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SCIENTISTS TELL PANEL: PEER REVIEW NEEDS IMPROVING, AVAILABLE FUNDS SHOULD BE SPREAD OVER MORE GRANTS

Scientists invited to discuss research funding and peer review mechanisms with the President's Cancer Panel agreed in general that the system could be made to work better; that the decline in constant dollars available to support biomedical research will have serious consequences; that with budget reductions drastically reducing the number of grants

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In Brief

CANCER PATIENTS SAID TO FACE JOB DISCRIMINATION; A GOAL OF NEW EPIDEMIOLOGY COLLEGE: CERTIFICATION

"CANCER PATIENTS do suffer job discrimination, yet they tend to be unassertive in demanding better treatment," Ivan Barofsky, Univ. of Pittsburgh, said at the recent Western States Conference on Cancer Rehabilitation. Barofsky said cancer patients have several legal tools available to contest job discrimination, including Title VII of the Civil Rights Act of 1964, the Rehabilitation Act of 1973, Vietnam Era Veterans Readjustment Act of 1974, and at least 37 state affirmative action and fair employment acts. . . . **AMERICAN COLLEGE** of Epidemiology has recently been founded for professional epidemiologists. Abraham Lilienfeld was elected president, Dwight Janerich vice president, Curtis Mettlin secretary, Jess Kraus treasurer, and Jennifer Kelsey chairman of the membership committee. Goals of the college include certification of epidemiologists, stimulation of education programs in epidemiology, and providing a forum for discussion of issues confronting the field. For membership and program information, contact Mettlin, Roswell Park Memorial Institute, 666 Elm St., Buffalo, N.Y. 14263. . . . **MICHAEL POTTER**, chief of the Immunochemistry Section in NCI's Laboratory of Cell Biology, and David Davies, chief of the Molecular Structure Section in the National Institute of Arthritis, Diabetes, & Digestive & Kidney Diseases, will present the R.E. Dyer Lecture May 12, 8:15 p.m., in Masur Auditorium at NIH. The lecture is titled, "The Three Dimensional Structure of the Antibody Molecule: Specificity and Diversity." Potter's work is credited with making possible development of hybridoma technology. Davies has been involved in protein structure determinations since the earliest days of that research. . . . **MARTIN ROSENBERG**, chief of the Cellular Regulation Section at NCI's Laboratory of Biochemistry, has received the 33rd annual Arthur S. Flemming Award, which honors outstanding young men and women in the federal government. . . . **BREAST CANCER** Task Force meeting scheduled for earlier this month was canceled when NCI decided the periodic meetings held for the last few years no longer were necessary. An overview of the program may be held later this year.

BOSTON SCIENTISTS SUGGEST CHANGES IN REVIEW, FUNDING TO CANCER PANEL

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funded, a sliding scale of funding should be adopted to spread the money farther and increase the number supported, and that NIH should "support people, not grants."

The Panel meeting was held in Boston as the first in a series which will be scheduled elsewhere around the country at the request of Chairman Armand Hammer. The next meeting will be at UCLA June 22.

Hammer and Panel members Harold Amos and Bernard Fisher were present at the Boston meeting. Scientists who participated in the discussion were Arthur Pardee, Sidney Farber Cancer Institute; Mary Costanza, Univ. of Massachusetts Medical School; Eugene Kennedy, Harvard Medical School; Donald Wallach, Tufts-New England Medical Center; Sheldon Penman, Massachusetts Institute of Technology; Baruj Benacerraf, Farber; Robert Friedman and Paul Black, Boston Univ. School of Medicine; and Emil (Tom) Frei, Farber.

NCI Director Vincent DeVita also participated, along with Barbara Bynum, director of NCI's Div. of Extramural Activities; William Raub, NIH associate director for extramural research and training; and Stephen Schiaffino, deputy director of NIH's Div. of Research Grants.

Fisher had brought up the issue of improvements in mechanisms and review at a Panel meeting last December (*The Cancer Letter*, Dec. 11). He posed a series of questions as the framework for discussion at regional meetings:

- Does the present mechanism for research funding allow for the creation of an established population of scientists or does it favor the production of transient investigators who enter and leave research at a rapid clip? To what extent does scientific fashion influence funding?
- Is mechanism and process more important in a grant application than the concept of the investigator?
- Do the mechanics involved with seeking funds, that is, writing the application and preparing progress reports, significantly interfere with research productivity?
- Are there aspects of the peer review system which could be improved upon? Is there a way in which there could be a better matchup between the investigator and the reviewer?
- What is the credibility of the priority scores, particularly those in the region of the cutoff?
- Are there really viable alternatives to the present system which have been overlooked or ignored?

