DRAFT
Revised Dec. 13, 2004

SUMMARY OF SECOND ANNUAL MEETING
NHGRI RESEARCH TRAINING ADVISORS' MEETING WITH NHGRI STAFF
OCTOBER 20, 2004
6:00 P.M. TO 9:30 P.M.
James H. Clark Center at Stanford University
318 Campus Drive
Stanford, CA 94305

The Advisors met with NHGRI staff following the discussion of MAP programs that took place from 8:00 A.M. to 5:00 P.M. The purpose of the meeting was several-fold: (1) to get feedback from the advisors about the grantees' progress on increasing the number of URM participating in genomics research; (2) to provide summary information about the MAP activities; (3) to discuss the competing renewal of MAP activities; and (4) to discuss topics, issues, concerns, etc suggested by the advisors. The agenda and the list of participants are included in Appendices A and B.

GENERAL COMMENTS FROM ADVISORS:

The Advisors were unanimous in their opinion that considerable progress had been made in getting most of the programs established and that the programs have been established and outreach ranges from K-12 to faculty. Not all programs had evaluation plans in place, but a few were considered outstanding. If the overall program were to be graded, 50% of the programs would be considered successful; 30% would be considered doing okay, but needing some improvements, and *20% would need closer monitoring*. There was a range of activities covering career levels from K-12 to faculty members. It also appeared that the grantees and their coordinators were more engaged in the process compared to last year. However, the advisors were disappointed that not all of the principal investigators were present and presented their programs.

Improvement was largely recognized in the following areas: better and consistent use of evaluation instruments, better networking among MAP directors [leading to information sharing about opportunities in various programs], and more productive ways to identify and recruit students, especially those in high school as potential participants in summer undergraduate research programs.

The Advisors encouraged NHGRI to refine its goals and articulate them to the grantees. Specifically they would like NHGRI to focus more resources on undergraduate and graduate program activities, to develop a logic model and evaluation plan for the overall MAP program, to track systematically the graduates of the various programs, particularly the Ph.D. recipients and post doctoral fellows and to align its resources with its program priorities.

The NHGRI agreed that all these ideas and suggestions were good ones and agreed that it would be appropriate for NHGRI to work with our Advisors in determining how to realign the program so that our priorities match the resources supporting the effort. NHGRI also suggested that a coordinating center might be very useful in serving the needs of both the grantees and NHGRI staff by facilitating networking among grantees and participants, by developing the necessary resources for identification of program participants and by developing generic evaluation instruments for the individual programs and the overall NHGRI program.

SPECIFIC COMMENTS OF ADVISORS:

RECRUITMENT

Grantees many need to look within their own Institutions for potential participants. Many institutions are competing for the limited number of outstanding undergraduate students.

Talented students should be identified early and moved into the right environment. Some public and private institutions have schools within schools where the average SAT for these students are 1450, the Center for Talented Youth which is housed at Johns Hopkins University, and the mathematics and science academies, such as Thomas Jefferson High School in Northern Virginia and magnet schools for the sciences, local departments of public instructions, science fairs.

Better methods are needed to identify students and target populations. One possibility is to harness Internet technology combined with demographic data to enhance and develop strategic marketing strategies.

Students should be taught early how to network.

A database of students should be developed that can be used to recruit individuals participating in the MAP programs and to give them an opportunity to be contacted by MAP program directors.

All participants in the MAP program should be told that there are opportunities for additional people to join the programs. In other words, opportunities are available for all highly deserving individuals.

PROGRAM DESIGN

NHGRI should articulate to the PIs the expected goals and outcomes of the MAP and institutional training grant programs. These goals may vary to accommodate the type of MAP program (CEGs, SEQs, DBs, Training Grants, Other).

The range of activities presented by the grantees gave a clearer idea of what types of activities are better suited for the different research settings.

More grantees seem connected to their programs compared to last year.

