Sponsored Projects: Planning & Organizing Fellowship and Career Development Proposals

Jaime S. Rubin, Ph.D.
Dept. of Medicine
College of Physicians and Surgeons
Columbia University

Course: “Funding and Grantsmanship for Research and Career Development Activities”

http://grantscourse.columbia.edu/
Topics to be Discussed

- **Individual Fellowship Programs**
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- **Career Transition Funding Programs**

- **Junior Faculty Career Development Programs**
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
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- **Approaches for Competitive Applications**
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- **Career Transition Funding Programs**

- **Junior Faculty Career Development Programs**
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- **Approaches for Competitive Applications**
Not All Funding Opportunities Are the Same

- **Different mission statements**
  - **Fellowships**
    - Career development (K’s)/ Scholar awards
    - Research project (R’s)

- **Different funding**
  - Stipend/Salary
  - Pilot awards vs. Comprehensive research costs

- **Different time frames**
  - Not renewable: e.g. 5 years (K’s), 3 years (F’s), 2 years (T’s)
  - Renewable: 4-years-5-years (R01) each competitive period

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Timeline of Funding for Junior Investigators

Graduate School | Post-doctoral Years | Instructor/Assistant Professor

Individual Fellowship
Training Grant
Mentor’s Research Grant

F31

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Timeline of Funding for Junior Investigators

Graduate School
- Individual Fellowship Training Grant
- Mentor’s Research Grant

Post-doctoral Years
- Individual Post-doc Fellowship
- Institutional T32 Post-doc Training Grant slot
- Mentor’s Research Grant

Instructor/Assistant Professor

Timeline of Funding for Junior Investigators

Graduate School

Individual Fellowship Training Grant
Mentor’s Research Grant

Individual Post-doc Fellowship
Institutional T32 Post-doc Training Grant slot
Mentor’s Research Grant

Post-doctoral Years

Pre-doc to Post-doc Transition Awards

Instructor/Assistant Professor

Physician-Scientist Pathway

MEDICAL/DENTAL/ NURSING/ VETERINARIAN SCHOOL
T32 · T35 · F30 · F31

CLINICAL TRAINING,
FELLOWSHIP, RESIDENCY,
APPOINTMENTS
T32 · F32 · LRP · K08 · K23 · K12/KL2 · K99/R00

INDEPENDENT INVESTIGATOR
JRNL FALUCYT · SENIOR FALUCYT
RPG · R01

INDUSTRY RESEARCH

CLINICAL PRACTICE

OTHER ACADEMIC
OR GOVERNMENT
RESEARCH ROLES

• Mentoring
• Exposure
• Education

• Time
• Mentoring
• Debt
• Regulatory Requirements

• NIH Success rate
• Demands on time
• Institutional support

PSW Workforce Working Group Report

Timeline of NIH Funding for Junior Investigators

- Short term Training
- Year-long Enhancement Programs
- MD/PhD Fellowship or Institutional T32
- F30

- Medical School
- Internship/Residency
- Fellowship – Research Years
- Instructor/Assistant Professor

Timeline of NIH Funding for Junior Investigators

Medical School
- Short term Training
- Year-long Enhancement Programs
- MD/PhD Fellowship or Institutional T32

Internship/Residency
- Research Support

Fellowship – Research Years
- Individual Post-doc Fellowship or Institutional T32 Post-doc Training Grant slot

Instructor/Assistant Professor
- F32
- F30

Ruth L. Kirschstein Individual Predoctoral NRSA for MD/PhD and other Dual Degree Fellowships

Individual fellowships for predoctoral training which leads to the combined MD/PhD and other dual Clinical/Research degrees.

Details  View Current Funding Opportunities

Ruth L. Kirschstein Predoctoral Individual National Research Service Award

To provide predoctoral individuals with supervised research training in specified health and health-related areas leading toward the research doctoral degree (e.g., PhD).

Details  View Current Funding Opportunities

Ruth L. Kirschstein Postdoctoral Individual National Research Service Award

To provide postdoctoral research training to individuals to broaden their scientific background and extend their potential for research in specified health-related areas.

Details  View Current Funding Opportunities
Fellowship Programs

Predoctoral Individual National Research Service Award (F31)

- Supports specific individual in research degree program (e.g. PhD candidate)
- Stipend, health fees, tuition, travel

Review criteria:
- Individual fellow
- Mentor
- Research project
- Research training/Career Development environment
Post-doc Fellowships (F31’s)
Applications, awards, and success rates
Predoctoral MD/PhD or Other Dual-Doctoral Degree Fellowship (F30)

- Supports specific individual - dual degree candidate: health professional doctoral degree (e.g., MD, DDS) and a research doctoral degree (e.g., PhD, DrPH)

- Stipend, health fees, tuition, travel

- Review criteria:
  - Individual fellow
  - Mentor
  - Research project
  - Research training/Career Development environment

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Postdoctoral Individual National Research Service Award (F32)

- Supports specific individual (e.g., PhD, MD, or MD/PhD trained)
- May be in degree program
- Stipend, health fees, tuition, travel
- Review criteria:
  - Individual fellow
  - Mentor
  - Research project
  - Research training/Career Development environment

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Post-doc Fellowships (F32’s) Applications, awards, and success rates
Training Grants and Fellowships: Funding in Current and Constant Dollars
Training Grants and Fellowships: Pre- and Post-Doctoral Positions
Improving graduate student and postdoctoral training

- A. Put individual development plans in place for all trainees
- B. Reduce the length of graduate training
- C. Provide F30 and F31 awards from all Institutes/Centers
- D. Increase postdoctoral stipends and consider policies on benefits
- E. Increase support for K99/R00 and shorten eligibility period
- F. Increase support for Early Independence Awards

http://acd.od.nih.gov/bwf.htm

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Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship (Parent F31)

National Cancer Institute
National Eye Institute (NEI)
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)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental and Craniofacial Research (NIDCR)
National Institute on Drug Abuse (NIDA)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of Mental Health (NIMH)
National Institute of Neurological Disorders and Stroke (NINDS)
National Institute of Nursing Research (NINR)
National Institute on Minority Health and Health Disparities (NIMHD)
National Center for Complementary and Integrative Health (NCCIH)
National Heart, Lung, and Blood Institute (NHLBI)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)

Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (Parent F31)

<table>
<thead>
<tr>
<th>National Cancer Institute (NCI)</th>
<th>Funding Opportunity Announcement (FOA) Number PA-18-666</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Eye Institute (NEI)</td>
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<tr>
<td>National Human Genome Research Institute (NHGRI)</td>
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<td>National Institute on Aging (NIA)</td>
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<tr>
<td>National Institute of Allergy and Infectious Diseases (NIAID)</td>
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<tr>
<td>National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)</td>
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</table>

Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

National Institute on Deafness and Other Communication Disorders (NIDCD)

National Institute of Dental and Craniofacial Research (NIDCR)

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 Library of Medicine (NLM)

National Institute of Mental Health (NIMH)

National Institute of Neurological Disorders and Stroke (NINDS)

National Institute of Nursing Research (NINR)

National Institute on Minority Health and Health Disparities (NIMHD)

National Center for Complementary and Integrative Health (NCCIH)

National Heart, Lung, and Blood Institute (NHLBI)

National Institute of Biomedical Imaging and Bioengineering (NIBIB)

Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)


Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
For the purpose of this announcement, institutions must identify applicants who will enhance diversity on a national basis (see NOT-OD-18-129 [https://grants.nih.gov/grants/guide/notice-files/NOT-OD-18-129.html]), as defined below:

**A. Individuals from racial and ethnic groups** that have been shown by the National Science Foundation to be underrepresented in health-related sciences on a national basis (see data at http://www.nsf.gov/statistics/showpub.cfm?TopID=2&SubID=27) and the report Women, Minorities, and Persons with Disabilities in Science and Engineering [http://www.nsf.gov/statistics/women/]). The following racial and ethnic groups have been shown to be underrepresented in biomedical research: Blacks or African Americans, Hispanics or Latinos, American Indians or Alaska Natives, Native Hawaiians and other Pacific Islanders. In addition, it is recognized that underrepresentation can vary from setting to setting; individuals from racial or ethnic groups that can be demonstrated convincingly to be underrepresented by the grantee institution should be encouraged to participate in this program. For more information on racial and ethnic categories and definitions, see NOT-OD-15-089 [https://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-089.html].

Ruth L. Kirschstein National Research Service Award (NRSA) Individual Fellowship for Students at Institutions with NIH-Funded Institutional Predoctoral Dual-Degree Training Programs (Parent F30)

Funding Opportunity Announcement (FOA) Number

PA-18-668

National Cancer Institute (NCI)
National Eye Institute (NEI)
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)

Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
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Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)
National Heart, Lung, and Blood Institute (NHLBI)


Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Ruth L. Kirschstein National Research Service Award (NRSA)
Individual Postdoctoral Fellowship (Parent F32)

**Funding Opportunity Announcement (FOA) Number**
PA-18-670

National Cancer Institute (NCI)
National Eye Institute (NEI)
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)
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National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
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 Institute on Minority Health and Health Disparities (NIMHD)
National Center for Complementary and Integrative Health (NCCIH)
National Heart, Lung, and Blood Institute (NHLBI)
The purpose of this award is to support outstanding scientific training of highly promising postdoctoral candidates with outstanding mentors. Candidates are eligible to apply for support from this program from ~12 months prior to the start of the proposed postdoctoral position to within 12 months after starting in postdoctoral position. Based on the early timeframe of eligibility, and the discouragement of inclusion of preliminary data, this NINDS F32 seeks to foster early, goal-directed planning and to encourage applications for bold and/or innovative projects by the candidate that have the potential for significant impact. Applications are expected to incorporate strong training in quantitative reasoning and the quantitative principles of experimental design and analysis. Support by this program is limited to the first 3 years of a candidate's activity in a specific laboratory or research environment, so as to further encourage early fellowship application and timely completion of "mentored training" of the postdoctoral candidate in a single environment.
National Science Foundation: Graduate Research Fellowship Program

