THE CANCER NEWSLETTER

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NCAB HEARS "IMPRESSIVE" PROGRESS REPORTS, INCLUDING TREATMENT FOR BREAST, LIVER CANCER, VACCINE STUDIES

The annual program review NCI presents to the National Cancer Advisory Board at its October meeting was "the most impressive we've had," Chairman Jonathan Rhoads said at the conclusion of the meeting. "It was exceedingly impressive by any standards . . . We got a sense of the total movement in cancer research."

Contributing most to the feeling that progress is being made in the cancer program was the report on breast cancer. Bernard Fisher of the Univ. of Pittsburgh, chairman of the National Surgical Adjuvant Breast Project, repeated to the board his presentation at the "report to the profession" two weeks ago (*The Cancer Newsletter*, Oct. 4).

Fisher described the clinical studies which found that "at this time" (a phrase he emphasized) there was no significant difference in survival rates between patients who received radical and those with less-than-radical mastectomies. He also discussed the study in which the addition of L-PAM either to conventional or modified radical mastectomies produced significant improvement in survival rates.

Paul Carbone, NCI acting clinical director and chairman of the Breast Cancer Task Force Treatment Committee, added that the problem now

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In Brief

COMMUNITY OUTREACH PLANNING GRANTS STILL OPEN; STUDY SECTION MEETINGS MAY BE OPENED BY COURTS

PLANNING GRANTS for community outreach programs are still available to comprehensive cancer centers from NCI. Only nine of the 17 centers have received these grants to date. . . . **GUY ROBBINS**, Sloan-Kettering, told the Cancer Control Advisory Committee that "there aren't more than three physicians in New York City who are doing good mammography". . . . **STUDY SECTION** meetings where grant applications are reviewed would be open to the public if appeals courts uphold a decision against the National Institute of Mental Health. Some NCI executives fear that the peer review system would be jeopardized, inhibiting frank discussion of applications. . . . **ARTHUR L. SCHIPPER**, review activities program director in the Div. of Research Resources & Centers, died Oct. 11 at NIH of cardio-respiratory arrest. He was 65, had been with NCI since 1959, had suffered from cancer . . . . **FT. DETRICK** ownership is in process of being transferred from the Defense Dept. to HEW. This will preclude any further arbitrary decisions by the Army affecting operation of NCI's Frederick Cancer Research Center there. NCI has offered some of Frederick's facilities to other NIH institutes for cancer-related research. . . . **NEW PANEL** to take a look at all biomedical research will be appointed within 30 days, Cancer Panel Chairman Benno Schmidt said. He's automatically a member of the seven-member group.

VACCINE PROTECTS AGAINST BREAST CANCER IN MICE; STANDARDS DEVELOPMENT TOLD

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is to "come up with specific therapy for individual patients . . . It is a clinical problem, how to put together safe and effective treatment. We have the tools. We don't need any breakthroughs. We just need clinical trials."

Nathaniel Berlin, chairman of the task force, said that the report would be published soon in the *New England Journal of Medicine.*

NCI Director Frank Rauscher reported that during the 18 hours after a radical mastectomy was performed on Mrs. Gerald Ford, he received 91 phone calls from U.S. and foreign news representatives. Some attempted to get him to say that more extensive surgery was performed on Mrs. Ford than was necessary, Rauscher said. "One article disturbed me a great deal. It quoted me as saying, 'Thank God, radiotherapy is no longer necessary.' I didn't say it. I'm not that dumb."

Cancer Panel Chairman Benno Schmidt said that the publicity generated by Mrs. Ford's illness and the news of breast cancer treatment improvement possibilities had resulted in a surge of interest in the NCI-American Cancer Society breast cancer screening clinics. The backlog at the clinics multiplied tenfold during the past two weeks, Schmidt said.

Epidemiology, carcinogenesis, viral oncology, cancer biology, tumor immunology, treatment, cancer control, and international activities were covered in the program review.

One of the most significant and encouraging reports, according to some NCI executives, was made by Charles Olweny of the Uganda Cancer Institute describing his work on treatment of liver cancer.

Adriamycin administered to 14 patients produced complete tumor regression in three and partial regression in eight, Olweny said. The three in which there was no response failed to complete the treatment course. "The initial treatment stopped their pain, so they refused further treatment and went home," Olweny said.

"That's the first time I've heard of any success in treating liver cancer," an NCI executive told *The Cancer Newsletter.*

Olweny, whose studies are supported in part by an NCI contract, said that systemic chemotherapy using DCM, CCNU, BCNU and 5FU produced no response.

Olweny also conducted a study of surgical techniques on treating liver cancer. Patients who underwent artery ligation survived from 26 to 32 months, he said. This compares to a survival of one month with no treatment. Other surgery–resection and artery catherization–was less successful.

