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

Office of the Executive Vice President for Research
Columbia University

March 6, 2019

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Dept. of Medicine
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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
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
NIH Training Grants

- Institutional National Research Service Awards
  - General description
  - Types of training grants
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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 (FFY19: $24,816)
- Post-doctoral trainees: Sliding scale based on years of experience (starts at Career Level 0)

**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 2019)
    - **Postdoctoral Trainee:** $10,850 (FFY 2019)
  - “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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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)**
  - Revision Awards to Institutional Training Programs to Advance Research on Alzheimers 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)
  - Institutional Training Programs to Advance Translational Research on Alzheimer’s Disease and AD Related Dementias (T32 - Clinical Trial Not Allowed)
  - T32 Training Program for Institutions That Promote Diversity (T32 Clinical Trial Not Allowed)
  - Predoctoral Training in Advanced Data Analytics for Behavioral and Social Sciences Research (BSSR) - Institutional Research Training Program [T32]
Ruth L. Kirschstein National Research Service Award (NRSA)
Institutional Research Training Grant (Parent T32)

PA-18-403

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)
National Heart, Lung, and Blood Institute (NHLBI)
Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)
National Institute of Neurological Disorders and Stroke (NINDS)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)

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

Table of IC-Specific Information, Requirements and Staff Contacts

Release Date: November 21, 2017
Expiration Date: January 8, 2021

- NIH Institute or Center Contacts
- Institute or Center Specific Information

- 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)
National Heart, Lung, and Blood Institute (NHLBI)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)

PA-18-404


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NIH Training Grants

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Training Grants and Fellowships: Pre- and Post-Doctoral Positions

Training Grants and Fellowships: Funding in Current and Constant Dollars

![Graph showing funding in current and constant dollars over fiscal years 1998 to 2018. The graph compares current dollars and constant dollars (1998) with an upward trend in funding over time.](image-url)
NRSA Institutional Research Training Grants

Applications, awards, and success rates
### ADVANCED SEARCH

**Topic:** Applications - Number, Awards - 

**Admin Institute/Center:** All NIH

**Funding Mechanism:** Training - NRSA Training Grants

**Activity:** T32

**Type:** New

**Fiscal Year:** 2014

[Submit Query] [Reset Query]
### Funding Facts

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Funding Facts

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- Or
- Advanced

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- T32
- R01
- CA
- 811099
- 01
- A1S1

Project Details:

- Agency/Institute/Center:
  - Admin
  - Funding

- NIH Spending Category:

- Funding Mechanism:

- Award Type:

- Activity Code:

- Study Section:

- Standing CSR study sections only

- FOA:
  - Format: RFA-IC-09-003 or PA-09-003
  - 20 entry maximum; Use % for wildcard

Funding Opportunities and Notices:

- Format: mm/dd/yyyy
- 20 entry maximum; Use % for wildcard

- Award Notice Date:
  - Format: mm/dd/yyyy
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<tr>
<td>Name:</td>
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https://projectreporter.nih.gov/reporter.cfm

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
**Project Number:** 5T32DK108741-03  
**Title:** PRECISION MEDICINE RESEARCH IN NEPHROLOGY  
**Contact PI / Project Leader:** GHARAVI, ALI Q  
**Awardee Organization:** COLUMBIA UNIVERSITY HEALTH SCIENCES

**Abstract Text:**

**DESCRIPTION** (provided by applicant): The goal of this project is to develop and train Nephrology fellows in Precision Medicine Research for Kidney Diseases. In the majority of patients with kidney disease, the diagnosis is based on clinical information, and sometimes by kidney biopsy. However, genetic and acquired forms of disease are usually indistinguishable based on clinical tools and frequently, the precise etiology of kidney failure remains undiagnosed. In recent years, advances in genomic, proteomic and data sciences have enabled more precise delineation of molecular mechanisms of disease, allowing reclassification of renal disorders based on primary molecular pathogenesis, and sometimes. As these advanced technologies are being incorporated into clinical practice at an increasingly rapid rate, they are bridging basic research with clinical investigations and the daily practice of Medicine. These technologies promises to have transformative effect in the care of patients with Chronic Kidney Disease (CKD), because kidney disorders are frequently diagnosed based on clinical assessment alone, and late diagnosis or misclassification may cause uncertainty in identifying the etiology of disease. These advances indicate that there are major opportunities and for treeing young investigators in precision Medicine Research in Nephrology. To achieve this aim, we brought together participating a high-qualified faculty members, who bring a diverse expertise that span the full spectrum of research in Precision Medicine. They hold multiple appointments in participating departments, the Department of Medicine, The Department of Biomedical Informatics, the Center for Translational Immunology, the Department of Pathology, The Department of Genetics and Development, the Department of Systems Biology, the Center for Behavioral and Cardiovascular Health, the Department of Physiology, the Department of Biomedical Engineering, the Department of Epidemiology in the Mailman School of Public Health, and all play crucial roles in this application. All of the mentors are well funded, the vas majority with NIH funding and have a track record of successfully mentoring trainees to independent careers in investigation. This program will prepare the next generation of investigators in kidney disease research, to simultaneously acquire multidisciplinary expertise and a strong domain-specific knowledgebase to effectively design and implement research within Nephrology.

