“Best Practices for Competitive NIH Institutional Research Training Grant Applications”

Office of the Executive Vice President for Research
Columbia University

December 4, 2017

Jaime S. Rubin, Ph.D.
Dept. of Medicine
jsr9@columbia.edu
342-3184
NIH Training Grants

- Institutional National Research Service Awards
  - General description
  - Types of training grants
  - Funding announcements
  - Data: No. of applications, awards, and success rate
NIH Training Grants

- Applications: Overview of Major Components
  - Research
  - Mentors
  - Applicant pool
  - Training program
  - Didactics, career development, other activities
  - Role of Institutions
  - Tables

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NIH Training Grants

- Applications: NIH Review
  - Role of NIH Institutes
  - Deadlines
  - Scoring scale, Impact Scores
  - Review criteria

- Applications: Detail of Major Components
  - Program Plan
  - Tables

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NIH Training Grants

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  - Data: No. of applications, awards, and success rate
Institutional National Research Service Award (T32, T35)

- Institutions select trainees to support for training and career development in defined areas of research

- Defined number of slots
  - Pre-docs, post-docs, or both

- Provides:
  - Stipend
  - Health fees (Training Related Expenses)
  - Tuition
  - Travel

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Budget

- Defined line items
- Defined amounts for each line item
- **Stipends:**
  - NIH may increase each FY
  - Pre-doctoral Trainees: One stipend level (FFY17: $23,844)
  - Post-doctoral trainees: Sliding scale based on years of experience
- **Tuition:** NIH-set levels
- **Training Related Expenses (TRE):** NIH-set levels
- **Travel:** May be set by Institute
Budget

**Tuition:**

- **Pre-doctoral Trainee:** "60% of the level requested by the sponsoring institution, up to $16,000 per year”

- **Dual-degree Pre-doctoral Trainee (e.g., MD/PhD):** "60% of the level requested by the sponsoring institution... up to $21,000 per year.”

- **Postdoctoral Trainee:** "60% of the level requested by the applicant institution, up to $4,500 per year”

- **Postdoctoral Trainee in a Formal Degree-Granting Program:** "60% of the level requested by the applicant institution... up to $16,000 per year.”

NIH Grants Policy Statement:  
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Budget

- **Training Related Expenses (TRE):**
  - Per Trainee, per year
    - **Pre-doctoral Trainee:** $4,200 (FFY 2017)
    - **Postdoctoral Trainee:** $8,850 (FFY 2017)
  - “staff salaries, consultant costs, equipment, research supplies, staff travel, **trainee health insurance** (self-only or family as applicable), and other expenses directly related to the training program”

NIH Grants Policy Statement:

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Institutional Training Grants

Ruth L. Kirschstein Institutional National Research Service Award

To enable institutions to recruit individuals selected by the program leadership for predoctoral and/or postdoctoral research training in specified scientific areas.

- Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (Parent T32)
- Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (Parent T32)
- T32 Training Program for Institutions That Promote Diversity (T32)
- Revision Awards to Institutional Training Programs to Advance Research on Alzheimer's Disease and Alzheimer's Disease Related Dementias (T32)
- Jointly Sponsored Ruth L. Kirschstein National Research Service Award for Institutional Predoctoral Training Programs in the Neurosciences (T32)
- National Institute of General Medical Sciences Ruth L. Kirschstein National Research Service Award (NRSA) Predoctoral Institutional Research Training Grant (T32)

https://researchtraining.nih.gov/programs/training-grants

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Ruth L. Kirschstein National Research Service Award (NRSA)
Institutional Research Training Grant (Parent T32)

National Cancer Institute (NCI)
National Eye Institute (NEI)
National Human Genome Research Institute (NHGRI)
National Institute on Aging (NIA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute of Nursing Research (NINR)
National Center for Complementary and Integrative Health (NCCIH)
Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)

PA-18-403
Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (Parent T32)

National Cancer Institute (NCI)
National Eye Institute (NEI)
National Heart, Lung, and Blood Institute (NHLBI)
National Human Genome Research Institute (NHGRI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute of Neurological Disorders and Stroke (NINDS)
National Institute of Nursing Research (NINR)
National Center for Complementary and Integrative Health (NCCIH)
Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)
Office of Dietary Supplements (ODS)

PA-16-152
Contact Institute Program Officer

Confirm Application Deadline (not all Institutes accept applications at all 3 deadlines)

Additional info on programmatic focus, PI requirements, costs (e.g., trainee travel)

Some Institutes have their own Training Grant dedicated webpages

Ruth L. Kirschstein National Research Service Award (NRSA) Short-Term Institutional Research Training Grant (Parent T35)

National Eye Institute (NEI)
National Institute on Aging (NIA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute of Environmental Health Sciences (NIEHS)
National Center for Complementary and Integrative Health (NCCIH)
Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)

PA-18-404

NIH Training Grants

- **Institutional National Research Service Awards**
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Training Grants and Fellowships: Pre- and Post-Doctoral Positions

[Bar chart showing trends in Pre-Doctoral Training, Post-Doctoral Training, Pre-Doctoral Fellowship, and Post-Doctoral Fellowship positions from 1998 to 2016.]

