THE CANCER LETTER
RESEARCH EDUCATION CONTROL

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RAUSCHER MAMMOGRAPHY GUIDELINES WOULD LIMIT ANNUAL USE TO MEMBERS OF HIGH RISK GROUPS

New mammography guidelines which will be issued next week by NCI Director Frank Rauscher will recommend limiting annual administration of mammograms to members of high risk groups and to asymptomatic women over age 50 once every two to three years.

The guidelines, not yet firmly established, probably will suggest that asymptomatic women not members of high risk groups should receive "baseline" mammograms between the ages of 35-40 and thereafter no more often than once every three years.

For women with symptoms and those in high risk groups, the guidelines will suggest that mammography be used when and as often as each woman's physician feels is necessary.

Asymptomatic women not in high risk groups who nevertheless are concerned about the possibility of breast cancer and whose fears are not alleviated by other techniques should be offered mammograms if they

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In Brief

JNCI ARTICLE DESCRIBES ADVANCES IN PANCREATIC CANCER; PREVENTIVE ONCOLOGY SOCIETY FORMED

"RECENT DEVELOPMENTS have lent a more positive aspect to the management of patients with pancreatic cancer," wrote John Macdonald, Lawrence Widerlite and Philip Schein in the *Journal of the National Cancer Institute* June issue. ". . . Pancreatic cancer can be treated with some degree of effectiveness. With an aggressive multidisciplinary approach, the future in the management of this illness may be expected to become somewhat brighter." The authors describe what they feel are the most effective techniques in surgery, radio and chemotherapy and diagnosis. . . . **DONALD NIELSEN**, who has been president of both Hazleton Laboratories Corp. and its U.S. subsidiary, Hazleton Laboratories American, has given up the latter position. Kenneth Burbach, president of the firm's Hoeltge subsidiary, Cincinnati manufacturer of lab animal equipment, was named president of Hazleton America. . . . **AMERICAN SOCIETY** for Preventive Oncology is a new organization being established to bring together epidemiologists, statisticians, economists, clinical oncologists and others interested in that phase of oncology. First meeting is scheduled for Jan. 28-29 in New York City. Write to Daniel Miller, Strang Clinic, 55 E. 34th St., NYC 10016. . . . **CONGRESS PLANNED** to wrap up the fiscal 1977 HEW appropriations bill this week. House-Senate conferees' report had $815 million for NCI, the figure they had earlier agreed upon (***The Cancer Letter***, July 30). The bill's fate at the White House remains uncertain. If the President does not veto it, he almost certainly will submit recision requests to Congress, holding up some funds for months. The final amount should be known by the end of the year, barring a veto that holds up.

MAMMOGRAPHY GUIDELINES WOULD AFFECT BUT NOT STOP DEMONSTRATION PROJECTS

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want them, the guidelines will suggest.

The definition of a high risk group will include those who already have had cancer in one breast, and those women with close relatives—mother, sister, grandmother, mother's sisters—who have had breast cancer. It also may include single women, women with a late (after age 30) pregnancy, those who are overweight, possibly members of ethnic groups with high incidence rates.

Rauscher's action follows the report by Lester Breslow of UCLA, who analyzed data from the HIP study in New York and concluded that mammography may be a cause of breast cancer.

Rauscher agrees with the critics of the Breslow report in that the HIP study does not supply entirely valid data. Further, the x-ray doses now used in mammography are about one-third the dosage given in the HIP study. Rauscher agrees with the American College of Radiology statement that the risks are "probably immeasurably small."

Rauscher emphatically disagrees with the critics who contend that mammography "causes more cancers than it finds."

The risks presented by not using mammography are probably greater than any possibility it will cause cancer, Rauscher believes. However, he feels that until some definitive proof is offered that there is no risk, NCI should be cautious. He does not think that the new guidelines will impair the ability of mammography to pick up evidence of breast cancer before the disease spreads to the lymph nodes. Breast cancer develops slowly enough to permit early detection with mammograms every three years, he feels.

