DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL CENTER FOR RESEARCH RESOURCES

NATIONAL ADVISORY RESEARCH RESOURCES COUNCIL
MINUTES OF MEETING
MAY 16, 2002

The National Advisory Research Resources Council (NARRC) convened for its 121st session at 8:30 a.m. on Thursday, May 16, 2002, in Conference Room 6, Building 31. Dr. Judith L. Vaitukaitis, Director, National Center for Research Resources (NCRR), National Institutes of Health (NIH), presided as Chair. The meeting was open to the public until 2:30 p.m., at which time it was closed to the public for the review, discussion, and evaluation of grant applications as provided in Sections 552b(c)(4) and 552b(c)(6), Title 5, U.S. Code, and Section 10(d) of Public Law 92-463.

COUNCIL MEMBERS PRESENT

Dr. Joseph D. Andrade
Dr. Stephen W. Barthold
Dr. Kenneth I. Berns
Dr. Randall E. Dalton
Dr. Robert J. Desnick
Dr. James G. Fox
Dr. Gwen A. Jacobs
Dr. William R. Morton
Dr. Diana S. Natalicio
Dr. Judith L. Swain
Dr. Burton A. Weisbrod
Dr. Monte Westerfield
Dr. William W. King
Ex-Officio, Department of Veterans Affairs
Dr. Roland F. Hirsch
Liaison Member, Department of Energy

COUNCIL MEMBERS ABSENT

Ms. Catherine D. Bertram
Dr. Mark H. Ellisman
Dr. Eon Nigel Harris
Dr. John E. Maupin, Jr.
Dr. Paul G. Ramsey
Dr. James H. Wyche
Dr. Machi F. Dilworth
Liaison Member, National Science Foundation

SPECIAL INVITED GUESTS FOR OPEN SESSION

Dr. Tilahun D. Yilma, Director and Professor of Virology, International Laboratory of Molecular Biology for Tropical Disease Agents, University of California, Davis, CA
Dr. Elizabeth J. Shane, Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University, New York, NY
Dr. Douglas E. Van Houweling, President and CEO, University Corporation for Advanced Internet Development, Ann Arbor, MI
Dr. Meena Selvakumar, Program Manager, Current Science and Technology, Museum of Science, Boston, MA

Ms. Carol Lynn Alpert, Manager, Current Science and Technology, Museum of Science, Boston, MA
Mr. Gregory P. Andorfer, Executive Director, Maryland Science Center, Baltimore, MD

STAFF OF OTHER NIH COMPONENTS

Dr. Noni Byrnes, CSR/NIH
Dr. George Chacko, CSR/NIH
Dr. Arnold Revzin, CSR/NIH
Dr. Margaret Snyder, OSA/OD/NIH

OTHERS PRESENT

Mr. Stephen Heinig, Senior Staff Associate, Division of Biomedical and Health Sciences Research, Association of American Medical Colleges,Washington, DC
Ms. Mary Kratz, Program Manager, Health Sciences, University Corporation for Advanced Internet Development, Ann Arbor, MI
Ms. Sharon Moskwiak, Executive Assistant, Applications, University Corporation for Advanced Internet Development, Ann Arbor, MI
Mr. Tom Peiffer, Senior Science Specialist, Maryland Science Center, Baltimore, MD
Mr. Sean Smith, Director of Government Relations, Public Relations, Association of Science-Technology Centers Incorporated, Washington, DC
Mr. Steven Stocker, NCRR Research Resources Information Center, Bethesda, MD
Ms. Bonnie VanDorn, Association of Science-Technology Centers Inc.,Washington, DC

OPEN SESSION

I. Call to Order: Dr. Judith Vaitukaitis, Director, NCRR

Dr. Vaitukaitis welcomed NARRC members and guests to the 121st meeting of the NARRC. She said that the following Council members would not be present: Ms. Catherine Bertram, Dr. Machi Dilworth, Dr. Mark Ellisman, Dr. Eon Nigel Harris, Dr. John Maupin Jr., Dr. Paul Ramsey, and Dr. James Wyche. She announced that a new DOD ex-officio Council member will be appointed to replace Lt. Col. Alfred Graziano who has retired from the armed services. She introduced two new Council members: Dr. Randall Elliott Dalton, Richmond Ear, Nose, and Throat Physicians and Surgeons, Inc., and Assistant Clinical Professor of Otolaryngology at the Medical College of Virginia; and Dr. James Fox, Professor and Director of the Division of Comparative Medicine, and Professor in the Division of Biology, Engineering, and Environmental Health at the Massachusetts Institute of Technology.