Eligibility:

- Citizenship:
  - US citizens, nationals, permanent residents

- Degree Requirements:
  - have not completed > than 12 months of full-time graduate study (or equivalent) as of August 1st (limited exceptions)

- Fields of Study not Eligible:
  - “directly health-related, such as etiology, diagnosis or treatment of physical or mental disease, abnormality, or malfunction in humans and other animals…”

https://www.nsfgrfp.org/

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National Science Foundation:
Graduate Research Fellowship Program

**Fields of Study:** Chemistry, Computer and Information Science and Engineering, Engineering, Geosciences; **Life Sciences**; Materials Research; Mathematical Sciences; Physics and Astronomy; Psychology; Social Sciences; STEM Education and Learning Research

- **Life Sciences:** Biochemistry, Bioinformatics and Computational Biology, Biophysics, Cell Biology, Developmental Biology, Ecology, Environmental Biology, Evolutionary Biology, Genetics, Genomics, Microbial Biology, Neurosciences, Organismal Biology, Physiology, Proteomics, Structural Biology, Systematics and Biodiversity, Systems and Molecular Biology, Other (specify)

https://www.nsfgrfp.org/
National Science Foundation: Graduate Research Fellowship Program

Application includes:

- Personal, Relevant Background and Future Goals
- Graduate Research Plan
- Reference Letters
- Transcripts

Funding:

- Stipend
- Cost-of-education allowance

https://www.nsfgrfp.org/
Jaime S. Rubin, Ph.D.: http://grantscourse.columbia.edu
Individual Fellowships

Non-government, non-profit agencies

- Voluntary Health Organizations
- Professional Societies
- Private Foundations
Post-doc: Individual Fellowship

- Voluntary Health Organizations, Foundations, Professional Societies -

- American Cancer Society
- American Heart Association
- American Kidney Fund
- American Liver Foundation
- Daland Fellowships in Clinical Investigation
- Helen Hay Whitney Foundation

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American Heart Association
Postdoctoral Fellowship Program

- Cardiovascular and stroke research
- Basic, clinical, behavioral, epidemiological, community and clinical research

Funding
- Stipend
- Health insurance
- Project support

Award Duration: 2 years, Can then apply for a second 2-year award

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Jane Coffin Childs Memorial Fund for Medical Research

Postdoctoral Research Fellowships

- Supports early postdoctoral research training
- Basic research into the causes and treatment of cancer; “broad approach to the study of cell growth and development”
- 3-year fellowships
- Stipend, Research Allowance, and Travel
- Stipends for child care
- US and foreign citizens

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  - Components of an NIH Application

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- **Junior Faculty Career Development Programs**
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- **Approaches for Competitive Applications**

<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>
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<tr>
<td><strong>F Series Fellowships</strong> (including F31 Diversity – NOT-OD-17-029)&lt;br&gt;new, renewal, resubmission</td>
<td><em>Individual</em> National Research Service Awards (Standard)&lt;br&gt;(see NRSA Training Page)</td>
<td>April 8</td>
<td>August 8</td>
<td>December 8</td>
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## Application Due Dates

<table>
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<tr>
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<th>Program Description</th>
<th>Cycle I Due Date</th>
<th>Cycle II Due Date</th>
<th>Cycle III Due Date</th>
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</thead>
</table>
| All Activity Codes Cited Above new, renewal, resubmission, revision | **AIDS and AIDS-Related Applications**  
*Effective. Sept 5, 2015 - N/A for SBIR/STTR Applications using Standard Due Dates*  
NOTE: See Key Dates section of funding opportunity announcement to determine if AIDS dates apply. | May 7 | September 7 | January 7 |
## Application Due Dates

### Review and Award Cycles

<table>
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<th></th>
<th>Cycle I</th>
<th>Cycle II</th>
<th>Cycle III</th>
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<tr>
<td>Application Due Dates</td>
<td>January 25 - May 7</td>
<td>May 25 - September 7</td>
<td>September 25 - January 7</td>
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<tr>
<td>Scientific Merit Review</td>
<td>June - July</td>
<td>October - November</td>
<td>February - March</td>
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<tr>
<td>Advisory Council Round</td>
<td>August or October *</td>
<td>January</td>
<td>May</td>
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<tr>
<td>Earliest Project Start Date</td>
<td>September or December *</td>
<td>April</td>
<td>July</td>
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[http://grants.nih.gov/grants/funding/submissionschedule.htm](http://grants.nih.gov/grants/funding/submissionschedule.htm)

National Institutes of Health

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

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<th>Study Section</th>
<th>Study Section Description</th>
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<td>F01A</td>
<td>Fellowships: Brain Disorders and Related Neurosciences</td>
<td>Movsesyan, Vilen</td>
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<tr>
<td>F01B</td>
<td>Fellowships: Learning and Memory, Language, Communication and Related Neurosciences</td>
<td>Gillmor, Susan</td>
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<td>F02A</td>
<td>Fellowships: Behavioral Neuroscience</td>
<td>Qin, Mei</td>
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<td>F02B</td>
<td>Fellowships: Sensory and Motor Neurosciences, Cognition and Perception</td>
<td>Low, Sharon</td>
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<td>F03A</td>
<td>Fellowships: Neurodevelopment, Synaptic Plasticity and Neurodegeneration</td>
<td>Schueler, Mary</td>
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<td>F03B</td>
<td>Fellowships: Biophysical, Physiological, Pharmacological and Bioengineering Neuroscience</td>
<td>Schauwecker, Paula</td>
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<td>F04A</td>
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<td>Radtke, Mike</td>
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<td>F04B</td>
<td>Fellowships: Chemistry, Biochemistry, Biophysics, and Bioengineering B</td>
<td>Veeraraghavan, Sudha</td>
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<td>F05-D</td>
<td>Fellowships: Cell Biology, Developmental Biology, and Bioengineering</td>
<td>Gubin, Alexander</td>
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<td>F05-U</td>
<td>Fellowships: Cell Biology, Developmental Biology, and Bioengineering</td>
<td>Krishnaraju, Raj</td>
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<td>F06</td>
<td>Fellowships: Endocrinology, Metabolism, Nutrition and Reproductive Sciences</td>
<td>Sierra-Rivera, Elaine</td>
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<td>F07</td>
<td>Fellowships: Immunology and Area</td>
<td>Lai, Patrick</td>
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<td>F08</td>
<td>Fellowships: Genes, Genomes and Genetics</td>
<td>Shonat, Ross</td>
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<td>F09A</td>
<td>Fellowships: Oncological Sciences</td>
<td>Lin, Reigh-Yi</td>
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<tr>
<td>F09B</td>
<td>Fellowships: Oncological Sciences</td>
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<td>F10A</td>
<td>Fellowships: Physiology and Pathobiology of Cardiovascular and Respiratory Systems</td>
<td>Carstea, Eugene</td>
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<tr>
<td>F10B</td>
<td>Fellowships: Physiology and Pathobiology of Musculoskeletal, Oral and Skin Systems</td>
<td>Chaudhari, Anshumali</td>
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<tr>
<td>F13</td>
<td>Fellowships: Infectious Diseases and Microbiology</td>
<td>McNealy, Tamara</td>
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<tr>
<td>F16</td>
<td>Fellowships: Risk, Prevention and Health Behavior</td>
<td>FitzSimmons, Stacey</td>
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<tr>
<td>F17</td>
<td>Fellowships: AIDS and AIDS Related Applications</td>
<td>Tuo, Jingsheng</td>
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https://public.csr.nih.gov/StudySections/Fellowship/Pages/default.aspx

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Infectious Diseases and Microbiology Fellowship Study Section [F13]

The F13 Special Emphasis Panel reviews fellowship applications involving virology and viral pathogenesis, bacteriology and bacterial pathogenesis, fungal pathogenesis, parasitology and parasitic diseases, the innate and adaptive host responses to these microbes and viruses, and the development of anti-infective agents to treat and prevent infectious disease.

https://public.csr.nih.gov/StudySections/IntegratedReviewGroups/IDMIRG/F13/Pages/default.aspx

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
# Center For Scientific Review
## Special Emphasis Panel
### MEETING ROSTER

<table>
<thead>
<tr>
<th>CHAIRPERSON</th>
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<tbody>
<tr>
<td>SINAI, ANTHONY P., PHD PROFESSOR DEPARTMENT OF MICROBIOLOGY, IMMUNOLOGY AND MOLECULAR GENETICS UNIVERSITY OF KENTUCKY COLLEGE OF MEDICINE LEXINGTON, KY 40536</td>
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<table>
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<tr>
<th>MEMBERS</th>
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<tr>
<td>ALLRED, DAVID REDDING, PHD PROFESSOR DEPARTMENT OF INFECTIOUS DISEASES AND IMMUNOLOGY UNIVERSITY OF FLORIDA GAINESVILLE, FL 326110880</td>
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<tr>
<td>BERGMAN, LAWRENCE W., PHD PROFESSOR DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY COLLEGE OF MEDICINE DREXEL UNIVERSITY PHILADELPHIA, PA 19129</td>
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</tbody>
</table>
Closely Related

- Immunology Fellowship Study Section [F07]
- Genes, Genomes and Genetics [F08]
- Fellowship: Cell Biology, Development Biology and Bioengineering [F05]
- Chemistry, Biochemistry, Biophysics, and Bioengineering [F04]
- Health and Health Related Behavior of Individuals and Populations Fellowship Study Section [F16]
There were 130 results matching your search criteria.
How to Direct a Grant Application to the Appropriate Study Section

- Review research areas of Study Section
- Review roster of Study Section members
  - Do not contact reviewers
- Review Study Section’s funded grants in NIH Reporter
- Discuss with colleagues in similar research area
- Request via Assignment Request Form in Application
## Awarding Component Assignment Request (optional)

If you have a preference for an awarding component (e.g., NIH Institute/Center) assignment, use the link below to identify the appropriate short abbreviation and enter it below. All requests will be considered; however, assignment requests cannot always be honored.