There should be more undergraduate, graduate students and postdoctoral fellows participating in the program. To this end there needs to be an effective mechanism for tracking postdoctoral fellow's race/ethnicity.

Grantees need to work harder at cultivating linkages with those institutions that could be a recruitment resource for undergraduate students.

The hiring of coordinators has in some cases resulted in PIs taking less of a responsibility for their programs; there needs to be a balance between involvement and day-to-day running of the program.

Those programs that had strong PI leadership appeared to be more successful. If PIs make training and mentoring of URM students part of their laboratory culture, more programs would be successful.

There is a lot of potential for collaboration among the grantees. NHGRI could play a greater role in ensuring that these interactions occur.

MAP participants should have an opportunity to meet each other and to network so that they would know that they are part of an important program. It would also be good if geographically close participating institutions would give their students an opportunity to cross train, whether by taking courses or performing laboratory rotations to enhance their science knowledge or laboratory skills.

Most students are lost in the transitions, whether it is from high school to undergraduate, undergraduate to graduate, graduate to postdoc or postdoc to faculty. If we can help students over these transitions, many of them would be successful. URM students are particularly vulnerable during these transitions.

Undergraduate students need mentoring and tutoring to pass "gate keeping courses, such as biology, mathematics, chemistry, physics and computational sciences. *(NOTE: This information was presented by Dr. Walter Bollenbacher post Stanford meeting in an effort to clarify the importance of grounding students in the gate keeping course. In a study done at UNC, Chapel Hill, NC, Gate Keeping Courses and Minority Students: Brian Rybarczyk, PhD, coordinator of UNC, Chapel Hill's student research internships with HBCUs partners in North Carolina has shown that the percentage of minority students receiving failing grades in gate keeping courses is approximately 20 percent to 30 percent higher than white students. The ultimate result of this is that about 90% of the minority students do not graduate with the science major they aspire to have and those that do survive are generally at the bottom of the performance scale. (See Appendix A).)*

Summer academic boot camps have been shown to be successful in preparing students for their next level.

EVALUATION

More programs are getting the message about the need to have evaluation plans, but the design and implementation are going slowly and grantees are at various stages in setting up evaluation plans. The Logic Model that was presented at the first annual meeting held at the University of Washington has been implemented successfully by several of the groups and is starting to provide much needed feedback.

Individual programs as well as the overall NHGRI program should be evaluated. This will account for the skewing of 'statistics of small numbers' and allow participants to get a feel for overall success.

Tracking of participants and outcome measures should to be taken seriously.

The success of the institutional training grant programs in producing Ph.Ds from URM groups should to be documented.

It is important to know what the baseline for these activities are in order to determine how successful the programs are.

A coordinating center many be appropriate to help facilitate the networking, tracking, program evaluation and basic resources for grantees.

NHGRI should develop a logic model for its program and it may be necessary to trim some programs and give additional support to others in order to meet outcome goals.

The allocation of resources should be compatible with the overall program priorities.

A reasonable goal for NHGRI to pursue is to increase the number of minority students by a factor of two within five years and then increase it another factor of two in the next five years. The expectation is that they will be involved in a meaningful way in genome research.

POINTS FOR DISCUSSION

The original goals of the MAP are summarized in Appendix C. The questions that are discussed below are an effort to refine the program, based on the experiences of the past two to three years.

Question: Should we refine the program goals to be more specific. As an example increase the number of URM participating in genomic research activities and training programs two-fold every five years? What would be the "end point?"

Question: Should we limit the kinds of training activities that academic and non-academic institutions can engage in?

Question: Should we focus more resources on URM starting with the undergraduate level and beyond, focusing particularly on successful transitions to the next level?

Question: Should a Coordinating Center be established to assist NHGRI staff in managing the MAP and T32 programs? If so, what should it be charged with doing?