II. Consideration of Minutes

The minutes of the NARRC meetings held on January 31, 2002, were approved as written.

III. Future Meeting Dates: Dr. Judith Vaitukaitis, Director, NCRR

The next NARRC meeting will be held one-day only on Thursday, September 19, 2002.

IV. Personnel Update: Dr. Judith Vaitukaitis, Director, NCRR

Dr. Elias Zerhouni has been confirmed by the U.S. Senate as the new director of the National Institutes of Health. He brings to the position a reputation as an innovative leader. Dr. Zerhouni comes to NIH from Johns Hopkins University, where he was Executive Vice Dean of the School of Medicine, and Chair of the Department of Radiology and Radiological Science, and a Professor of Radiology and Biomedical Engineering.

Dr. Zerhouni is familiar with several of NCRR programs. Specifically, he was the principal investigator of the NCRR-supported General Clinical Research Center at Johns Hopkins University, as well as a grantee of NCRR's Biomedical Technology program. His research interests over the last 10 years focused on the development of Magnetic Resonance (MR) imaging methods to characterize and quantify myocardial function in health and disease.

President Bush has nominated Dr. Richard Carmona to be Surgeon General. Dr. Carmona currently is a Clinical Professor of Surgery and Clinical Assistant Professor of Family and Community Medicine at the University of Arizona. He also is the Chairman of the State of Arizona Southern Regional Emergency Medical System, responsible for developing and implementing various anti-terrorism and preparedness management plans for the university and the community at large.

Dr. Roderick I. Pettigrew has been selected as the first permanent director of the National Institute of Biomedical Imaging and Bioengineering (NIBIB). Dr. Pettigrew is currently Professor of Radiology, Medicine, and Bioengineering, and Director of the Emory Center for MR research at the Emory University School of Medicine in Atlanta, GA. He is known for his pioneering work at Emory University involving dynamic three-dimensional imaging of the heart using MRI. He also was co-developer of the first computer software package specifically designed for cardiac imaging using MRI. Dr. Pettigrew is expected to join NIBIB in late August or early September.

Dr. Marvin Cassman, now former director of the National Institute of General Medical Sciences (NIGMS), left NIH in May to become the first director of QB3, the California-based Institute for Quantitative Biomedical Research. Dr. Judith Greenberg has been designated as the acting director of NIGMS. She previously was the director of the NIGMS Division of Genetics and Developmental Biology.

NCRR Personnel

Dr. Charles Hollingworth, director of the Office of Review (OR), has moved to a new position at the National Institute on Aging. Dr. John Meyer, who is deputy director of that office, has been selected to become the new OR director.

Dr. Lawrence (Tony) Beck, joined the Division of Clinical Research as a health scientist administrator (HSA) and will oversee the day-to-day programmatic administration of the Science Education Partnership Award (SEPA) Program. He was previously a scientific review administrator (SRA) with the National Institute of Alcohol Abuse and Alcoholism. Before coming to NIH, he was co-founder and Vice President of Tissue Engineering Sciences, Inc., Germantown, MD.

Dr. William Watson joined the Division of Comparative Medicine as an HSA. He has spent his 35-year career in the field of laboratory animal medicine. He served with the U.S. Army Veterinary Corps, the U.S. Public Health Service, as well as with Massachusetts General Hospital in Boston, and Tuskegee University in Alabama. At NCRR, he will implement the Chimpanzee Health Improvement, Maintenance, and Protection Act that authorized DHHS to establish and operate a chimpanzee sanctuary system.

Dr. Larry Yager joins the Division of Research Infrastructure after serving for three years as an SRA at the NIH Center for Scientific Review. Prior to that, he was an associate professor in the Department of Biology at Temple University, Philadelphia, PA.

V. Legislative and Budget Updates: **Dr. Judith Vaitukaitis, Director, NCRR**

Dr. Vaitukaitis referred the Council members to a document titled "Legislative Updates" within their meeting materials and then presented the following budget information.