NRSA Institutional Research Training Grants & Fellowships: Funding in current and constant dollars

[Graph showing the trend of funding in current and constant dollars over fiscal years from 1999 to 2016]
NRSA Institutional Research Training Grants
Applications, awards, and success rates
Funding Facts

Advanced Search

Topic: Applications - Number, Awards - SELECT
Admin Institute/Center: All NIH SELECT
Funding Mechanism: Training - NRSA Training Grants SELECT
Activity: T32 SELECT
Type: New SELECT
Fiscal Year: 2014 SELECT

Submit Query  Reset Query

http://report.nih.gov/fundingfacts/index.cfm
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<th>Activity</th>
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<td>Topic</td>
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<tr>
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<td>51</td>
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<td>43</td>
<td>67.2%</td>
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There were 236 results matching your search criteria.

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<th>Sub #</th>
<th>Project Title</th>
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<td>2017</td>
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<td>HARDY, MARK A et al.</td>
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<td>S5</td>
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<td>2017</td>
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</table>

https://projectreporter.nih.gov/reporter.cfm

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### Project Number: ST32HL007343-40
**Title:** POSTDOCTORAL TRAINING IN ARTERIOSCLEROSIS RESEARCH

**Contact PI / Project Leader Information:**
- **Name:** GINSBERG, HENRY N
- **Email:** Click to view Contact PI / Project Leader email address
- **Title:** PRINCIPAL INVESTIGATOR

**Program Official Information:**
- **Name:** CARLSON, DREW E
- **Email:** Click to view PO email address

**Awardee Organization:**
- **Name:** COLUMBIA UNIVERSITY HEALTH SCIENCES
- **City:** NEW YORK
- **Country:** UNITED STATES (US)

**Department Type/ Organization Type:** INTERNAL MEDICINE/ MEDICINE SCHOOLS OF MEDICINE

**FOA:** PA-11-184
**Study Section:** Special Emphasis Panel [NITM (OA)]
**Fiscal Year:** 2017
**Award Notice Date:** 10-JUL-2017

**DUNS Number:** 621889815
**CFDA Code:** 837

**Project Start Date:** 1-JUL-1978
**Budget Start Date:** 1-AUG-2017
**Project End Date:** 31-JUL-2018
**Budget End Date:** 31-JUL-2018

**Total Funding:** $460,556
**Direct Costs:** $509,856
**Indirect Costs:** $37,908

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<th>Year</th>
<th>Funding IC</th>
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<tr>
<td>2017</td>
<td>NATIONAL HEART, LUNG, AND BLOOD INSTITUTE</td>
<td>$460,556</td>
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[https://projectreporter.nih.gov/reporter.cfm](https://projectreporter.nih.gov/reporter.cfm)
NIH Reporter – NHLBI T32 awards

Abstract Text:
DESCRIPTION (provided by applicant): This application requests continued funding, at a level of eight training positions, for a postdoctoral training program in arteriosclerosis that began in 1978 and was last renewed on July 1, 2008. The goal of this program is to train basic and clinical investigators with broadly based knowledge in the major fields related to arteriosclerosis research. Atherosclerotic cardiovascular disease has a major impact on the health of the American population, making this training program very relevant. This training program functions within a broad framework of research dealing with various aspects of atherosclerotic cardiovascular disease: a strength of the program is the many collaborative interactions that exist between faculty and collaborative research programs for trainees has always been stressed. A group of senior scientists will act as mentors both to postdoctoral trainees working in their laboratories as well as to other trainees in the laboratories of more junior faculty members. The program also includes training in clinical/translational aspects of cardiovascular research. Many of the senior faculty have worked together at Columbia for more than 20 years. They interact through research efforts, joint weekly research conferences, and educational programs such as the Institute of Human Nutrition. Dr. Ira Goldberg, PI and Director of the training program, has been actively engaged as a mentor of young basic and clinical scientists for many years. The former director, Dr. Ginsberg, three associate directors, and leaders of the four training themes form an executive committee that oversees research, admissions, career development and administration. Regardless of the research focus, all trainees will enroll in didactic programs to strengthen their knowledge in biostatistics and clinical trials and to obtain some background in basic laboratory investigation. Mentoring is also a focus of the program. New faculty were added to bring new strengths to the program in vascular biology and translational research. This latter focus includes integration with a newly awarded NIH CTSA. The program will continue to recruit a mix of Ph.D. and M.D. trainees and trainees will work with a mix of M.D. and Ph.D. faculty. A program to enhance recruitment of scientists from underrepresented ethnic groups is in place and has been successful. (End of Abstract)

