

THE

# CANCER LETTER

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## NCI Bypass Budget Justifies An Extra \$900 Million In FY1992; Cancer Cost Estimated At \$80B A Year

President Bush will submit his 1992 fiscal year budget to Congress early in February, and it will probably include a figure for NCI around \$1.8 billion, about five percent more than the \$1.714 billion that the  
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### In Brief

### John Minton Dies From Auto Accident Injuries; FDA Rules Against Generic Megastrol Acetate

JOHN MINTON, professor of surgery at Ohio State Univ. and a staff member of the Arthur G. James Cancer Hospital, died last month from injuries suffered in an auto accident. He was 56. His car, waiting at a traffic light, reportedly was struck by another, inflicting severe head injuries on him. He was taken to Riverside Methodist Hospital and rushed into surgery, but died soon after. Minton received his MD and a PhD in immunology, both from Ohio State, and was a pioneer in laser surgery and in use of CEA in monitoring colon cancer patients. He had been a member of the Southwest Oncology Group since 1976. David Schuller, director of James Hospital and of the OSU Comprehensive Cancer Center, said that Minton "was a physician who totally dedicated his life to improving cancer patients and research and accordingly developed an international reputation for his efforts. His contributions to cancer prevention, treatment, detection, and education far exceeded those that would be anticipated from a surgical oncologist." . . . **FDA HAS RECLASSIFIED** the generic megastrol acetate manufactured by Pharmaceutical Basics Inc. as "not shown to be safe and effective." The company, based in Chicago, refused FDA's request to voluntarily withdraw the drug, but it has discontinued selling it. The generic version of Bristol-Myers-Squibb's megace was found last year to be not bioequivalent to megace, with increased potency that could compromise clinical trials and possibly endanger patients. . . . **POST MENOPAUSAL** women have a reduced mortality rate of at least 20 percent if they have undergone estrogen replacement therapy, according to a study reported by Brian Henderson, Annlia Paganini-Hill, and Ronald Ross of the Univ. of Southern California Norris Comprehensive Cancer Center. The study, described in the Jan. 4 issue of "Archives of Internal Medicine," involved 8,881 residents of a Southern California retirement community. The investigators said the 20 percent mortality reduction was seen in women who had ever used estrogen; for those who had received it for the past 15 years, the reduction was 40 percent in overall mortality compared with nonusers. No increased mortality from breast cancer was seen.

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## Bypass Budget, Still An Important Document, Justifies Extra \$900 Million

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Institute is getting in the current fiscal year.

That amount will be about \$900 million less than the total requested in NCI's 1992 bypass budget, the unique document that permits NCI to go public with its "professional needs" budget--the optimal amount that could be usefully spent to accomplish the mission of the Institute.

Once the new budget goes to Capitol Hill, NCI Director Samuel Broder will be cautious when it comes to talking about money needed by the National Cancer Program in the fiscal year that starts next Oct. 1. The President's budget is the only budget supported by all those who work for the federal government, or who want to continue working for the government.

Until then, Broder can speak his mind, which he has on many occasions, none more cogently than in his message which leads off the 1992 bypass budget.

The \$2.612 billion in the bypass budget is "based upon professional needs and scientific opportunities. . . calculated by determining the cost of actively pursuing research opportunities of high promise or great need," Broder wrote. "As the National Cancer Program's key planning document, it reflects the best professional judgment of Institute staff, members of the National Cancer Advisory Board, and experts in specific aspects of cancer research and treatment.

**"If the funds requested were appropriated, they would immediately and responsibly be put to use."**

Last year, before "Desert Shield" became a household name, there was a growing movement in Congress to use some of the "peace dividend" for a major increase in NCI funding for FY 1991 and to fully

fund the bypass budget in FY 1992. Those hopes disappeared with the invasion of Kuwait and the recession at home.

The bypass budget remains a vital document, however. It describes how the money would be spent, including those amounts over a "current level of services" total (the 1991 figure plus a five percent increase, which would probably not cover inflation and thus really would not maintain NCI's effort at the current level).

Members of the congressional appropriations committees have expressed more interest in the bypass budget figures during the last year or two. Any prospect for significant increases in National Cancer Program support depends to a large extent on convincing those committee members that additional money will accelerate progress in reducing cancer mortality. The bypass budget lists the research efforts which that money would make possible.