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[https://projectreporter.nih.gov/reporter.cfm](https://projectreporter.nih.gov/reporter.cfm)  
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Research

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

Applications: Overview of Major Components

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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
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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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
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/

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
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.
**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.)
NIH Training Grants

**Applications: Overview of Major Components**

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

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

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

National Institutes of Health

National Cancer Institute
National Eye Institute
National Heart, Lung, & Blood Institute
National Human Genome Research Inst
National Institute on Aging
National Inst of Alcohol Abuse & Alcoholism
National Inst of Allergy & Infectious Diseases
National Inst of Arthritis & Musculoskeletal & Skin Diseases
National Institute of Child Health & Human Development
National Inst on Deafness & other Communication Disorders
National Inst of Dental & Craniofacial Research
National Institute of Diabetes & Digestive & Kidney Diseases
National Institute of Drug Abuse
National Institute of Environmental Health Sciences
National Institute of General Medical Sciences
National Institute of Mental Health
National Inst of Neurological Dis and Stroke
National Institute of Nursing Research
National Library of Medicine
National Ctr for Complementary & Alt Medicine
National Inst on Minority Health & Health Disparities
National Center for Research Res
John E. Fogarty International Center
Office of the Director
Center for Scientific Review
Center for Information Technology
WG Magnuson Clinical Center

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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
<table>
<thead>
<tr>
<th>CNTR for Scientific Rev</th>
<th>Institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Research Grants (R01, R03)</td>
<td>• Multi-Project Grants (P01, P50, etc)</td>
</tr>
<tr>
<td>• Fellowships (F’s)</td>
<td>• Training Grants (T’s)</td>
</tr>
<tr>
<td>• Small Business</td>
<td>• Career Development (K’s)</td>
</tr>
<tr>
<td></td>
<td>• Conference Grants (R13)</td>
</tr>
<tr>
<td></td>
<td>• Research Grants in response to RFAs</td>
</tr>
<tr>
<td></td>
<td>• Contracts</td>
</tr>
</tbody>
</table>

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

## Application Due Dates

<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>T Series</td>
<td>Institutional National Research Service Awards Other Training Grants</td>
<td>January 25</td>
<td>May 25</td>
<td>September 25</td>
</tr>
<tr>
<td>D Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>All - new, renewal, resubmission, revision</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Applicants should check with the relevant Institute or Center (IC), since some do not accept T series applications for all three recent/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.

## Application Due Dates

<table>
<thead>
<tr>
<th>Activity Codes Cited Above</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>All Activity Codes Cited Above</td>
<td><strong>AIDS and AIDS-Related Applications</strong></td>
<td>May 7</td>
<td>September 7</td>
<td>January 7</td>
</tr>
<tr>
<td><em>Effective. Sept 5, 2015 - N/A for SBIR/STTR Applications using Standard Due Dates</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: See Key Dates section of funding opportunity announcement to determine if AIDS dates apply.
## Application Due Dates

### Review and Award Cycles

<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
NIH's Review Criteria

- **Overall Impact Score**
  - “Reviewers will provide an overall impact score to reflect their assessment of the likelihood that the proposed training program will prepare individuals for successful, productive scientific research careers and thereby exert a sustained influence on the research field(s) involved”

- **Core Review Criteria**
  A separate score is given for each

---

For Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (Parent T32) (PA-18-403)
Check individual funding announcement if applying to another
<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>
</tr>
<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>
</tr>
<tr>
<td>Medium</td>
<td>4</td>
<td>Very Good</td>
<td>Strong but with numerous minor weaknesses</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Good</td>
<td>Strong but with at least one moderate weakness</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
<td>Some strengths but also some moderate weaknesses</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
<td>Fair</td>
<td>Some strengths but with at least one major weakness</td>
</tr>
<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>
</tr>
</tbody>
</table>

**Minor Weakness:** An easily addressable weakness that does not substantially lessen 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):

**Ts**
- Training Program and Environment
- Training PD(s)/Pl(s)
- Preceptors/ Mentors
- Trainees
- Training Record

**Ks**
- Career Development Program & Environment
- PD(s)/Pl(s)
- Mentors
- Candidates/ Scholars
- Training Record

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

<table>
<thead>
<tr>
<th>Overall Impact</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
</tr>
</tbody>
</table>

e.g. Proposes a high-value training or career development program that is well 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 training or career development program of moderate value that is inadequately designed. May have some or no weaknesses in the criteria.

e.g., Proposes a low-value training or career development program that has some weaknesses in the criteria.