The following summary of the discussion was excerpted from the transcript by Elliott Stonehill, executive secretary of the Panel:

Pardee: People are worried about their ability to continue their research and this is true at every level. Can they continue going? What is going to happen to their funding next year? My grant is up for renewal. I have no assurance at all, no confidence that it will be funded. It is like trying to run a small business where you have only one client, and you have no control over whether he is going to buy your product or not. You worry a great deal.

I think two things are needed for good research. One is tranquility, and the other is time. The amount of time we have to spend on getting ready to do the research is incredible. The day to day bookkeeping activities, which require people, aside from ourselves, and overhead on these people, really drain our time and our energy so that it is really much more difficult to do science. These I think are the problems, aside from the financial ones, tranquility and time. I think we are really in trouble on these things.

I think that the big trouble with the whole system is that we fund grants, not people. Grants are pieces of paper. I think what you ought to do is to look at the recent track record of a person, just as if you were going to hire him for a job, and fund him that way. The second thing I would like to come back to, which Dr. DeVita has mentioned already, is the sliding cutoff idea which I think is a good idea.

Costanza: Besides a general call for study of the peer review process, I would like to discuss three issues related to NCI granting procedures. The first is the issue of how we can be sure that peer review is a fair process. The second is some thought about the implications of the current method of funding and finally I have a few comments about finding and funding innovative and creative ideas.

If funding levels will permit full funding of only perhaps 15 or 20 percent of submitted proposals, should we be comfortable in assuming that those 15 or 20 percent will really contain the very best? On the contrary, as less and less grants are funded, the risk of not funding the very best lost in a pile of lower priority scores increases. So, ironically, if we want to assure quality we should probably fund more proposals rather than less. I would urge increase in the number of funded proposals rather than reduction, even though this must mean each grantee will receive less money.

Changing our focus from funding only the reviewed top ranked to funding more broadly would be a public admission that peer review is not infallible. Excellence in science is not synonymous with creativity or innovation. Insofar as we look for excellence the peer process most likely represents the best consensus of scientific merit. True creativity and genuine innovation are revolutionary ideas and represent quantum leaps from the ongoing state of our science.

One judges excellence by how elegantly investiga-

tors resolve perceived problems. In this setting consensus among peers is possible and it makes good sense. By contrast the new idea is not a logical outgrowth of accepted ideas. It is sudden. It is a change of direction. The genuinely new idea is a dramatic shift in thinking upsetting the usual connections. In sum, innovation does not represent excellence and peer review is probably the last place to find it.

I suggest we simply take a certain amount of money and randomly grant a small number of proposals which seem off the beaten path. Take a chance. In other words, grub stake a few investigators. Give them five years, and then review their product. If they have come up with something we like, grub stake them for another five years. Pay for their past productivity. Leave the details of future plans up to them.

Kennedy: I would like to address a concern not only specifically of the National Cancer Institute, but of other major sources of biomedical research support in this country and that has to do with the problem of young men and women entering the system of biomedical research. If an assistant professorship is advertised in *Science* or other publications there may be as many as 200 or 300 applications for that post. So what is happening is that an atmosphere of bitterness and of frustration is developing in a significant number of young people who find this entry into the system so difficult for them to achieve. Inevitably this will have a chilling effect on the recruitment of other young people into the biomedical research community.

I return to a theme developed by Arthur Pardee. We should support people and not grants. I think that a significant share of the research effort must be made available for the recognition and support of young people at the very earliest period of their training, even at the predoctoral level, with some assurance of continuity so that when they reach the point of intellectual independence, there will be a position available for them to set up an independent laboratory.

Wallach: I would like to make a few points which —some of which—may duplicate what has been said before. One point that strikes me is that study section members should be quite clear as to their mission. This mission is not to primarily guard the federal treasury. It is not primarily to make policy. Their role is to evaluate a proposal to discover the unknown. It is to evaluate the chances of an expedition.

Secondly, as we do not know who the peer is, the prereview of a proposal and of an investigator becomes quite important and it should be aimed to guarantee, as far as possible, that a proposal reaches the optimal reviewer, hopefully a peer. I think it is necessary to come to grips with the error in the priority scores. How big is it really? Is it a two digit or a three digit score? I think because of this error, particularly its critical position near the cutoff point, it's necessary to make the cutoff point broad, and reconsider the sliding scale.

NCI should allow revision of the proposals in place of resubmission, revisions together with rebuttals of criticisms, and a second judgment, rather than going through the immensely financially and personally wasteful process of rewriting. Finally, I would like to suggest that means be set aside for the development of what is sometimes called preliminary data, the situation in which a new investigator finds himself, to get preliminary data for which he has no funds. A beautiful "Catch-22" situation.

