SUMMARY OF THE THIRD ANNUAL MEETING
NHGRI RESEARCH TRAINING ADVISORY COMMITTEE MEETING WITH MAP GRANTEES
OCTOBER 31, 2005
Peabody Museum at Yale University

Prepared for the NHGRI MAP Advisors

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Invitees to the meeting included all NHGRI grantees that were required to have a Minority Action Plan (MAP) as part of their research programs (Centers of Excellence in Genomic Sciences, production sequencing laboratories, databases), the program directors of our institutional training grants, and members of the NHGRI Research Training Advisors Committee. The purpose of the meeting was several-fold: (1) to provide information about the programs to Advisors who have a responsibility to advise the NHGRI on its research training activities; (2) to share program development, implementation and evaluation information among grantees; (3) to identify areas of programmatic concern and to discuss possible solutions; and (4) to discuss issues, concerns, and other topics suggested by the participants, the advisors or the NHGRI staff. The agenda and the list of participants are included in the appendix. The format of the meeting included seven or ten minutes of presentation followed by three or five minutes of discussion, respectively.

The Advisors were enthusiastic about the progress made in this interim year. Generally, there was a feeling that the groups had made significant strides towards getting their programs established and improving the implementation of various evaluation mechanisms, although not all of the groups had developed evaluation plans.

There was wide support from advisors and grantees for NHGRI to pursue the generation of a more permanent mechanism integrating participating programs in a centralized capacity. This idea was introduced last year and lead to the establishment of the Minority Action Plan Web Portal hosted by NHGRI. It was followed up this year with a call to create a network in which different programs can communicate, share ideas, share data, support students through transitional periods, etc. The utility of such a resource could lead to greater coordination between the various efforts leading to (1) remote placement of surplus students in sister programs and (2) allow for programs with similar structures to collectively learn from previous efforts to avoid re-inventing the wheel.

A summation of the meeting can be captured in the “lessons learned,” which are listed below.

Recruitment

Last year’s conversation established the need to employ various recruitment activities and tools; no one system can work universally across all programs. Early indications were that systematic and personal contact between faculty, teachers, and students would be the most effective. The different successes of this year’s recruiting efforts substantiate these earlier predictions, although the NHGRI has not undergone a quantitative analysis various recruitment strategy successes.

Those efforts that seemed most effective relied heavily on faculty contact with potential student applicants at the local level and through the faculty attendance at various national URM serving conventions, i.e. SACNAS, AISES, and ABRCMS. Many programs had more qualified applicants than they had slots available leading to program saturation and a surplus of unplaced but qualified candidates.

Recruitment efforts, even where successful, should have a multiplicity of strategies and should not rely entirely on a unique or singular personal relationship between faculty members, although these are often effective and fruitful relationships. Strategies shared and encouraged at the meeting included recruiting from partner programs at local institutions; establishing summer programs and outreach to local middle schools, high schools, and universities; faculty and recruiter attendance at national conferences; word of mouth; and basic advertising strategies (web based, snail mailings, flyers, etc). For those programs offering summer undergraduate research experience, an increase in stipend improved enrollment.

"Demystifying" the graduate school experience is critical for early recruitment efforts. Information about the graduate school application process, experience, and career possibilities can be presented as incentives to encourage the application of qualified and potentially interested students. These factors include (1) a statement that students are generally paid to attend graduate school, (2) that there are a wide variety of fellowships and assistantships available so that graduate students are rarely indebted after graduating, (3) admissions to graduate school is often not as competitive as medical school, (4) graduate school opens doors to career opportunities beyond the stereotypical bench-bound scientific investigator, especially for those coming at the biological sciences from a computational background, and (5) admission to graduate school includes paid travel to candidate universities for interviews.

Specific suggestions were given to directors of institutional training grants (T32). These included: having a training grant faculty member on the admissions committee; having program directors sending letters of support for particular candidates to the admissions committee; waiving the unwritten rule that graduate programs should not recruit their own undergraduate students, particularly when some minority populations place a higher priority on being closer to their communities; accompanying URM students to professional societies; sending congratulatory notes to students admitted to graduate school and inviting them to become members of the department's cadre of graduate students; understanding how the admission process works and having faculty who would select individuals who would be good matches for the department's programs; developing a long-term relationship with HBCUs by giving lectures at their institutions and by inviting teachers and students from HBCUs to participate in institutional training grant retreats; encouraging young faculty members to participate in recruiting trips; recruiting from nearby institutions that have significant numbers of URM students, rather than only recruiting from already heavily recruited HBCUs, such as Xavier, Spelman, Morehouse, Howard, etc. A suggestion for retaining graduate students was to bring them in the summer before graduate school and provide them with didactic and research experiences so that they would be better adjusted to graduate school.

In the past, NHGRI has supported MD/Ph.D. students beyond the recommended five years of NRSA support. In many cases, students have been supported throughout their MD/Ph.D. programs. This could be an inducement for students to choose research over medicine and needs to be broadcast more widely where pertinent.