The American Cancer Society, which with NCI cosponsors the massive Breast Cancer Detection Demonstration Project at 27 centers around the U.S., does not entirely agree with Rauscher's position. ACS this week was preparing a presentation to Rauscher, which possibly could influence the final draft of the guidelines.

The guidelines would result in changing the protocol of the demonstration projects, which now administer mammograms annually to those enrolled in the program. Rauscher feels that the value of the project would not be diminished by changing the protocol. Main purpose of the project is to demonstrate that cancer can be detected in asymptomatic women. It has already found about 1,100 cancers, 300 in women under 50, and about one-third of those could not have been found without mammography.

In addition to seeking scientific advice from staff and non-government advisers, Rauscher took the unusual step of asking for opinions of NCI women employees. They split about 60-40% against routine mammograms for women under age 50.

GAO CRITICIZES AUTOMATIC FUNDING OF NONCOMPETING GRANTS AT NIH

The General Accounting Office, Congress' investigative agency, has looked into the support of biomedical research by NIH and has come up with some suggestions that are certain to outrage members of the scientific community.

GAO criticized the practice of automatically funding noncompeting grants (those in the second and third years of three-year awards) while funding only a percentage, usually less than half, of the competing grants (new and those whose three-year awards have expired).

The report said NIH "should reassess noncompeting grants annually to insure that continued funding is desirable because:

"—Many unfunded competing grant applications had greater scientific merit, as evidenced by the priority scores assigned by scientific authorities, than some noncompeting grants which continued to be funded.

"—About 44% of the noncompeting grants were not funded again after their approval period expired because, when competing with other grant applicants, their priority scores indicated they were of lower scientific merit.

"NIH does not terminate a research grant when progress is poor and cannot, under existing regulations, terminate when significantly better applications, as evidenced by priority scores, could be funded; or [when] recent scientific developments or other events result in research being no longer of public benefit.

"Even if program administrators identified ongoing research that they believed to be unnecessary or duplicative, these grants could not be terminated. Although NIH can withhold funds from a grantee, grant administrators differ on when this can be done," the report said.

GAO recommended that NIH develop a system to identify noncompeting grants with significantly less scientific merit than unfunded competing grant applications. Regulations could then be changed to allow immediate termination of those grants, permitting use of the funds for grants "with significantly greater scientific merit, as evidenced by priority scores."

NIH, and particularly NCI, have considered the three-year awards as "moral commitments." That is the minimum time in which most research projects can become productive, they feel. HEW, in responding to the GAO recommendation, agreed.

"Not funding selected non-competitive grants to provide funds for awarding new applications would be both impractical and wasteful," HEW replied. "Attempting to establish and operate the system necessary for identifying ongoing projects for termination would require large staff increases. Cutting off funds for selected noncompeting grants would be

very disruptive to the stability of the scientific community.

"In view of the unknowns involved in all research venturs," the HEW reply stated, "the subjective nature of priority scores, and the loss of resources devoted to approved ongoing projects if they are prematurely terminated, there appears to be no justification for terminating such projects to provide funds for new projects with better priority scores. To do so would result in a failure to honor previous commitments, would be unsound because projects would be terminated before allowing time for fruition, and would destroy the faith of scientists and their institutions in the stability of federal biomedical research programs. . . .

"The GAO report reflects the attitude that the priority score is an exact indicator of quality and that small differences reflect real differences in scientific merit. That is not true. Real differences in merit are probably reflected by differences of 30 or more points in the priority scores. Differences in the scores clustered around the median probably are not significant because they are an average of judgments of individuals with differing opinions and degrees of expertise on the specific subjects presented in the applications. Therefore, we cannot emphasize too strongly that the priority score can be used only as a tool and should not be looked upon as a precise measurement. Clearly, small differences in priority scores should not be used as a basis for terminating an ongoing grant awarded previously in favor of awarding a new one.