It was clear from the meeting that the programs could be more efficient and successful if they had additional resources. In addition, because some of the programs are small, further investment in resources would not be economical. Therefore, the concept of a Coordinating Center was proposed. Such a Center could be very useful in helping the programs to function more efficiently and in evaluations. Such activities could include, but not be limited to

- Cataloging sources for recruitment will probably do more to assuage PI anxiety than actually helping in the recruitment. Recruitment requires personal interactions, not just mailers or web sites. Potential organizations from which participants have been overlooked in the past include high schools that focus on math and science, minority serving institutions that have a good track record of sending students to graduate school, rather than medical school, etc.
- The tracking function would be very important to both follow outcomes and as a potential source to recruit undergraduate, graduate students and postdocs. There are available sources, such as lists of current program participants from annual reports.
- Developing generic evaluation metrics for individuals programs will take some professional input and time. Instead of attempting to do all at once, a more rational approach would be to start with a widely used program, such as the summer research internship and develop pilot metrics for use next summer before attempting something more difficult, such as the K-12 curricula. These evaluation criteria could then be used to develop an overall evaluation plan for the MAP program.

Question: Should NHGRI develop a website that would be easy to navigate if one is looking for a specific research experience? In addition, such a website could give a full description of the MAP and T32 programs with appropriate contacts. It would also include hyperlinks to other resources, such as professional scientific societies that cater to URM, NIH funded programs that focus on URM, etc.

It should be noted that communicating our programs to the outside community requires that we use more than one medium. The Internet is a very useful, but limited, tool to describe our programs, but this is only secondary to personal contacts.

Question: Is the distribution among career levels appropriate? If not, what would be "ideal."

Currently the NHGRI spends the following percentage of its MAP funds:

Career Level	% of Total Funding
K-12	29
Undergraduate	24
Pre-Doctoral	22
Post Doctoral	17
Faculty	4
Other	3

Note: Several advisors thought that the distribution of effort and funding is too skewed to K-12. While educating the general public is a good idea in the long run, K-12 activities will not do much toward achieving NHGRI short-term goals of diversifying the genomic research workforce. Also, to have many groups developing similar curricula may not be very efficient or effective. If NHGRI wishes to improve the K-12 curricula in genomics, it might want to consider the NSF model by putting out a well-defined targeted solicitation, such as a RFA. In that way you would select for the best ideas and people. It was the opinion of several advisors that NHGRI's top priority should be to attract junior and senior undergraduate students to graduate programs in genome science.

Question: Should NHGRI limit the indirect cost to 8% which his the maximum indirect cost that NIH pays for training and career development (F,T, and K) awards?

Currently the indirect costs on the MAP activities are the same as for research grants. Since this is a training activity, should NHGRI only pay 8% indirect cost which is the maximum indirect cost that NIH pays for training and career development (F,T, and K) awards?

Note: Some of the advisors recommended that NHGRI should only pay 8% indirect costs.

SUMMARY OF FY2004 MAP AND T32 ACTIVITIES

Institution	Principal Investigators	Type(s) of grant(s)	Comments	Intervention[1]
Mol. Sci. Inst.	R. Brent	CEGS	Program has a variety of activities; need information on evaluation and metrics of success	Need to discuss interim evaluations and outcomes
U. Washington	D. Meldrum; M. Olson; S. Fields	CEGS (2) and T32	The outreach program seems to be going well. **6/30 (20%)** T32 appointees are URM.	No specific problems to be addressed. Need to track URM students on T32.
Yale	M. Snyder	CEGS and T32	Program is going well but need separate evaluation for the genomics part of the STARS Programs. T32 just awarded in FY 2004	Need to discuss evaluation and tracking.
Stanford U.	W. Talbot; M. Cherry; R. Myers	CEGS; P41; T32	CEGS outreach program going great; **5/28 (18%)** T32 appointees are URM. Strong leadership.	No specific problems to be addressed. Need to track URM students on T32.
Columbia U.	J. Ju	CEGS	Evaluation metrics not clear; six week summer program too short; stipends are low; concerns about leadership and coordination among the various collaborators.	Need to discuss interim evaluations and outcomes
USC	M. Waterman	CEGS	Course and lab experience for 10 students (ug and g) from URM groups; evaluation and tracking part of program	No specific problems to be addressed.
Harvard	G. Church	CEGS	Program started in FY 04	No specific problems to be addressed.
Johns Hopkins U.	A. Feinberg	CEGS	Program started in FY 04 and will take advantage of the high school enrichment program, Center for Talented Youth.	No specific problems to be addressed.
Baylor College of Medicine	R. Gibbs	Prod.Seq	Academic enhancement programs in place, but employees need release time in order to allow them to study.	Need to discuss with PI providing release time to employees for academic preparedness.
Broad/MIT	E. Lander	Prod.Seq	Not clear about progress, especially with recruiting postdocs; need evaluation metrics; lack of leadership.	Need to discuss with PI the program, tracking, outcomes and evaluation.
Wash U	R. Wilson	Prod.Seq	K-12 program in place; evaluation used to modify the program. Great leadership	No specific problems to be addressed.
Agencourt	D. Smith	Prod.Seq	Post bac program for	No specific problems