The bypass budget, starting in 1986, was tied to the Year 2000 goal of achieving a 50 percent reduction in cancer mortality by the turn of the century. The means of achieving that goal were spelled out and included such items as doubling the number of patients on clinical trials, substantially increasing the number of cancer centers, funding 50 percent of approved grants at full recommended levels, supporting \$20 to 40 million a year in construction grants, doubling the amount spent on cancer control, and more.

The 1992 bypass budget includes most of those requests, but the Year 2000 goal is mentioned infrequently and only deep into the text. Does that mean NCI has given up on the Year 2000 goal?

Peter Greenwald, director of the Div. of Cancer Prevention & Control, emphatically says it does not.

"We're still committed to the goal," Greenwald said this week. "My personal view is that with the substantial progress against smoking, we may see a more accelerated decline [in smoking related cancer] in the next five years. There is a growing awareness in the American public of dietary factors. Mammography is being used more. There has been clear progress in therapy, particularly in adjuvant therapy of breast and colon cancer which, if the impact shows up in the next five years, could have an effect on mortality by the end of the decade."

Greenwald acknowledged that a 50 percent reduction in mortality might be deferred beyond the Year 2000. And he regretted that the full force of scientific effort called for in previous bypass budgets has not been brought to bear on that goal.

An analysis of progress in each of the areas set

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forth in the Year 2000 Goal Plan was made in late 1989, using 1987 data; not much was seen (The Cancer Letter, Jan. 5, 1990). Members of the National Cancer Advisory Board agreed, in discussing that analysis, that it was too soon for an impact to be seen.

Greenwald said this week that 1988 data are in but have not yet been analyzed. That will also probably not be conclusive. But he expects that an analysis in late 1992, as called for by the NCAB, using 1990 mortality data, will show some progress.

#### **Cost Of Cancer \$80 Billion A Year**

Back to the 1992 fiscal year bypass budget.

"The bypass request should be balanced against the economic cost of cancer in the United States which is estimated at over \$80 billion per year," Broder wrote. "Of course, the human costs are incalculable."

Broder summarized progress in various areas and some opportunities, and closed with this:

"It is important to name the most important resource of the National Cancer Program: the people who work for it. The intellect and character of the men and women who do the work--as employees within the Institute, as collaborators, as grantees, as contractors, and all the others who contribute to this program are the critical resource. They need the tools to meet the expectations of the American people. The bypass budget provides those tools."

The 337 page bypass budget includes considerable detail on individual programs and research areas, citing recent progress in each and plans for further work in those fields, much of which would be initiated only if the bypass request, or an amount close to it, is appropriated.

Brief descriptions are included of how the money over and above the current services budget, the amount likely to be requested by the President, would be allocated. The lion's share of the increase would go to research project grants, amounting to \$310 million, which would raise the total in that category to about \$1 billion. Here's how the extra \$310 million would be spent:

--Fund at full recommended levels, including restorations for both noncompeting and competing research project grants funded in 1991--\$68.9 million.

--Support 50 percent of competing research grants--\$203.8 million.

--Solicit proton beam therapy research proposals--\$25 million.

--Solicit applications on the development of a cancer vaccine, in conjunction with research and development contracts--\$10 million.

--Solicit applications for research on lymphomas

associated with AIDS--\$3 million.

Breakdown by other major initiatives:

**Cancer Centers--\$54.8 million, for a total of \$160 million.**

--Restore funds for centers expected to be phased out in 1990 and 1991--\$14.2 million.

--Pay continuing centers at committed levels and competing centers at recommended levels--\$11.6 million.

--Fund approximately six new centers, including centers focused on pain and minority research issues--\$19 million.

--Provide funds to cover cost of comprehensiveness, including enhanced outreach activities--\$10 million.

**Clinical Cooperative Groups--\$35.7 million, for a total of \$98 million.**

--Increase number of patients accrued to 25,000--\$21.7 million.

--Expand minority participation in clinical trials--\$3 million.

--Expand high priority clinical trials including a trial on tamoxifen and its impact on breast cancer and a clinical with the over 65 age group--\$8 million.