**Awarding Components:** [https://grants.nih.gov/grants/phs_assignment_information.htm#AwardingComponents](https://grants.nih.gov/grants/phs_assignment_information.htm#AwardingComponents)

<table>
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<tr>
<th>Assign to Awarding Component:</th>
<th>First Choice</th>
<th>Second Choice</th>
<th>Third Choice</th>
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<tbody>
<tr>
<td>Do Not Assign to Awarding Component:</td>
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</table>

## Study Section Assignment Request (optional)

If you have a preference for study section assignment, use the link below to identify the appropriate study section (e.g., NIH Scientific Review Group or Special Emphasis Panel) and enter it below. Remove all hyphens, parentheses, and spaces. All requests will be considered; however, assignment requests cannot always be honored.

**Study Sections:** [https://grants.nih.gov/grants/phs_assignment_information.htm#StudySection](https://grants.nih.gov/grants/phs_assignment_information.htm#StudySection)

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<th>Assign to Study Section:</th>
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<tbody>
<tr>
<td>Do Not Assign to Study Section:</td>
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</tr>
</tbody>
</table>

*Only 20 characters allowed*
### PHS Assignment Request Form

**List individuals who should not review your application and why (optional)**

Only 1000 characters allowed

**Identify scientific areas of expertise needed to review your application (optional)**

*Note: Please do not provide names of individuals*

<table>
<thead>
<tr>
<th>Expertise</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tr>
<td>Only 40 characters allowed</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Initial Review Group or Study Section

Actions

- **Discussed applications:**
  - Receives Impact/Priority Scores
  - Receives Scores for individual core review criteria

- **Not Discussed**
  - Receives Scores for individual core review criteria

- **Not Recommended for Further Consideration (NRFC)**

- **Other:** e.g. Deferred
## NIH's Evaluation System

A 9-point rating scale (1=exceptional; 9=poor)

<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
<th>Strengths/Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Impact</td>
<td>1</td>
<td>Exceptional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>Moderate Impact</td>
<td>4</td>
<td>Very Good</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Low Impact</td>
<td>7</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
<td></td>
</tr>
</tbody>
</table>


<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
**FELLOWSHIPS & CAREER AWARDS**

**Overall Impact:**
The likelihood that the proposed training (F) or career development (K) will enhance the candidate's potential for a productive, independent scientific research career in a health-related field.

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

---

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

<table>
<thead>
<tr>
<th>Fs</th>
<th>Ks</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Applicant</td>
<td></td>
</tr>
<tr>
<td>- Sponsor(s)</td>
<td></td>
</tr>
<tr>
<td>- Research Training Plan</td>
<td></td>
</tr>
<tr>
<td>- Training Potential</td>
<td></td>
</tr>
<tr>
<td>- Institutional Environment &amp; Commitment</td>
<td>- Candidate</td>
</tr>
<tr>
<td>- Career Development Plan/Goals*</td>
<td></td>
</tr>
<tr>
<td>- Research Plan</td>
<td></td>
</tr>
<tr>
<td>- Mentor(s)**</td>
<td></td>
</tr>
<tr>
<td>- Environment &amp; Institutional Commitment</td>
<td></td>
</tr>
</tbody>
</table>

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

*K05 and K24: Plan to Provide Mentoring  **K02: Consultants/Collaborators

---

- e.g. Proposes training or career development of high value/benefit for the candidate who has high potential for developing into a productive, independent scientist. May have some or no weaknesses in the criteria.

- e.g. Proposes training or career development of high or moderate value/benefit for the candidate who has high or moderate potential for further development, but weaknesses in the criteria reduce the overall impact to medium.

- e.g. Proposes training or career development of moderate or low value/benefit for the candidate who has moderate or low potential for further development. Weaknesses in the criteria reduce the overall impact to low.

- e.g. Proposes training or career development of moderate value/benefit for the candidate who shows moderate potential. May have some weaknesses in the criteria.

- e.g. Proposes training or career development of low value/benefit for the candidate who shows low potential. May have some weaknesses in the criteria.

---

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

- Preliminary Impact Scores determine which applications discussed at study section
- Impact Score given by each member of the study section
- Overall Impact Score (for discussed applications): Mean of reviewers’ Impact Scores $\times 10$
- 81 possible overall Impact Scores
  (10 – 90, whole numbers)
### Fellowship Payline: NIAID

<table>
<thead>
<tr>
<th>Grant Type</th>
<th>Payline</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F30</td>
<td>15 overall impact/priority score</td>
<td>Interim</td>
<td>NRSA Individual Predoctoral M.D./Ph.D. or Other Dual-Doctoral Degree Fellowships</td>
</tr>
<tr>
<td>F31</td>
<td>17 overall impact/priority score</td>
<td>Interim</td>
<td>NRSA Individual Predoctoral Fellowships</td>
</tr>
<tr>
<td>F32</td>
<td>19 overall impact/priority score</td>
<td>Interim</td>
<td>NRSA Individual Postdoctoral Fellowships</td>
</tr>
</tbody>
</table>

FY18


## Fellowship Payline: NIAID

<table>
<thead>
<tr>
<th>FY</th>
<th>F30</th>
<th>F31</th>
<th>F32</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>15</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>2016</td>
<td>14</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>2015</td>
<td>18</td>
<td>22</td>
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</tr>
<tr>
<td>2014</td>
<td>13</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>2013</td>
<td>N/A</td>
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<tr>
<td>2012</td>
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<td>24</td>
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<tr>
<td>2011</td>
<td>N/A</td>
<td>26</td>
<td>24</td>
</tr>
<tr>
<td>2010*</td>
<td>N/A</td>
<td>28</td>
<td>28</td>
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</table>

https://www.niaid.nih.gov/grants-contracts/archive-paylines-fiscal-year

# Fellowship Payline: NHLBI

<table>
<thead>
<tr>
<th>Grant Program</th>
<th>Grant Program Description</th>
<th>Percentile</th>
<th>Priority Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01</td>
<td>Research Project Grant</td>
<td>15</td>
<td>N/A</td>
</tr>
<tr>
<td>R01 ESI</td>
<td>Early Stage Investigators</td>
<td>25</td>
<td>N/A</td>
</tr>
<tr>
<td>K awards</td>
<td>Career Development Awards</td>
<td>N/A</td>
<td>32</td>
</tr>
<tr>
<td>F30</td>
<td>Pre-doctoral NRSA</td>
<td>N/A</td>
<td>20</td>
</tr>
<tr>
<td>F31, F32, F33</td>
<td>Pre- and Post-doctoral NRSA</td>
<td>39</td>
<td>N/A</td>
</tr>
</tbody>
</table>


Overall Impact/Merit Score

Reviewer’s assessment “that the fellowship will enhance the applicant’s potential for, and commitment to, an independent scientific research career…”

“Research project that is integrated with the training plan.”

“Applicant’s need for the proposed training, and the degree to which the research project and training plan, the sponsor(s), and the environment will satisfy those needs.”
**Overall Impact/Merit**

Write a paragraph summarizing the factors that informed your Overall Impact score.
Reviewers will consider each of the five review criteria below in the determination of scientific and technical merit, and give a separate score for each.

1. **Fellowship Applicant**
   
   **Strengths**
   - 
   
   **Weaknesses**
   - 

2. **Sponsors, Collaborators, and Consultants**
   
   **Strengths**
   - 
   
   **Weaknesses**
   - 

3. **Research Training Plan**
   
   **Strengths**
   - 
   
   **Weaknesses**
   - 

https://grants.nih.gov/grants/peer/critiques/f_critique_template.docx
4. **Training Potential**

**Strengths**
- 

**Weaknesses**
- 

5. **Institutional Environment & Commitment to Training**

**Strengths**
- 

**Weaknesses**
- 

https://grants.nih.gov/grants/peer/critiques/f_critique_template.docx
1. Fellowship Applicant

- “Are the applicant's academic record and research experience of high quality?
- Does the applicant have the potential to develop into an independent and productive researcher?
- Does the applicant demonstrate commitment to a research career in the future?”

1. Fellowship Applicant

“For applicants in a dual-degree program only [e.g., MD/PhD]: Are the applicant’s interests consistent with a career as a physician-scientist or other clinician-scientist? Does the applicant demonstrate commitment to a career as a physician-scientist or other clinician-scientist?"
2. Sponsors, Collaborators, and Consultants

- “Are the sponsor(s’) research qualifications (including recent publications) and track record of mentoring individuals at a similar stage appropriate for the needs of the applicant?
- Is there evidence of a match between the research and clinical interests (if applicable) of the applicant and the sponsor(s)?
- Do(es) the sponsor(s) demonstrate an understanding of the applicant’s training needs as well as the ability and commitment to assist in meeting these needs?”

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

https://grants.nih.gov/grants/peer/critiques/f_D.htm

Will be updated
2. Sponsors, Collaborators, and Consultants

- “Is there evidence of adequate research funds to support the applicant’s proposed research project and training for the duration of the research component of the fellowship?

- If a team of sponsors is proposed, is the team structure well justified for the mentored training plan, and are the roles of the individual members appropriate and clearly defined?”

https://grants.nih.gov/grants/peer/critiques/f_D.htm

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
2. Sponsors, Collaborators, and Consultants

- “Are the qualifications of any collaborator(s) and/or consultant(s), including their complementary expertise and previous experience in fostering the training of fellows, appropriate for the proposed project?”