"Priority scores are only one factor considered by NIH in selecting which grant applications to fund. All applications recommended for approval by the councils or boards merit funding. Many factors influence which approved applications are selected for funding. Among these are:

"1. The relative scientific merit of a project, as indicated by its priority score together with the detailed critique of it which was prepared by the initial peer review group.

"2. The importance of a particular project to the program objectives of the appropriate institute or division.

"3. The need to protect previous investments in meritorious ongoing research, as determined by current peer reviews.

"4. The need to provide opportunities for new research and researchers to enter the system.

"5. The amount of funds available.

"Under the NIH peer review system the scientific merit of competing research grant proposals and the capabilities of the respective investigators are incisively examined. Decisions to support proposed research are at best 'judgment calls,' not guarantees of success or even of research productivity.

"Most scientists agree that it takes approximately two to three years for most projects to be developed enough to produce the kind of tangible results necessary to evaluate progress. That the average period of support recommended by the peer review groups is about three years attests to this judgment. In most instances, sufficient evidence would not be available in less time on which to make intelligent funding decisions. Because it takes about eight months for a project to be reviewed, an award has to be for about three years if a funding hiatus is to be avoided while a renewal application is under review.

"Research does not progress at a constant rate with progress continuing in a straight-line fashion commencing with the first day of funding. During the earliest phases of a research project and up until the period when data analysis is fairly well advanced, there may be no more to judge than the basic considerations that were available to the initial review group. Much research which ultimately proves to be of the highest value in advancing medical technology, such as research on the tissue culture of disease-causing viruses, has been very difficult to accomplish and required many years to bring to fruition.

"The GAO report places great importance on the fact that a 'considerable' portion of ongoing grants are not funded again when they are submitted for renewal. Because a grant is not funded as a competing renewal does not mean that it should not have been funded originally or that it should have been terminated earlier. If projects were always successful, they would not be research projects. In research areas failures or only partial successes have to be expected. Adequate time must be provided to allow a project to progress to the point when its relative merit and success can be evaluated. If adequate time is not provided, resources devoted to the project would be wasted and those scientific breakthroughs that are realized only near the end of grant periods would be precluded. There is no adequate basis in NIH experience for suggesting that terminating projects after only a year or two to fund new projects with better priority scores is, in fact, realistic.

"The review of competing renewal applications is carried out with the same expert review and deliberations as are made when selecting new grants for funding, except that there is also a research record that can be evaluated. Since an investigator working on a project funded for three years must submit a renewal application for competitive review about one year before the first project period terminates, accomplishments during the first two years of the project are available to the initial review groups. . . .

"NIH scientist administrators do use annual progress reports as well as publications to review the progress of grant supported projects. Generally, progress reports for regular research grants are reviewed primarily to determine whether the research is focused on the originally-approved subject. This review may not be highly detailed because of the heavy workload of NIH scientist administrators.

"Grants for centers and some program projects are intended to support long term, often multidisciplinary research and development. Such activities, involving teams of researchers in both basic and clinical sciences, require longer periods to become fully operational. Accordingly, the institutes have developed various special procedures for monitoring scientific progress and the quality of the research, involving periodic visits by NIH staff and consultants, workshops of center directors and their research staff, and local advisory groups to oversee center activities. A full NIH peer review is often scheduled at the end of the third year for a five-year program, to assure that investigators are told of any need for improvement or modification well before the end of the project period. . . .

"Since few projects can realistically be evaluated and judged after only a year's operation, it does not appear that many projects would be identified for termination prior to the end of their project periods. Therefore, large commitments of scientific manpower to attempt to make such evaluations and judgments are not justified. Funded projects should be allowed to run for the periods approved by the peer review committees, unless a project is terminated for cause, such as failure to perform in accordance with the terms of the grant award. This leaves the decision on a project's worth within the peer review system where it most appropriately belongs.