DeVita: There is a certain unity about what we have been hearing, and I think that there is a disturbing side of it too. That is that we all agree, I think, that we should fund people and not grants. The problem is that you always get back to the same point; you have to judge the people and the system is the peer review system. The other unity here though is the research career awards. I think in this time of tight budgets what we are hearing from people is that we probably ought to devote more of our budget to developing the kind of grant that supports an individual based on your assessment of that individual. This was done at the NIH some time ago, and then it was disassembled, and we possibly should consider this.

Keep in mind that you are the peer review system, and when NIH said "Let's have grants for five years," the people around this room rejected that, and kept turning out three year grants. So you will have to come to grips with the fact that many of these things are, in fact, you. And when you say that the mission should be made clearer to people who are in the study sections, then I have to ask how we can make that clearer when the very people who are asking us to make it clearer are sitting on the study sections? There is a paradox here. One of the problems we have, and it was expressed here in discussions of clinical trials and contracts. . . we have two extremes in the program. We have the practical application, and the support of basic research. It is difficult for either end to exist without the other.

I think clinical trials are necessary. Certainly there are good and bad clinical trials as there are good and bad grants. I think all of the magnificant epidemiology data that we have, giving us many new leads to pursue have come from contracts. The key point that I would make about contracts is that the line of the Cancer Institute contract program, which was $238 million in 1980, is now about $195 million, and every single contract is reviewed by a system that is now equivalent, we believe, to a peer review system for grants.

Support contracts is just a term. There are many contracts. We don't support basic research under con-

tracts any more. We don't have research contracts, with rare exceptions, and those are phasing out. But epidemiology contracts are considered in the contract line. The drug development program is considered in the support contract line. When we build neutron generators for radiation therapy clinical trials, it is in the support contract line. One really has to identify the program, which is what the Executive Committee has done in taking that $40 million cut from $238 million to $195 million.

Amos: Each of the four speakers recognized the need to deal, perhaps differently, with young investigators and with established investigators. What are to be the criteria for supporting the entry of young persons into the research?

Kennedy: I think that a recurring theme is that there is a kind of malaise in the biomedical research community. A very serious aspect of that is the feeling of younger people who are entering the system that they have been selected, they have been recruited, they have been trained at the nation's expense and then when they come to a critical point in their career, there is no position within the university framework, usually, that is available for them so that they can become intellectually independent.

Now exactly the mechanism that would be chosen would be something on the order of career development awards, where a person would also have an entry to an independent system.

Pardee: You pick the best young people, the same way as you do when you recruit for your department. You look at his credentials and talk to people, or get letters from the people who know him and on that basis you hire him.

Costanza: I agree with Dr. Pardee. Look at the person and make the judgment on what you consider, in your best estimate, their ultimate potential to be, and not on a specific proposal.

Penman: Cancer is a phenomenon which points to exactly what Coon has talked about, the change of paradigm when science makes large advances. Cancer says our existing paradigms do not work. New things are required and it is exactly that we are addressing today and the spirit of Coon is over this meeting. He comes up again and again. The reason is that Coon in his "Structure of Scientific Revolution" said: "The way science is done is different from the way we perceive it to be done." The psychology of study panels breaks down in a few crucial places. When a grant application has been discussed everyone writes down a score which is private. Nobody else except the executive secretary sees what everyone's score is. If it is really a good proposal it has got to step on someone's toes, and that person will sit back and say, "My duty to the scientific community comes from putting down a priority score of 5." That means that proposal will not be funded. One person, or two, has veto power. I don't think that is what we intend.

Now the other thing that will never get a study panel to agree on is a paradigm change, and that is, I think, what everyone here has been speaking to. When paradigms change it means that the existing theories are to modified or thrown out. We have developed a school of really new research that is popularly known as the school of unfundable research. There is no way any study panel will ever agree that such a thing is worthy of a priority score of 1.81; 4.4 is about the average that such things get. My own experience has been a very positive one with respect to the administrators at NIH. The problems are not in the administration of science. They really come from the scientists themselves.

Let me close by saying that peer review is like democracy. It is the most terrible system, until you consider the alternatives. I think that everyone who accepts grant support from NIH, which is a real privilege, should in fact give up something in return and that is a commitment to serve at least once a year on a study panel. And that means the most senior seasoned people; the study panels do have a predominance of youth, and youth has many virtues, but it does not have seasoning, it does not have experience.