Public Health Relevance Statement:
This is a long-standing program to train scientists and physician/scientists in arteriosclerosis research. M.D.s and Ph.D.s trainees participate in an integrated clinical and laboratory research training program with a focus on lipoprotein metabolism, atherosclerosis in animal models, angiogenesis, and risk factor modification.

Project Terms:
Arteriosclerosis; post-doctoral training; Research
NIH Training Grants

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  - Research
  - Mentors
  - Applicant pool
  - Training program
  - Didactics, career development, other activities
  - Role of Institutions
  - Tables

Research

- Thematic
- Multidisciplinary/Interdisciplinary
- Collaborative
- State-of-the-art
NIH Training Grants

Applications: Overview of Major Components

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- Tables
Mentors - 1

- Quality
  - NIH-funded in TG research area(s)
  - History of successfully mentoring pre-doc and post-doctoral trainees
    - Past mentees have continued in successful research careers (grants, publications)
  - Publications in TG research area(s)
  - History of collaborations
    - Research, Mentoring

Mentors - 2

- **Quantity**
  - “Critical mass” in TG research area(s)
  - Age distribution
    - Junior faculty w/o NIH funding:
      Possible co-mentors w/ more senior faculty
  - Gender distribution
  - Coincides with requested number of slots

<table>
<thead>
<tr>
<th>Junior-Senior Mentor Pairs</th>
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NIH Training Grants

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Applicant Pool

- **Quantity**
  - Training Grant Eligible [TGE]
  - Coincides with requested number of slots

- **Quality**
  - Past research experiences
  - Academic record
  - Reviewers will be confident that they will continue in research-oriented careers
NIH Training Grants

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Training Program - 1

- **Formal organizational structure**
  - **Director(s)**
    - Expertise and experience as leader and administrator (preferably in a training/educator role)
  - **Associate Program Directors**
  - **Programmatic Committees**
  - **Advisory Committees**
    - Internal and External
Training Program - 2

- **Formal Processes**
  - Recruitment/Admissions
    - Committee
    - Selection Process
    - Advertisement
    - Materials
    - Underrepresented Minorities
  - Trainees’ selection of mentors
  - Monitoring of trainees’ academic/research progress
  - Didactic program
  - Measurement/Evaluation of training program
    - e.g. Outcomes, Questionnaires for mentors and mentees
NIH Training Grants

Applications: Overview of Major Components

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Didactics, Career Development, and Other Activities

- Formal courses
- Retreat
- Seminars/Journal Clubs
- Research presentations
- Individual Development Plans (IDP)
- Training in the “Responsible Conduct of Research”
- Training in “Rigor and Reproducibility”

Program-specific activities are important

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Individual Development Plans

Science Careers: myIDP:

- “Exercises to help you examine your skills, interests, and values
- A list of 20 scientific career paths with a prediction of which ones best fit your skills and interests
- A tool for setting strategic goals for the coming year, with optional reminders to keep you on track
- Articles and resources to guide you through the process”

http://myidp.sciencecareers.org/

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Institutional training grant applications will be required to include within the training program plan a summary of the instruction planned for all predoctoral and postdoctoral trainees to ensure the knowledge and skills required to design and conduct rigorous, well-controlled experiments that consider all relevant biological variables, use authenticated biological and chemical resources, and apply appropriate statistical tests for data analyses. In addition, a separate attachment will be required to describe in more detail the instructional content and curricular content. The impacted programs will include the following training grants: D43, T15, T32/TL1, T34, T35, T36, T37, T90/R90, and U2R.
Additional Guidance on ‘Full-Time Training’ for Ruth L. Kirschstein National Research Service Awards

Notice Number: NOT-OD-17-095

Full-Time Training
All Kirschstein-NRSA fellows (individual fellowships), and trainees (institutional training grants) are required to pursue their research training full time. Full-time is generally defined as devoting at least 40 hours per week to research training activities, or as specified by the awardee institution in accordance with its own policies.