"To accomplish NIH extramural research objectives, the institutions in which the research is conducted must be strong and stable. Unilateral termination of or withholding of funds for ongoing projects would create an undesirable instability within the biomedical community, thus destroying the credibility of NIH as a major funding agency, retarding the conduct of research in these institutions, and, most importantly, bringing about an unnecessary tension in our relationships with the scientific community upon which we depend for research progress and medical advances."

The GAO report was based on its investigation of three institutes—Child Health & Human Development, Allergy & Infectious Diseases and Environmental Health Sciences. Acknowledging that its findings were based on activities of those three institutes, GAO considered those typical of all NIH and its recommendations generally were intended to be applied to all institutes.

GAO also criticized intramural research, concluding that review was inadequate and that some research was of "questionable scientific merit and relevance to the institute's mission," according to reviews of ongoing research by the boards of scientific counselors.

"In our opinion, peer review of intramural research projects before they are initiated, as well as when they are active, is essential to insuring that NIH's limited resources are most effectively and efficiently used," the report said. "Although informal mechanisms being used appeared to be beneficial, such systems have not been successful in making best use of research funds.

"We propose that NIH require that written plans for all intramural research projects be reviewed and approved by a peer review group before research projects are initiated and that reviews be made of specific ongoing research projects. If augmented by ad hoc consultants, the boards of scientific counselors could do this."

HEW disagreed, stating that the only justification for changing the management of the intramural research program would be that it was not successful. HEW contended that, by any measurement, the intramural research program has produced extremely well. The present system includes a continuing review of ongoing projects, carefully selecting people for employment, promotion and conversion to permanent status, thus assuring high quality people, and it includes a decision making process concerning the quality and priority of research each time equipment is purchased or a technician is hired, HEW said.

GAO noted that NIH requires, as a condition of a grant award, that it receive certain reports from grantees at the end of a research grant period. "These reports were not being submitted for many research grants," the report said. "In addition, some grantees who had not met the reporting requirements under previous grants were being funded under other grants.

"NIH requires that all grantee requests for continuing a noncompeting research grant be accompanied by interim progress and financial reports as a prerequisite for continued support. Lacking such reports, funding for ongoing research is withheld. However, reporting requirements under a completed grant are not required to be fulfilled as a prerequisite of support under another grant. NIH regulations only state that, if a grantee continues to be delinquent in submitting a terminal progress report, the awarding institute may notify the grantee that it will not fund additional grants in which the researcher is involved until the report is received. However, these regulations do not prohibit a grantee that is delinquent in submitting terminal reports from obtaining another grant."

GAO recommended that NIH require all institutes to more closely monitor the submission of required reports when a grant expires; prohibit the acceptance of terminal progress reports that do not cover the entire period of grant support; prohibit the funding of researchers when they are known to be violating the terms and conditions of previous NIH support; and establish an information system capable of exchanging information on delinquent research grant reports among institutes.

HEW agreed that terminal progress reports should be submitted and that they should cover the entire grant period. However, GAO noted, HEW did not state what steps it plans to take to implement the

recommendations. Also, HEW did not respond to the recommendations concerning not funding researchers who have violated the conditions of previous support by not submitting terminal reports and the need for a system of information exchange.

"Since we do not know how HEW plans to address the problem, prohibiting funding of researchers who have not submitted terminal progress reports covering the entire period of grant support and establishing a system for exchanging information on such researchers would be effective ways to get all required reports from grantees," GAO concluded.

SENATE KILLS PLAN TO TAX HIGHER TAR AND NICOTINE CIGARETTES

The Senate, ignoring the recommendation of the National Cancer Advisory Board and impassioned please from sponsors Gary Hart (D.-Colo.), Edward Kennedy (D.-Mass.), Frank Moss (D.-Utah) and Edward Brooke (R.-Mass.), voted 60-25 against a proposal to establish a graduated tax on cigarettes based on their tar and nicotine content.

The proposal was offered as an amendment to the tax reform bill which the Senate finally passed last week. The vote was on a motion by Sen. Russell Long (D.-La.) to table the amendment.