Benacerraf: The decline in federal support for biomedical research in constant dollars will translate itself into significant reduction in the number of new and competing renewal grants to be funded in the coming years. Because of our inability to fund and support an adequate proposal of approved grants we will discourage many of our most talented young scientists from continuing their hopeless attempts to support their laboratories. In addition, as we have heard from other speakers, the pressures of having to make often impossible choices may put such pressures on study section members, that evluation and funding decisions are increasingly being made on personal bias and possibly friendship, rather than scientific merit.

With the increasing number of study sections that have been created over the years, and the justifiable concern for equitable representation, the membership in study sections has been declining in competence and particularly in experience. Members have been selected to serve who have inadequate research experience and are incompetent to make the mature and authoritative judgments expected of them.

Executive secretaries of the sections have the authority to choose and to recommend the appointments of study section members without a scientific review by an experienced scientific committee. I would like to recommend that the scientific credentials of proposed study section members be carefully examined by a special NIH committee appointed by the institute directors, and that this committee will also be charged to review the performance of individual study sections in relation to what has happened over the years through their recommendations.

I am also very much concerned with the voting procedures in study sections. Since usually only two reviewers are required to speak on the merit of a grant before discussion, many will vote anonymously their favor or their prejudice with the certainty that no one will know of their vote. I believe that under the present budgetary circumstances the vote should no longer be anonymous, and should be recorded for all study section members to see.

The institute council [the National Cancer Advisory Board in the case of NCI] should review routinely all decisions of study sections, and not solely expect a special situation to be brought to their attention, as is now the case. A special effort must be made to preserve the funding of individual investigator initiated grants, R01s, at least at the levels of previous years. The advance of science and the support of young investigators depend primarily on such R01 grants being funded in sufficient numbers.

We must not relax our attempts to preserve a stable biomedical policy with funding being assured for extended periods of time, not only for programs but for individuals. We are not really reviewing projects, we are reviewing accomplishments. No one gets funded who doesn't show some results somewhere, somehow. We must give time for some initiative to be made in the laboratories, and some data to be presented so that the study sections do accurately judge, as they have been doing in the past, on evidence.

Friedman: I believe that the NIH peer review system of grants is fundamentally a good system, but it does need reform. The review process takes an inordinate amount of time that can result in delaying the start up of new research projects and research careers and make great difficulty in planning ahead in running a research laboratory, or planning a research career. The time delays are compounded when a proposal is not funded, for it typically takes more than one year for the investigator's revised proposal to traverse the review system again.

The review process does not handle well research applications from scientific disciplines outside of the mainstream. The review process in my experience does not approve adequate mechanisms for the assessment of expert reviewers at site visits, or by mailed review, to communicate their assessments to the parent committee.

I now would like to offer suggestions for remedying these apparent deficiencies. First, that NIH accept grant applications at any time of the year. Next, in order to decrease the time of review by the study section, consideration should be given to an increase in the frequency of meetings of the study sections from the current three times a year. I suggest that increased use be made of mechanisms other than the site visit to query the investigator and his collaborators in order to decrease the duration of the review process, as well as to limit its cost. The simplest procedure is for written questions to be submitted by the primary reviewers, or other members of the study section for written response by the investigator or members of the research team.

Finally, in some circumstances, the study section should request that the investigator and designated members of his team meet directly with the study section, as an alternative to the site visit at the investigator's institution. The study section should provide an opportunity for the investigator to respond both in writing, by telephone, or in person to critiques contained in the summary statement.

I suggest that when an investigator submits a grant application, he or she list on a special form the specific areas of expertise he or she believes are required to effectively review the proposal. Areas of expertise should be provided in sufficient detail in order to select appropriate reviewers. To assist the executive secretary of the study sections, the investigators should also list the names and addresses of individuals capable of reviewing the proposal from each area of expertise.

Black: In this week's *Science* I noted that the number of competing grants funded by NIH for fiscal 1983 could drop as low as 3,000, rather than the 4,100 approved by the Reagan administration, and other than the 5,000 so-called stabilization grants that were hoped would be funded. I would like to take a little different approach. I would like to ask, how are NCI funds appropriated? Are they appropriated to the best possible advantage? And, although reduced, are they working? Are we getting our dollar's value?

I would like to ask questions about NCI's policy about funding of grants and phasing out approved, but unfunded grants. Also the equitability of intramural versus extramural funding; the problems of funding large grants and program project grants.

With respect to the RFAs and the RFPs—are they worthwhile? I think not. They generally originate from the mind of an administrator. What is needed now is funding for the best research, not what some administrator thinks are fertile avenues to explore. In the past some RFAs and RFPs have gone through the whole review process when no monies were available. One RFP dealing with the transforming sequences of cytomegalo virus was advertised. This RFP was ultimately withdrawn and all of this wastes valuable, scientific time and the valuable time of the scientist. A recent RFA concerning chemoprevention invited applications dealing with vitamin A, anti-proteases, anti-oxidants and antiprostaglandins. Two million dollars were allocated, and the cutoff priority is apparently 1.8. I don't think that more than 5 to 7 percent will be funded. An inordinate waste of time and effort on the part of many investigators.