- For applicants in a dual-degree program only [e.g., MD/PhD]: Is there evidence of a match between the research and clinical interests of the applicant and the sponsor(s)?

https://grants.nih.gov/grants/peer/critiques/f_D.htm

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

Will be updated
3. Research Training Plan

- “Is the proposed research project of high scientific quality, and is it well integrated with the proposed research training plan?

- Based on the sponsor’s description of his/her active research program, is the applicant’s proposed research project sufficiently distinct from the sponsor’s funded research for the applicant’s career stage?

- Is the research project consistent with the applicant's stage of research development?

- Is the proposed time frame feasible to accomplish the proposed training?”
3. Research Training Plan

- “For applicants in a dual-degree program only [e.g., MD/PhD]: Is the training plan well-reasoned, and likely to provide an effective, integrated research and clinical training experience and ease the transitions between the phases of the dual-degree program?

Will be updated

https://grants.nih.gov/grants/peer/critiques/f_D.htm
4. Training Potential

- “Are the proposed research project and training plan likely to provide the applicant with the requisite individualized and mentored experiences in order to obtain appropriate skills for a research career?
- Does the training plan take advantage of the applicant’s strengths, and address gaps in needed skills?
- Does the training plan document a clear need for, and value of, the proposed training?
- Does the proposed training have the potential to serve as a sound foundation that will clearly enhance the applicant’s ability to develop into a productive researcher?
4. Training Potential

‒ “For applicants in a dual-degree program only [e.g., MD/PhD]: Are the proposed research project and research and clinical training plan likely to provide the applicant with an integrated perspective and appropriate skills for a physician-scientist or other clinician-scientist?

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
https://grants.nih.gov/grants/peer/critiques/f_D.htm

Will be updated
5. Institutional Environment & Commitment to Training

- “Are the research facilities, resources (e.g. equipment, laboratory space, computer time, subject populations), and training opportunities (e.g. seminars, workshops, professional development opportunities) adequate and appropriate?
- Is the institutional environment for the applicant’s scientific development of high quality?
- Is there appropriate institutional commitment to fostering the applicant's mentored training?”
5. Institutional Environment & Commitment to Training

- “For applicants in a dual-degree program only [e.g., MD/PhD]: Is the institutional environment for the applicant’s clinical development of high quality? Are the facilities and resources appropriate to provide exposure to a research-oriented, clinical environment? Is there appropriate institutional commitment to fostering the applicant’s integrated research and clinical training as a physician-scientist or other clinician-scientist?

https://grants.nih.gov/grants/peer/critiques/f_D.htm

Will be updated

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
The NIH Announces New Review Criteria for Ruth L. Kirschstein National Research Service Award (NRSA) Individual Fellowship Applications Involving Research Experiences in Clinical Trials

Notice Number: NOT-OD-17-122

Sponsors, Collaborators, and Consultants

- If the applicant is proposing to gain experience in a clinical trial as part of his or her research training, is there evidence of the appropriate expertise, experience, resources, and ability on the part of the sponsor(s) to guide the applicant during the clinical trial research experience?

Research Training Plan

- If proposed, will the clinical trial experience contribute to the proposed project and/or the applicant’s research training?
Topics to be Discussed

- **Individual Fellowship Programs**
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Career Transition Funding Programs

- Junior Faculty Career Development Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Approaches for Competitive Applications

FELLOWSHIP INSTRUCTIONS FOR NIH AND OTHER PHS AGENCIES

SF424 (R&R) APPLICATION PACKAGES
G.430 - PHS Fellowship Supplemental Form

The PHS Fellowship Supplemental Form is used only for fellowship applications.

This form includes fields to upload several attachments including the Specific Aims, Research Strategy, and Applicant Background and Goals.

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

Quick Links
- Introduction
  1. Introduction to Application (Submission applications)
## Fellowship (F) Applications Page Limits

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Summary/Abstract</td>
<td>30 lines</td>
</tr>
<tr>
<td>Project Narrative</td>
<td>Three</td>
</tr>
<tr>
<td>Introduction to Resubmission or Revision Application (when applicable)</td>
<td>1</td>
</tr>
<tr>
<td>Applicant’s Background and Goals for Fellowship Training</td>
<td>6</td>
</tr>
<tr>
<td>Specific Aims</td>
<td>1</td>
</tr>
<tr>
<td>Research Strategy</td>
<td>6</td>
</tr>
<tr>
<td>Respective Contributions</td>
<td>1</td>
</tr>
<tr>
<td>Selection of Sponsor and Institution</td>
<td>1</td>
</tr>
<tr>
<td>Training in the Responsible Conduct of Research</td>
<td>1</td>
</tr>
<tr>
<td>Sponsor and Co-Sponsor Statements</td>
<td>6</td>
</tr>
<tr>
<td>Letters of Support from Collaborators, Contributors, and Consultants</td>
<td>6</td>
</tr>
<tr>
<td>Description of Institutional Environment and Commitment to Training</td>
<td>2</td>
</tr>
<tr>
<td>Note: This page limit includes the Additional Educational Information</td>
<td></td>
</tr>
<tr>
<td>required for F30 and F31 applications.</td>
<td></td>
</tr>
<tr>
<td>Applications for Concurrent Support (when applicable)</td>
<td>1</td>
</tr>
<tr>
<td>Biographical Sketch</td>
<td>5</td>
</tr>
</tbody>
</table>
# PHS Fellowship Supplemental Form

## Introduction
1. Introduction to Application (for Resubmission applications)

## Fellowship Applicant Section
2. Applicant's Background and Goals for Fellowship Training

## Research Training Plan Section
3. Specific Aims
4. Research Strategy
5. Respective Contributions
6. Selection of Sponsor and Institution
7. Progress Report Publication List (for Renewal applications)
8. Training in the Responsible Conduct of Research

## Sponsor(s), Collaborator(s), and Consultant(s) Section
9. Sponsor and Co-Sponsor Statements
10. Letters of Support from Collaborators, Contributors, and Consultants

## Institutional Environment and Commitment to Training Section
11. Description of Institutional Environment and Commitment to Training
<table>
<thead>
<tr>
<th>Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to Application (for Resubmission applications)</td>
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</tbody>
</table>

<table>
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<tbody>
<tr>
<td>2. * Applicant's Background and Goals for Fellowship Training</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Research Training Plan Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. * Specific Aims</td>
</tr>
<tr>
<td>4. * Research Strategy</td>
</tr>
<tr>
<td>5. * Respective Contributions</td>
</tr>
<tr>
<td>6. * Selection of Sponsor and Institution</td>
</tr>
<tr>
<td>7. Progress Report Publication List (for Renewal applications)</td>
</tr>
</tbody>
</table>
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#### Institutional Environment and Commitment to Training Section
11. Description of Institutional Environment and Commitment to Training
2. Applicant’s Background and Goals for Fellowship Training (6 pages)

A. Doctoral Dissertation and Research Experience:

- In chronological order, summarize previous research and scientific experiences (not courses)
  - Undergraduate experiences
  - Graduate lab rotations

- Graduate students:
  - Preliminary description of doctoral thesis research

- Post-doctoral fellows:
  - Predoctoral research
  - Previous post-doctoral research
2. Applicant’s Background and Goals for Fellowship Training (6 pages)

B. Training Goals and Objectives:

- Overall career goals
- How the fellowship will help you reach these goals
- Identify specific “skills, theories, conceptual approaches, etc.” that will be acquired or expanded upon during the fellowship period
  - Didactics (e.g. statistics), Technical Skills, Career Development Skills (e.g. presentations, writing)
- How the fellowship will “facilitate your transition to the next career stage”

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

2. Applicant’s Background and Goals for Fellowship Training (6 pages)

C. Activities Planned Under this Award:

- Fellowship activities (by year)
  - Specific for applicant and integrated with proposed research project
  - e.g., Research, Didactics, Teaching
  - Skills and techniques to be learned
  - Relate non-research activities (e.g., professional development) to the proposed research training

- Timeline of research training and related activities

- Estimate % of time devoted to each activity
## PHS Fellowship Supplemental Form

**Introduction**
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**Institutional Environment and Commitment to Training Section**
11. Description of Institutional Environment and Commitment to Training
3. Specific Aims (1 page)

- Goals of the proposed research
- Expected outcome(s)
- Impact of proposed research on your field(s)
- Specific objectives
  - Test of a stated hypothesis
  - Create a novel design
  - Solve a specific problem
  - Challenge an existing paradigm or clinical practice
  - Address a critical barrier
  - Develop new technology
4. Research Strategy (6 pages total)

(1) Significance

- “Importance of the problem or critical barrier to progress that the proposed project addresses”
- “How the proposed project will improve scientific knowledge, technical capability, and/or clinical practice”
- “How the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved”

4. Research Strategy (6 pages total)

(2) Approach

- “Overall strategy, methodology, and analyses to be used”
- “How the data will be collected, analyzed, and interpreted”
- “Potential problems [challenges], alternative strategies, and benchmarks for success”
- Strategies “to establish feasibility, and address the management of any high risk aspects”
- Preliminary studies and results (including those collected by others in the research group)
- Relevant previous experiences
- Additional: Clinical trials, hESC’s, hazardous situations

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
# PHS Fellowship Supplemental Form

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11. Description of Institutional Environment and Commitment to Training


5. Respective Contributions (1 page)

- “Describe the **collaborative process** between you and your sponsor/co-sponsor(s) in the development, review, and editing of this **Research Training Plan**.”
- “Discuss the **respective roles** in accomplishing the proposed **research**.”