Beyond the full-time training, NIH recognizes that Kirschstein-NRSA fellows and trainees may engage in part-time employment incidental to their training. Fellows and trainees may spend on average, an additional 25% of their time (e.g., 10 hours per week) in part time research, teaching, or clinical employment, so long as those activities do not interfere with, or lengthen, the duration their NRSA training. (See NIH Grants Policy Statement, Section 11.2.10.2 and 11.3.10.2, for more details.)
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Institution

- **Need**
  - Support for trainees not otherwise available

- **Support, Resources, and Commitment**
  - Letters of support from senior leadership
  - Research and career development resources
  - Financial, e.g., to support PI’s effort, stipend/tuition supplementation

- **Training Program Integrated into Research and Academic Infrastructure**
NIH Training Grants

Applications: Overview of Major Components

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Tables

- Very time- and labor-intensive
- Many different data elements on mentors, applicant pool, and past and current trainees
- Information from many different institutional academic components
  - Schools, Departments, Centers/Institutes, etc.
- NIH provides example completed Tables
- Cannot start too early
NIH Training Grants

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- **Applications: Detail of Major Components**
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National Institutes of Health

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications

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<th>Institutes</th>
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<td>• Research Grants (R01, R03)</td>
<td>• Multi-Project Grants (P01, P50, etc)</td>
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<tr>
<td>• Fellowships (F’s)</td>
<td>• Training Grants (T’s)</td>
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<td>• Small Business</td>
<td>• Career Development (K’s)</td>
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<td>• Conference Grants (R13)</td>
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<td>• Research Grants in response to RFAs</td>
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<td>• Contracts</td>
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Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications

### Application Due Dates

<table>
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<th>Cycle II Due Date</th>
<th>Cycle III Due Date</th>
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</table>
| T Series       | *Institutional National Research Service Awards*  
*Other Training Grants*  

**NOTE:** Applicants should check with the relevant Institute or Center (IC), since some do not accept T series applications for all three receipt/review/award cycles. Applicants should refer to the IC Table of Contacts for information for each IC's scientific/research contact for the NRSA T32 program. | January 25 | May 25 | September 25 |
<p>| D Series       | All - new, renewal, resubmission, revision | | | |</p>
<table>
<thead>
<tr>
<th>Activity Codes</th>
<th>Program Description</th>
<th>Cycle I Due Date</th>
<th>Cycle II Due Date</th>
<th>Cycle III Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Activity Codes Cited Above</strong>&lt;br&gt;new, renewal, resubmission, revision</td>
<td><strong>AIDS and AIDS-Related Applications</strong>&lt;br&gt;*Effective. Sept 5, 2015 - N/A for SBIR/STTR Applications using Standard Due Dates&lt;br&gt;Note: See Key Dates section of funding opportunity announcement to determine if AIDS dates apply.</td>
<td>May 7</td>
<td>September 7</td>
<td>January 7</td>
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</tbody>
</table>


### Application Due Dates

<table>
<thead>
<tr>
<th></th>
<th>Cycle I</th>
<th>Cycle II</th>
<th>Cycle III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Due Dates</td>
<td>January 25 - May 7</td>
<td>May 25 - September 7</td>
<td>September 25 - January 7</td>
</tr>
<tr>
<td>Scientific Merit Review</td>
<td>June - July</td>
<td>October - November</td>
<td>February - March</td>
</tr>
<tr>
<td>Advisory Council Round</td>
<td>August or October *</td>
<td>January</td>
<td>May</td>
</tr>
<tr>
<td>Earliest Project Start Date</td>
<td>September or December *</td>
<td>April</td>
<td>July</td>
</tr>
</tbody>
</table>

NIH Training Grants

- **Applications: NIH Review**
  - Role of NIH Institutes
  - Deadlines
  - Scoring scale, Impact Scores
  - Review criteria

- **Applications: Detail of Major Components**
  - Program Plan
  - Tables
OVERALL IMPACT

Reviewers are asked to provide an overall impact/priority score to reflect their assessment of the likelihood for the project to promote the training of pre- and postdoctoral fellows in biomedical, behavioral and clinical research, in consideration of the following five core review criteria, and the additional review criteria (as applicable for the project proposed).