Jeffrey Schlom of NCI's Div. of Cause & Prevention described virus studies in breast cancer. He reported that a killed mouse virus vaccine offered almost complete protection against naturally occurring breast cancer in the mice which received it.

NCI has three studies just getting started aimed at developing a purified protein vaccine for use against breast cancer in mice. Fears that the killed virus vaccine could contain genetic material dangerous to humans precludes clinical trials at present. But if a purified protein vaccine works in mice, human tests would be much closer.

Schlom said these studies are leading directly toward two objectives: making a safe vaccine against breast cancer, and developing means to identify tumor specific antigens on the surface of breast cancer cells for immunodiagnosis of the disease.

Alfred Frechette, of Children's Cancer Research Foundation in Boston, described efforts to establish standards of cancer care in community hospitals located in the region served by the Sidney Farber comprehensive cancer center with which Children's is affiliated.

A task force was established to work on standards, and to consider development of regulations and licensing of hospitals, Frechette said. The group discussed requiring hospitals to provide "minimal" care, then considered standards for "optimal" care. "We decided to be realistic," Frechette said. "It will take time for community hospitals to develop optimal care of cancer patients, so we changed the term to 'acceptable'."

Every hospital in Massachusetts was asked to have a plan to offer various modalities of care. "We sent it out for their reaction, and there was a great deal of reaction," Frechette commented. "They said we were interfering with medical practice, that we had no authority, etc. But it was educational, and they started asking themselves questions."

Two prototype community outreach programs are being developed by the Boston center--one is a community plan for cancer management in an urban area, in nearby Springfield, Mass.; and another for a rural area which involves 10 small community hospitals in the northeastern corner of Maine, 240 miles from Boston.

The two-and-a-half day meeting of the Board exacted an unusually high toll in the attention span of members. Some NCI staff members were appalled when only four Board members plus Chairman Rhoads were present for Olweny's presentation. At other times throughout the meeting as many as half the chairs were vacant. One newly-appointed member arrived late for the first day's session, left several times during the day, and failed to show up at all for the second and third days.

"These presentations took a lot of hard work to put together," an NCI executive told *The Cancer Newsletter.* "Some of the people, like Dr. Olweny, came a long way. It embarrassed me."

Next meeting of the Board is scheduled for Nov. 18-20.

NEW GRANTS AND AWARDS

Grants announced by NIH for the period of March, April and May, 1974, included those listed here for cancer research. All NCI awards for that period and some (but not all) for cancer-related programs supported by other institutes are shown.

RESEARCH GRANTS

ALABAMA

Univ. of Alabama—Thomas G. Pretlow II, carcinoma of the colon, $48,753; chemical carcinogenesis in vitro, $50,940; carcinoma of the prostate, $29,847. Rudolph A. Abramovitch, pyrrole derivatives as anicancer agents, $27,450. A. Wallace Hayes, carcinogenicity of environmental mycotoxins, $56,576.

Univ. of South Alabama—Charles M. Baugh, cancer chemotherapy; gammaglutamates of methotrexate, $27,108.

ARIZONA

Arizona State Univ.—George R. Pettit, naturally occurring antineoplastic agents, $65,622.

Univ. of Arizona—Sydney E. Salmon, southwest cancer chemotherapy study group, $34,697.

ARKANSAS

Univ. of Arkansas—Frederick T. Fraunfelder, experimental cryotherapy of ophthalmic malignancies, $26,291.

CALIFORNIA

Univ. of California (Davis)—Robert E. Stowell, effects of sex on colon carcinogenesis, $38,384.

Univ. of California (Irvine)—Geraldine L. Dettman, myeloma proteins, mechanisms of synthesis regulation, $27,279. John C. Sutherland, mechanism of action of the photoreactivating enzyme, $50,000.

Salk Institute—Gunther Dennert, immune response to tumor cell surface antigens, $91,650. Garth L. Nicolson, cell surface properties of metastatic tumors, $96,310. Dietrich Paul, growth control of SV40 virus transformed 3T3 cells, $50,000. Pedro G. Pinto Da Silva, plasma membranes of normal and cancer cells, $43,020. W. Thomas Shier, esterases and amidases in oncogenic transformation, $39,963. Gernot F. Walter, surface changes in virus transformed cells, $29,250.

Scripps Clinic & Research Foundation—Gary S. David, enhancement and cellular immunity in tumor systems, $46,967. Hyam L. Leffert, study of tissue regeneration in animals, $40,360. Robert L. Longmire, Hodgkin's disease and lymphoreticular activities, $35,000.