Surprisingly, a number of liberal northern and western senators who normally would be expected to support such a measure and with no apparent ties to the tobacco industry voted to kill it. These included James Abourezk (D.-S.D.), Alan Cranston (D.-Calif.), John Glenn (D.-Ohio), Hubert Humphrey (D.-Minn.), Mike Mansfield (D.-Mont.), Gaylord Nelson and William Proxmire (both D.-Wisc.), Abraham Ribicoff (D.-Conn.) and Adlai Stevenson (D.-Ill.).

None of the above participated in the debate nor offered any explanation of their votes.

The present federal tax on cigarettes is 8 cents per pack. The Hart amendment would have eliminated the tax entirely on the brands with the lowest tar and nicotine content, and would have imposed a 50 cent per pack tax on those with the highest content.

Three of 145 brands would have had no tax; 15 brands would be taxed 5 cents per pack, 55 brands would be taxed 15 cents per pack, 58 brands would be taxed 30 cents per pack and 14 brands would have the maximum, 50 cents per pack. The tax would have been phased in, 25% per year over four years.

Hart called his amendment a "health protection tax on cigarettes." He called cigarette smoking "the largest single unnecessary and preventable cause of illness and early death in the United States."

Tobacco state senators predictably rallied with their traditional arguments that (1) "there is no scientific proof" of tobacco's harmful effects and (2) the tax would threaten an industry that supports thousands of their constituents and if enacted, throw them onto welfare.

Hart and Kennedy tried to point out that their plan would not decrease consumption of cigarettes but only change the pattern of consumption to less hazardous brands, to no avail.

History of sorts was made by the most surprising statement of the debate. Sen. Ernest Hollings (D.-S.C.) although opposing the tax, said "I am happy, frankly, that we have a rule that we cannot smoke in the Senate, because I do not like smoking. I do not smoke. I think it does give you cancer."

That probably was the first time a tobacco state senator has publicly acknowledged that smoking causes cancer.

OBEY AIDE OBJECTS TO CRITICISM FOR EARMARKING NCI POSITIONS

Rep. David Obey (D.-Wisc.) was criticized in ***The Cancer Letter*** (July 2) for a number of actions in his role as a member of the House HEW Appropriations Subcommittee, primarily for earmarking all new positions NCI will get this year for the Carcinogenesis Program and the Environmental Epidemiology Branch.

Obey's legislative assistant, Scott Lilly, objected strenuously to the criticism

Lilly pointed out that it was not Obey's intention to limit the total new positions for NCI to the 60 earmarked for carcinogenesis and 17 for epidemiology. "We wanted that many new positions for those programs," Lilly said. "We would have supported more positions for other programs, but no one else on the committee requested them."

Obey has decided to be the subcommittee's advocate for emphasis on carcinogenesis, particularly environmental and occupational carcinogenesis, Lilly said. "Treatment has had plenty of support from other members of the subcommittee. David Obey felt it was time that carcinogenesis received some emphasis, without detracting from the other programs."

Obey was perturbed by the fact that, despite strong language in the committee report on the 1976 appropriations bill calling for increased support of carcinogenesis, Rauscher had allocated only two additional positions to the Carcinogenesis Program out of 81 received by NCI.

"Rauscher was insensitive to the language in the report last year," Lilly said. "We didn't want all the new positions but we wanted a big slug of them and we didn't get anywhere near it."

Lilly said ***The Cancer Letter*** was inaccurate in its report on the exchange between Rauscher and Obey at the subcommittee hearing regarding positions for the Carcinogenesis Program. ***The Cancer Letter*** said:

"I understand he (former Carcinogenesis Program Director Umberto Saffiotti) needs a minimum of 80 more people," Obey said.

He understood wrong. Saffiotti actually had requested 160 positions and was getting 129, which Rauscher quickly pointed out.

That report was accurate, since it was based on the

verbatim exchange between the two at the hearing. However, Obey subsequently asked Rauscher to supply for the record the exact number of positions sought by Saffiotti. The hearing record notes that Saffiotti had asked for 65 additional positions.