There may indeed be a need for RFAs and RFPs to procure reagents, provide cell banks, etc. or to get a

needed job done. However, I seriously question their worth as a funding mechanism for basic research.

I want to suggest that intramural scientists should compete with extramural scientists in the peer review system. Also, I wonder who determines these policies, and the allotment of funds between the intra- and extramural programs. Is there any fluidity, or input from the extramural scientific community?

I know of a grant which had been funded for 15 years by the NCI, and which was recently approved at a priority of approximately 2.0. The person was notified in mid-February, and funding which had been at a level of $160,000 per year, will stop abruptly on March 31. This seems wrong to me. It would seem far better to me to have some funds provided for some phaseout period and in some way the available funds must be more equitably spread out. In these times of stress, when the existence of very many scientists is at stake, I would therefore eliminate the RFAs and RFPs for basic research. I would eliminate the large program project grants, the CISPAC grants, and umbrella grants, and put a dollar limit on grants.

I would subject the intramural NIH personnel to more rigorous review, make more equitable and humane the phaseout policies of unfunded grants, and bring extramural personnel into much of the decision making processes. I believe that the study section peer review process is still the best, as has been enunciated this morning, and should be the final common pathway for research review.

I believe we should fund more research rather than less, and I feel there is merit to Vesell and Mandel's (*Science,* Vol. 215, 1026) priority method of funding approximately 40 percent of approved grants at levels commensurate with the priority scores.

DeVita: I hope that this afternoon I will have a chance to respond to some of Dr. Black's questions, because there is a great deal of misperception as to how NCI arrives at various policies and I refer specifically to RFAs and RFPs. The way RFAs and RFPs are perceived by many of our boards of scientific counselors, all outside peers, is they actually represent ways of making paradigm changes. Where, when investigators will not accept a new field, nutrition research, the role of micronutrients, that an RFA or an RFP results in an abrupt paradigm change. We need to look at other ways of going about making these paradigm changes, especially now. Study sections are always put together after the fact, not before the fact.

Penman: I don't quite share Dr. Black's views about the RFAs and RFPs, although I don't know much about them. I know that they represent often an alternative way around the rigidity of one's peers' perception of what the proper paradigms are. And I think that most of us appreciate the fact that the administrators very often, because of either an overview or lack of vested interest, are very often more sympathetic to these attempts to break out of commonly perceived scientific paths.

Bynum: I am sure each of you has experienced a degree of variability in the process of arriving at consensus that makes you want to perhaps look at the way we do it. The Div. of Research Grants has, for some time, been trying to use various methods of doing just this, within the context of individual study section meetings, using automated techniques—the consensor—where individuals push little buttons and a histogram of the distribution is displayed before the study section, and the outlyers can then make adjustments as necessary.

Penman: Could I respond by saying we would encourage you to go in that direction. As has happened before, Barbara, I find that you have put your finger on an important problem.

Bynum: It may be harder with the large grants, but one of the things that someone else mentioned had to do with the way in which the views of the site visit team are communicated back to the parent committee. That also is a source of weighting in one direction or another, if it is not developed in the proper way. We are looking at that as well.

Benacerraf: What mechanisms are now in existence to monitor the performance of individual study sections in relation to each other?

Schiaffino: Currently we have a very large computer system. All the scores for every study section are put into our computer system and after each round each executive secretary and the principal staff of the institutes and divisions receive a graphic illustration for each study section as it compares to its previous meeting. Also they can compare that study section with another study section. We provide them with all of the graphic charts to do this.

DeVita: I wanted to correct one misperception in reference to phaseout support. First of all, we are the only ones, I believe, that had money in phaseout support, and with the general shortage we were able to recoup $3.5 million by changing our phaseout support, but it is not based on the current year's projections. Currently the priority score cutoff is roughly 181 on the average for 1982. What we said was that we would provide phaseout support based on the previous year's payline, and that is based on the fact that we are paying each in a more difficult year. So, basically, we are giving phaseout support down to 197, which happened to be the payline at the end of fiscal year 1981 for R01 grants. So that anybody who might be reached, if we can find the dollars before the year is over, is being given phaseout support.

Frei: I rise to defend clinical research and I realize that that is like preaching to the converted. It is absolutely true that much clinical research is derivative of basic research, but what is not as well recognized is that an awful lot of basic research is derivative of

clinical research, and that clinical research can have all of the characteristics of basic research. That is, it can require creativity, imagination, dedication, courage, intelligence obviously.