Univ. of California (Los Angeles)—June E. Ayling, inhibition of pteridine enzymes in cancer chemotherapy, $37,690. Nome Baker, lipid transport, symthesis and metabolism in cancers, $38,223. Martin J. Cline, normal and malignant hematopoietic cell replication, $55,445. Charles F. Fox, mechanisms of virus disease, $4,000. Harvey R. Herschman, induction and culture of EGF-dependent skin tumors, $34,321. Julien L. Van Lancker, role of repair enzymes in pathogenesis of liver cancer, $37,192.

Univ. of Southern California—Tasneem A. Khwaja, preclinical evaluation of uricytin, $68,487. John W. Parker, periodate induced lumphocyte transformation, $37,480.

Stanford Research Institute, Ying-Tsung Lin, rational modification of some antitumor agents, $49,295.

California Institute of Technology—Robert G. Bergman, chemistry of nonbenzenoid aromatic molecules, $31,310. William J. Dreyer, immuno reagents for tumor research and immunotherapy, $65,425.

California State Health & Welfare Agency-Dept. of Public Health—John E. Dunn Jr., diet and breast cancer in Japanese-American women, $19,800.

American Society of Hematology—George Brecher, International Congress of Hematology, $15,000.

Univ. of California (San Francisco)—Martin A. Apple, drugs preventing oncorna virus cancers: anthracyclines, $40,050. Donna L. Daentl, embryo size & nucleotide syntheses, a cancer study, $44,318. Ivan F. Diamond, photodynamic therapy of malignant tumors, $35,941. Kenneth T. Wheeler Jr., brain tumor therapy: radiation, DNA damage & repair, $43,266.

Veterans Administration Hospital, Sepulveda—Lajos Piko, interactions of oncogenic viruses with mouse embryos, $35,585.

Stanford Univ.—Paul Berg, basic mechanisms in viral carcinogenesis, $59,247. George M. Hahn, chemotherapy: cytotoxity, repair and its inhibition, $32,500. Robert T. Schimke, molecular mechanisms in resistance to folate analogues, $75,753.

Los Angeles County Health Dept.—John R. Benfield, lung cancer model for surgical research, $45,651.

COLORADO

Denver Health & Hospitals Dept.-Denver General Hospital—George E. Moore, studies of human hematopoietic and cancer cells, $129,380.

Univ. of Colorado—Susan J. Friedman, D-glucosamine: potentiator in cancer chemotherapy, $44,239. James R. Humbert, leukocyte bactericidal power in leukemia, $23,357. Donald W. King, workshops in techniques of cancer research, $65,500. John M. Lehman, pathology of neoplastic transformation, $42,768. G. Barry Pierce, program in developmental biology of cancer, $237,974. Nicholas W. Seeds, neoplastic-normal cell coaggregates, $44,253. David W. Talmadge, program project in basic oncology, $300,000.

Colorado State Univ.—Edward L. Gillette, comparative oncology research program, $82,668. Louis S. Hegedux, antitumor agents--new compounds and new syntheses, $13,419.

CONNECTICUT

Univ. of Connecticut–John M. Edwards, antineoplastic principles, $13,943.

Yale Univ.–Eugene A. Cornelius, studies of immunologically induced tumors, $60,000. Frank F. Richards, immunological activation of oncogenic virus, $67,565. Sherman M. Weissman, structural studies on proteins specified by SV40, $32,625.

DISTRICT OF COLUMBIA

George Washington Univ.–John G. Maier, exploratory studies in cancer research, $54,583.

FLORIDA

Papanicolaou Cancer Research Institute–Elli Kohen, regulation of intra- and inter-cellular communication, $32,000. Robert M. Zucker, buoyant density studies on leukemic cells, $29,340.

Univ. of South Florida–Carleton T. Garrett, heterogeneous RNA sequences in liver neoplasms, $29,135.

GEORGIA

Emory Univ.–William R. Vogler, leukocyte transfusions and immontherapy in leukemia, $59,500.

Medical College of Georgia–Frederick A. Garver, structural analyses of Y-heavy chain-disease proteins, $43,724.

IDAHO

St. Luke's Hospital, Boise–James K. Luce, Western Cancer Study Group, $22,742.

ILLINOIS

Southern Illinois Univ.–J. Kevin Dorsey, glycosyltransferases and contact inhibition, $39,024.

Northwestern Univ.–John T. Grayhack, enzymes in diagnosis and staging of prostatic cancer, $24,029.

Rush-Presbyterian-St. Luke's–Malachi J. Flanagan, National Bladder Cancer Collaborative Group A (NBCCGA), $34,780.

Northern Illinois Univ.–David M. Piatak, identification of cancer inhibitors from asclepias, $38,776.