Lilly said that "Our interest is in getting the Carcinogenesis Program off the ground. . . . The program is falling apart. There's less research in that area now than before." He charged that there is a backlog of 129 chemicals tested by the program that have been off test for more than a year on which no reports have been made. "I think it is a national disgrace," Lilly said.

"It's true we're unfriendly toward the way the Cancer Program is being operated. It's true we feel the National Cancer Program is not being administered well," Lilly said.

Lilly also objected to ***The Cancer Letter's*** reference to a previous attack by Obey on Cancer Program funding. As reported in ***The Cancer Letter*** Jan. 23, Obey said that "Growth in NCI's budget has been financed at the expense of other research programs at NIH, especially basic research." The article also quoted Obey as pointing out that the budget of the National Insitute of General Medical Sciences has not received sufficient funds in the past five years to keep up with inflation.

The July 2 article said that Obey "charged that the Cancer Program was not supporting enough basic research. He dropped that after learning that half of NCI's budget goes into basic research."

Lilly said that Obey had not criticized the allocation of funds within NCI but was criticizing Congress and the White House for not allocating more money to the other institutes, particularly NIGMS, which supports a great deal of basic research. Lilly said Obey's actions and the subcommittee's reflected that concern, when they voted to give NCI only a token increase and to substantially increase funds of other institutes.

The Senate added $77 million to NCI's appropriation over the House bill, with the compromise finally set at $42 million more than approved by Obey's subcommittee.

The Senate took no action on the positions recommendation, which is in the report on the House bill and not in the bill itself. That recommendation does not have the force of law, but Lilly indicated Obey, and perhaps other members of the subcommittee, will be very difficult to deal with next year if it is ignored.

CANCER CONTROL PLANNING CONFERENCE DELAYED FROM OCTOBER TO EARLY 1977

The cancer control planning update conference, scheduled earlier this year by NCI's Div. of Cancer Control & Rehabilitation for October, has been postponed until early 1977.

John McShulskis, chief of the DCCR Office of Planning & Evaluation, said he asked for the delay in order to permit development of a "more focused" meeting. "Our other planning conferences have been free form," McShulskis said. "We need now to zero in on specific problems in cancer control."

Analysis of DCCR contract merit reviews, now under way, will be available for conferees' consideration at a later date but not by October, McShulskis said. No definite date has been set, but it probably will be in late January or early February.

Participants will include "our constituency," McShulskis said, "the target groups we work with, people involved in the program."

McShulskis was chief of the Systems Planning Branch in NCI's Office of Program Planning & Analysis before moving to DCCR.

RFPs AVAILABLE

Requests for proposal described here pertain to contracts planned for award by the National Cancer Institute, unless otherwise noted. Write to the Contracting Officer or Contract Specialist for copies of the RFP. Some listings will show the phone number of the Contract Specialist, who will respond to questions about the RFP. Contract Sections for the Cause & Prevention and Biology & Diagnosis Divisions are located at: NCI, Landow Bldg., NIH, Bethesda, Md. 20014; for the Treatment and Control Divisions at NCI, Blair Bldg., 8300 Colesville Rd., Silver Spring, Md. 20910. All requests for copies of RFPs should cite the RFP number. The deadline date shown for each listing is the final day for receipt of the completed proposal unless otherwise indicated.

RFP NCI-CP-VO-71001-66

Title: *Computer support effort for OPR&L resources management*

Deadline: *Sept. 17*

NCI wishes to establish a contract with an organization located within 10 miles of NIH which would be capable of providing for the continuation of a broad range of biomedical computing support. The local organization should have a background experience with, and should have the ability to perform, systems analysis, computer programming, data management and systems modification, and must be able to deal with cancer-related biomedical data.

The successful organization will be required to handle approximately 250,000 bytes of new input data per month. Responses should emphasize the general and specific prior experience of the organization and of the staff to be assigned to the proposed project and also indicate available facilities and equipment.