I will just emphasize one area. We have talked about curative treatments and the importance of curative treatment, and you, Dr. Fisher, as a surgeon, and your conferees, have been curing cancer with surgery for a long period of time, upwards of 100 years. The radiotherapists have been curing many forms of cancer. The chemotherapists, Dr. DeVita very prominently, in the last 20 years have developed curative treatment for some 14 forms of cancer.

Again, this requires all of the very best elements of the researcher per se. So my pitch is to balance off what I suspect you heard this morning, which I am sure was very good, but to make sure that in Boston you hear from the clinical researcher and you recognize that even in Boston clinical research is considered to be extremely important.

Fisher: Thank you very much for that. As I said this morning, I think one of the great services that can take place is to abolish the word basic from discussions of research. That there is no such thing as basic research. I would prefer to talk about clinical versus laboratory research. Everything we are talking about here relates to both types of research.

NCI ADVISORY GROUP, OTHER CANCER MEETINGS FOR MAY, JUNE, FUTURE

Society for Clinical Trials—May 2-5, Pittsburgh. Third annual meeting. Contact the society, 600 Wyndhurst Ave., Baltimore 21210, phone 301-435-4200.

Washington Imaging Conference—May 2-7, Washington D.C. Second annual meeting. Contact Susan Ferraro, Dept. of Radiology, Alexandria Hospital, 4230 Seminary Rd., Alexandria, Va. 22304, phone 703-379-3102.

Course on Chemotherapy of Neoplastic Diseases—May 3-7, Stockholm Contact Y. Gahrton, Karolinska Institutet, Huddinge Sjukhus, 141 86 Huddinge, Sweden.

Breast Cancer Update 1982—May 5, Overlook Hospital, Summit, N.J. Contact American Cancer Society, Union County Unit, 512 Westminster Ave., Elizabeth, N.J. 07208.

American Society for Head & Neck Surgery—May 5-6, Palm Beach, Fla. Contact J.C. Goldstein, Div. of Otolaryngology, Albany Medical College, Albany, N.Y. 12208.

International Congress on Environment & Geocancerology—May 5-7, Brussels. Contact E.G. Peeters, rue des Fripiers 24 bis, 1000, Brussels, Belgium.

National Tumor Registrars Assn.—May 5-7, Orlando. Contact E. Shambaugh, Tumor Registry, State Dept. of Health, Richmond, Va. 23219.

NCI Div. of Resources, Centers & Community Activities Board of Scientific Counselors—May 6-7, NIH Bldg 1 Wilson Hall, 8:30 a.m. both days, open.

Controversies in the Management of Childhood & Adolescent Cancer—May 6, Roswell Park continuing education in oncology. Contact Gayle Bersani, Cancer Control Coordinator, RPMI, 666 Elm St., Buffalo 14263, phone 716-845-4406.

Assn. of Clinical Scientists—May 6-9, Santa Monica. Contact Dr. F.W. Sunderman, Dept. of Laboratory Medicine, Univ. of Connecticut School of Medicine, 263 Farmington Ave., Farmington 06032, phone 203-674-2328.

Biometry & Epidemiology Contract Review Committee—May 6-7, NIH Bldg 31 Rm 4, open May 6, 9–9:30 a.m.

FDA Oncologic Drugs Advisory Committee—May 7, Parklawn Bldg Rm G-H, Rockville, Md., 9 a.m., open.

New Directions in Multimodal Treatment—May 7, Kaiser Center Auditorium, Oakland, Calif. Cancer of colon, rectum, and anus. Sponsored by Bay Area Tumor Institute. Contact Jeanne Hoek, 415-465-8570.

American Roentgen Ray Society—May 10-14, New Orleans. Annual meeting. Contact the society, Harper Grace Hospital, Dept. of Radiology, 3990 John R St., Detroit 49201.

In Vitro Mutagenesis—May 12-16, Cold Spring Harbor, N.Y. Contact Meetings Secretary, 516-549-0507.

Mechanisms of Resistance to Anticancer Drugs, I: Antimetabolites—May 15, Univ. of California Medical School, San Francisco. Contact Northern California Cancer Program, PO Box 10144, Palo Alto 94303, or phone Martha Kaplan, 415-497-7431.

Fifth International Symposium on Prevention & Detection of Cancer—May 16-20, Sao Paulo. Contact the symposium, 05409 rua Oscar Freire, 239602 andar, Caixa Postal 11.490, Sao Paulo, Brazil.

National Cancer Advisory Board Subcommittee on Clinical Oncology & the Community—May 16, NIH Bldg 31 Rm 11A10, 7:30 p.m., open.