**Overall Impact** Write a paragraph summarizing the factors that informed your Overall Impact score.
<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
<th>Additional Guidance on Strengths/Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>1</td>
<td>Exceptional</td>
<td>Exceptionally strong with essentially no weaknesses</td>
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<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
<td>Extremely strong with negligible weaknesses</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Excellent</td>
<td>Very strong with only some minor weaknesses</td>
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<tr>
<td>Medium</td>
<td>4</td>
<td>Very Good</td>
<td>Strong but with numerous minor weaknesses</td>
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<tr>
<td></td>
<td>5</td>
<td>Good</td>
<td>Strong but with at least one moderate weakness</td>
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<td></td>
<td>6</td>
<td>Satisfactory</td>
<td>Some strengths but also some moderate weaknesses</td>
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<tr>
<td>Low</td>
<td>7</td>
<td>Fair</td>
<td>Some strengths but with at least one major weakness</td>
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<tr>
<td></td>
<td>8</td>
<td>Marginal</td>
<td>A few strengths and a few major weaknesses</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
<td>Very few strengths and numerous major weaknesses</td>
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</tbody>
</table>

**Minor Weakness:** An easily addressable weakness that does not substantially lessens impact

**Moderate Weakness:** A weakness that lessens impact

**Major Weakness:** A weakness that severely limits impact
INSTITUTIONAL TRAINING & INSTITUTIONAL CAREER AWARDS

Overall Impact:
The likelihood that the proposed training (T) or career development (K) program will prepare individuals for successful, productive scientific research careers and thereby exert a sustained influence on the research field(s) involved.

Evaluating Overall Impact
Consider the 5 criteria (weighting based on reviewer's judgment):

<table>
<thead>
<tr>
<th>Ts</th>
<th>Ks</th>
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<tbody>
<tr>
<td>Training Program and Environment</td>
<td>Career Development Program &amp; Environment</td>
</tr>
<tr>
<td>Training PD(s)/PI(s)</td>
<td>PD(s)/PI(s)</td>
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<td>Preceptors/ Mentors</td>
<td>Mentors</td>
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<tr>
<td>Trainees</td>
<td>Candidates/ Scholars</td>
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<tr>
<td>Training Record</td>
<td>Training Record</td>
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</tbody>
</table>

and other score influences, e.g. human subjects, animal welfare, inclusion plans, and biohazards

5 is a good, medium-impact application. The entire scale (1-9) should always be considered.

e.g. Proposes a high-value training or career development program that is adequately designed to prepare individuals for highly successful, productive scientific research careers. May have some or no weaknesses in the criteria.

e.g. Proposes a training or career development program of moderate value that is adequately designed to prepare individuals for successful, productive scientific research careers. Weaknesses in the criteria reduce the overall impact to medium.

E.g. Proposes a low-value training or career development program that is inadequately designed. Has some weaknesses in the criteria.

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Pink Sheet: Reviewers’ Comments
Final Impact Score:

10 x Average (to one decimal point) of the Overall/Priority Score [1 – 9 (whole integers)] provided by all eligible reviewers.

Range: 10 – 90

Example: 20 reviewers

Scores: 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,

10 x 44/20 = 10 x 2.2 = 22

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
## Training Grant Payline: NHLBI

<table>
<thead>
<tr>
<th>Grant Program</th>
<th>Grant Program Description</th>
<th>Zone of Consideration (Priority Score Range)</th>
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<tbody>
<tr>
<td>T32, T35</td>
<td>Institutional NRSA Training</td>
<td>10 - 30</td>
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FY17

https://www.nhlbi.nih.gov/research/funding/archive-fy2017

NIH Training Grants

- **Applications: NIH Review**
  - Role of NIH Institutes
  - Deadlines
  - Scoring scale, Impact Scores
  - Review criteria

- **Applications: Detail of Major Components**
  - Program Plan
  - Tables

T32 – 1. Training Program and Environment

“Are the research facilities and research environment conducive to preparing trainees for successful careers as biomedical research scientists?

Are the objectives, design and direction of the proposed research training program likely to ensure effective training?

1. Training Program and Environment

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<tr>
<th>Weaknesses</th>
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</table>
T32 – 1. Training Program and Environment

“Do the courses, where relevant, and research experiences provide opportunities for trainees to acquire **state-of-the-art scientific knowledge**, **methods**, and tools that are relevant to the goals of the training program?

Does the program provide appropriate **inter- or multidisciplinary research training** opportunities?

Is the proposed training program likely to ensure **trainees will be well prepared** for **research-intensive and research-related careers**?
T32 – 1. Training Program and Environment

- “Is the level of institutional commitment to the training program, including administrative and research training support, sufficient to ensure the success of the program?

- Is it clear how the proposed training program is distinguished from other externally funded training programs at the institution?
T32 – 2. Training Program Director(s) (PI)

“Does the PD/PI have the scientific background, expertise, and administrative and training experience to provide strong leadership, direction, management, and administration of the proposed research training program?

Does the PD/PI plan to commit sufficient effort to the program to ensure the program's success?”