Univ. of Illinois (Urbana)–Manfred E. Reichmann, autointerference in virus infections and malignancy, $26,623.

IOWA

Univ. of Iowa–John P. Rosazza, microbial transformations–natural antitumor agents, $31,252.

KANSAS

Univ. of Kansas–Lugene L. Houston, Ricin: a plant agglutinin with antitumor properties, $53,344.

KENTUCKY

Univ. of Kentucky–James W. Flesher, matabolic characteristics of chemical carcinogenesis, $63,862. David M. Goldenberg, a model for colonic cancer–associated antigens, $55,268.

Univ. of Louisville–Robert M. Burton, a radioimmunoassay for human overian cancer, $34,349. John L. Wong, chemical carcinogenesis: cause and prevention, $23,500.

LOUISIANA

Alton Ochsner Medical Foundation (New Orleans). George H. Porter III, Southeastern Cancer Study Group, $13,630.

Tulane Univ.–Hal C. Becker, X-ray microtomography of various organ systems, $30,847.

MARYLAND

Johns Hopkins Univ.–Betty G. Gaffney, spin-labeling receptors on normal and malignant cells, $26,319. Richard J. Owellen, pharmacology of the vinca alkaloids, $75,184. Gary H. Posner, total synthesis of crotepoxide, an anti-tumor compound, $42,671. Cecil H. Robinson, steroids with cytotoxic effects on the prostate, $61,576. George M. Williams, study of cellular immunity in cancer of the colon, $20,372; tissue culture of colon cancer–study of human immunity, $28,750.

Sinai Hospital of Baltimore–Arnold M. Seligman, drug development for prostatic carcinoma, $80,000.

Univ. of Maryland–Joseph W. Byron, regulation of the hemopoietic stem cell, $41,482. David B. Ludlum, mutagenic alterations in nucleic acid structure, $38,370. Greta E. Tyson, vinblastine effects on cell structure and function, $34,054.

MASSACHUSETTS

Boston Univ.–Sidney R. Cooperband, a serum immunosuppressive factor in cancer, $41,900.

Center for Blood Research (Boston)–Harry N. Antoniades, characterization of serum factors inducing mitosis, $46,400.

Harvard Univ.–Stanley J. Adelstein, therapeutic/toxic action of electron-emitting nuclides, $33,250. Thomas L. Benjamin, genetic and biochemical studies of MLV and MSV, $32,215. Philip T. Cole, international bladder cancer study: planning phase, $10,575. Myron E. Essex, study of oncornavirus-associated cell-membrane antigens, $34,140. Peter G. Herman, lymph node metastasis: angiographic & isotopic studies, $36,875.

Massachusetts General Hospital–Eugene P. Ornellas, CEA in urogenital carcinomas, $42,395. Richard O. Roblin III, study of cell surface changes in viral oncogenesis, $26,942.

Tufts Univ.–Frederick B. Merk, ultrastructure of experimental tumor cell surfaces, $72,018. Henry H. Wortis, neoplasia in nude (athymic) mice, $103,811.

Tufts Univ. (Medford)–John G. Kreifeldt, computer control of radiation therapy cancer treatment, $58,579.

MIT–Sidney M. Hecht, specific inhibition of dihydrofolate reductase, $19,082. Padmakar P. Lele, local ultrasonic hyperthermia for tumor therapy, $41,562.

Worcester Foundation for Experimental Biology Earl F. Baril, DNA synthesis: regulation in normal and cancer cells, $92,820. Ronald B. Luftig, physicochemical studies of viral nucleocapsid assembly, $60,650. Robert R. Weihing, study of actin and tubulin cancer cells, $71,700.

Clark Univ.–Karen L. Erickson, chemical investigation of Hawaiian marine algae, $29,860.

MICHIGAN

Univ. of Michigan–Herbert H. Cornish, metabolism of potential carcinogens, $33,124.

Michigan Cancer Foundation–Veronica M. Maher, role of mutagenesis in chemical carcinogenesis, $57,205.

Wayne State Univ.–Noel R. Rose, antigenic components of human prostatic adenocarcinoma, $20,007. Vainutis K. Vaitkevicius, Southwest Cancer Chemotherapy Study Group, $43,389.

Michigan State Univ.–Arthur F. Kohrman, estrogens, altered differentiation, and malignancy, $19,496.

MINNESOTA

Univ. of Minnesota–Donald B. Wetlaufer, mechanism of lysozyme action on mammalian cells, $19,338. Irvin E. Liener, the role of proteolysis in malignant growth, $18,643.

Mayo Foundation–Arnold L. Brown Jr., histological grading of prostatic carcinoma, $37,305. Jorge E. Maldonado, the platelet line in myeloproliferative malignancies, $35,835. David O. Toft, binding of chemical carcinogens in the lung, $29,195.