--Fund clinical trials on AIDS associated lymphomas--\$3 million.

**Cancer Prevention and Control--\$78.2 million, for a total of \$163.9 million.**

--Expand chemoprevention/nutrition programs, including research affecting women's health--\$25 million.

--Expand minority research efforts using the Community Clinical Oncology Program--\$12.4 million.

--Expand smoking studies in COMMIT and ASSIST--\$4.4 million.

--Expand public health initiatives--\$17.4 million.

--Develop program relative to the behavior and psychological aspects of cancer--\$5 million.

--Expand on initiatives detailing the impact of cancer on the aging population, as well as low income and rural populations--\$7.5 million.

--Expand studies on pain associated with cancer--\$1.5 million.

--Develop program on organ sparing and surgical reconstruction--\$5 million.

**Training/Education--\$10.3 million, for a total of \$40.5 million.**

--Increase the number of trainees focused on pain research--\$2.5 million.

--Provide research training for the research career programs--\$4.3 million.

--Target efforts toward the recruitment of minorities in oncological research--\$1.5 million.

--Expand physician education programs--\$2 million.

**Construction--\$77.3 million, for a total of \$84 million.**

--Extramural construction--\$50 million.

--Repair, improvements, and expansion activities at Frederick Cancer Research & Development Center--\$24.5 million.

The bypass budget also calls for two year obligational authority for construction appropriations.

**Research and Development Contracts--\$55.3 million, for a total of \$243.5 million.**

--Enhance information dissemination activities through the Cancer Information Service--\$12.5 million.

--Add data base on Hispanics under the Surveillance, Epidemiology, and End Results Program--\$3.4 million.

--Develop cancer vaccine, in conjunction with research project grants--\$20 million.

--Evaluate state of the art patterns of care under CCOPs--\$8 million.

**Intramural Research--\$42.5 million, for a total of \$371.6 million.**

--Management fund, including activities at the NIH Clinical Center--\$17.5 million.

--Additional personnel and support expenses--\$25 million.

**Research Management and Support--\$12 million, for a total of \$93 million.**

--Information dissemination activities, including focus on the low literate and individual, and minority populations, through publications and other educational initiatives--\$9.7 million.

--Increase international collaboration--\$2.4 million.

**Other High Priority Projects--\$150 million (no money was listed here in the current services budget).**

A 185 page section of the bypass budget is entitled "Progress and Plans." It includes descriptions of recent progress and future plans in 10 research program areas, three resource development fields, and cancer prevention and control. This section provides what is probably the most complete yet succinct summary in existence of cancer research activity and plans for new research in the immediate future. Some selected examples of plans (considerably edited):

#### **Epidemiology**

International studies--With the resources provided in the bypass budget and utilizing an already established network for rapid cancer identification, patient interview, and specimen collection, a case control study simultaneously evaluating risk factors for multiple cancers will be launched in Shanghai. A variety of clues on the etiology of nasopharyngeal cancer will be followed up in a study in Taiwan. Long term survivors

of diagnostic doses of I-131 will be studied in Sweden. A new biochemical epidemiology study of the effects of industrial pollution will be initiated in Poland. Epidemiologic studies in Hungary, a high risk area for stomach cancer, will complement ongoing studies on the disease in China and Italy.

Women's health--Dietary data and various body measurements will be collected in the followup of 60,000 participants in the Breast Cancer Detection and Demonstration Project. Studies evaluating risk of radiotherapy for a second breast cancer will be augmented. Studies of endometrial carcinoma will be expanded to explore the role of obesity, height, weight, relative weight, and physical activity at various ages.

Radiation and cancer--An ongoing epidemiological study of 140,000 x-ray technicians will be expanded to obtain precise information on the incidence of leukemia and other cancers in their children. A study of childhood leukemia and electromagnetic field exposure will be expanded to include a radon component in the homes of 1,000 children who developed leukemia and their matched controls. A study of determinants of second tumors among non-Hodgkins lymphoma patients will be initiated.

Cancer in black and native American and other underserved populations--The HTLV serosurvey in southern Florida Indians will be expanded to include Indians in other parts of Florida as well as those on and off reservations in the Southwest. Studies on large populations of American Indians could help establish whether genetic determinants affect the pattern of disease and will be undertaken with funds provided in the bypass budget. Multidisciplinary studies will be initiated in the Alaskan Indian population.