The fiscal year (FY) 2002 appropriation for NIH is $23.3 billion, a 14.7 percent increase over last year. NCRR's appropriation is $1,011,594,000 reflecting an increase of 23.8 percent. However, an across the board rescission of $25 million was included in the budget reduces the NCRR budget to $1,011,505,000.

Included in the NCRR appropriation are the following: $110 million for the extramural research facilities construction, $160 million for the Institutional Development Award Program, and $10 million to initiate the High End Instrumentation Grant Program, as well as an increase of about $40 million for clinical research programs, including expansion of career development.

NCRR's remaining divisions and programs also received increases in their budgets to cover high priority initiatives.

The FY 2003 President's budget, sent to Congress on February 4, affirmed his stated commitment to reach the goal of doubling the NIH budget over a five-year period, ending in FY 2003.

The President's budget for NIH in FY 2003 is $27.2 billion, an increase of 15.9 percent over the FY 2002 appropriation. The President's 2003 budget request for NCRR is $1,090,272, an increase of 7.8 percent over FY 2002. Included in the President's Budget are: $77 million for extramural research facilities construction; $5 million to continue construction of facilities of a chimpanzee sanctuary system; $185 million for the Institutional Development Award Program; $22 million for the second year of the high-end instrumentation program; $3.5 million to support the NIH Clinical Loan Repayment Program, plus additional increases across the divisions and programs of NCRR.

The NIH Congressional budget hearings before the House Subcommittee on Appropriations took place in March and April. The format consisted of an overview followed by questions and answers.

NCRR was included in the hearing session titled, "Fundamental Research: Biomedical Science in the Future." Dr. Vaitukaitis discussed instrumentation. The overview she provided became a science journal article about the efficiencies gained with using robotics for crystallographic research at synchrotron resources.

The Senate appropriations hearing for NIH was held on March 21 as a panel session. Markups of the appropriations bill are not expected until summer 2002 or possibly even later, since this is a congressional election year.

VI. Introduction to Science Education Partnership Awards: Dr. Anthony Hayward, Director, Division of Clinical Research, NCRR

Dr. Hayward introduced the Science Education Partnership Award (SEPA) Program by describing that the program funded 24 pilot projects in1994. NCRR issued a Program Announcement for SEPA in 1996. The program initially received an annual $6 million budget. It was increased to $14 million in 1999. The program currently funds 59 projects to promote science education of high school students, stimulate an interest in science careers for middle and high school students, and to communicate results of biomedical research to the public.

The SEPA Program recently has been moved to the Division of Clinical Research (DCR) with the mission to develop interactions with General Clinical Research Centers and to foster the education of the public in health care research. To guide DCR, a SEPA workgroup with 12 grantees will meet in Fall 2002. The group will work with Dr. Tony Beck, who has taken over the day-to-day programmatic administration of the SEPA program. Dr. Hayward said science museums have made important contributions to SEPA environments, and he introduced guest presenters from the Boston Museum of Science and the Maryland Science Center.

VII. Boston Museum of Science–Accomplishments: Ms. Carol Lynn Alpert, Manager, and Dr. Meena Selvakumar, Program Manager

The Boston Museum of Science, Current Science and Technology (CS&T) Center, has been awarded SEPA funding to develop museum exhibits on health science issues. The museum's partners in this endeavor include Harvard Medical School, Harvard School of Public Health, the Whitehead Institute for Biomedical Research, Massachusetts General Hospital, Dana-Farber Cancer Institute, McLean Hospital, and Harvard-MIT Division of Health Sciences & Technology. The goals of the partnership are to: (1) enhance public understanding of current health science research; (2) inspire and motivate the next generation of researchers; (3) encourage healthy lifestyle choices based on current research; and (4) foster informed discussion of medical, social and ethical ramifications of research. Ms. Alpert said the partnership combines the museum's wealth of experience in interpreting science and technology for diverse audiences with the tremendous intellectual capital and resources of some of the world's leading biomedical research institutions. More than 1.6 million people and 4,000 school groups visit the Boston Museum of Science annually.