MISSISSIPPI

Univ. of Mississippi–Michael D. Corbett, thiamine mediated formation of hydroxamic acids, $18,048. Charles D. Hufford, antitumor agents from West African plants, $28,406.

MISSOURI

Missouri Cancer Research Center–Harry D. Brown, aflatoxin metabolism by human liver, $30,504.

Univ. of Missouri–Paul F. Agris, human biochemical genetics: transfer RNA in leukemia, $31,532. Jerry R. Dias, synthesis of antileukemic analogs of quassin, $27,181.

Jewish Hospital of St. Louis–Cary A. Presant, structure of human plasma membrane glycoproteins, $23,795.

St. Louis Univ.–Duane P. Grandgenett, study of avian DNA polymerase-RNase H enzymes, $23,166.

Washington Univ. (St. Louis)–Joseph H. Ogura, national study of cancer of the head and neck, $50,791.

MONTANA

Stella Duncan Memorial Institute (Missoula) Carl L. Larson, inhibition of melanomas by cell walls and lipids, $13,480.

Univ. of Montana Kenneth F. Watson, characterization of RNA tumor virus DNA polymerases, $74,299.

NEBRASKA

Univ. of Nebraska Margaret L. Heidrick, cyclic AMP levels in tumor cells, $21,112.

NEW HAMPSHIRE

Dartmouth O. Ross McIntyre, interferon and the immune response in cancer patients, $120,710.

NEW JERSEY

New Jersey Medical School Michael A. Lea, nonhistone chromosomal proteins and hepatoma growth, $22,581.

NEW MEXICO

Univ. of New Mexico Fritz S. Allen, base sites of antitumor antibiotic DNA bindings by CD, $41,738. Robert E. Anderson, computer-assisted analysis of irradiated lymphocytes, $31,765. Morton M. Kligerman, study of pion radiotherapy, $1,224,528. Eugene L. Klingler Jr., radiation nephritis in a nonhuman primate, $49,127.

NEW YORK

New York State Dept. of Health–Gerald P. Murphy, National Prostatic Cancer Project Workshop, $25,222.

Albany Medical College–Thomas M. Saba, opsonic and phagocytic activity during tumor growth, $45,055.

Roswell Park Memorial Institute–Howard J. Allen, studies on cancer cell surface glycoproteins, $91,530. Robert S. Bourke, treatment of malignant disease of brain, $166,975. Paul R. Libby, polyamine metabolism in mammary cancer, $33,669. Oliver A. Roholt, binding sites of myeloma proteins and antibodies, $20,334. John H. Webster, Radiation Therapy Oncology Group, $25,776. Herbert Weinfeld, regulation of survival of ultraviolet-irradiated E. coli, $45,947.

Cold Spring Harbor (New York)–selected Cold Spring Harbor summer workshops, $62,400.

American Health Foundation–Ernest L. Wynder, metabolic epidemiology of colon cancer, $111,150.

Catholic Medical Center of Brooklyn & Queens–Ruth A. Fugmann, immunological parameters of spontaneous murine cancer, $121,257.

Mount Sinai–William W. Chang, chemical carcinogenesis in murine colon, $71,491. James F. Holland, specialized cancer center, $957,982.

Cornell Univ.–Betty S. Danes, genetic studies of heritable colorectal cancer, $53,671.

Hospital for Joint Diseases (New York)–John J. Stevens, mechanism of cortisol-induced lymphoma regression, $74,999.

Montefiore Hospital Parviz Lalezari, neutrophil-specific antigens: biology and chemistry, $68,962.

New York Univ.–Frederick F. Becker, cellular events in chemical carcinogenesis, $58,007. Robert W. Chambers, examining specific chemical changes in viral DNA, $76,894. Joseph Newall, radiation therapy oncology group, $15,172.

Sloan-Kettering J.H. Kim, in vitro thermal enhancement of radiosensitivity, $10,200. Hans W. Marquardt, hydrocarbon-induced malignant transformation in vitro, $29,010. Francis M. Sirotnak, basic approaches to improved antifolate cancer therapy, $68,975. Vladimir P. Skipski, neoproteolipids associated with malignant tumors, $32,603. Martin Sonenberg, hormone-membrane interaction in neoplasia, $114,295. Christopher W. Stackpole, cell sur-

face alterations during antigenic modulation, $60,866. Charles W. Young, studies on the pathophysiology of Hodgkin's disease, $51,655.

St. Vincent's Hospital (New York)–George Schwarz, radiotherapy planning based on cell kinetics, $44,553.