# PHS Fellowship Supplemental Form

## Introduction

1. Introduction to Application (for Resubmission applications)  
   ![Add Attachment]

## Fellowship Applicant Section

2. Applicant's Background and Goals for Fellowship Training  
   ![Add Attachment]

## Research Training Plan Section

3. Specific Aims  
   ![Add Attachment]

4. Research Strategy  
   ![Add Attachment]

5. Respective Contributions  
   ![Add Attachment]

6. Selection of Sponsor and Institution  
   ![Add Attachment]

7. Progress Report Publication List (for Renewal applications)  
   ![Add Attachment]

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   ![Add Attachment]

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9. Sponsor and Co-Sponsor Statements  
   ![Add Attachment]

10. Letters of Support from Collaborators, Contributiors, and Consultants  
    ![Add Attachment]

## Institutional Environment and Commitment to Training Section

11. Description of Institutional Environment and Commitment to Training  
    ![Add Attachment]
6. Selection of Sponsor and Institution (1 page)

- “Explain why the sponsor, co-sponsor (if any), and institution were selected to accomplish the research training goals.”

- Post-doctoral Fellows: “Training is expected to broaden a fellow's perspective. Therefore, if you are requesting training at either your doctorate institution or any institution where you have been training for more than a year, you must explain why further training at that institution would be valuable.”

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**PHS Fellowship Supplemental Form**

### Introduction
1. **Introduction to Application**
   (for Resubmission applications)

### Fellowship Applicant Section
2. **Applicant's Background and Goals for Fellowship Training**

### Research Training Plan Section
3. **Specific Aims**
4. **Research Strategy**
5. **Respective Contributions**
6. **Selection of Sponsor and Institution**
7. **Progress Report Publication List**
   (for Renewal applications)
8. **Training in the Responsible Conduct of Research**

### Sponsor(s), Collaborator(s), and Consultant(s) Section
9. **Sponsor and Co-Sponsor Statements**
10. **Letters of Support from Collaborators, Contributors, and Consultants**

### Institutional Environment and Commitment to Training Section
11. **Description of Institutional Environment and Commitment to Training**
8. Training in the Responsible Conduct of Research (1 page)

- Five required instructional components:
  - Format: on-line only is not acceptable
  - Subject Matter: e.g., required topics
  - Faculty Participation
    - e.g., Role of the Mentor and other faculty
  - Duration of Instruction (e.g., contact hours)
  - Frequency of Instruction
    - At every career stage, at least once every four years
  - Document any prior instruction


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# PHS Fellowship Supplemental Form

## Introduction
1. Introduction to Application
   (for Resubmission applications)

## Fellowship Applicant Section
2. Applicant's Background and Goals for Fellowship Training

## Research Training Plan Section
3. Specific Aims
4. Research Strategy
5. Respective Contributions
6. Selection of Sponsor and Institution
7. Progress Report Publication List
   (for Renewal applications)
8. Training in the Responsible Conduct of Research

## Sponsor(s), Collaborator(s), and Consultant(s) Section
9. Sponsor and Co-Sponsor Statements
10. Letters of Support from Collaborators,
    Contributors, and Consultants

## Institutional Environment and Commitment to Training Section
11. Description of Institutional Environment
    and Commitment to Training
9. Sponsor(s) and Co-Sponsor(s) (6 pages)

■ A. Research Support Available
  ■ Table containing detailed information on all current and pending research and research training support available to the applicant (contingency plan if there is a gap in funding)
  ■ Role of Sponsor(s) in the proposed integrated research and training plan.
  ■ If more than one Sponsor, then include a plan describing their individual and coordinated roles and efforts

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9. Sponsor(s) and Co-Sponsor(s) (6 pages)

B. Sponsor's/Co-Sponsor’s Previous Fellows/Trainees

- Total number of predoctoral and postdoctoral fellows previously mentored.
- For representative five, provide information time in sponsor’s research group and on current positions.
9. Sponsor(s) and Co-Sponsor(s) (6 pages)

C. Training Plan, Environment, Research Facilities

- Fellow-specific individualized research training plan
- Didactics, courses, seminars, workshops
- Research environment (e.g. core facilities, equipment, laboratory, computers, research patient population)
- Relationship of the Fellow’s research/career goals to the proposed research training plan
- Specific new skills and techniques to be acquired
- Professional development (e.g. grant writing, presentation skills)
- How training plan will facilitate the applicant's transition to the next career stage
9. Sponsor(s) and Co-Sponsor(s) (6 pages)

- **D. Number of Fellows/Trainees to be Supervised During the Fellowship**
  - Number of pre- and postdoctoral fellows to be mentored during the award period

- **E. Applicant's Qualifications and Potential for a Research Career**
  - Relate applicant’s academic record and previous research experiences to the proposed research training opportunity
  - Describe how the proposed research training plan, and sponsor’s expertise as a mentor, will “assist in producing an independent researcher”

9. Sponsor(s) and Co-Sponsor(s) (6 pages)

- Additional instructions if a clinical trial research experience is proposed

The NIH Announces New Review Criteria for Ruth L. Kirschstein National Research Service Award (NRSA) Individual Fellowship Applications Involving Research Experiences in Clinical Trials

**Notice Number: NOT-OD-17-122**

Sponsors, Collaborators, and Consultants

- If the applicant is proposing to gain experience in a clinical trial as part of his or her research training, is there evidence of the appropriate expertise, experience, resources, and ability on the part of the sponsor(s) to guide the applicant during the clinical trial research experience?

Research Training Plan

- If proposed, will the clinical trial experience contribute to the proposed project and/or the applicant’s research training?
# PHS Fellowship Supplemental Form

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1. Introduction to Application (for Resubmission applications)

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11. Description of Institutional Environment and Commitment to Training

10. Letters of Support from Collaborators, Contributors, and Consultants (6 pages)

- Collaborators, consultants, advisors, director of core facility, statistician, provider of unique research resource, instructor of unique technique/technology, referring physician, etc.

- Letter describing their role and contribution to the applicant’s proposed project, research training, career development, and future career goals
# PHS Fellowship Supplemental Form

## Introduction

1. Introduction to Application (for Resubmission applications)

## Fellowship Applicant Section

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3. Specific Aims

4. Research Strategy

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## Institutional Environment and Commitment to Training Section

11. Description of Institutional Environment and Commitment to Training
11. Description of Institutional Environment and Commitment to Training (2 pages)

- Description of a robust research program relevant to the applicant’s areas of interest
- Opportunities for collaborations, journal clubs, seminars, workshops, etc.
- Appropriate facilities and resources available for academic, research, and career development activities
- Refer to “Facilities/Resources” and “Sponsor’s Statement” sections

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11. Description of Institutional Environment and Commitment to Training (2 pages)

- Instruction in “rigorous experimental design to ensure reproducibility”
- Institution-wide resources
  - Students: Office of Graduate Affairs
  - Post-doctoral Fellows: Office of Post-doctoral Affairs

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Individual fellowship applications will be required to summarize in the research strategy section plans to ensure 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, more detailed description of instruction in rigorous experimental design to ensure reproducibility will be required in the section on Institutional Environment and Commitment to Training. The impacted programs will include the following individual fellowships: F05, F30, F31, F32, F37, F38, and F12.
Improving graduate student and postdoctoral training

- A. Put individual development plans in place for all trainees
- B. Reduce the length of graduate training
- C. Provide F30 and F31 awards from all Institutes/Centers
- D. Increase postdoctoral stipends and consider policies on benefits
- E. Increase support for K99/R00 and shorten eligibility period
- F. Increase support for Early Independence Awards

http://acd.od.nih.gov/bwf.htm

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Individual Development Plans

- “NIH encourages institutions to assist graduate students and postdoctoral researchers to achieve their career goals within the biomedical research workforce through the use of Individual Development Plans (IDPs)”

- “is required for all T, F, K… and other awards or award components designed to provide training and professional development opportunities for graduate students and postdoctoral researchers.”
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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11. Description of Institutional Environment and Commitment to Training (2 pages)

- **Additional Educational Information – F31 applications**
  - Description of graduate/degree-granting program
    - Structure of the program
    - Description of and time line of required milestones
    - Courses, Teaching, commitments, Qualifying exams
  - Average time to degree over the past 10 years
  - Applicant’s progress in relation to the program's time line
  - Frequency and method by which the program formally monitors and evaluates a student's progress
  - Usually provided by the graduate program’s director/department chair (include name and title)


Improving graduate student and postdoctoral training

A. Put individual development plans in place for all trainees
B. Reduce the length of graduate training
C. Provide F30 and F31 awards from all Institutes/Centers
D. Increase postdoctoral stipends and consider policies on benefits
E. Increase support for K99/R00 and shorten eligibility period
F. Increase support for Early Independence Awards

http://acd.od.nih.gov/bwf.htm
### RESEARCH & RELATED Other Project Information

1. Are Human Subjects Involved?  
   - Yes  
   - No  

1.a. If YES to Human Subjects  
   - Is the Project Exempt from Federal regulations?  
     - Yes  
     - No  
   
   If yes, check appropriate exemption number:  
   - 1  
   - 2  
   - 3  
   - 4  
   - 5  
   - 6  
   - 7  
   - 8  

   If no, is the IRB review Pending?  
   - Yes  
   - No  

   IRB Approval Date:  

   Human Subject Assurance Number:  

2. Are Vertebrate Animals Used?  
   - Yes  
   - No  

2.a. If YES to Vertebrate Animals  
   - Is the IACUC review Pending?  
     - Yes  
     - No  

   IACUC Approval Date:  

   Animal Welfare Assurance Number:  

3. Is proprietary/privileged information included in the application?  
   - Yes  
   - No  

4.a. Does this Project Have an Actual or Potential Impact - positive or negative - on the environment?  
   - Yes  
   - No  

4.a. If yes, please explain:  

4.c. If the project has an actual or potential impact on the environment, has an exemption been authorized or an environmental assessment (EA) or environmental impact statement (EIS) been performed?  
   - Yes  
   - No  

4.d. If yes, please explain:  

5. Is the research performance site designated, or eligible to be designated, as a historic place?  
   - Yes  
   - No  

5.a. If yes, please explain:  

