Career Enabling Postdoctoral Training

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NIH Mission and Research Career Reality

The NIH Mission: *to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.*

NIH supports and trains a workforce of independent investigators to accomplish its mandated mission. But....

- Becoming a successful independent researcher is taking longer
- Competition for federal grant support is increasing and success rates are declining
- Increasing the diversity of the research workforce remains a challenge
- Funding to sustain the mission and researchers remains a challenge
- Investigators in training have many choices
NIGMS Training Strategic Plan

Research training responsibility is shared by NIH, academic institutions, faculty and trainees.
- Articulate expectations for high-quality Ph.D. training
- Adjust training resources to achieve desired outcomes

Research training focuses on student development, not simply selection of talent.
- Encourage use of individual development plans (IDPs)
- Establish guidelines for training plans for all R01s

Research training breadth and flexibility to respond to contemporary science and a variety of career paths.
- Encourage exposure to multiple career path options

Diversity is indispensable to research excellence
- Articulate benefits of a diverse biomedical workforce
- Encourage institutions to actively recruit, effectively mentor and diligently nurture students

Aspects echoed in ACD Biomedical Workforce, Diversity Reports
Snapshot of the US PhD Biomedical Research Workforce

http://acd.od.nih.gov/Biomedical_research_wgreport.pdf

**College Graduates**
- 16,000 in 2009
- Of graduates who stay in the US
  - 30% skip a postdoc
  - 70% do a postdoc

**Graduate Education & Training**
- 2009 Total: 83,000
- Time to Degree: 5.5-7 yrs
- 2009 Graduates: 9,000

**Postdoctoral Training**
- 2009 Total: 37,000 to 68,000
- Median Length: 4 years
- 5,800 in 2009
- 4,000 in 2009
- 8% of graduates leave the US
- 1,900 to 3,900 in 2009

**Post-Training Workforce**
- (128,000 Biomedical US-trained PhDs)
- **Science Related Non-Research**
  - 18% Biomedical US-trained PhD 2008
  - ~24,000
- **Government Research**
  - 6% Biomedical US-trained PhD 2008
  - ~7,000
- **Academic Research or Teaching**
  - 43% (23% tenured) Biomedical US-trained PhD 2008
  - ~55,000
- **Industrial Research**
  - 18% Biomedical US-trained PhD 2008
  - ~22,500
- **Non-Science Related**
  - 13% Biomedical US-trained PhD 2008
  - ~17,000
- **Unemployed**
  - 2% Biomedical US-trained PhD 2008
  - ~2,500
Conclusions:

- The combination of the large upsurge in US-trained PhDs, increased influx of foreign-trained PhDs, and aging of the academic biomedical research workforce make launching a traditional, independent, academic research career increasingly difficult.

- The long training time and relatively low early-career salaries when compared to other scientific disciplines and professional careers may make the biomedical research career less attractive to the best and brightest of our young people.

- The current training programs provide little preparation for non-academic research career, despite clear evidence that a declining percentage of graduates find such positions in the future.
Proposed Implementation

- Establish a grant program to encourage innovative training approaches (BEST)
- Improve graduate student and postdoctoral training by:
  - Putting IDPs in place for all trainees
  - Reducing length of graduate training
  - Providing fellowship F30s and F31s from all ICs
- Increase postdoctoral stipends and consider policies on benefits
- Increase support for K99/R00 and Early Independence awards
- Develop a simple and comprehensive tracking system for trainees
- Revise training grant review... range of careers..., all students in program
- Encourage fair consideration of Staff Scientists on grant proposals
- Initiate discussion with the community to assess NIH support of faculty salary
- Create functional unit at NIH to assess the biomedical research workforce
- Conduct ACD Working Group study on training in clinical disciplines
The Postdoc should refine Career Skills

- Scientific expertise
- Problem solving
- Objective
- Analytic
- Collaborative
- Leadership
- Communication
- Recognizing opportunity
- Mentoring and developing talent

Are the skills needed for success in academic research enable success in any profession?
NIGMS
Investing in Discovery

Division of Training, Workforce Development and Diversity
Investing in the Future

Questions?