Contract Specialist: W.L. Caulfield
Cause & Prevention
301-496-6496

RFP NCI-CM-67071

Title: *Design and synthesis of unique phosphoramides compounds with potential as antitumor agents*

Deadline: *Approximately Nov. 1*

The objectives of the project are to design and synthesize compounds with the anticipation that these studies will contribute significantly to the clarification of the basis for the comparative selectivity and clinical effectiveness of the cyclophosphamide drug class. The design of new selective transport and detoxification, and less mylosuppression while retaining the antitumor activity.

Experience in the proposed chemical area is required. Laboratories are to be equipped with modern equipment and facilities for synthesis and analysis of compounds. Library resources must be adequate and readily available.

Fully characterized 3 to 5 gram samples will be prepared and submitted to the National Cancer Institute for antitumor evaluation.

It is anticipated that this contract will involve a two technical man-year per year effort. The principal investigator should be trained in coordination chemistry at the PhD level from an accredited school, and experienced in the synthesis of phosphoramides. He must be named and available to the project. All technical supporting personnel are required to be trained chemists. The support staff must devote at least 50% and preferably 100% of their time to the project.

Contract Specialist: J.A. Palmieri
Cancer Treatment
301-427-7463

CONTRACT AWARDS

Title: Establishment of a gnotobiote originated rodent production colony
Contractor: Charles River Breeding Laboratories, $932,494.

Title: Establishment of a rodent production colony
Contractor: Harlan Industries, Indianapolis, $999,910.

Title: Immunotherapeutic studies with lymphokine 1788
Contractor: Univ. of Texas (Galveston), $86,000.

Title: Algorithms for computerized transaxial x-ray reconstruction
Contractor: State Univ. of New York, $105,892.

Title: Construction of a data base for testing algorithms for computerized transaxial reconstruction
Contractor: Mayo Foundation, $99,980.

Title: Studies on the nature of the polycyclic hydrocarbon-nucleic acid compound in hycrocarbon carcinogenesis
Contractor: Royal Cancer Hospital, London, $155,000.

Title: Development and evaluation of radioisotopic surface markers and detectors to be used in endoscopic techniques
Contractor: Univ. of Arizona, $468,263.

Title: Develop a method to detect human blood in human feces
Contractor: Univ. of Louisville, $164,384.

Title: Immunotherapy of C3H murine mammary carcinomas
Contractor: Univ. of Nottingham, England, $158,450.

Title: Develop and evaluate new approaches to the problem of markers applicable to gynecologic cytopathology specimens
Contractor: Pennsylvania State Univ., $247,322.

Title: Services in support of carcinogenesis studies
Contractor: Microbiological Associates, $927,700.

Title: Study of specific immunologic unresponsiveness to chemical carcinogens and its influence on tumorigenesis
Contractor: Case Western Reserve Univ., $69,230.

Title: Studies on the development of a selective method for the trace analysis of hydroxamic acids
Contractor: Midwest Research Institute, $26,160.

Title: Development of specific immunoglobulins labelled with gamma-emitting radioisotopes for external detection of tumors
Contractors: Univ. of Illinois (Urbana), $371,351; Univ. of Kentucky, $284,144.

Title: Development of multi-test device with standardized antigens to assay delayed hypersensitivity via the skin test
Contractor: Lincoln Laboratories, Decatur, Ill., $103,744.

Title: Continuation of investigational new drugs study on gastrointestinal cancer
Contractor: Mayo Foundation, $168,370.

Title: Analysis of cell proliferation in famial polyposis
Contractor: Memorial Hospital, New York, $345,425.

Title: Develop and evaluate new methods for obtaining mododisperse cell preparations, and to provide vaginal cell samples
Contractor: State Univ. of New York, $79,024.

Title: Testing of antibiotic beers and purified preparations
Contractor: State of Michigan, $69,693.