Ms. Alpert and Dr. Selvakumar showed video and photos of some of the CS&T Center activities undertaken as part of the SEPA-funded partnership and demonstrated the use of real artifacts, props, and analogies in explaining biomedical concepts and new medical technologies for public audiences. Further outreach and dissemination developments are planned, including cablecasting from the CS&T Center via New England Cable News, electronic distribution of digital stories and material to other institutions and networking educational material with other SEPA-funded museum partnerships. A formative evaluation is currently underway.

VIII. The Maryland Science Center–Accomplishments: Mr. Gregory Andorfer, Executive Director

The Maryland Science Center, in cooperation with the Johns Hopkins Medical Institutions and the University of Maryland, Baltimore, has been awarded support from the SEPA Program to develop and produce *BodyLink*, a unique health science update center. Mr. Andorfer explained that *BodyLink* will make today's medical and health news clear and relevant for visitors, young and old.

Science and technology centers have long struggled with ways to acquaint visitors with the "latest and greatest" discoveries in health and biomedical science, and to interpret the significance of these findings for all ages. Mr. Andorfer said that museums can no longer be content with presenting only basic science, but need to expand their roles as public communicators of science by presenting cutting edge research, and by interpreting and explaining this information for visitors.

The *BodyLink* area is currently being conceptualized and designed. Exhibit prototypes

will soon be tested and evaluated by museum visitors. The area is organized by three primary themes: The Genetic Revolution; Taking Control of Your Health; and Immunology: Attack and Defense. The grand opening celebration for *BodyLink* is planned for Fall 2002.

IX. Update on the Mutant Mouse Regional Resource Center: Dr. Franziska Grieder, Health Scientist Administrator, Division of Comparative Medicine, NCRR

Recognizing both the rapidly increasing number of genetically modified mice created by the biomedical research community as well as the expanding demands for maintenance and distribution of these newly emerging mouse strains, NCRR created the Mutant Mouse Regional Resource Center (MMRRC) Program.

This program is funded through five linked cooperative agreements. Dr. Grieder explained that the MMRRC has been accepting mouse strains for almost a year and presently has four strains ready for distribution. The major goals of the MMRRC network for genetically engineered mouse models are to ensure highest quality control on both the genetic and phenotypic level; assure high standards of health, enhance the availability of valuable models; ensure their continued conservation through cryopreservation; and enable interested scientists to search for appropriate models through a coordinated database. In addition, these centers are available to assist laboratory animal programs by providing advanced technical and professional expertise on regional and national levels.

X. Update on the Nonhuman Primate Meetings: Dr. John Strandberg, Director, Division of Comparative Medicine, NCRR

Dr. Strandberg summarized three efforts focused on various issues related to the use of nonhuman primates.

Survey of NIH-funded Investigators Who Use Nonhuman Primates: NCRR surveyed NIH-funded investigators who use nonhuman primates in their research. The resulting report utilized data from FY 1999 and addressed three groups of investigators: core investigators at the National Primate Research Centers (NPRCs), non-core investigators who use the NPRCs, and other investigators who do not use the NPRCs. Dr. Strandberg said the survey achieved a good response from the target population. It showed that investigators are aware of the NPRCs and that the centers are accessible to outside investigators. Major recommendations focused on increasing the availability of nonhuman primates and improving the allocation system.

International Perspectives and the Future of Nonhuman Primate Resources: In April, the National Academy of Sciences held a meeting, attended by a broad range of scientists and interested individuals, to address international issues related to supply, demand, and use of animals. Other topics included genetics, microbiologic problems, and nutritional requirements. Practical concerns regarding transportation of animals also were addressed.

Workshop on Rhesus Monkey Demands in Biomedical Research: Immediately following the meeting described above, NCRR and the NIH Office of AIDS Research convened a panel of nonhuman primate investigators to explore alternatives to the use of rhesus macaques in biomedical research.

A list of recommendations resulted from these two meetings. The recommendations included fostering development of systems using alternative species, expanding knowledge about these species, expanding rhesus resources, and recognizing the need for long-term planning and stable funding.