6. Does this project involve activities outside of the United States or partnerships with international collaborators?  
   - Yes  
   - No  

6.a. If yes, identify countries:  

6.b. Optional Explanation:  

7. Project Summary/Abstract  

8. Project Narrative  

9. Bibliography & References Cited  

10. Facilities & Other Resources  

11. Equipment  

12. Other Attachments  

---

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Scientific/Technical Resources

- Facilities to be used for the conduct of the proposed research
  - Laboratory
  - Animal
  - Computer
  - Office
  - Clinical [patient/research subject populations]
  - Other: Core facilities [e.g. research pharmacy, biostatistics, technical cores (microscopy, biomarkers), biohazards]

- Discuss how the proposed studies will benefit from unique features of the scientific environment, subject populations, or collaborative arrangements
10. Facilities & Other Resources

Career Development Resources

- More complete descriptions of programs referenced in:
  - 2. Applicant’s Background and Goals for Fellowship Training - C. Activities Planned Under this Award
  - 6. Selection of Sponsor and Institution
  - 9. Sponsor(s) and Co-Sponsor(s) - C. Training Plan, Environment, Research Facilities
  - 11. Description of Institutional Environment and Commitment to Training
R&R Other Project Information:

10. Facilities & Other Resources

**Career Development Resources**

- Career development programs
  - Institutional (e.g. Office of Postdoctoral or Graduate Affairs)
  - Departmental
  - Professional societies

- Formal degree programs and other didactics
  - Degree program
  - Scientific courses: e.g., Statistics
  - Career Development courses: e.g., Funding & Grantsmanship

- Workshops, webinars, other training programs

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RESEARCH & RELATED Other Project Information

OMB Number: 4040-0001
Expiration Date: 6/30/2016

1. Are Human Subjects Involved? □ Yes □ No
   1.a. If YES to Human Subjects
       Is the Project Exempt from Federal regulations? □ Yes □ No
       If yes, check appropriate exemption number. □ 1 □ 2 □ 3 □ 4 □ 5 □ 6
       If no, is the IRB review Pending? □ Yes □ No
       IRB Approval Date:
       Human Subject Assurance Number:

2. Are Vertebrate Animals Used? □ Yes □ No
   2.a. If YES to Vertebrate Animals
       Is the IACUC review Pending? □ Yes □ No
       IACUC Approval Date:
       Animal Welfare Assurance Number:

3. Is proprietary/privileged information included in the application? □ Yes □ No

4.a. Does this Project Have an Actual or Potential Impact - positive or negative - on the environment? □ Yes □ No
   4.b. If yes, please explain:

4.c. If this project has an actual or potential impact on the environment, has an exemption been authorized or an environmental assessment (EA) or environmental impact statement (EIS) been performed? □ Yes □ No
   4.d. If yes, please explain:

5. Is the research performance site designated, or eligible to be designated, as a historic place? □ Yes □ No
   5.a. If yes, please explain:

6. Does this project involve activities outside of the United States or partnerships with international collaborators? □ Yes □ No
   6.a. If yes, identify countries:
   6.b. Optional Explanation:

7. Project Summary/Abstract

8. Project Narrative

9. Bibliography & References Cited

10. Facilities & Other Resources

11. Equipment

12. Other Attachments
R&R Other Project Information:

12. Other Attachments

Certification Letter for Predoctoral Fellowships to Promote Diversity

- Institutional letter certifying eligibility of the applicant for the diversity fellowship program
  - Signed by institutional official
    - e.g., Graduate Affairs Office, Grants Office
  - On institutional letterhead

- Do not include “sensitive personal information” (e.g., specific racial/ethnic background, disability)
Biosketch for Fellowship Applications

- “Special” NIH Biosketch for Fellowship (F) applicants

- C. Contributions to Science
  1. High School Research:
  2. Undergraduate Research:
  3. Graduate Research:
  4. Post-doctoral Research:

- Additional section - Scholastic Performance (courses and grades) [D. Additional Information]

- [https://grants.nih.gov/grants/forms/biosketch.htm](https://grants.nih.gov/grants/forms/biosketch.htm)
Letters of Reference

- Include a list of Referees in the Cover Letter
- 3-5 Letters of References are required
- Individuals who know you well from a research perspective (qualifications, training, and interests)
- Individuals not directly involved in the research project
- Mentor(s) cannot be one of the confidential Letters of Reference (“letter” in main body of application)
- Helpful to include at least one referee who is not in your current department/institution

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Letters of Reference

- “Research ability and potential to become an independent researcher
- Adequacy of scientific and technical background
- Written and verbal communication abilities including ability to organize scientific data
- Quality of research endeavors or publications to date, if applicable
- Perseverance in pursuing goals
- Evidence of originality
- Need for further research experience and training
- Familiarity with research literature”

21. Cover Letter Attachment

- Must include
- Title of application
- Title of funding opportunity announcement
- List of Referees (name and affiliation)
- Administrative document – not seen by reviewers
NIH “F” Sites of Interest

- Program Announcements for Dual Degree: F30, Pre-Doc: F31 and F31-Diversity, and Post-doc: F32 grant mechanisms
  https://researchtraining.nih.gov/programs/fellowships

- Fellowship Application Instructions
  https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/general/g.100-how-to-use-the-application-instructions.htm

- Reference Letters
  https://grants.nih.gov/sites/default/files/instructions-for-fellowship-referees.docx
NIH “F” Sites of Interest

- Application Page Limits

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

- Review Criteria and Considerations, Guidelines for Reviewers, Review Critique Fillable Templates
  https://grants.nih.gov/grants/policy/review_templates.htm
NIH “F” Sites of Interest

- NIH Research Training and Career Development Programs
  [https://researchtraining.nih.gov/](https://researchtraining.nih.gov/)

- Research Training and Career Development Programs at Specific Institutes
  [https://researchtraining.nih.gov/institute](https://researchtraining.nih.gov/institute)

- Instruction in the Responsible Conduct of Research
Topics to be Discussed

- Individual Fellowship Programs
  - Funding Agencies
  - Components of a Fellowship Application
  - Scoring and Review Criteria

- Career Transition Funding Programs

- Junior Faculty Career Development Programs
  - Funding Agencies
  - Components of a Career Development Application
  - Scoring and Review Criteria

- Approaches for Competitive Applications

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Timeline of Funding for Junior Investigators

- **Graduate School**
  - Individual Fellowship Training Grant
  - Mentor’s Research Grant

- **Post-doctoral Years**
  - Individual Post-doc Fellowship
  - Institutional T32 Post-doc Training Grant slot
  - Mentor’s Research Grant

- **Instructor/Assistant Professor**
  - Career Transition Awards
Pathway to Independence Award

- Career Transition Award *(K99/R00)*
- No citizenship requirement
- Applicants must:
  - Have earned a clinical or research doctorate
  - Have *no more than 4 years of research experience* since completing the requirements of the doctoral degree
  - Have not been the principal investigator of an NIH research grant (e.g., R01, R03, R21), career development award (e.g., K01, K07, K08, K23, K25), other peer-reviewed NIH or non-NIH research grant over $100,000 direct costs per year, or have been a project leader on a sub-project of a program project (P01) or a center (P50) grant.

1-2 years as a mentored **K award** for “post-docs”

- Funding level is Institute-specific
  - Salary and Research Support
- 75% effort

3 years as a **Research award** for independent investigators

- Total/year: = $249,000 (salary and research expenses)
  - D.C. + institution’s I.C. rate
- Must have an independent research position
Research Career Development Awards

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute / Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>K99</td>
<td>NHLBI</td>
<td>92</td>
<td>24</td>
<td>26%</td>
<td>$2,074,283</td>
</tr>
<tr>
<td>2008</td>
<td>K99</td>
<td>NHLBI</td>
<td>85</td>
<td>25</td>
<td>29%</td>
<td>$2,277,137</td>
</tr>
<tr>
<td>2009</td>
<td>K99</td>
<td>NHLBI</td>
<td>77</td>
<td>34</td>
<td>44%</td>
<td>$3,373,194</td>
</tr>
<tr>
<td>2010</td>
<td>K99</td>
<td>NHLBI</td>
<td>91</td>
<td>35</td>
<td>38%</td>
<td>$3,759,077</td>
</tr>
<tr>
<td>2011</td>
<td>K99</td>
<td>NHLBI</td>
<td>106</td>
<td>22</td>
<td>21%</td>
<td>$2,353,970</td>
</tr>
<tr>
<td>2012</td>
<td>K99</td>
<td>NHLBI</td>
<td>130</td>
<td>39</td>
<td>30%</td>
<td>$4,121,559</td>
</tr>
<tr>
<td>2013</td>
<td>K99</td>
<td>NHLBI</td>
<td>112</td>
<td>25</td>
<td>22%</td>
<td>$2,680,777</td>
</tr>
<tr>
<td>2014</td>
<td>K99</td>
<td>NHLBI</td>
<td>167</td>
<td>40</td>
<td>24%</td>
<td>$4,590,006</td>
</tr>
<tr>
<td>2015</td>
<td>K99</td>
<td>NHLBI</td>
<td>111</td>
<td>27</td>
<td>24.3%</td>
<td>$3,094,830</td>
</tr>
<tr>
<td>2016</td>
<td>K99</td>
<td>NHLBI</td>
<td>124</td>
<td>32</td>
<td>25.8%</td>
<td>$4,066,065</td>
</tr>
</tbody>
</table>


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The purpose of the NIH Pathway to Independence Award (K99/R00) program is to increase and maintain a strong cohort of new and talented, NIH-supported, independent investigators. This program is designed to facilitate a timely transition of outstanding postdoctoral researchers with a research and/or clinical doctorate degree from mentored, postdoctoral research positions to independent, tenure-track or equivalent faculty positions. The program will provide independent NIH research support during this transition in order to help awardees to launch competitive, independent research careers.
Eligible Individuals

“K99/R00 applicants must have no more than 4 years of postdoctoral research experience as of the relevant application due date regardless of whether it is a new or resubmission application. Individuals must be in mentored, postdoctoral training positions to be eligible to apply to the K99/R00 program. If an applicant achieves independence (i.e., any faculty or non-mentored research position) before a K99 award is made, neither the K99 award, nor the R00 award, will be issued.