SUNY (Downstate)–Shirley L. Kauffman, pulmonary carcinogenesis in fetal and neonatal lung, $25,500. Ismail Parsa, an in vitro model of carcinogenesis of pancreas, $27,972.

Yeshiva Univ.–Curtis F. Brewer, NMR studies of saccharide binding to concanavalin A, $69,713. Seung-Il Shin, molecular genetics of somatic cell mutation, $54,968. Arthur I. Skoultchi, control of differentiation of erythroleukemic cells, $40,117.

Univ. of Rochester–Eckard O. Foelsch, metabolis lism and uptake of reduced folic acid antagonists, $34,180. Michael D. Turner, glycoprotein antigens in experimental large bowel cancer, $41,125.

SUNY (Stony Brook)–Lauren V. Ackerman, colorectal pathology reference center, $22,277. Kenneth G. Keegstra, surface glycopeptides of normal and transformed cells, $29,990.

Syracuse Cancer Research Institute–Joseph Gold, treatment of cancer by inhibition of gluconeogenesis, $37,700.

Brookhaven National Laboratory–Harold L. Atkins, melanoma detection with radiopharmaceuticals, $78,929.

NORTH CAROLINA

Univ. of North Carolina–Stephen G. Chaney, altered RNA metabolism in chronic lymphocytic leukemia, $26,121. Michael R. Swift, neoplasia--predisposing genes in cell culture, $51,274. Carl V. Lundeen, nitrogen metabolism and the plant neoplastic state, $29,270.

Duke Univ.–Dani P. Bolognesi, translation products of the RNA tumor virus genome, $39,320. Ronald Y. Chuang, RNA polymerase from chicken and human leukemic cells, $61,198. Jonathan P. Leis, transcription and translation of tumor virus RNA, $44,920. M.S. Mahaley Jr., brain tumor chemotherapy screening model, $38,713.

OHIO

Univ. of Cincinnati–E. Bingham Mattheis, pulmonary metabolism of benzo (A) pyrene, $30,282.

Case Western Reserve Univ.–Earle C. Gregg, mutants and altered radioresponse of cells and tumors, $98,160. Robert W. Kellermeyer, Southeastern Cancer Study Group, $21,040.

Ohio State Univ.–Paul G. Gassman, vincristine and vinblastine derivatives and models, $47,241.

OKLAHOMA

Univ. of Oklahoma–Michael T. Shaw, cooperative study of cancer chemotherapy, $52,986.

Oklahoma State Univ.–Kenneth D. Berlin, heterosteroids–anticancer agent potentiators, $32,556.

OREGON

Oregon State Univ.–Paul H. Weswig, the effect of selenium on chemical carcinogenicity, $75,070.

Univ. of Oregon–John A. Black, nature of pyruvate kinase isozyme change in neoplasia, $29,534.

PENNSYLVANIA

Pennsylvania State Univ. (Hershey)–M. Ronald Glaser, interaction of DNA tumor viruses and cell genomes, $31,720.

Bucknell Univ.–Harold W. Heine, the reactions and synthesis of diaziridines, $17,900.

Children's Hospital of Philadelphia–Mary C. Glick, role of the surface membrane in cellular behavior, $77,646. T.N. Harris, aging and immune responses to transplants and tumors, $38,000.

Institute for Cancer Research–Darrell Q. Brown, dose-rate dependence of tumor cure in radiotherapy, $51,225. Abraham Marcus, molecular regulation of cell growth in culture, $27,100.

Medical College of Pennsylvania–Benjamin Weiss, agents inhibiting phosphodiesterases of cancer cells, $58,094.

Pennsylvania Hospital–Gilbert N. Ling, NMR study of water in cancer and in normal tissues, $64,662.

Presbyterian-Univ. of Pennsylvania Medical Center, Herbert A. Blough, tumor virus lipids: structure and biosynthesis, $70,863.

Temple Univ.–Grant R. Krow, synthesis of the anti-leukemic lignan steganacin, $52,986. Joseph J. Noval, mechanism of antitumor effect of portacaval shunt, $79,816. Giovanni Rovera, control mechanisms of the GO phase of the cell, $17,635. D.S. Sarma, study of liver DNA in chemical carcinogenesis, $22,360.

Thomas Jefferson Univ.–John C. Cottrell, potential carcinogenicity of cannabis, $34,083. Simon Kramer, effect of age on radiation-induced pulmonary fibrosis, $51,804. Dennis B. Leeper, recovery from radiation-induced cycle delay, $60,983.

Univ. of Pennsylvania–Ralph L. Brinster, regulation of cancer cell development, $29,032. Gabriel J. Gasic, role of platelets and clotting in metastatis, $49,950.

