

**DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
NATIONAL ADVISORY COUNCIL FOR
BIOMEDICAL IMAGING AND BIOENGINEERING
TRAINING AND CAREER DEVELOPMENT SUBCOMMITTEE**

**Summary of Meeting
May 26, 2004**

The fourth meeting of the Training and Career Development Subcommittee was convened at 1:00 p.m. on May 26, 2004, in the Natcher Conference Center, NIH Campus, Bethesda, Maryland. Dr. Linda Lucas, acting as Chairperson on behalf of Dr. C. Maynard presided.

Subcommittee members present:

Dr. Linda Lucas
Dr. Rebecca Richards-Kortum
Dr. Stephen Williams

Other Council members present:

Dr. Carlo J. DeLuca
Dr. Janie Fouke
Dr. Robert I. Grossman
Dr. Norbert J. Pelc
Dr. James Zagzebski

Ex officio members present:

Dr. James Smirniotopoulos
Dr. Andrew Watkins

Members of the public present:

Mr. Andrew Hawkins, The Blue Sheet
Ms. Marianne Marlowe, Capitol Consulting Corporation
Ms. Michelle Rodrigues, SRI

NIBIB employees present:

Ms. Lillian Ashley	Mr. Nicholas Mitrano
Ms. Bonnie Dunn	Dr. Peter Moy
Ms. Pamela Clatterbuck	Dr. Roderic Pettigrew
Ms. Angela Eldridge	Mr. Anna Retzke
Ms. Cheryl Fee	Dr. Belinda Seto
Dr. David George	Ms. Theresa Smith
Dr. Gary Glover	Dr. Patricia Sokolove
Ms. Colleen Guay-Broder	Dr. Richard Swaja
Dr. John Haller	Ms. Sandra Talley
Dr. Joan Harmon	Dr. Meredith Temple-O'Connor
Dr. William Heetderks	Ms. Florence Turska
Dr. Christine Kelley	Ms. Stacy Wallick
Ms. Mary Beth Kester	Dr. Fei Wang
Dr. Henry Khachaturian	Mr. Elijah Weisberg
Dr. Alan McLaughlin	Dr. Yanitan Zhang
Mr. Todd Merchak	
Ms. Brenda Mitchell	

¹For the record, it is noted that members absent themselves from the meeting when the Council is discussing applications (a) from their respective institutions or (b) in which a real or apparent conflict of interest might occur.

Overview of Federal Regulations

Dr. Joan Harmon provided an overview of Federal regulations and policies governing the meeting. She noted that the meeting was organized under the authority of the Federal Advisory Committee Act and the Government in the Sunshine Act and reviewed conflict of interest procedures.

Report from the Acting Director of the Division of Inter-Disciplinary Training

Dr. Meredith Temple-O'Connor, Acting Director of the Division of Inter-Disciplinary Training provided an overview of training activities at the NIBIB, including an update on the Bioengineering and Bioinformatics Summer Institute, NIH Roadmap training initiatives, and concluding with a concept for a potential partnership with the Howard Hughes Medical Institute. She began by introducing Dr. Henry Khachaturian, a program officer on detail from the Office of the Director of NIH.

NIBIB Portfolio

Dr. Temple-O'Connor presented an overview of the NIBIB's training portfolio. The training portfolio includes individual NRSA fellowships, pre- and post-doctoral training, institutional training grants, career development awards for basic and clinical scientists, and Academic Research Enhancement Awards. The Institute is aggressively expanding the training portfolio. Overall, training and career development activities are supported by just over 3 percent of the NIBIB budget.

Ongoing and Future Training Activities

In terms of ongoing and future activities, in June 2004, there will be an NIBIB Training Grantee meeting to include all the principal investigators and trainees supported by the T32 mechanism. The Division is also continuing to develop tracking, evaluation, and assessment methods for the training grants. The NIBIB has several initiative concepts in the developmental stages. For example, the Institute is planning an initiative for post-doctoral faculty transition awards to bridge the gap between a post-doctoral fellowship and a first faculty position by providing start-up funding.

NIH-NSF Bioengineering and Bioinformatics Summer Institutes Program (BBSI)

Dr. Temple-O'Connor provided an update of the BBSI Program. The aim of this program is to provide students majoring in the biological sciences, computer sciences, engineering, mathematics, and physical sciences with inter-disciplinary bioengineering or bioinformatics research and education experiences to promote and attract more people into these areas for graduate training and careers. The Summer Institutes target undergraduates, juniors, and seniors, as well as new graduate students. In addition, there has been special emphasis on recruiting and involving special populations such as women, underrepresented minorities, and individuals with disabilities. The curriculum typically spans 10 weeks in each of two consecutive summers and includes both formal didactic course work as well as research experience. Many of the programs also include opportunities for an industry internship or rotation as well as different seminar series.