[1] All participants will be contacted to provide feedback.

			employees expensive but effective; program has only two participants.	to be addressed.
TCAG	K. Remington	Prod.Seq	Concerns expressed about the content of the curriculum, whether the curriculum meshes with school curriculum, teachers ability to create lesson plans; focus is on changing attitudes, not learning science concepts.	Need to develop a serious curriculum on DNA science and genomics and should be integrated into the science curriculum.
Harvard	W. Gelbert	P41	PI needs to provide a time line for what the database groups will do, when and how they will evaluate the outcome.	Need to request information from the PI.
UC, Santa Cruz	D. Haussler	P41	Program includes research experiences for undergrad and grad students, a one day genomics and ELSI workshop for undergrads, and presentations to K-12 students and teachers; logic models developed, evaluation plans in place.	No specific problems to be addressed.
U. Penn	L. Ungar	T32	Did not attend the meeting. **2/22 (9%)** of trainees are URM. Need to continue efforts to increase the number of URM.	Need to discuss the importance of having at least 10% of appointees URM. Need to track outcomes of URM students.
U. Michigan	M. Boehnke	T32	**1/9 (11%)** of trainees are URM. Outreach programs are in place; need to recruit undergraduates from outreach efforts into graduate programs.	No specific problems to be addressed. PI should be encourage to recruit more students from the outreach programs they participate in.
Harvard	I. Kohane	T32	**2/11 (18%)** of trainees are URM. Could improve outreach efforts.	No specific problems to be addressed. PI should be encouraged to do more outreach.
UC, Berkeley	D. Rokhsar	T32	**2/17 (12%)** of trainees are URM. Could improve outreach efforts	No specific problems to be addressed. PI should be encouraged to do more outreach.
UC, Los Angeles	K. Lange	T32	**0/8 (0%)** of trainees are URM. PI must do a better job of recruiting. Needs to talk with the CEGS grantee and try recruiting from nearby Cal State University students	PI needs to put more effort into recruiting URM students.

U. Wisconsin	D. Schwartz	T32	Second year of the grant; no URM appointed to the training program.	PI needs to put more effort into recruiting URM students.
Princeton	D. Botstein	T32	PI did not attend meeting. Grant awarded in FY04.	No specific problems to be addressed.
SACNAS	L. Haro	R25	Grant awarded in FY04.	No specific problems to be addressed.

APPENDIX A

"GATE KEEPING" COURSES AND MINORITY STUDENTS AT UNC, CHAPEL HILL, NC

(Report prepared by Brian Rybarczyk, PhD, coordinator of student research internships with the HBCUs in North Carolina and UNC, Chapel Hill)

APPENDIX B

SECOND ANNUAL MEETING
NHGRI RESEARCH TRAINING ADVISORS' MEETING WITH NHGRI STAFF
OCTOBER 20, 2004
6:00 P.M. TO 9:30 P.M.
James H. Clark Center at Stanford University
318 Campus Drive
Stanford, CA 94305

PURPOSE OF MEETING: (1) to get feedback from the advisors about the grantees' progress on increasing the number of URM participating in genomics research; (2) to provide summary information about the MAP activities; (3) to discuss the competing renewal of MAP activities; and (4) to discuss topics, issues, concerns, etc suggested by the advisors. This will be a working dinner session.