Univ. of Pittsburgh–Sallie S. Boggs, factors influencing leukemic transformation in vivo, $74,569. Paul A. Chervenick, growth and maturation of hematopoietic stem cells, $45,326. John R. Gilbertson, role of lipids in cancerogenesis, $21,856. Garret M. Ihler, enzyme-loading of red blood cells, $32,252. Gordon A. Ryan, DNA synthesis and antitumor drugs, $20,822.

Luzerne County Medical Society–Domenico Scarano, exploratory studies in cancer research, $102,500.

RHODE ISLAND

Gordon Research Conferences (Kingston) support for conference on NMR studies, $15,890.

Roger Williams General Hospital–Ming Y. Chu, synthesis of drugs for leukemia cell cultures, $25,058.

SOUTH CAROLINA

Medical Univ. of South Carolina–Jerome G. Ondo, hypothalamic-pituitary function and mammary neo-

plasia, $27,943. Paul D. Ellis, NMR studies of folate-enzyme interactions, $42,636.

TENNESSEE

Univ. of Tennessee (Knoxville)—Tsu-Ju T. Yang, etiological study of transmissible veneral sarcoma, $36,500.

Univ. of Tennessee (Memphis)—Charles C. Irving, biochemical mechanisms in experimental bladder cancer, $55,928.

St. Jude Children's Research Hospital (Memphis)—Thomas P. Brent, the role of a human cell endonuclease in repair of DNA, $48,671.

Vanderbilt Univ.—Conrad M. Stoltzfus, subunit structure and function of oncornavirus RNA, $96,640.

Oak Ridge Associated Universities—Raymond L. Hayes, ORAU-ORNL study of carbon-11 in nuclear medicine, $85,000.

TEXAS

Univ. of Texas (Galveston)—Nick S. Harris, effect of antibody immunosuppression on tumor growth, $72,065.

Baylor College of Medicine—Sheldon M. Steiner, membrane fucosylglycolipids in virus-induced cancers, $43,128. Jeremiah J. Twomey, rheumatoid factor and tumor-host interaction, $13,170.

Univ. of Texas Cancer Center—Benjamin Drewinko, effect of antitumor agents on colon carcinoma cells, $28,946. Ming C. Liau, nucleolar synthesis and modification of RNA, $37,816.

Texas Tech Univ.—Kenneth J. Morrow, characterization of malignant cell variants, $47,509.

Southwest Foundation—Robert E. Kuntz, role of haematobia in cancer of the bladder, $18,461.

More awards will be listed in next week's issue.

CONTRACTS FOR AUTOMATED PAP TEST SYSTEMS AWARDED TO NINE, FOR $1,670,791

NCI has awarded nine contracts with a first-year total of $1,670,791 for development of automated analysis of Pap test specimens.

The systems will be designed to scan specimens rapidly and select those with abnormal cells for subsequent analysis by trained personnel.

The new contracts will investigate preparation of specimens more suited to instrumental analysis than are present Pap smears. According to Chester J. Herman, chairman of NCI's Cytology Automation Committee, "This area consistently has been the stumbling block hampering otherwise technically excellent instruments in differentiating between normal and abnormal cells."

Eight of the new contracts will support improved treatment and staining of cervical smear specimens. An additional contract will study the characteristics of Pap smears taken over the past 18 years with the conventional technique.

The contracts are:

Univ. of Alabama, Seymour S. West, $299,790.

—State Univ. of New York (Downstate), Walter E. Tolles, $98,611.

—Karolinska Institutet, Stockholm, Torbjorn Caspersson, $38,000.

—Atomic Energy Commission, Lawrence Livermore Laboratory, Brian H. Mayall, $331,670.

—Montefiore Hospital, New York, Leopold G. Koss, $183,740.

—Papanicolaou Cancer Research Institute, Robert C. Leif, $249,774.

—Pennsylvania State Univ., Paul W. Todd, $233,906.

—Polysciences Inc., Warrington, Pa., B.D. Halpern, $158,270.

—Univ. of Chicago, Marluce Bibbo, $77,030.

West will study the dye acridine orange as a stain for cervical smears, using instrumental measurements of several types of optical changes as cells pass through a beam of light. The separation of abnormal from normal cells by agglutination (clumping) of abnormal cells with compounds called lectins will be studied.

Tolles will use enzymes, chemical agents and physical forces such as ultrasound to break up clumps or clusters of cells in cervical smears to provide individual cells required for instrumental analysis. The research also will include a sedimentation process for separating normal and abnormal cells.

Caspersson will develop instrumental methods that do not involve dyes but instead use microscopes and ultraviolet light directly to measure cellular nucleic acids and cellular size or mass.