XI. Outcomes of the GCRC and RSA Meetings: Dr. Anthony Hayward, Director, Division of Clinical Research, NCRR

Dr. Hayward reported that the General Clinical Research Center (GCRC) Program Directors' meeting of April 10-13 in Baltimore had been held in conjunction with the American Federation of Clinical Research and the American Patient-Oriented Research meeting. Of 842 attendees, at least 25 were K23 (Mentored Patient-Oriented Research Career Development Award) trainees. Parallel meetings were held for GCRC administrative managers, bioinformatics staff, and core laboratory staff, as well as dieticians, trainees and nurse managers. The evaluations and feedback to date indicate that the meeting was successful.

The Program Directors' meeting had been followed by a Research Subject Advocate (RSA) meeting on April 13 and 14. About 74 GCRCs currently have an RSA, and these are increasingly seen by investigators as providing support for research, rather than being exclusively watchdogs. As a result of the RSA meeting, an association has been initiated to offer advice and make recommendations concerning training and review. Continuing issues include the relationship between RSAs and Institutional Review Boards (IRB). Some members chair the IRB, some vote, some attend and some are excluded from the IRB meetings.

XII. Overview of Internet 2: Dr. Douglas Van Houweling, President and CEO, University Corporation for Advanced Internet Development

Dr. Van Houweling presented an overview of Internet2, a non-profit consortium led by over 190 universities working in partnership with industry and government to develop and deploy advanced network applications and technologies. Internet2's membership includes: 198 universities, 70 corporations, and 40 non-profit organizations and government affiliates (which includes NCRR).

The primary goals of Internet2 are to: 1) create a leading edge network capability for the national research community; 2) enable revolutionary Internet applications; and 3) ensure the rapid transfer of new network services and applications to the broader Internet community. The effort to enable revolutionary applications is focused on interactive collaborations and instruction; real-time access to remote resources; large-scale, multi-

site computation; distributed data storage and data-mining; shared virtual reality; and dynamic data visualization.

In the medical domain, Internet2 Health Science initiatives support clinical practice, biological research and collaborations, and medical education throughout the national research community. Internet2 also helps enable the medical community to develop tools, applications, guidelines, and communication mechanisms. Within the Health Sciences activities are collaborations supported by NCRR: the Biomedical Informatics Research Network (BIRN) and a clinical trial research network supporting the Research Centers in Minority Institutions (RCMI). These activities and others are enabled by Abilene, Internet2's advanced backbone network that provides infrastructure for the development and deployment of the new applications being developed within the Internet2 community.

The BIRN initiative aims to bring together groups of centers, known as testbeds, to collaborate closely towards a unified scientific goal. The initial goal is to address the needs of biomedical investigators across the country to effectively share and mine data in a site-independent manner for both basic and clinical research. Abilene capacity also will be used to network the 18 minority colleges and universities that host the RCMIs, so that they may more actively participate in clinical trials that are of relevance to them, as well as health disparity-related research, and collaborations across the country in general.

XIII. Research Enhancement Awards: Dr. Anthony Hayward, Director, Division of Clinical Research, NCRR

Dr. Hayward described the Human Subject Research Enhancement Awards that the Division of Clinical Research will administer. These grants will provide one year of funding through an S07 mechanism at a level determined by institutional clinical research activity. Their aim is to promote Institutional Review Board (IRB) or IRB-related functions–for example, developing a database, streamlining and/or inter-IRB co-operation. The awards were initiated through the Office of the Director, NIH, and are intended to enhance human subject protection.

XIV. Update on Loan Repayment Program: Dr. Anthony Hayward, Director, Division of Clinical Research, NCRR

At the Council meeting in January 2002, Dr. Hayward reported that the Loan Repayment Program (LRP) is one of several measures NIH has initiated to ensure an adequate pool of physicians and dentists who are trained to be independent clinical investigators. To be eligible for the LRP, individuals must hold peer-reviewed research funding and have educational debt that exceeds 20 percent of their salary. The NCRR Division of Clinical Research and the Division of Research Infrastructure will participate in this trans-NIH initiative but limit support to investigators who hold M.D. or D.D.S. degrees and who hold peer-reviewed funding for clinical research with human subjects.

To update the Council, Dr. Hayward indicated that the NIH LRP has assigned 17 applications to NCRR, and NCRR has set aside funds for recipients who score in the excellent to outstanding range. Meetings scheduled in the next weeks will address the precise way in which the NCRR contribution toward the loan repayment program will function.