There are many additional recruiting resources available. NIGMS' Minority Opportunities in Research (MORE) has many programs that NHGRI MAP grantees should become familiar with. This website (http://www.nigms.nih.gov/Minority/) lists the programs, the participating institutions and contact information.

PROGRAM DEVELOPMENT/DESIGN

Programs should be encouraged to take advantage of other related efforts serving under represented minority populations at the host institution. Collaborations established, however, need to have an authentic value-added component.

The Action Plan was developed on the premise that (1) the activities had to be embedded within the research programs of the grant and (2) that while not responsible for the day-to-day activities, the principal investigator still had an important role to play. In some cases, the relationship between the Minority Action Plan and the larger grant activity was not clear and the role of the principal investigator was not evident.

Programs undergoing significant shifts or reorganization should be encouraged to communicate with existing successful efforts to avoid reproducing problematic elements of a particular program type and laboriously re-discovering extant successful modalities, i.e. avoid re-inventing the wheel. This can be facilitated by the NHGRI MAP web portal.

There was much group discussion as to how to effectively bridge the language gap between computational and biological/molecular research backgrounds. The classic paradigm - short experiential

opportunities across disciplines - was reported to have met with weak to modest success. One program (see Waterman at University of Southern California) switched to a more intensive didactic strategy which at a first pass appeared to be more successful in the distribution and dissemination of content across the language boundary. Support for this comes from qualitative measures of student evaluation and performance monitored by participating faculty. Anecdotal reports of student's improved confidence were also presented to support the perceived success of this program. Many members agreed that this approach might provide a useful model to the community for other programs with similar objectives.

Student exchange between the MAP programs should be encouraged. It has been successful in the past two years and continues to grow in value for those programs, i.e. UW, UCSC, Yale, which engage this opportunity. The NHGRI MAP website lists programs and program contacts. Participants were encouraged to keep their websites updated.

In cases where MAP participants are employed by the organization and are also attending school or taking classes, it is vital they have adequate release time for academic preparation, especially considering that the students often do not fit the standard academic profile for admission to the highest caliber institutions and are using the experience as an opportunity to strengthen their resumes. A regimented protocol and culture of support guaranteeing release time for students to pursue extra-vocational activities, i.e. GRE prep course, pre-requisites, etc in preparation for graduate school is critical to the success of these programs.

Institutions with training grants and MAP activities as part of a CEGS, sequencing centers, databases, etc., need to clearly separate and articulate their different activities in both their written reports and in their meeting presentations.

EVALUATIONS

Evaluation is important, necessary and should be used to address mid-course corrections.

Many programs brought evaluators on board since the last meeting and have made significant progress in this regard. The advisors noted that those programs with evaluation components tended to have higher quality programs. For high-throughput exposure experiences, i.e. short seminars, tours, and workshops, evaluation criteria are more difficult to gauge in respect to long-term MAP objectives. Minimally, however, these activities should seek feedback on the quality of their participant's experiences.

Evaluation needs to be a more integral component of these meetings and should be included in program presentation.

In those cases in which the evaluations are applied by program coordinators monitoring small programs, thus creating the appearance of an abridged confidentiality, coordinators should rely on a neutral third party to handle the evaluation process.

Programmatically, more progress needs to be made in the area of establishing and implementing tracking instruments.

REPORTING

Some programs presented conflicting data between their presentation, summary reports, and budgetary and enrollment data forms. NHGRI needs to council these programs on how to appropriately complete these forms.

NHGRI needs to standardize the reporting process while allowing some latitude for those elements of each program that are unique. Future reporting should include, where appropriate, student or participant profiles comprised of such elements as papers published, meetings attended, awards, year in program, year to finish, etc.

CHALLENGES

Early indications are that the decision is being made to pursue MDs rather than PhDs early on in undergraduate studies or even late high school. There need to be orchestrated and systematic efforts to address the perceived concerns that these students have in order to assist them in making informed decisions about their career path. This is somewhat problematic for the NHGRI program as the advisors have recommended focusing on undergraduate activities and above.

However, there is an opportunity for NHGRI supported programs to affect the culture in which students are making this career path decision. The research experiences afforded by the MAP grantees should be so exciting and rewarding that students are more attracted to pursuing graduate school, rather than medical school. Thus, the ways in which the MAP programs can affect the culture is by assuring that students participating in research programs have the necessary background in courses that are fundamental to biomedical research, such as mathematics, biology, chemistry, etc. At the undergraduate level, the greatest rate of attrition from math and sciences majors happens in the first two years. This poses a serious challenge for recruiting students into graduate careers in the genomic sciences. Undergraduate students who come from low performing schools should be given the opportunity to excel in graduate school by ensuring that they do well in these basic courses.

Tracking students between and beyond transitions remains a problem. Obstacles include the legality of asking for URM information, the absence of and difficulty in establishing effective instruments that rely on voluntary reporting, and a combined willingness and diligence on part of participating programs to gather this information in standardized ways. Possible solutions discussed include the creation of a centralized db in which program coordinators enter ethnic/racial data while also restricting access to NHGRI and grantees. A model database has already been created by Skip Bollenbacher and it was suggested that NHGRI adapt this architecture to establish such a resource. It was also suggested that students be required to sign an agreement to be tracked as a condition of participation in a summer program, or any other program of significant duration, such as a training grant. This would make the subsequent tracking effort somewhat easier.