AGENDA

6: 00 P.M.	Feedback/Discussion of MAP Progress	Advisors (Moderated by Skip Bollenbacher)
	Discussion Leaders	
	K-12	Bollenbacher, Keats and Villarejo,
	Undergraduate	McBay, Slaughter and Villarejo
	Graduate	Bollenbacher, Nickerson and Slaughter
	Post Doctoral	Morimoto, Nickerson, and Slaughter
	Faculty	Keats, McBay and Morimoto
7:30	Analysis of MAP Activities	Bettie J. Graham
8:00	Discussion of Competing Renewals of MAP Activities	Advisors and NHGRI Staff
9:00	Open Discussion	Advisors
9:30	Adjourn	

APPENDIX C

SECOND ANNUAL MEETING
NHGRI RESEARCH TRAINING ADVISORY COMMITTEE MEETING

Wednesday, October 20, 2004
6:00 P.M. TO 9:30 P.M.
James H. Clark Center at Stanford University
318 Campus Drive
Stanford, CA 94305

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* Members of the National Advisory Council for Human Genome Research
** Not able to attend this meeting

APPENDIX D

GOAL OF THE MAP PROGRAM

(http://www.genome.gov/10001707)

The goal of the Action Plan which was approved by Council at its May 2002 meeting was: "To increase the number of underrepresented minorities that are trained to pursue research in the fields of genomics and/or ELSI research. The document outlined specific goals:

- Training Grants. NHGRI expects to achieve an average of 10 percent of trainees on board from minority populations within the next three years. Eventually, the percentage should rise to the percentage of minorities in the baccalaureate population.

- Centers of Excellence in Genomic Science (CEGS). Each CEGS will be asked to propose what specific training activities they will implement and how they will recruit the relevant trainees. Staff will encourage the CEGS as a group to generate a range of training opportunities focused on underrepresented minorities. The requirement for this training component will be made explicit in program announcements. The centers will be expected to have an average of 10 percent of their trainees from underrepresented minority populations. In addition, each center will be expected to have an outreach activity such as a summer program for undergraduates or a course for students or faculty from underrepresented groups by the second year of the grant.

- Production Centers. The existing NHGRI production centers hire a large number of minorities for their production work. Some of these individuals become interested in science careers. Staff will gather information on what these centers are currently doing to encourage and guide such individuals in their research careers and will ask them to propose and implement programs to enhance these activities. For example, they could establish a scholarship program to enhance the careers of staff interested in pursuing graduate degrees. The centers will also be asked to develop and implement other creative ideas for attracting and training minority individuals. Within two years, each center will be expected to have a program in place.

- Ethical, Legal and Social Implications of Genetics/Genomics. The ELSI Research Advisors recommended several approaches to increasing the participation of minorities in ELSI research at their meeting, June 4-5, 2001. These include: research opportunities in ELSI for undergraduates to encourage them to think of careers in this field; pre-doctoral fellowships and dissertation fellowships for students in the social sciences and humanities who are interested in ELSI training; career awards for faculty to free up time for research in ELSI; and outreach to established minority scholars who are already engaged in research but who may not be aware of ELSI research opportunities.

- Other NHGRI Grants. Staff will also examine the portfolio of larger grants that are not centers to look for additional opportunities for developing training activities appropriate to their research goals. As a result of these efforts, NHGRI expects to double the number of minority supplements awarded over the next two years. Database grants were selected as a group of grants that should be comply with the goals and objectives of the Action Plan.