Title: Development and production of clinical doses of antitumor agents
Contractor: Ben Venue Laboraratories, $1,950,000.

Title: Administrative and support services for the Div. of Cancer Biology & Diagnosis, NCI
Contractor: Kappa Systems, $65,645.

Title: Investigations of possible correlation between dietary, hormonal, and reproduction factors and epidemiological characteristics of breast cancer
Contractor: Chaim Sheba Medical Center, Israel, $16,850.

Title: Definition of epidemiological characteristics of pre- and post-menopausal breast cancer
Contractor: Univ. of California (Berkeley), $83,400.

Title: Studies and investigations on therapy of patients with stage II and III carcinoma of the breast
Contractor: UCLA, $243,000.

Title: Maintain an animal holding facility and provide research services
Contractor: Pharmacopathics Research Laboratories Inc., Laurel, Md., $142,339.

Title: Develop methods for detecting pancreatic cancer at an early or small stage and prior to the presence of metastases
Contractor: Univ. of Chicago, $171,727.

Title: Development of topical chemotherapeutic agents for mycosis fungoides
Contractor: Johns Hopkins Univ., $93,539.

Title: Epidemiologic studies of cancer in Louisiana
Contractor: Tulane Univ., $126,018.

Title: Study the change in breast cancer risk among estrogen users
Contractor: Kaiser Foundation, $56,731.

Title: Regulation of RNA tumor virus gene expression in mammalian cells
Contractor: Univ. of Minnesota, $62,999.

Title: Study of transformation of differentiating cells by RNA tumor viruses
Contractor: Univ. of California (Berkeley), $53,610.

Title: Conduct research on transcriptional regulation of eukaryotic gene sequences
Contractor: Columbia Univ., $62,782.

Title: Support services for environmental epidemiology field studies
Contractor: Westat, Inc., $270,764.

Title: Development and characterization of cell substrates for the study of cancer viruses
Contractor: Univ. of California (Berkeley), $685,183.

Title: Research on the etiology and epidemiology of cancer
Contractor: Univ. of Southern California, $2,100,000.

Title: Immunotherapy in fibrosarcomas of chickens
Contractor: New York Univ., $228,645.

Title: Epidemiologic research on cancer
Contractor: National Academy of Sciences, $148,000.

Title: Study of the mechanisms of lymphoid cell differentiation
Contractor: Turku Univ., Finland, $59,000.

Title: Chemical characterization of purified thymic products or other agents promoting lymphocyte differentiation
Contractor: Weizmann Institute of Science, Israel, $71,500.

Title: Immunogenicity of "spontaneous" animal tumors
Contractor: Radiobiological Institute TNO, The Netherlands, $42,000.

Title: Epidemiological studies in the etiology of cancer in veterans
Contractor: National Academy of Sciences, $59,000.

Title: Maintain holding facility for small laboratory animals
Contractor: Litton Bionetics, $219,544.

Title: Provide for expanded support services in maintenance of subhuman primates
Contractor: Litton Bionetics, $34,984.

Title: Research on isolation of human xenotropic viruses
Contractor: Univ. of California (San Francisco), $122,836.

Title: Development of an immunodiagnostic method for the early detection of ovarian cancer in asymptomatic women
Contractor: Tufts Univ., $302,923.

Title: Identification of mammary tissue
Contractor: Medical College of Ohio, $130,000.

Title: Differentiation of mammary epithelial cells
Contractor: Washington State Univ., $28,000.

Title: NCI immunodiagnostic reference center
Contractor: Meloy Laboratories, $238,538.

Title: Studies of response of peripheral blood monocytes from patients with neoplastic disease to chemotactic factors
Contractor: Duke Univ., $117,492.

Title: Vaginal-cervical cell sample sources for cytology automation
Contractors: Temple Univ., $24,000; and Georgetown Univ., $42,000.

Title: Demonstration of cancer rehabilitation facilities and/or departments
Contractors: New York State Dept. of Health, $314,852; and Howard Univ., $414,106.

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