NIH structure

NIH

Review Officer

Program Officer

Grants Management Officer
NIH Training

- $868 million in 2011
- Largest requested increase for 2011 budget (5.3%)
- President’s budget for 2012 has a 4% stipend increase for NRSA training programs ($21,600 -> $22,464).
- 21 of 27 institutes are involved with T32s
Total Number of NIH Pre- and Post-Doctoral Training Positions on T’s and F’s Supported by Institute, FY 2005 (NRSA)
The NIGMS Training Mission

Training the next generation of scientists and increasing the diversity of the scientific workforce to assure the vitality and continued productivity of the research enterprise
NIGMS Training Grants

- 40% of NIH Pre-doctoral Training Effort
- 10% of NIGMS Budget
- 3100 Trainees, 286 Programs, 100 Institutions
- Interdisciplinary and Multi-departmental
- Mostly Pre-doctoral; Post-doctoral Separate
- 12 Ph.D. Training Areas
NIGMS T32 Program Areas

- Behavioral-Biomedical Sciences Interface
- Bioinformatics and Computational Biology
- Biostatistics
- Biotechnology
- Cellular, Biochemical and Molecular Sciences
- Chemistry-Biology Interface
- Genetics
- Medical Scientist Training Program
- Molecular Biophysics
- Molecular Medicine
- Pharmacological Sciences
- Systems and Integrative Biology
NIGMS Training Goals

- Promote interdisciplinary, collaborative & innovative research training in areas relevant to NIGMS
- Provide support in early years to maximize impact on training (rotations, courses, lab selection)
- Encourage selection of students from several academic units, umbrella program(s), or broad interdisciplinary programs
- Provide maximum flexibility to trainees for selection of courses, rotations, research fields, and mentors
- Foster breadth of research opportunities by selection of trainers from multiple academic units or departments
- Promote mastery of a core scientific area and in-depth knowledge of related fields and professional skills
NIGMS Has 6 Special Requirements

- Describe the mission and objectives of the program to be supported by the training grant.
- Describe how the proposed training grant fits into the institution's overall graduate training programs: How is it unique from other existing pre-doctoral training programs?
- Describe collaborative and interdisciplinary features of the proposed training program. For ongoing programs, has training in any scientific disciplines or fields been added or deleted?
- Describe innovative features or activities for trainees.
- Do the prospective trainees have adequate quantitative backgrounds relevant to the proposed training to pursue cutting-edge biomedical research? What does the training program do to ensure that students have appropriate quantitative graduate training?
- How does the training program provide opportunities for exposure to topics related to human health, physiology and disease?
Special NIH Requirements

- Recruitment and retention for diversity
  - Students from Underrepresented Groups
  - Disabled students
- Training in the Responsible Conduct of Research (RCR)
Additional Suggested Features

- Teaching opportunities
- Opportunities for industrial or other external internships
- Information about career options and career outcomes of recent graduates
- Recruitment of trainees with a variety of science backgrounds, including mathematics, engineering and the physical sciences
Frequent Areas of Concern in T32 Training Grant Programs

- A Program of Training versus a Funding Mechanism
- Impact of the Training Grant Program
- Oversight Early and Often
- Length of Time to Degree
- Expectations for Publications
- Career Guidance and Timely Planning for Postdoctoral Fellowships
Recent Changes

- Electronic submissions (Jan 25, 2010)
- 25 pages (combined sections Background, Program Plan, and Recruitment and Retention Plan to Enhance Diversity)
- PA-11-184 (always use current PA)
- New RCR requirements
- Supplemental material
  - New policy is very restrictive
Responding to Change

- Evolution of Scientific Areas
- Budget Constraints
- Biomedical Workforce Needs
Evolution of NIGMS Training Areas

- Cellular, Biochemical and Molecular Sciences (1972)
- Genetics (1972)
- Pharmacological Sciences (1972)
- Medical Scientist (M.D.- Ph.D.) Training Program (1972)
- Systems and Integrative Biology (1972)
- Biotechnology (1990)
- Molecular Biophysics (1990)
- Molecular Medicine (2000)
- Bioinformatics and Computational Biology (2001)
- Chemistry-Biology Interface (2001)
- Biostatistics (2005)
- Behavioral-Biomedical Sciences Interface (2007)
Turnover in NIGMS Training Programs