2. Training Program Director/Principal Investigator (PD/PI)

Strengths

Weaknesses
T32 - 3. Preceptors/Mentors

“Are sufficient **numbers** of experienced preceptors/mentors with **appropriate expertise and funding** available **to support the number and level of trainees** (including short-term trainees, if applicable) proposed in the application?”

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<th>3. Preceptors/Mentors</th>
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<td>•</td>
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<tr>
<td><strong>Weaknesses</strong></td>
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<td>•</td>
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</tbody>
</table>
T32 – 3. Preceptors/Mentors

“Do the preceptors/mentors have strong records as researchers, including recent publications and successful competition for research support in areas directly related to the proposed research training program?”

“Do the preceptors/mentors have strong records of training individuals at the level of trainees (including short-term trainees, if applicable) proposed in the program?”

“Are appropriate plans in place to ensure that preceptors lacking sufficient research training experience are likely to provide strong and successful mentoring?”
T32 – 4. Trainees

“Is a recruitment plan proposed with strategies likely to attract well-qualified trainees for the training program?

Is there a competitive applicant pool of sufficient size and quality, at each of the proposed levels (predoctoral, postdoctoral and/or short-term), to ensure a successful training program?”

<table>
<thead>
<tr>
<th>4. Trainees</th>
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</table>

**Strengths**

- 

**Weaknesses**

- 

https://grants.nih.gov/grants/peer/critiques/t32_D.htm
https://grants.nih.gov/grants/peer/critiques/T_Critique_Template.docx
T32 – 4. Trainees

“Are there well-defined and justified selection and re-appointment criteria as well as retention strategies?”
T32 – 5. Training Record

“How successful are the trainees (or for new applications, other past students/fellows in similar training) in completing the program?”

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<th>5. Training Record</th>
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<td><strong>Strengths</strong></td>
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<tr>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td>•</td>
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</tbody>
</table>
T32 – 5. Training Record

“Has the training program ensured that trainees are productive (or, for new applications, other past students/postdoctorates in similar training) in terms of research accomplishments, publication of research conducted during the training period, and subsequent training appointments and fellowship or career development awards?”
“How successful are the trainees (or for new applications other past students/postdoctorates in similar training) in achieving productive scientific careers as evidenced by successful competition for research science positions in industry, academia, government or other research venues; grants, receipt of honors, awards, or patents; high-impact publications; promotion to scientific leadership positions; and/or other such measures of success?”
T32 – 5. Training Record

■ “To what extent do trainees' subsequent positions in industrial, academic, government, non-profit, or other sectors benefit from their NRSA-supported research training and directly benefit the broader biomedical research enterprise?”

■ “Does the program propose a rigorous evaluation plan to assess the quality and effectiveness of the training?

■ Are effective mechanisms in place for obtaining feedback from current and former trainees?”
Scored Review Criteria

The following questions are in addition to the standard training review questions:

**Training Program and Environment**
• No additional questions.

**Training Program Director(s)/Principal Investigator(s) (PD(s)/PI(s))**
• No additional questions.

**Preceptors/Mentors**
• *If the program will support clinical trial research experience for the Trainees*, do the mentor(s) who will supervise the Trainee(s) have the expertise, experience, resources and ability to provide appropriate guidance and help the Trainee(s) to meet the timelines?

**Trainees**
• No additional questions.

**Training Record**
• No additional questions.
NIH Training Grants

- **Applications: NIH Review**
  - Role of NIH Institutes
  - Deadlines
  - Scoring scale, Impact Scores
  - Review criteria

- **Applications: Detail of Major Components**
  - Program Plan
  - Tables
TRAINING INSTRUCTIONS FOR NIH AND OTHER PHS AGENCIES
SF424 (R&R) APPLICATION PACKAGES

Guidance developed and maintained by NIH for preparing and submitting applications via Grants.gov to NIH and other PHS agencies using the SF424 (R&R)
Training Program Section

2. * Program Plan

3. Plan for Instruction in the Responsible Conduct of Research

4. Plan for Instruction in Methods for Enhancing Reproducibility

5. Multiple PD/PI Leadership Plan (if applicable)

6. Progress Report (for Renewal applications)

Faculty, Trainees and Training Record Section

7. Participating Faculty Biosketches

8. Letters of Support

9. Data Tables
Program Plan

- 25 pages
- Refer to and summarize Data Tables in text
- Include Figures and Tables where informative

A. Background

- Rationale, history, need, current training activities, etc.
- Tables 1, 2, and 3
Program Plan

B. Program Plan

a. Program Administration

- Program Director
  - Qualifications: Leadership, Scientific background, Research interests, Research training experience
  - Dedicated % effort
- Administrative structure

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Formal Organizational Structure