Parental leave or other well-justified leave for pressing personal or family situations of generally less than 12 months duration (e.g., family care responsibilities, disability or illness, active military duty) is not included in the 4-year eligibility limit. Part-time postdoctoral research, related to personal or family situations, will be pro-rated accordingly. In addition, time spent conducting postgraduate clinical training that does not involve research is not considered as part of the 4-year research training eligibility limit. Only time dedicated to research activities would count toward the 4-year limit.”
Ph.D. (or equivalent research doctorate degree) candidates in positions other than postdoctoral fellow positions: It is recognized that some institutions appoint postdoctoral fellows in positions with other titles although they are still in non-independent, mentored training positions… obtain confirmation of their eligibility from the relevant IC before they begin to prepare their applications…

Clinicians (including those with M.D., D.D.S, D.V.M. and other licensed professionals) in positions not designated as postdoctoral positions: Following clinical training or fellowship training periods, clinicians often obtain a clinical faculty position that denotes independence in clinical responsibilities but not in research. A clinical faculty member who does not hold an independent research faculty position may be eligible for the K99/R00 award… obtain confirmation of their eligibility before they begin to prepare their applications. Such individuals may also wish to consider other career awards (see K Kiosk) available for junior faculty development.”
Additional Information for Physician-Scientists

For the purposes of this program, physician-scientists include individuals with an MD, DO, DDS/DMD, DVM/VMD, or nurses with research doctoral degrees who devote the majority of their time to biomedical research. The K99/R00 is intended for those physician-scientists who already have substantial research training and are dedicated to initiating a strong, research-intensive career as physician-scientists. The K99/R00 program is designed to facilitate a timely transition of outstanding physician-scientists from mentored, research positions to independent, tenure-track or equivalent faculty positions, and to provide independent NIH research support during the transition. Individuals who need a longer period of mentored career development before they are prepared to begin the transition to research independence should consider the K08 or K23 program (see: K Kiosk).
NIH should establish a new physician-scientist-specific granting mechanism to facilitate the transition from training to independence. This program should be similar to the K99/R00 program whose funding currently goes almost exclusively to individuals holding a PhD degree. This new grant program could serve either as a replacement or transition from existing K Awards for physician scientists, and should provide a longer period of support, potentially lengthening the R00 phase to 5 years (with an interim staff review at year 3). This new grant series, as well as K and all other training awards, should rigorously enforce protected time of at least 75 percent effort and provide sufficient salary support to make that possible.
The purpose of the NIAID Physician-Scientist Pathway to Independence Award (K99/R00) program is to increase and maintain a strong cohort of new and talented independent physician-scientists. This program is designed to facilitate a timely transition of outstanding postdoctoral researchers with a clinical doctorate degree from mentored, postdoctoral research positions to independent, tenure-track or equivalent faculty positions. The program will provide independent NIAID research support during this transition to help awardees launch competitive, independent research careers in biomedical fields and thereby help to address the national physician-scientist workforce shortage.
Career Transition Award (K22)

**NCI:**
- “facilitates the transition of investigators in mentored, non-independent cancer research positions to independent faculty cancer research positions”

**NCI, NINDS:** Diversity candidates
Timeline of Funding for Junior Investigators

- Short term Training
- Research Support
- Individual Post-doc Fellowship or Institutional T32 Post-doc Training Grant slot
- Medical School
- Internship/Residency
- Fellowship – Research Years
- Instructor/Assistant Professor
- Year-long Enhancement Programs
  MD/PhD Fellowship or Institutional T32
- Career Transition Awards

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Career Transition Awards

**BWF: Career Awards for Medical Scientists**

- To support physician-scientists during the last years of a mentored postdoctoral/fellowship position and the beginning years of an independent faculty position.

- Candidates must hold an M.D., D.O., D.D.S., or D.V.M. degree

- 75% effort to research-related activities

- Funding: $700,000 over five years
  - **Postdoctoral/Fellowship Portion:** Years 1 and 2
    Annual Total: $95,000
  - **Faculty Portion:** Years 3-5
    Annual Total: $170,000

Career Transition Awards

- **JDRF: Advanced Postdoctoral Fellowships**
  - Supports full-time research training and assist awardees “in transitioning from a fellowship to an independent (faculty-level) position”
  - Generally, the most recent doctoral degree (PhD, MD, DMD, DVM, or equivalent) received no more than 6 years before application
  - No citizenship requirements
  - $95,000 per year for up to 3 years
  - **Transition Award**: “Optional transition year in which the awardee may request funding support in their first year as a faculty member” (up to $110,000 for one year)

Topics to be Discussed

- Individual Fellowship Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Career Transition Funding Programs

- Junior Faculty Career Development Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Approaches for Competitive Applications

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Timeline of Funding for Junior Investigators

- **Medical School**
  - Year-long Enhancement Programs
  - MD/PhD Fellowship or Institutional T32

- **Internship/Residency**
  - Research Support

- **Fellowship – Research Years**
  - Individual Post-doc Fellowship or Institutional T32 Post-doc Training Grant slot

- **Instructor/Assistant Professor**
  - Career Transition Awards

Timeline of Funding for Junior Investigators

- Individual Fellowship Training Grant
- Mentor’s Research Grant

Graduate School

- Individual Post-doc Fellowship
- Institutional T32 Post-doc Training Grant slot
- Mentor’s Research Grant

Post-doctoral Years

Career Transition Awards

Instructor/Assistant Professor

Individual Mentored K Career Development Award
Career Development (K) Support to Independent Research Grant (R01)

K01/K08/K23 → R01

K12 → K23 → R01

K12 → K23 → R01

K01/K08/K23 → R01

K12 → R01

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Not All Funding Opportunities Are the Same

- **Different mission statements**
  - Fellowships
  - *Career development (K’s)/ Scholar awards*
  - Research project (R’s)

- **Different funding**
  - Stipend/Salary
  - Pilot awards vs. Comprehensive research costs

- **Different time frames**
  - Not renewable: **5 years (K’s)**, 3 years (F’s), 2 years (T’s)
  - Renewable: 4 years-5 years (R01) each competitive period
Research Career Programs (K)

- Provides predominantly salary support
- Minimum requirements for the amount of effort that must be devoted to research and career development (e.g. 75%, some exceptions to 50%)
- Up to 5 years
- Specified salary levels
- US citizen/permanent resident.
- Can reduce effort to 50% in last 2 years if PI of NIH research grant

Mentored Clinical Scientist Development Award (K08)

- Support to develop outstanding independent clinician research scientists
- Basic and translational science
Mentored Patient-Oriented Research Career Development Award (K23)

- For investigators just after specialty training; not renewable

Mid-Career Investigator In Patient-Oriented Research Career Development Award (K24)

- Support for clinicians to allow for time to devote to patient-oriented research and to mentor beginning clinical investigators

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
- **Patient-oriented research:**
  - Research conducted with human subjects (or on material of human origin, i.e. tissues, specimens, and cognitive phenomena)
  - Investigator directly interacts with human subjects

- **Research areas:**
  - Mechanisms of human disease
  - Therapeutic interventions
  - Clinical trials
  - Development of new technologies
The purpose of this Notice is to inform applicants that effective May 9, 2017, NCI will no longer be participating in PA-16-198, "Mentored Patient-Oriented Research Career Development Award (Parent K23)"

Eligible clinician scientists who wish to apply for a research career development award in cancer-focused patient-oriented research should instead submit applications to:

- PA-16-191, Mentored Clinical Scientist Research Career Development Award (Parent K08);
- PA-16-193, NIH Pathway to Independence Award (Parent K99/R00); or
- PAR-16-293, The NCI Transition Career Development Award (K22)

NCI will support training in Patient-Oriented Research through K08 Awards and increase K08 Salary and Research Support

The purpose of this Notice is to inform applicants that, starting with new applications due on June 12, 2017, NCI K08 Career Development Awards will support training in Basic, Translational, and Patient-Oriented Cancer Research, as well as combinations of Basic, Translational, and Patient-Oriented Research.

Salary support for these new K08 awards will be provided up to the legislative salary cap (https://grants.nih.gov/grants/policy/salcap_summary.htm). Research development support for these new K08 awards will be increased up to $50,000/year.

https://grants.nih.gov/grants/guide/notice-files/NOT-CA-17-043.html
Mentored Research Scientist Development Award (K01)

Not all NIH Institutes participate in program. Participating Institutes may use for different purposes.