- 40 New T32 Programs in the Past 5 Years
- Success Rates in the Past 5 Years
  - T1’s – 23%
  - T2’s – 71%
NIH NRSA institutional research training grants: Applications, awards, and success rates
NIH Pathway to Independence Award
K99/R00 Awards

- Up to 5 years of support in 2 phases

- **K99 Phase:**
  - 1-2 years of mentored support
  - for highly promising postdoctoral research scientists

- **R00 Phase:**
  - up to 3 years of support
  - contingent on securing an independent research position
Eligibility for K99/R00 Awards

- doctoral degree (PhD or MD), with no more than 5 years postdoctoral research training - NIGMS prefers 3
- postdocs in mentored positions who are not independent researchers, i.e.,
  - individuals who have not held an independent research position
  - or been PI on NIH research (R01, R03, R21) or career development (K) awards
- commitment of 75% effort
- U.S. citizens and non-U.S. citizens are eligible
Mentored (K99) Phase provides 1–2 years of mentored support

- for highly promising postdoctoral research scientists who have clinical or research doctorates
- training may be at NIH or extramural institutions but not at foreign institutions
- total cost per year up to $90,000
  - (level of support varies by I/C)
  - includes salary & research support
Independent Investigator (R00) Phase provides up to 3 years of support

- to conduct research as an independent scientist
- contingent on acceptance of a tenure-track, full time assistant professor position (or equivalent)
- Federal or foreign institutions not eligible
- transition is subject to administrative review of progress and evaluation of research plan
- institution must demonstrate commitment to candidate (minimum 75% effort, space)
- up to $249,000 total costs per year, including salary, research support, indirect costs
Success rates vary by NIH institute

NIH average = 21.5%
NIH Support of Graduate Students

Number of Graduate Students

- Fellowships
- Traineeships
- Research Assistantships


Legend:
- Blue bars represent Fellowships.
- Red bars represent Traineeships.
- Green bars represent Research Assistantships.

Graph shows an increasing trend in the number of graduate students supported over time.
T32 Trainees

- Must be Citizen, non-citizen national, or lawfully admitted for permanent residence.
- Must have been admitted for permanent residency at time of appointment
- Baccalaureate degree & be enrolled in doctoral program leading to Ph.D., comparable research doctoral degree or dual research/clinical doctorate like the MD/Ph.D.

Duration of Support

- 5 years maximum
- Aggregate limits, including any combination from individual and/or institutional awards
Stipends

- Subsistence Allowance to help defray living expenses
- Not a salary, not considered employees of either Government or Institution
- NIH publishes levels in NIH Guide when increases are approved
- Grantees may supplement
- Predoctoral: One level for all individuals, regardless of years of experience
## First-Year Support for Doctoral Students in the Biomedical Sciences

<table>
<thead>
<tr>
<th>Field</th>
<th>Full Support</th>
<th>Partial Support</th>
<th>No Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry, Biophysics, &amp; Structural Biology</td>
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<td>3</td>
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<tr>
<td>Biomedical Engineering &amp; Bioengineering</td>
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<tr>
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<td>Immunology and Infectious Disease</td>
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<tr>
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<tr>
<td>Microbiology</td>
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<td>2</td>
</tr>
<tr>
<td>Neuroscience and Neurobiology</td>
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<tr>
<td>Nutrition</td>
<td>88</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Pharmacology, Toxicology, &amp; Environmental Health</td>
<td>94</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><strong>Physiology</strong></td>
<td><strong>96</strong></td>
<td><strong>2</strong></td>
<td><strong>2</strong></td>
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<tr>
<td><strong>Everyone</strong></td>
<td><strong>95</strong></td>
<td><strong>3</strong></td>
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### Funding Across Graduate Studies in the Biomedical Sciences, Fall 2005

<table>
<thead>
<tr>
<th>Field</th>
<th>Fellow or Trainee</th>
<th>Teaching Assistant</th>
<th>Research Assistant</th>
<th>Combo Funding</th>
<th>&lt; Full Funding</th>
<th>Unfunded</th>
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<td>&amp; Bioengineering</td>
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<td>42.9</td>
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<tr>
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<tr>
<td>Everyone</td>
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<td>10.9</td>
<td>38.4</td>
<td>25.0</td>
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<td>2.3</td>
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