Cancer in rural populations--Studies of etiologic factors for cancer in farmers will be expanded, particularly in regard to specific pesticide exposures which may be responsible for the increased risk for lymphoma among farmers.

Cancer in the aged--An RFA will be funded with \$500,000 set aside from the bypass total for grants to focus on the principal risk factors for incident cancers at specific sites among persons over 65 compared with younger patients with similar cancers. Biologic changes and events associated with aging will be evaluated.

#### **Tumor Biology**

Genetic analysis of solid tumors--The bypass requests \$1.5 million for an RFA for research to exploit tissue resources, new cell lines, and other

banks of reagents from parallel populations of black Americans and Caucasians to determine whether differences in the molecular or cell biology of comparable tumors from different racial groups can account for the higher incidence and mortality rates in black Americans.

**The ras oncogene--**The central role that GTPase activating protein may play in coordinating oncogene and growth factor activity will be a major focus of future research. Further studies on critical steps in signal transduction pathway may yield additional points of therapeutic intervention to limit cell growth. These include studies on how the ras protein converts guanine nucleotide triphosphate to diphosphate, and why GAP stimulates the activity of normal but not oncogenic ras protein.

**Control of cell proliferation--**The bypass budget includes funds to support increased research efforts to determine the role of phosphatases in converting regulatory molecules into active forms.

**Biochemistry of tumor cells--**It is now practical to apply nuclear magnetic spectroscopy to study the three dimensional structure of glycoproteins, providing additional information for further refinements in the design of inhibitors to eliminate or reduce a particular enzyme activity. Application of these powerful technologies to study intact cells offers exciting new opportunities to study the biochemistry of the cells. Funding at the bypass level is necessary for development of this line of research.

**Metastasis biology--**An expansion of \$1.5 million for metastasis research is included in the bypass budget. This will expedite preclinical studies leading to clinical trials using CaI, as well as recombinant NM23, and TIMP-2. Initial trials will include advanced human ovarian, colon, breast, lung, bladder, prostate, and skin cancer. Preclinical models will be developed to judge the effectiveness of the agents to prevent invasion, and thus to potentially serve as a chemoprevention strategy for arresting invasive tumors before they develop. An additional \$2 million is in the bypass budget for single and multiple institution program projects on metastasis.

**Multidrug resistance--**Additional funds of \$1.5 million were requested in the bypass budget to expand studies of the multidrug transporter and to initiate new projects to define other clinically important mechanisms of multidrug resistance. The establishment of an inbred strain of mdrl transgenic mice is of critical importance. These mice will provide a model to determine the genetic mechanisms by which cancers resist chemotherapy. Additional genetic manipulation of these animals will allow the study of the effect of

chemotherapy dose intensification regimens in animals whose susceptible target organs are protected by the multidrug transporter and will allow the development and testing of agents which inhibit its action.

### **Clinical Treatment**

**Clinical strategies for reversing drug resistance--**The bypass budget includes \$450,000 for an expansion of this research. New directions in reversing drug resistance will involve the clinical testing of new pgp blockers like r-verapamil, which may have fewer cardiovascular side effects than the commercially available form of verapamil, and MRK-16, a monoclonal antibody that can recognize, bind, and specifically inhibit the pgp protein.

**Strategies for dose intensive therapies--**The bypass budget includes an additional \$325,000 for an expansion of this research. New approaches to dose intensive therapy are likely to utilize a combination of strategies to make the therapy less toxic and more easily administered to patients. New hematopoietic growth factors like interleukin-6 which stimulates platelet production, and erythropoietin, which stimulates red blood cell production, will add significantly to the safety of aggressive therapies. The concurrent administration of multiple CSFs which have complementary activity, such as G-CSF and IL-3, is likely to afford more complete protection with less toxicity.

**Adoptive immunotherapy--**An additional \$850,000 has been included in the bypass request to expand gene transfer studies with tumor infiltrating lymphocytes, IL-2, tumor necrosis factor, and alpha interferon. The impact of gene transfer therapy is not limited to TIL cells or to the treatment of cancer.