Mayall will evaluate a number of dyes that correspond to different cellular features, using instruments similar to the three developed in the cytology automation program.

Koss will investigate the cause of cell clusters and study biochemical and physical methods for separating the cells while preserving the features that distinguish normal cells from abnormal cells.

Leif will use a technique that he and coworkers have developed to prepare cell samples by centrifugation. He will study compounds of the element europium as fluorescent dyes for cells, and fluorescent antibodies prepared to react immunologically with viral or other antigens associated with cervical cancer cells.

Separation of clustered cells by enzymes will be investigated by Todd. Cell electrophoresis (movement of cells in an electric field) will be studied as a method for separating normal and abnormal cells. The project also will include fluorescent markers based on antibodies to herpesvirus II and on heavy meromyosin, a protein that may attach to normal cervical cells but not to abnormal cells.

Halpern will synthesize and study dyes that interact with any characteristic cellular component, including nucleic acids, proteins, enzymes and antigen-antibody complexes.

The cellular content of Pap smears collected over

the past 18 years will be analyzed by Bibbo. He will determine relative numbers of cells of different types in Pap smears ranging from normal through advanced cancer cases. The analysis will include the frequency of cells alone or in clusters.

CONTRACT AWARDS

Title: Operation of primary centers for rodents in germfree and biocontainment environments
Contractors: Charles River Breeding Labs, $3,241,-891; ARS/Sprague-Dawley, Madison, Wisc., $2,313,638; Leo Goodwin Institute for Cancer Research, Ft. Lauderdale, Fla., $1,323,-108; and Tulane Univ., $564,190.

Title: Operation of genetic centers for rodents in biocontainment environments
Contractors: Simonsen Laboratories, Gilroy, Calif., $1,044,914; Microbiological Associates, $456,100; Univ. of Kansas, $307,496; and Texas Inbred Mice Co., Houston, $1,494,479.

Title: Continuation of pharmacology study of anti-Leukemic and other anti-cancer drugs
Contractor: Southern Research Institute, $151,809.

Title: Determinative and Diagnostic Microbiological Studies
Contractor: Hazelton Laboratories, $324,902

Title: Investigation of new drugs on treatment of gastrointestinal cancers
Contractor: Mayo Foundation, $100,000

Title: Operation of an animal disease diagnostic laboratory
Contractor: ITT Research Institute, $365,437.

SOURCES SOUGHT

The following synopsis involves a project of the National Institute of Allergy & Infectious Diseases of possible interest to organizations engaged in cancer research.

Title: *Request for statement of capabilities on new animal model systems as a model for antiviral substances effects in man*
Deadline: *Nov. 13, 1974*

Antiviral substances and interferon inducers are first studied in tissue culture and in several virus model systems in rodents and pigs to determine efficacy and toxicity. Depending on these results, decisions on further development and clinical evaluation are made. NIAID wishes to develop another animal model system in another species of animal(s) which more closely relates to man.

The criteria to be used for the selection of this new model will include, (a) resemblance of the animal most to man in response to drugs, (b) resemblance of the pathogenesis and the host virus relationship in the animal model system to that in man, and (c) resemblance to man of the toxic responsiveness. Most needed are models for the common cold and influenza although other disease models would be considered.

Since existing model systems in the program consist of rodents and pigs, different animal species are sought. Only those individuals with extensive experience in this area should apply.

Those wishing to be considered for an RFP should submit 10 copies of the curriculum vitae, experience in this area, facilities and a brief description of model(s) proposed.

Contracting Officer: Merle J. Callahan
Contracts Management Branch
NIAID, NIH
Bldg 31 Rm 1B-40
Bethesda, Md. 20014

SOLE SOURCE

Proposals listed here are for information purposes only. RFPs are not available.

Title: Preparation, characterization and distribution of antisera to oncogenic viral antigens
Contractor: Huntingdon Research Center, Baltimore

Title: Production of oncogenic or potentially oncogenic viruses
Contractor: Electro-Nucleonics Laboratories, Bethesda

Title: Application of animal virus model systems to human neoplasia
Contractor: Litton Bionetics

Title: Spontaneous and virus induced neoplastic transformation studies
Contractor: Meloy Laboratories, Springfield, Va.

Title: Maintenance of a marmoset breeding colony
Contractor: Chicago Park District

Title: Production of oncogenic viruses and antisera
Contractor: University Laboratories, Highland Park, N.J.

Title: Studies of tumor viruses in non-human primates
Contractor: Rush-Presbyterian-St. Luke's

Title: Continuation of induction, biological markers, and therapy of tumors in primates
Contractor: Hazleton Laboratories

Title: Investigation of new drugs on treatment of gastrointestinal cancers
Contractor: Mayo Foundation

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