

SUMMARY OF DISCUSSION WITH SMALL GROUP OF COUNCIL  
ON  
THE FUTURE OF NHGRI'S TRAINING AND CAREER DEVELOPMENT NEEDS  
(Revised 3/26/2012)

**Council Members Present:** Mike Boehnke; Rex Chisholm; Ross Hardison; Amy McGuire; and Howard McLeod. Carlos Bustamante and Deirdre Meldrum were not able to attend.

**NHGRI Staff Present:** Eric Green; Peter Good; Mark Guyer; Teri Manolio; Brad Ozenberger; Rudy Pozzatti; Jeff Schloss; Kris Wetterstrand; and Bettie Graham.

The purpose of this meeting was to assemble a small sub-group of Council to discuss NHGRI's long range plans for training and career development. The agenda for the teleconference is attached.

Dr. Green opened with meeting with the following comments:

- This is a continuing dialogue to implement the goals of the new strategic plan. Very little discussion was included in the plan regarding training and career development, so the purpose of this teleconference was to start that dialogue, first with a small group of Council, then with Council, and then with a larger group to help us frame the opportunities.
- Participants were encouraged to focus on what are the gap areas in training and career development that need to be filled in order to align our training and career development programs with the strategic plan.
- Although we know that the budget will be constrained in the near future, our discussion of needs should not be.
- We are looking at an implementation plan that is at a minimum, two to three years away.

Bettie Graham gave a summary of the training and career development programs spanning almost two decades. Very briefly:

- NHGRI has trained approximately 450 pre-doctoral trainees and 150 postdoctoral trainees.
- The top five participating departments are biology, statistics, genetics/genomics, computer science/bioinformatics, and microbiology.
- Approximately 10 percent of trainees are URMs and 35% are women (pre and post doctoral trainees).
- Trainees averaged three publications.
- Over half of trainees were in academia; approximately 20 percent were in non-profits and government.
- NHGRI spends approximately 2% of its extramural budget on training as compared to the NIH average of 3.6%.
- The Diversity Action Plan trains individuals who are at the undergraduate level and above with most training targeted to undergraduate students. URMs are also trained on T32 grants.

Summary of Discussion with Council Members and Staff

- Background information is needed for a comprehensive discussion, therefore it would be important to collect the following information: (1) a response from current T32 program directors with the following information (a) a brief statement of their training goals and (b) a description of how they plan to shift the focus of their training program to align with the strategic plan and over what time period; (2) information about the number of full-time equivalent slots -- pre and post doctoral trainees-- for each program; (3) responses from a subset of trainees from each program addressing (a) what was missing from their training program in light of their current research and (b) several examples describing the best things about their training program; and (4) an inventory of the bioinformatics and statistics training at other NIH institutes and centers.

- The following types of expertise were identified as lacking in the workforce in order to take advantage of all the very large data sets that are being generated both in basic genomics and genomic medicine:
  - Statistics
  - *Bioinformatics*
  - *Translation of basic genomics to the clinic*
  - *Development and exploration of new technologies for early detection of disease through discovery of new diagnostics that would more effectively translate discoveries to the clinic.*
  - *clinical science*
  - *health care economics*
- There was considerable discussion about how to train scientists to conduct research “to the right of the density plot.” Some of the issues discussed were:
  - What would be appropriate training vehicles: NRSA; K awards; training and career development programs integrated into large-scale networks such as the training supported in the Clinical and Translational Science Awards (CTSAs); etc?
  - What would be the appropriate length of training: short term; long term?
  - Who should be trained: clinicians; Ph.D scientists?
  - What would be the critical elements of such a training program in genomic medicine: clinical practice; validate markers; integrate genomics into practice; how to analyze and interpret large data sets; economic impact of applying genomics to clinical medicine; health policy; how to change old habits, etc?
  - Who should do this: NHGRI or NHGRI in partnership with the disease institutes?
- Participants were reminded that there is still a need to:
  - Ensure that all training programs include requirements for students to have more training in bioinformatics and statistics.
  - Enhance the ability of basic scientists to participate in research in “the right hand side of the density plot.”
  - Genomics and proteomics still need individuals who are trained to develop methods for analyzing and interpreting large datasets. Participants in the most recent CEGS meeting pointed out this deficiency.
  - More scientists trained in bioinformatics are needed.
- Bioinformatics is a NIH-wide problem and is not specific to NHGRI. The NIH Director has an internal group discussing this issue. The new NIGMS director may also be interested in this area.

The path forward includes:

- Prior to May 2012 Council, poll Council members about what they think the gap areas in training are.
- A discussion in the open session of May 2012 Council about: (1) NHGRI’s training and career development programs based on the information listed above; (2) Council’s assessment of what we are doing and what changes should occur; (3) how should NHGRI get involved with genomic medicine—alone or partnering with the disease ICs; (4) who beyond Council members should be involved in a more detailed discussion about the future of NHGRI’s training programs; and (5) Council should have input into any revised or new training and career development opportunities that result in funding opportunity announcements.

# AGENDA

## PRELIMINARY DISCUSSIONS OF NHGRI'S LONG-RANGE TRAINING PLANS TRAINING PRIORITIES FOR THE FIELD OF GENOMICS (BASIC AND CLINICAL)

Friday, 3 February 2012  
2:00 p.m. – 3:30 p.m. EST

Call in Number: 866-692-3582, code 8578364

**Council Participants: Michael Boehnke; Carlos Bustamante; Rex Chisholm; Howard McLeod; Amy McGuire; and Deirdre Meldrum**

### BACKGROUND:

NHGRI would like to begin focusing some of our attention on the area of our new strategic plan related to training and education. We would like to take a fresh look at our training efforts and how they align to workforce needs in genomics over the coming decade. Such a look should include consideration of feedback we are frequently getting about training needs and the budgetary realities that we will be facing in the coming years. Ultimately, this will likely involve the formation of a Working Group of NHGRI's Advisory Council and a review of our current portfolio of institutional training grants and our use of the full range of training and career-development opportunities.

After some internal discussions, we have decided to have this topic be discussed in detail at our May Council meeting. In the meantime, we are hoping to engage you (a subset of our Council) in some preparatory discussions — in essence, an initial conversation to hear your thoughts about the most pressing training needs, what our priorities should be for NHGRI's training activities, and perhaps most importantly, what our process should be for determining the future direction(s) of the NHGRI training activities.

Agenda:

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| 2:00 | Welcome, Eric Green  |
| 2:15 | Overview of NHGRI's Current Training and Career Development Program<br>(See Attachment), Bettie Graham   |
| 2:30 | Discussion Topics: Council Members and NHGRI Staff <ul style="list-style-type: none"><li>▪ What goals should be set for our training efforts to best align them with our recent strategic plan for genomics?</li><li>▪ What are the most effective approaches and mechanisms we could use to achieve those goals?</li><li>▪ What additional information and data should be gathered to inform our decision-making?</li><li>▪ Which individuals and what communities should be included as our training plans go forward?</li><li>▪ What should be our next step in the path forward?</li></ul> |
| 3:30 | Adjourn  |