OF HOPE	CLIN	996910	0.214232	0.092222	10809920	0.430475
CASE WESTERN RESERVE UNIVERSITY	CLIN	994505	0.179868	0.067894	14647879	0.377466
UNIVERSITY OF CALIFORNIA SAN DIEGO	CLIN	907091	0.11084	0.062866	14428934	0.567181
UNIVERSITY OF UTAH	CLIN	903159	0.125466	0.047354	19072570	0.377424
JACKSON LABORATORY	BASIC	877768	0.446485	0.076151	11526714	0.170556
NEW YORK UNIVERSITY (ENVIRONMENTAL)	BASIC	862310	0.385762	0.104883	8221674	0.271884
LA JOLLA CANCER RESEARCH FOUNDATION	BASIC	860887	0.171828	0.08502	10125653	0.494798
GEORGETOWN UNIVERSITY	CLIN	848900	0.152765	0.088635	9577494	0.580204
WAYNE STATE UNIVERSITY	COMP	798228	0.05775	0.047113	16942863	0.815805
UNIVERSITY OF MIAMI	COMP	777635	0.263055	0.038269	20320153	0.14548
CALIFORNIA INSTITUTE OF TECHNOLOGY	BASIC	748650	4.743425	0.092676	8078159	0.019538
UNIVERSITY OF NEBRASKA (EPPLEY INST.)	BASIC	623210	0.14833	0.12127	5139011	0.817572
UNIV COMM. VA..MASSEY CANCER CENTER	CLIN	482000	0.189544	0.036259	13293218	0.191297
PURDUE UNIVERSITY	BASIC	408615	0.151876	0.031283	13061822	0.205978
UNIVERSITY OF VIRGINIA CHARLOTTESVILLE	COMP	239465	0.056233	0.010927	21915893	0.194309

Chart shows cancer center core grants ("core"), the ratio of the core grant to each center's NCI research support ("core/NCI"), the ratio of core grant to total peer reviewed research ("core/peer"), the total peer reviewed research without the core grant ("peer w/o core") and the ratio of NCI support to the center's total peer reviewed research, also called the research base. These figures show that the centers with the largest core grants do not necessarily support proportionally more research, thus the feeling that there is an "inequitable distribution" of core grant funds, according to Centers, Training & Resources Director Brian Kimes. Kimes and his staff are beginning to develop several models for limiting the size of core grants. See story, page 7. *Source: NCI*