XV. Concept Clearance—Small Business Innovation Research Grants for Knowledge Management Infrastructure, Biomedical Informatics: Dr. Bret Peterson, Health Scientist Administrator, Division of Biomedical Technology, NCRR

The Small Business Innovation Research (SBIR) Program seeks to increase the participation of small businesses in federally supported research and development (R&D) and to increase private sector commercialization of technology developed through federally supported R&D. Dr. Peterson described how such a grant program would be beneficial as it relates to knowledge management infrastructure in biomedical informatics.

He explained that it is becoming increasingly common in biomedical research for laboratories and larger subdisciplinary groups to develop, maintain and grow large data collections. These collections are made up of data from their specialized area of biological interest, often gathered using a specific set of techniques. Although these data constitute the foundation of the work of the collectors, they also may be of great utility to those interested in a broader context. Those interested in undertaking synthesis of results from multiple subdisciplines, however, are unlikely to have the same esoteric familiarity in any one subdiscipline as the devotees of that subdiscipline. This lack of knowledge can be trivial (e.g. deciphering data formats) but can make integration intractable when many collections are being drawn upon.

Fortunately, the actual knowledge needed to understand and make use of experimental results is much smaller than that needed to perform the experiments. New software, knowledge formalisms, abstraction and summarization tools, human factor engineering approaches, design best practices, and standards are needed for semi-automated binding of such data collections into semantically coherent federated knowledge bases so that they can be drawn upon effectively for synthesis in studies of systems biology. The commercial sector should be strongly encouraged through SBIR grants to develop the advanced tools necessary for support of these research efforts.

Council endorsed the concept as presented.

XVI. Concept Clearance—Small Business Innovation Research Grants for Proteomics and Glycomics: Dr. Doug Sheeley, Health Scientist Administrator, Division of Biomedical Technology, NCRR

Dr. Sheeley described how a SBIR grant program would be beneficial as it relates to proteomics and glycomics.

Proteomics, and the sub-discipline of glycomics, are rapidly developing, technology intensive fields. Separations, mass spectrometry, and bioinformatics technologies have advanced rapidly to support the explosive growth of biomedical applications in this area. However, all of these technologies remain largely inadequate to meet the needs of the most critical problems in biology.

Continued intensive development of advanced tools is essential to meet two needs. First, improvements in basic bioanalytical technologies are at the core of these endeavors. This includes robotics, sample preparation and pre-fractionation, analytical separations, imaging and quantitation, mass spectrometry, and database searching. In addition, improved informatics technologies are essential for the conversion of data into meaningful results as well as facilitating the integration and synergistic development of the basic analytical tools. The principal limitations in the field of proteomics are technological in nature. The commercial sector should be strongly encouraged through the use of SBIR funding to develop the advanced tools necessary for support of these research efforts.

Council endorsed the concept as presented.

CLOSED SESSION

This portion of the NARRC meeting was closed to the public in accordance with the determination that it was concerned with matters exempt from mandatory disclosure under Sections 552b(c)(4) and 552b(c)(6), Title 5, U.S. Code and Section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2).

NARRC members discussed procedures and policies regarding voting and confidentiality of application materials, Committee discussions, and recommendations. Members absented themselves from the meeting during discussion of and voting on applications from their own institutions, or other applications in which there was a potential conflict of interest, real or apparent. Members were asked to sign a statement to that effect.

XVII. Application Review

Council considered 355 applications and recommended 355 for the total amount of $303,245,790.

ADJOURNMENT

The Council adjourned at 3:30 p.m. on May 16, 2002.

CERTIFICATION

We hereby certify that, to the best of our knowledge, the foregoing minutes and supplements are accurate and complete.

/s/ 6/17/02

Judith L. Vaitukaitis, M.D. Date
Chair, National Advisory Research Resources Council
and Director, National Center for Research Resources, NIH

/s/ 6/14/02

Louise E. Ramm, Ph.D. Date
Executive Secretary, National Advisory Research Resources Council
and
Deputy Director, National Center for Research Resources, NIH

These minutes will be formally considered by the Council at its next meeting; corrections or notations will be incorporated into the minutes of that meeting.

Attachment:
Council Roster

NOTE: Open Session materials are available from the Executive Secretary or the Committee Management Office, NCRR.