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

\[10 \times \frac{44}{20} = 10 \times 2.2 = 22\]
### Training Grant Payline: NHLBI

<table>
<thead>
<tr>
<th>Zone of Consideration</th>
<th>Grant Program Description</th>
<th>Zone of Consideration (Priority Score Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T32, T35</td>
<td>Institutional NRSA Training</td>
<td>10 - 35</td>
</tr>
</tbody>
</table>

**FY19**


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

<table>
<thead>
<tr>
<th>Strengths</th>
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<tbody>
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</table>

<table>
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<tr>
<th>Weaknesses</th>
</tr>
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<tbody>
<tr>
<td></td>
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</tbody>
</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)

<table>
<thead>
<tr>
<th>Strengths</th>
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</thead>
<tbody>
<tr>
<td>•</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
</tr>
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<tbody>
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</tbody>
</table>
T32 – 2. Training Program Director(s) (PI)

“For applications designating multiple PDs/PIs: Is a strong justification provided that the multiple PD/PI leadership approach will benefit the training program and the trainees? Is a strong and compelling leadership approach evident, including the designated roles and responsibilities, governance, and organizational structure consistent with and justified by the aims of the training program and the complementary expertise of the PDs/PIs?”

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?”

3. Preceptors/Mentors

<table>
<thead>
<tr>
<th>Strengths</th>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
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</thead>
<tbody>
<tr>
<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 – 3. 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?”

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?”

4. **Trainees**

<table>
<thead>
<tr>
<th>Strengths</th>
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</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
</tr>
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<tbody>
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</tbody>
</table>
T32 – 4. Trainees

“Are there well-defined and justified selection and re-appointment criteria as well as retention strategies?”

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

<table>
<thead>
<tr>
<th>5. Training Record</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
</tr>
<tr>
<td>•</td>
</tr>
<tr>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td>•</td>
</tr>
</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?”

T32 – 5. Training Record

“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?”
T32 – 5. Training Record

- “For applications that request short-term research training positions: Is there a record of retaining health professional trainees in research training or other research activities for at least two years?”
Additional Review Criteria

Considered for the overall impact score, but not given an individual score

- **Resubmissions**
  - Response to previous reviewers’ comments and subsequent changes made to the proposal

- **Competitive Renewals**
  - Progress since the last funding period
  - Recruitment Plan to Enhance Diversity, Training in the Responsible Conduct of Research
  - Accomplishments; Achieving objectives, Evaluation of quality, effectiveness, outcomes, and feedback; Proposed changes (e.g., strengthen program, because of changes in the research area);

Additional Review Considerations

Not given an individual score and not considered for the overall impact score

- Recruitment Plan to Enhance Diversity
  - Rated as “Acceptable” or “Unacceptable”

- Training in the Responsible Conduct of Research
  - Five required components
  - Rated as “Acceptable” or “Unacceptable”

- Select Agent Research

- Budget and Period of Support

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

FORMS VERSION E SERIES
Released: September 25, 2017
Revised: December 7, 2018

TRAINING INSTRUCTIONS FOR NIH AND OTHER PHS AGENCIES
SF424 (R&R) APPLICATION PACKAGES

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
The PHS 398 Research Training Program Plan Form is used only for Training applications and Multi-project applications with an "NRSA Training" Component.

This form includes fields to upload several attachments including the Program Plan, Faculty Biosketches, and Data Tables.

The attachments in this form, together with the rest of your application, should include sufficient information needed for evaluation of the training plan, independent of any other documents (e.g., previous application). Be specific and informative, and avoid redundancies.
### 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
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

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

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

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

**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, 3, 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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Collaborations between Mentors within the same research areas

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

Collaborations 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
Program Plan

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

---

http://grantscourse.columbia.edu

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

Program Plan

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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu

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

**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...”

https://grants.nih.gov/grants/policy/nihgps/HTML5/section_11/11.3_institutional_research_training_grants.htm#Applicat

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”
<table>
<thead>
<tr>
<th>Training Program Section</th>
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<td>2. * Program Plan</td>
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<td>3. Plan for Instruction in the</td>
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<td>Responsible Conduct of Research</td>
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<td>4. Plan for Instruction in Methods</td>
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<td>for Enhancing Reproducibility</td>
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<td>5. Multiple PD/PI Leadership Plan</td>
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<td>6. Progress Report (for Renewal</td>
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<td>applications)</td>
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<th>Faculty, Trainees and Training Record Section</th>
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<td>7. Participating Faculty Biosketches</td>
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<td>8. Letters of Support</td>
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<td>9. Data Tables</td>
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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”)

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-dos]
  - # of publications/# of 1st author publications [post-docs]
  - Entrants: Previous institutions, % from underrepresented groups, % with disability

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>
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<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>
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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

- NIH Research Training and Career Development Programs
  https://researchtraining.nih.gov/

- Application Page Limits

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
NIH Resources for Training Grant Applications

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

- Instruction in the Responsible Conduct of Research

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
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!