National Cancer Advisory Board—May 17-19, NIH Bldg 31 Rm 6, open May 17, 8:30 a.m.–3 p.m. and May 19, 8:30 a.m.–adjournment. Closed May 18.

NCAB Subcommittee on Planning & Budget—May 17, NIH Bldg 31 Rm 11A10, 7:30 p.m., open.

Third World Conference on Lung Cancer—May 17-20, Tokyo. Contact Japan Organizing Committee for the Conference on Lung Cancer, National Cancer Center, Tsukiji, Tokyo 104, Japan.

NCAB Subcommittee on Review of the Office of Director Contracts & Budget—May 19, NIH Bldg 31 Rm 7, 12:30 p.m., open.

Alternatives to Mastectomy 1982: Conservative Surgery & Radiation as Primary Treatment for Early Breast Cancer—May 19-21, Cambridge, Mass. Contact Drs. Jay Harris, Samuel Hellman, or William Silen, Program Directors, Educational Resources Associates, Inc. PO Box 301, Newton, Mass. 02158, phone 617-738-8859.

International Symposium on Leukemia Cell Biology & Therapy—May 19-22, St. Jude Children's Research Hospital, Memphis, Tenn. Contact International Symposium, PO Box 318, Memphis 38101.

RNA Processing—May 19-23, Cold Spring Harbor. Contact Meetings Secretary, as above.

Div. of Cancer Biology & Diagnosis Board of Scientific Counselors—May 20, NIH Bldg 31 Rm 7, 9 a.m., open.

Div. of Cancer Cause & Prevention Board of Scientific Counselors—May 20-21, Bethesda Holiday Inn, Versailles Room, 9 a.m. both days, open.

Radiation Carcinogenesis: Epidemiologic Approaches & Biological Significance—May 24-26, Bethesda, Md. Contact Dr. John Boice Jr., NCI, Environmental Epidemiology Branch, Landow Bldg. Rm 3C07, Bethesda, Md. 20205, phone 301-496-4153.

Flow Cytometry: Applications in Cell Biology—May 24-28, Rochester, N.Y. Contact Dr. Paul Horan, Course Director, Dept. of Pathology, Box 626, Univ. of Rochester Medical Center, Rochester 14642, phone 716-275-5516.

5th European Immunology Meeting—June 1-4, Istanbul. Contact VIP Turizm Pirincciogluu, Ltd. Cumhuriyet Cad, Seyhan, Apt. No. 12, Elmadag, Istanbul.

Structure of DNA Symposium—June 2-9, Cold Spring Harbor, N.Y. Contact as above.

Div. of Cancer Treatment Board of Scientific Counselors—June 3-4, meeting site undetermined.

Frontiers in Cancer Therapy—June 3-4, New England Deaconess Hospital, Boston. Contact Harvard Medical School, Dept. of Continuing Education, Boston 02115.

Polish National Cancer Congress—June 4-5, Warsaw. Contact L. Wozniak, Polish Oncology Society, Gagarina 4, 93-509, Lodz, Poland.

UICC Workshop on Cancer Campaign & Organization—June 5-6, Warsaw. Contact as above.

Cancers of the Colon-Rectum—June 5, Roswell Park continuing education in oncology.

International Symposium on the Synthesis & Applications of Isotopically Labeled Compounds—June 6-11, Kansas City, Mo. Contact Dr. Alexander Susan, Scientific Secretary, Midwest Research Institute, 425 Volker Blvd., Kansas City, Mo. 64110, phone 816-753-7600.

Cancer Control Grant Review Committee—June 7-8, NIH Bldg 31 Rm 8, open June 7, 8:30–9 a.m.

Forum 82 of Cancerology: Quarterly Scientific Meeting—June 7-8, Paris. Contact Mrs. Berthomeau, Institut Curie, 26, rue d'Ulm, 75231 Paris Cedex 05, France.

Pancreatic Cancer Review Committee—June 8, New Orleans Tidewater Place. Open 8:30–10 a.m.

7th International Conference on Divided Immunofluorescence, Immunoenzyme Studies and Related Labeling Techniques—June 8-11, Niagara Falls, N.Y. Contact E. Beutner, School of Medicine, State Univ. of New York, 219 Sherman Hall, Buffalo 14214.

8th International Convocation on Immunology—June 14-17, Buffalo. Contact J.F. Mohn, Ernest Witebsky Center for Immunology, 210 Sherman Hall, SUNY (Buffalo) 14214.

World Congress of Gastroenterology, Digestive Endoscopy, & Colo-Proctology—June 14-19, Stockholm. Contact D. Hallberg, Dept. of Surgery, Huddinge Hospital, 141 86, Stockholm.