External Advisory Comm
Dr. A
Dr. B
Dr. C

Internal Advisory Comm
Dr. D
Dr. E
Dr. F

Multidisciplinary Training in Translational XXX Research
Dr. X
Program Director/Principal Investigator
Dr. Y
Associate Program Director

Research and Mentorship Committee
Dr. R
Dr. S
Dr. T

Career Development Committee
Dr. I
Dr. J
Dr. K

Recruitment and Admissions Committee
Dr. M
Dr. N
Dr. O

Administration

Diversity Enhancement
<table>
<thead>
<tr>
<th>Committee</th>
<th>Role and Responsibilities</th>
</tr>
</thead>
</table>
| **Recruitment and Admissions Committee** | • Advertisement of training program  
• Recruitment of trainees  
• Formal application  
• Review and selection process  
• Diversity and recruitment of underrepresented minorities |
| **Research and Mentorship Committee** | • Trainees’ selection of mentors  
• Didactic program, e.g., formal courses, workshops  
• Monitoring of trainees’ academic and research progress  
• Yearly Retreat  
• Meetings with and Progress Reports to Advisory Committees  
• Seminars and Journal Clubs  
• Research presentations by trainees  
• Measurement/Evaluation of training program  
  e.g., Outcomes (“Where are they Now”), Questionnaires for mentors and mentees |
| **Career Development Committee**  | • Individual Development Plans (IDP)  
• Preparation for the next career stage  
  e.g., Post-doctoral Trainees: “Transition to Independence”  
• Training: “Responsible Conduct of Research”, how to write journal articles, give presentations, grantsmanship and funding, etc. |
B. Program Plan

b. Program Faculty

- Mentors’ research, funding, research training experience, and collaborations
- Criteria for selecting Mentors
- Tables 2, 4, and 5
Multidisciplinary Research Theme A

Sub-Research Theme #1

Sub-Research Theme #2

Multidisciplinary Research Theme B
“Connecting lines” represent collaborations (e.g., grants, publications, co-mentorship).

Mentors are grouped by Research Area.
Collaborations between Mentors of different Research Areas

Legend:
Collaboration between Mentors of different Research Areas
Collaborations

Legend:
- Collaboration between Research Area #1 Mentors
- Collaboration between Research Area #2 Mentors
- Collaboration between Research Area #3 Mentors
- Collaboration between Mentors of different Research Areas

Collaborations between all Mentors
B. Program Plan

c. Proposed Training

- Trainees: No., Level(s), Academic/Research Background
- Research opportunities
- How Trainees select Mentors and research areas
- Oversight of Trainees: Monitoring and Evaluation
- Degree programs, didactics, courses, seminars, workshops, journal clubs (provide examples)
- Length of training (e.g., 2 years for post-docs)
Program Plan

B. Program Plan

d. Training Program Evaluation

- Input from current and former Trainees
- Evaluation metrics
- Plans to collect outcome data on former Trainees’ career progression (e.g., current positions, funding, publications)
- Competitive renewal applications: Discuss outcome data results

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Program Plan

B. Program Plan

e. Trainee Candidates

- Size and qualifications of applicant pool
- Recruitment activities
- Process and criteria to select Trainees to be funded by the grant
- Table 6
Program Plan

B. Program Plan

f. Institutional Environment and Commitment to Training

Document (Letter of Support) and describe institutional support (e.g., PI’s effort, space, support of additional Trainees, stipend supplementation)

Relationship of proposed training program to any similar programs at the applicant institution

Proposed training program should have its own identity, but still integrated into the research and research training/academic activities of the institution

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B. Program Plan

g. Qualifications of Trainee Candidates and Admissions and Completion Records

- Recruitment and retention of trainees
- Competitiveness of the selection process
- “Quality and Quantity” of the applicant pool
- Justify number of requested funded “slots”
- Tables 6, 7, and 8
Program Plan

C. Recruitment Plan to Enhance Diversity

- History and Achievements
  - Describe past record

- Proposed Plans
  - Identification and recruitment efforts
    - Involvement of Program leadership and Mentors

- Critical to include Training Program’s efforts, not just institutional policies and efforts

- Tables 6 and 7


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Program Plan

C. Recruitment Plan to Enhance Diversity

A: “Individuals from racial and ethnic groups that have been shown... to be underrepresented in health-related sciences... Blacks or African Americans, Hispanics or Latinos, American Indians or Alaska Natives, and Native Hawaiians and other Pacific Islanders.

B: “Individuals with disabilities, who are defined as those with a physical or mental impairment that substantially limits one or more major life activities...”
Program Plan

C. Recruitment Plan to Enhance Diversity

C: Individuals from disadvantaged backgrounds:

- **C1:** “Individuals who come from a family with an annual income below established low-income thresholds.”