NHGRI ACTION ITEMS

- Provide feed-back to all participants
- Develop model evaluation instruments for the various activities
- Develop a system to track participants to determine outcomes
- Provide information on all the trainees in the T32 training program, not just the URMs. This information can be used to assess the relative rates of success for URM students and other students appointed to the training program. The report should also cover MAP activities, if applicable. Student progress reports should include: name of trainee; years of appointment (such as, June 2003 to June 2006); mentor; research project; courses taken; publications; meetings attended. For students who have left the program within the reporting year, indicate why they left and where they went.
- Progress report booklets should be divided by institutions and for those institutions that have several activities (such as CEGS, T32 training Grant, etc), the progress reports should be clearly separated.
- Revise the progress report form to capture the cost and outcome/benefits for each activity.
- For next year's meeting, invite Clifton Poodry from NIGMS' MORE Division to present information about its programs and someone who has been successful in recruiting students and faculty from URM groups to participate in research programs. This individual would discuss what strategies have been successful/not so successful. It might also be useful to invite someone from a heavily recruited HBCU to give their perspective on what works in developing long-term collaborations.

THIRD ANNUAL MEETING
NHGRI RESEARCH TRAINING ADVISORY COMMITTEE MEETING WITH MAP GRANTEES
1:00 PM 31 OCTOBER 2005 to 12:30 PM 1 NOVEMBER 2005
PEABODY AUDITORIUM
YALE PEABODY MUSEUM
170 Whitney Avenue
New Haven, CT

PURPOSE OF MEETING: (1) to provide information about the programs to Advisors who have a responsibility to advise the NHGRI on its research training activities; (2) to share program development, implementation and evaluation information among grantees; (3) to identify areas of programmatic concern and to discuss possible solutions; and (4) to discuss topics, issues, concerns, etc suggested by the participants, the advisors or the staff.

AGENDA

31 October 2005 (Monday)

1:00 P.M. Welcome and Introductions

1:30 **Session #1: Update of Activities**

Institutional Training Grants/SACNAS/
(Recruitment/Retention/Tracking)
(Format: 7 minutes presentation; 3 minutes discussion)

- R. Myers at Stanford University (+M. Cherry-DB; W. Talbot-CEGS)
- L. Ungar at University of Pennsylvania
- M. Brent at Washington University
- S. Fields at University of Washington
- M. Boehnke at U. Michigan
- I. Kohane at Harvard University
- D. Rokhsar at University of California, Berkeley
- K. Lange at University of California, Los Angeles
- D. Schwartz at U. Wisconsin
- M. Snyder at Yale(+Snyder-CEGS)
- M. Linton at SACNAS

Databases [1]

(Format: 7 minutes presentation; 3 minutes discussion)

- W. Gelbart at Harvard University
- J. Eppig at The Jackson Laboratory
- D. Haussler at UC, Santa Cruz
- P. Sternberg at California Institute of Technology
- M. Westerfield at University of Oregon

[1] Stanford Database (M. Cherry) MAP discussed with Stanford's T32 Program.

Centers of Excellence in Genomic Sciences (CEGS)[2]
(Format: 10 minutes presentation; 5 minutes discussion)

- D. Meldrum/M. Olson at the U. Washington (MAP/ Post Bac)
- A. Feinberg at Johns Hopkins

6:30 p.m. Adjourn

7:0 0 Dinner for Training Coordinators at xxxxxxxxxx
Dinner for T32 Program and Advisors at xxxxx to discuss Postdoc Research/Teaching Programs

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1 November 2005 (Tuesday)

8:00 Informal Gathering for Coffee and Danish

8:30 **Session #1: Update of Activities (Participants)--Continued**

Centers of Excellence in Genomic Sciences (CEGS)--Continued
(Format: 10 minutes presentation; 5 minutes discussion)

- R. Brent at Molecular Sciences Institute
- J. Ju at Columbia U.
- M. Waterman at U. Southern California
- G. Church at Harvard

Production Sequencing Laboratories
(Format: 10 minutes presentation; 5 minutes discussion)

- D. Smith at Agencourt
- R. Gibbs at Baylor
- E. Lander at Broad/MIT K.
- K. Remington at The Venter Institute
- R. Wilson at Washington University

11:30 **Session #2: Open Discussion**
Competing Renewal Applications
Program Collaboration
Continued Program Development
Other Topics to be added by Participants

[2] Stanford University (W. Talbot) and Yale University (Mike Snyder) MAP programs discussed under T32 Training Grants.

12:30	Wrap Up and Adjourn

National Human Genome Research Institute (NHGRI)
National Institutes of Health

Third Annual NHGRI Research Training Advisory Committee Meeting with the Minority Action Plan (MAP) Grantees

October 31 - November 1, 2005

Yale University
New Haven, Connecticut

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