International Conference on Human Tumor Markers—June 17-20, Munich. Contact G.D. Birkmayer, Dept. of Cell Biology, Munich Univ., Goethestr. 33, 8000 Munich 2, Fed. Rep. of Germany.

Bladder Cancer Review Committee—June 21-22, Marriott Hotel, Worcester, Mass., open June 21, 8:30 a.m.–3 p.m.

International Conference on Chromatography & Mass Spectrometry in Biomedical Sciences—June 21-23, Bordighera, Italy. Contact A. Frigerio, Ist. di Ricerche Farmacologiche "Mario Negri," Via Eritrea 62, 20157 Milan.

Wilsede Meeting on Modern Trends in Human Leukemia—June 21-23, Hamburg. Contact R. Neth, Univ. Kinderklinik, Eppendorf, Martinist 52, 2000 Hamburg 20, Fed. Rep. of Germany.

President's Cancer Panel—June 22, UCLA, Los Angeles. Time and specific location not yet available.

Cancer Clinical Investigation Review Committee—June 28-29, NIH Bldg 31 Rm 10, open June 28, 8:30–9 a.m.

Nordic Congress of Pathological Anatomy and Cytology—June 28-30, Copenhagen. Contact NOPAC '82 Secr., Institutterne Frederik den V's Vej 11, 2100 Copenhagen.

FUTURE MEETINGS

Gynecologic Oncology Group—July 21-23, Bellevue Stratford Hotel, Philadelphia. Business meeting. Contact John Kellner, Group Manager, GOG Headquarters, 1234 Market St., Suite 430, Philadelphia 19107, phone 215-854-0770.

4th Annual Pharmacy Symposium on Cancer Chemotherapy—Sept. 12-14, Houston Shamrock Hilton Hotel. Sessions on cancer research status, patient psychotherapeutic management, hyperthermia, breast cancer update, DES daughters, and chemotherapy exposure risk. Workshops on reconstructive surgery, death and dying, and bone marrow transplants. Contact Sharon Bronson, Dept. of Pharmacy, M.D. Anderson Hospital & Tumor Institute, 6723 Bertner Ave., Houston 77030, phone 713-792-2870.

American College of Epidemiology—Sept. 30-Oct. 1, O'Hare Inn, Chicago. Annual meeting. Contact Dr. Curtis Mettlin, Secretary, ACE, Roswell Park Memorial Institute, 666 Elm St., Buffalo, N.Y. 14263.

Chromosomes and Cancer: From Molecules to Man—Oct. 18-19, Univ. of Chicago. Fifth Annual Bristol-Myers Symposium. Over 20 lectures will cover chromosome structure, gene organization and control of gene expression, nonrandom chromosome aberrations in human leukemia and embryonic tumors, application of new techniques to determine the effect of chromosome abnormalities on gene function including prophasing chromosomes, chromosome sorting, somatic cell hybrids, and in situ hybridization. No registration fee. Contact Dr. Janet Rowley or Dr. John Ultmann, Univ. of Chicago Cancer Research Center, Box 444, 950 E. 59th St., Chicago 60637.

Current Controversies in Breast Cancer—Nov. 3-5, Houston Shamrock Hilton Hotel. 26th Annual Clinical Conference. Focus will be on limited mastectomy and irradiation, pathologic prognostic factors, breast cancer screening, long term results on adjuvant chemotherapy, value of biological markers, strategies for complete remission of metastatic disease, and second and third line therapies for advanced disease. Contact Chairmen Dr. George Blumenschein, Dr. Eleanor Montague, or Dr. Frederick Ames, M.D. Anderson.

RFP N01-CM-25618-68

Title: *Production and testing of human and murine interleukin-2: Maintenance of human serum bank*

Deadline: *June 7*

The Surgery Branch of the Clinical Oncology Program, Div. of Cancer Treatment, NCI, is seeking an organization qualified to a) produce human and murine interleukin-2 by methods specified by the Surgery Branch; and b) provide for the operation and maintenance of a serum repository within 50 miles of the NIH campus in Bethesda, Md. to enable prompt pickup and delivery of materials without compromise to the biologic activity of the material.

It is anticipated that one award will be made as a result of the RFP and that an incrementally funded contract will be awarded for a period of 36 months (Oct. 27, 1982 through Oct. 26, 1985). The RFP represents a recompetition of the project "Monitoring Immunologic Competence in Cancer Patients"

Contract Specialist: Karlene Wakefield
RCB, Blair Bldg. Rm. 212A
301-427-8737

The Cancer Letter _Editor Jerry D. Boyd

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