There are currently nine funded BBSIs across the country with 128 students enrolled. Approximately 80 percent are undergraduate students and 35 percent plan to continue in the second year of the program. Minorities and women comprised 15 and 40 percent of the students, respectively. The first grantees' meeting was held in November 2003 to discuss successes and challenges for the programs after their first year of existence. Participants were pleased at the

interaction across career levels – from undergraduates to senior faculty. One recurring challenge is the development of the knowledge base to join and create these inter-disciplinary programs. For example, individuals with quantitative backgrounds need to become more familiar with biology and *vice versa*. Another challenge is to find the right balance between formal coursework and laboratory research.

The program will enter its' second year this summer. The NIBIB will shortly begin discussions with the NSF regarding continuation of the BBSI beyond the initial 2 year commitment.

NIH Roadmap for Medical Research

Dr. Temple-O'Connor presented an overview of the training initiatives in the NIH Roadmap. The NIBIB continues to be an active participant in these Roadmap initiatives. The short programs for inter-disciplinary research training will promote the development and implementation of new short training programs to provide students who are trained in one discipline with fundamental knowledge of one or more other disciplines.

The Curriculum Development Award in Inter-disciplinary Research will support the development of innovative courses, curricula and educational approaches designed to train inter-disciplinary scientists in emerging areas of biomedical, behavioral and quantitative sciences. These programs focus on preparing undergraduate, pre-doctoral, or post-doctoral candidates, or combinations of these, to conduct research in team settings that are highly inter-disciplinary and collaborative and to train future leaders who can catalyze the integration of multiple disciplines.

Another initiative, Training a New Interdisciplinary Research Workforce, will encourage and enable the development of an inter-disciplinary workforce by ensuring that undergraduate, pre-doctoral, and post-doctoral students receive the didactic and research experiences necessary to lead and/or engage in integrative and team approaches to solve complex biomedical and health problems.

An institutional, post-doctoral National Research Service Award (NRSA) will support the establishment of programs that provide formal coursework and research training in a new inter-disciplinary field to individuals holding advanced degrees in a different discipline. These training programs are required to include a behavioral or social science discipline, and the NIH is especially interested in programs that integrate the behavioral and/or social sciences with the more traditional biomedical sciences.

Multi-disciplinary clinical research career development programs will promote the involvement of residents, fellows and junior faculty in clinical research careers and career development. More information on the Roadmap initiatives focusing on inter-disciplinary research can be found at <http://nihroadmap.nih.gov/interdisciplinary/index.asp>

Partnership Concept between NIBIB and the Howard Hughes Medical Institute

Dr. Temple-O'Connor concluded her presentation by discussing a partnership concept between the NIBIB and the Howard Hughes Medical Institute. The goal of this program is to support the development of novel inter-disciplinary pre-doctoral training programs with emphasis on the integration of quantitative and life sciences. Howard Hughes Medical Institute will lead the first phase focusing primarily on program development, curriculum development, and faculty recruitment for 3 years of funding. NIBIB would lead the second phase focusing on support of the

trainees and principal investigators. Funding for phase two would last for five years. After completion of the second phase, awardees would submit applications for the standard institutional training grant. This program is responsive to the NIBIB constituents' need for institutional training programs that include supportive curriculum development and program development. Also it provides inter-disciplinary cross training of quantitative and life scientists together to create new ways of thinking and approaching scientific questions.

The Subcommittee members, other Council members and the NIBIB staff engaged in a lively discussion of the topics described above.

Dr. Pettigrew concluded the meeting by thanking the group for the high quality of the discussion.

The meeting adjourned at approximately 2:30 p.m.

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

/s/
Joan T. Harmon, Ph.D.
Executive Secretary
National Advisory Council for Biomedical
Imaging and Bioengineering
Director
Office of Extramural Policy
National Institute of Biomedical Imaging and
Bioengineering

/s/
Roderic I. Pettigrew, Ph. D., M.D.
Chairperson
National Advisory Council for Biomedical
Imaging and Bioengineering
Director
National Institute of Biomedical Imaging and
Bioengineering

The Council will consider these minutes at its next meeting. Corrections or notations will be incorporated in the minutes of that meeting.