**Active specific immunotherapy--**The bypass budget includes \$8.5 million for an expansion of testing biological response modifiers in clinical trials, such as the trial using vaccine as adjuvant therapy for colon cancer and another for melanoma. Other cytokines such as interleukin-1, interleukin-4, and gamma interferon have been shown to improve responses to vaccines either in humans or animals. Combining vaccines with these cytokines will most certainly continue to be an area of intense investigation. Improvements in vaccine preparation are necessary. Future areas of research will include the isolation and characterization of tumor associated antigens, leading to the preparation of generic vaccines without the need for tumor samples from individual patients.

**Growth factor research--**Additional research involving these novel therapies are supported in the bypass budget with a request of about \$7 million. NCI

researchers have noted a marked increase in the excretion of a family of compounds known as glycosaminoglycans in the urine of patients receiving suramin. Among these, heparin sulfate exhibits significant antitumor activity against a broad range of carcinomas in vitro and may represent a new candidate for drug development. Pentosan is a compound related to suramin in structure and action. Unlike suramin, pentosan also appears to inhibit signal transduction. This multilevel assault on malignant cells makes pentosan an attractive compound for further clinical development. Other novel compounds which affect the growth factor signal transduction pathway are being developed and are likely to see clinical application by 1992. Synthetic peptides will be designed to interrupt the association of membrane proteins with cellular proteins on the same or different cells, thereby blocking the action of the membrane protein on the cell.

**Therapeutic radiation--**The bypass budget provides \$500,000 for an expansion of photodynamic therapy in the search for improved hematoporphyrin derivatives and other light sensitizing compounds, as well as for better laser probes which can deliver higher doses of laser light in a more homogeneous fashion through irregularly shaped body cavities. Researchers will examine the compound luciferin, the chemical which makes a lightening bug glow, to develop a light source that can be delivered intravenously to a cancer patient. By circulating throughout the body, it may be able to provide the light necessary to activate the photosensitizing compound retained in tumor cells. This approach would make PDT a systemic rather than a local therapy. The bypass budget includes \$25 million for expansion of proton beam development, including support of an RFA for the development of a new proton beam treatment facility.

**National collaborative diagnostic imaging trials--**Pediatric tumors and AIDS related malignancies have been identified as the subjects for "RDOG-4," the fourth round of collaborative research and development supported through the Radiology Diagnostic Oncology Group mechanism.

**Advances in major diseases--**Promising major clinical studies in colon, lung, breast, and esophageal cancer will be continued and expanded. Promising results with autologous bone marrow transplantation following dose intensive chemotherapy for recurrent breast cancer will be followed up. The bypass budget requests \$4 million in additional funding for a trial of tamoxifen in women at high risk for breast cancer.

**Investigational drugs in clinical trials--**The bypass budget includes \$13.7 million for development of one

of the most promising new drugs, taxol. An agreement has been made with Bristol-Myers Squibb for joint development. Because of the inherent difficulty in utilizing the natural source (the yew tree), efforts are concentrating on development of alternative sources. One promising lead is the isolation and characterization of taxotere, a semisynthetic derivative which has demonstrated greater solubility than taxol and greater activity in animal models of pancreas and colon cancers and melanoma. Other approaches include isolation of taxol from other taxus species and its synthesis from precursors found in abundance in taxus leaves.

#### **Cancer Centers**

**Funding levels--**The request of \$160 million will allow funding of competing core grants at full peer review recommended levels and restoration of funds to a majority of grants awarded in previous years that had been cut back because of budgetary limitations.

**New traditional centers--**Funds are in the bypass budget to permit restoration of the number of centers at least to the level supported previously (62) compared with 52 at present. No definite sum was cited as required to accomplish that.

**Centers for underserved populations--**The estimate for this activity is \$6 million, which would support at least four new centers in underserved geographical/population areas of the country.

**AIDS research--**The cancer centers program intends to form collaborations with AIDS centers sponsored by the National Institute of Allergy & Infectious Diseases. AIDS activities at clinical and comprehensive cancer centers will continue and be expanded to provide more state of the art treatment opportunities for patients afflicted with AIDS associated cancer.