- **C2:** “Individuals who come from an educational environment [that has] inhibited the individual from obtaining the knowledge, skills, and abilities necessary to develop and participate in a research career.”

- **C1 and C2:** “applicable to programs focused on high school and undergraduate candidates”

https://grants.nih.gov/grants/policy/nihgps/HTML5/section_11/11.3_institutional_research_training_grants.htm#Applicat
<table>
<thead>
<tr>
<th>Training Program Section</th>
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<tbody>
<tr>
<td>2. * Program Plan</td>
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<tr>
<td>3. Plan for Instruction in the Responsible Conduct of Research</td>
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<td>5. Multiple PD/PI Leadership Plan (if applicable)</td>
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<table>
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<tr>
<th>Faculty, Trainees and Training Record Section</th>
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<tr>
<td>7. Participating Faculty Biosketches</td>
</tr>
<tr>
<td>8. Letters of Support</td>
</tr>
<tr>
<td>9. Data Tables</td>
</tr>
</tbody>
</table>
Tables

- Data on Participating Depts./Centers
- Data on Mentors
- Data on Trainee Applicants and Entrants
- Data on TG-Supported Trainees
Tables

- Data on Participating Depts./Centers
  - Training environment (Table 1)
  - “Critical Mass” of faculty
  - Distribution of scientific disciplines
  - # of Faculty
  - # of Training Program participating faculty
  - # of Pre- and Postdoctoral Trainees
  - # of TGE Pre- and Postdoctoral Trainees
Tables

Data on Mentors

- Distribution and Mentoring Record (Table 2)
  - Distribution: Rank (title), Dept./Center, Degrees, Research interests
  - Mentoring Record for Pre- and Postdoctoral Trainees: # Current Trainees, # of Trainees who completed training, # who continued in research-related careers

- Current other training grants (Table 3)
  - Overlap with other training programs?

- Extramural research support (Table 4)
  - Adequate for trainee’s research costs?

- Publication track record of Trainees (Table 5)
  - Measure of trainees’ productivity (“quality and quantity”)

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Tables

Data on Applicants and Entrants (Table 6)

- “Quality and Quantity” of applicant pool
- Selectivity and Competitiveness of recruitment
- Determination of the no. of “slots” to be awarded

Counts
- # of Total applicants, # of TGE applicants, # of Entrants, # of TGE Entrants, # of TGE Entrants appointed to TG [by doctoral degree for post-docs]

Characteristics
- GPA of applicants and entrants [pre-docs]
- Entrants: Previous research experience (months) [pre-docs]
- # of publications/# of 1st author publications [post-docs]
- Entrants: Previous institutions, % from underrepresented groups, % with disability

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Tables

Data on TG-Supported Trainees

- TG Appointments (Table 7-renewals)
  - No of “Slots”: Awarded and Appointed
  - Best to avoid “unfilled slots”

Program Outcomes (Table 8)

- Individual Pre-and Post-docs:
  - During training: Mentor, Funding, Degrees received, Research topic
  - Post training: Initial and current positions, Subsequent grant support

- Statistics: % of Pre-docs receiving Ph.D. and average time to degree
<table>
<thead>
<tr>
<th>Mentor</th>
<th>e-mail address</th>
<th>Agreed</th>
<th>Biosketch</th>
<th>Research Paragraph</th>
<th>Research Facilities</th>
<th>Table 2 Trainees</th>
<th>Table 3 TG Support</th>
<th>Table 4 Funding</th>
<th>Table 5 Pubs</th>
<th>Collab</th>
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SPA: Sponsored Projects Administration (grants office)
NIH Resources for Training Grant Applications

- Program Announcements for NIH Institutional Training Grants (e.g., T32, T35)
  https://researchtraining.nih.gov/programs/training-grants

- Review Criteria and Considerations, Guidelines for Reviewers, Review Critique Fillable Templates
  https://grants.nih.gov/grants/policy/review_templates.htm

- NIH Research Training and Career Development Programs
  https://researchtraining.nih.gov/
NIH Resources for Training Grant Applications

- NIH Biosketch Format Pages, Instructions and Samples
  [http://grants.nih.gov/grants/forms/biosketch.htm](http://grants.nih.gov/grants/forms/biosketch.htm)

- Instruction in the Responsible Conduct of Research

- Application Page Limits

NIH Resources for Training Grant Applications

- **Funded Training Grants – NIH Reporter**

- **Application and Award Information-Funding Facts**

- **NIH Success Rates**

- **NIH Data Book**
Good Luck!