**Pain research--**An estimate of \$3 million is included in the centers bypass request for initiatives which will be directed at cancer centers for pain research and to sponsor educational activities for health care personnel on pain research.

**Information dissemination--**Expansion of the Cancer Information Service, funds for which were included in another section of the bypass budget, would be expected to involve more cancer centers.

**Outreach activities--**An estimated \$10 million is in the bypass budget to permit the NCI recognized comprehensive cancer centers to expand their outreach and service activities. Guidelines for core grants would be changed to support positions of leadership that would provide for sustained involvement with minority and special populations, with community intervention, outreach and education

activities, and with local and state health agencies and hospitals.

The other research program and development areas in the bypass budget which are omitted here due to space limitations are cancer prevention and control, construction, rehabilitation, preclinical treatment, diagnostic, chemical & physical carcinogenesis, biological carcinogenesis, nutrition, and immunology. They will be reported in a future issue of **The Cancer Letter**.

## **Deputy Chief Of NCI Laboratory Removed Pending Investigation**

The National Cancer Institute has removed the deputy chief of a major laboratory from his post pending an investigation of possible criminal violations of federal conflict of interest statutes.

Prem Sarin, deputy chief of the Laboratory of Tumor Cell Biology, was removed from his job on Dec. 21, after Congressional investigators informed NCI that they had begun an inquiry. The action was only revealed last week, when a letter from NCI Acting Deputy Director Richard Adamson to the Congressional investigators was leaked to the press.

Investigators of the House Energy & Commerce Committee's Subcommittee on Oversight & Investigations are examining Sarin's financial relationships with two companies, the Degussa/Asta Pharmaceutical Co. and Pfizer Inc.

At issue is whether Sarin received money from the companies while the firms were collaborating with the laboratory.

The investigation is separate from a continuing NIH investigation of the laboratory, which is headed by Robert Gallo.

Sarin was not speaking to reporters last week. Bruce Baird, a lawyer with the Washington firm Covington & Burling, who represents Sarin, said, "There's an informal examination of the facts within NIH and Dr. Sarin is cooperating fully with NIH. He is absolutely confident that when all the facts come out there will be no allegation of wrongdoing on his part. There is a misunderstanding about the facts and we hope to clear it up."

In the letter, dated Dec. 28, Adamson said NCI "undertook an evaluation" on Dec. 19 of Sarin's collaborations with the two firms.

"Based on the information available, NCI determined that Dr. Sarin may have violated the criminal conflict of interest statutes and the National Institutes of Health and Department of Health & Human Services

standards of conduct in 1987 and possibly other times," Adamson wrote. Because of "the very serious nature of the possible violations," the letter said, Sarin was removed from his job on Dec. 21 and reassigned to "a non-supervisory, non-managerial position," and "received a proposal to suspend him from all duties without pay" pending the outcome of the investigation.

According to the letter, Sarin had two weeks to respond to the proposed suspension.

NCI officials said they could not comment on the matter.

Under current rules, NIH employees are allowed to earn a maximum of \$25,000 per year for lecturing and \$25,000 per year as consultants to private firms. The activities must be approved in advance and no more than \$25,000 can come from one company.

### **Second Investigation In Gallo Lab**

The Sarin investigation is the second involving personnel of Gallo's laboratory recently. Last year, another scientist, Syed Salahuddin, an accomplished AIDS researcher, resigned from his post and pleaded guilty to two felony charges for steering laboratory business to a Rockville, MD, firm where his wife worked. He was sentenced to repay \$12,000 and to perform 1,750 hours of free research.

An NIH scientific panel is also conducting an investigation of Gallo and the laboratory for unresolved questions surrounding Gallo's discovery of HIV. The NIH inquiry last fall cleared Gallo of stealing the virus from French researcher Luc Montagnier (**Cancer Letter**, Oct. 12, 1990), but further investigation is continuing.

A spokesman for the Oversight & Investigations subcommittee said the subcommittee's investigation of Sarin was "95 percent complete when somebody leaked information" about the investigation to the "Chicago Tribune."

The subcommittee is planning a hearing for late January or early February on the matter, and is still conducting interviews of NIH officials.

Sarin had testified at a hearing last April that he had represented one company, Responsif Corp. of Wisconsin, at a Food & Drug Administration hearing in 1986 and later served as a consultant to the firm.

"We're not interested in this business of going after these people one by one," the spokesman said. After the investigation of Salahuddin, and Sarin's testimony at that hearing, he said, "We hoped that NIH would pick up the ball and investigate it."

Sarin has worked in Gallo's laboratory since 1971, administering the laboratory's contracts, finances, and personnel.

## **Nobel Physicist Calls for Major Federal Funding for Science**

The president-elect of the American Association for the Advancement of Science recently called on the federal government to double its funding for scientific research in the U.S. over the next few years to avoid a serious decline in scientific advances.

Leon Lederman, a Nobel Prize winning physicist who will become the AAAS president in February, released a report entitled "Science: End of the Frontier?" in which he documented major inadequacies in funding for academic research in the U.S. The report, produced under the auspices of the AAAS, is being distributed to the 130,000 AAAS members and subscribers to AAAS's magazine, "Science"; key members of Congress also received the report at a meeting this week. The report does not discuss funding for medical research, but does include basic scientific research that would eventually impact medical science, such as biology and chemistry, an AAAS spokesman said.

Lederman, a professor at the University of Chicago, based the report on a survey of 250 researchers at 50 institutions nationwide. The net response, he said, was that "academic research in the United States is in serious trouble."

In the report, Lederman contends that federal funding for science in 1990 was only 20% more than that in 1968 when figures are adjusted for inflation. But, he said, costs for equipment, facilities and even paperwork have risen greatly, especially because "as our understanding of nature increases, the questions we need to answer become more complex."

However, according to a response issued by Allan Bromley, President Bush's science adviser, in terms of 1988 dollars federal support for scientific research rose from \$5 billion in 1968 to \$8 billion in 1988. Bromley's formula for figuring inflation differs from that used by Lederman for his report.

Bromley said the Administration did concur that "we as a nation are underinvesting in research." He said the Bush administration endorses a doubling of the National Science Foundation budget within five years.

Bromley also indicated in his response that "support for individual investigators will receive special attention" in the President's 1992 budget, due out next month.

Lederman said the federal government should double its budget for science over the next few years and then increase it by 8 to 10% annually. He recommended that as a first step a commission be established to look into the issue and develop creative

ways of funding scientific research.

These recommendations have caused a stir in the scientific community, whose members disagree on what to demand from the federal government in an era of budget constraints. Some scientists are also unwilling to "lobby" the federal government for research funds.

## **ONS Offers Certification Exam May 7; Short Course In Research Planned**

The Oncology Nursing Society will again offer its Oncology Nursing Certification Examination, to be held May 7 in conjunction with the 16th Annual ONS Congress in San Antonio, TX.

The exam also will be held on Sept. 28 in Atlanta, Chicago, Dallas, Denver, Los Angeles, and New York.

Certification is open to nurses who have: 1) RN license current at time of application and examination, 2) two and one half years experience as an RN within the five years immediately prior to application, 3) minimum of 1,000 hours of oncology nursing practice within the two and one half years immediately prior to application. Nursing experience may be in the areas of nursing administration, education, clinical practice or research.

Application deadlines: March 25 for the May 7 exam and Aug. 16 for the Sept. 28 exam. Nurses eligible for renewal may take the test on either date.

ONS recently corrected figures it had released last fall on last year's exam. At last year's congress, 2,638 nurses sat for the exam and 2,025 passed, a 77 percent passing rate, bringing the total number of certified oncology nurses to 8,772.

### **ONS Offers Short Course**

ONS will hold a one day cancer nursing research short course on May 7, in San Antonio, TX. The course, supported by ONS and NCI, is designed to provide an opportunity for participants to present their research and to have it reviewed and discussed by distinguished faculty. The course will precede the annual ONS Congress May 8-11.

Applicants must be engaged in doctoral study or have completed their doctoral study within the past three years. Additionally, two applicants who have earned a masters degree who are not enrolled in a doctoral program and who are conducting cancer nursing research will be accepted.

The deadline for applications is Jan. 31.

For additional information on either the short course or the certification exam, contact ONS, 1016 Greentree Rd., Pittsburgh, PA 15220, phone 412/921-7373.