- Train in a new field
- Specific research areas
- Hiatus in research career
- Increase research workforce diversity

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Mentored Research Scientist Development Awards (K01)

- **NIMH:**
  - "Supports a broad spectrum of basic and translational research, including basic neuroscience, human genetics, adult and developmental translational research, services and intervention research, and AIDS-related research"

- **NINDS:**
  - Supports "postdoctoral researchers... Candidates are encouraged to apply for support... between the second through fourth year of cumulative mentored postdoctoral research experience... a strong, well-planned, thorough career development plan, in addition to development of an impactful research project, is a critical aspect of this K01"
Mentored Research Scientist Development Awards (K01)

- **NIDDK**: For “experienced postdoctoral (two years minimum) and/or recently appointed junior faculty (usually with a Ph.D. degree) in biomedical, behavioral, or clinical sciences”

- **NIAID**: (a) Epidemiology  
  (b) Computational Modeling Techniques  
  (c) Outcomes Research

- **NLM**: Biomedical Informatics and Data Science

- **FIC**: International Research Scientist Development Award (IRSDA)

Mentored Research Scientist Development Awards (K01)

**NINR:**
- Supports “mentored patient-oriented research in the areas of symptom management, pulmonary, critical care, trauma, reproductive health, genetics, epigenetics, behavioral research, incorporation of advanced technology and end-of-life and palliative care”

**NICHD:**
- (a) Medical Rehabilitation Research
- (b) Child Abuse and Neglect
- (c) Population Research

Mentored Research Scientist Development Awards (K01)

- **NHGRI:**
  - (a) Genomic Sciences
  - (b) Ethical, Legal and Social Issues (ELSI)

- **NHLBI:**
  - (a) Epidemiology
  - (b) Biostatistics
  - (c) Outcomes Research
  - (d) Implementation Research

- **NCI, NIDCR, NINDS:** Promote Faculty Diversity
Mentored Quantitative Research
Career Development Award (K25)

- To attract investigators with expertise in quantitative science and engineering research (e.g., mathematics, statistics, economics, computer science, imaging science, informatics, physics, chemistry), but whose research has not been focused on NIH-relevant questions of health and disease.

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Mentored Research Scientist Career Development Award
For support of a postdoctoral or early career research scientists committed to research, in need of both advanced research training and additional experience.

Details
View Current Funding Opportunities

Mentored Clinical Scientist Research Career Development Award
To provide the opportunity for promising clinician scientists with demonstrated aptitude to develop into independent investigators, or for faculty members to pursue research, and aid in filling the academic faculty gap in health profession's institutions.

Details
View Current Funding Opportunities

Mentored Patient-Oriented Research Career Development Award
To provide support for the career development of clinically trained professionals who have made a commitment to patient-oriented research, and who have the potential to develop into productive, clinical investigators.

Details
View Current Funding Opportunities

Pathway to Independence Award
To support both an initial mentored research experience (K99) followed by independent research (R00) for highly qualified, postdoctoral researchers, to secure an independent research position. Award recipients are expected to compete successfully for independent R01 support during the R00 phase.

Details
View Current Funding Opportunities
Mentored Patient-Oriented Research Career Development Award

To provide support for the career development of clinically trained professionals who have made a commitment to patient-oriented research, and who have the potential to develop into productive, clinical investigators.

- Mentored Patient-Oriented Research Career Development Award (Parent K23 - Clinical Trial Required)
- Mentored Patient-Oriented Research Career Development Award (Parent K23 - Independent Clinical Trials Not Allowed)

https://researchtraining.nih.gov/programs/career-development
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Research Career Development Awards

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Research Career Development Awards

The graph illustrates the funding and average size of research career development awards over财政年度 (Fiscal Year). The funding is represented in millions of dollars, while the average size is shown in individual data points. The graph shows a clear upward trend in funding and average size from 1998 to 2016, indicating increased investment in research career development over the years.

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute / Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate$^2$</th>
<th>Total Funding$^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>K23</td>
<td>NCI</td>
<td>31</td>
<td>5</td>
<td>16.1%</td>
<td>$825,671</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NHLBI</td>
<td>101</td>
<td>45</td>
<td>44.6%</td>
<td>$8,086,510</td>
</tr>
<tr>
<td>2016</td>
<td>K23</td>
<td>NIDCR</td>
<td>5</td>
<td>2</td>
<td>40.0%</td>
<td>$263,164</td>
</tr>
<tr>
<td>2016</td>
<td>K23</td>
<td>NIDDK</td>
<td>62</td>
<td>28</td>
<td>45.2%</td>
<td>$4,964,021</td>
</tr>
<tr>
<td>2016</td>
<td>K23</td>
<td>NINDS</td>
<td>41</td>
<td>6</td>
<td>14.6%</td>
<td>$1,124,099</td>
</tr>
<tr>
<td>2016</td>
<td>K23</td>
<td>NIAID</td>
<td>42</td>
<td>17</td>
<td>40.5%</td>
<td>$2,943,258</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NIGMS</td>
<td>6</td>
<td>4</td>
<td>66.7%</td>
<td>$661,996</td>
</tr>
<tr>
<td>2016</td>
<td>K23</td>
<td>NICHD</td>
<td>76</td>
<td>15</td>
<td>19.7%</td>
<td>$2,022,733</td>
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<td>K23</td>
<td>NEI</td>
<td>17</td>
<td>8</td>
<td>47.1%</td>
<td>$1,717,613</td>
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<tr>
<td>2016</td>
<td>K23</td>
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<td>3</td>
<td>75.0%</td>
<td>$457,410</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NIA</td>
<td>36</td>
<td>13</td>
<td>36.1%</td>
<td>$2,042,013</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NIAMS</td>
<td>16</td>
<td>7</td>
<td>43.8%</td>
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<td>K23</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NIMH</td>
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<td>$3,844,905</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NIDA</td>
<td>37</td>
<td>15</td>
<td>40.5%</td>
<td>$2,669,200</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NIAAA</td>
<td>14</td>
<td>5</td>
<td>35.7%</td>
<td>$929,949</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NINR</td>
<td>9</td>
<td>5</td>
<td>55.6%</td>
<td>$716,110</td>
</tr>
<tr>
<td>2016</td>
<td>K23</td>
<td>NIBIB</td>
<td>1</td>
<td>1</td>
<td>100.0%</td>
<td>$197,424</td>
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<tr>
<td>2016</td>
<td>K23</td>
<td>NCCIH</td>
<td>4</td>
<td>2</td>
<td>50.0%</td>
<td>$273,682</td>
</tr>
<tr>
<td><strong>2016</strong></td>
<td><strong>K23</strong></td>
<td><strong>Activity Total</strong></td>
<td><strong>575</strong></td>
<td><strong>207</strong></td>
<td><strong>36.0%</strong></td>
<td><strong>$35,665,755</strong></td>
</tr>
</tbody>
</table>
## NHLBI K23 Application Success Rate

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute / Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate $^2$</th>
<th>Total Funding $^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>K23</td>
<td>NHLBI</td>
<td>93</td>
<td>46</td>
<td>49%</td>
<td>$6,408,599</td>
</tr>
<tr>
<td>2010</td>
<td>K23</td>
<td>NHLBI</td>
<td>90</td>
<td>38</td>
<td>42%</td>
<td>$5,466,560</td>
</tr>
<tr>
<td>2011</td>
<td>K23</td>
<td>NHLBI</td>
<td>89</td>
<td>39</td>
<td>44%</td>
<td>$5,486,852</td>
</tr>
<tr>
<td>2012</td>
<td>K23</td>
<td>NHLBI</td>
<td>86</td>
<td>18</td>
<td>21%</td>
<td>$2,635,891</td>
</tr>
<tr>
<td>2013</td>
<td>K23</td>
<td>NHLBI</td>
<td>107</td>
<td>32</td>
<td>30%</td>
<td>$4,639,354</td>
</tr>
<tr>
<td>2014</td>
<td>K23</td>
<td>NHLBI</td>
<td>77</td>
<td>29</td>
<td>38%</td>
<td>$4,147,948</td>
</tr>
<tr>
<td>2015</td>
<td>K23</td>
<td>NHLBI</td>
<td>94</td>
<td>36</td>
<td>38.3%</td>
<td>$5,393,783</td>
</tr>
<tr>
<td>2016</td>
<td>K23</td>
<td>NHLBI</td>
<td>101</td>
<td>45</td>
<td>44.6%</td>
<td>$8,086,510</td>
</tr>
</tbody>
</table>


Agency for Healthcare Research and Quality

AHRQ's Priority Areas:

- Improve health care quality by accelerating implementation of patient-centered outcomes research (PCOR)
- Make health care safer
- Increase accessibility by evaluating coverage expansions
- Improve health care affordability, efficiency, and cost transparency

**K08:** Mentored Clinical Scientist Research Career Development Award for individuals with a clinical doctoral degree or Ph.D./other doctoral degree in a clinical discipline

**K01:** Mentored Research Scientist Research Career Development Award - for individuals with a research doctoral degree

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Centers for Disease Control and Prevention (CDC) K01

- **National Institute for Occupational Safety and Health**
- Mentored Research Scientist Development Award
  - “career development experience in occupational health and safety research leading to research independence”
Mentored Clinical Scientist Development Program Award (K12)

- Support to an institution for career development experiences for junior investigators leading to research independence

- Institutions recruit and select candidates into their programs

- Candidates must meet the same criteria as for the individual mentored clinical scientist development award

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Mentored Clinical Scientist Development Program Award (K12)

- **Multi-Institute:** Women’s Health

- **Institute specific**
  - **NCI:** Clinical oncology
  - **NIDDK:** Urology research
  - **NICHD:**
    - Child health
    - Pediatric scientists
    - Reproductive scientists
Mentored Clinical Scientist Development Program Award (K12)

- **Institute specific**
  - **NHLBI**: Late stage (T4) translation research
  - **NIDCR**: Dental specialty and PhD program
  - **NINDS**: Neurosurgeons

- **CTSA - Clinical and Translational Scientist Award**: KL2

NIH CTSA Awards: A Home for Clinical and Translational Science

Source: Zerhouni (NIH) [9/06]
Research Career Development/Scholar Programs

- **American Heart Association**
  - Career Development Award

- **Robert Wood Johnson Foundation**
  - Harold Amos Medical Faculty Development Program
  - Academic Medicine, Dentistry, and Nursing
  - “historically disadvantaged” – “challenges facing individuals because of their race, ethnicity, socioeconomic status, or other similar factors”

- **Damon Runyon Cancer Research Foundation**
  - Clinical Investigator Award

- **Doris Duke Charitable Foundation**
  - Clinical Scientist Development Grant
Topics to be Discussed

- Individual Fellowship Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Career Transition Funding Programs

- Junior Faculty Career Development Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Approaches for Competitive 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>K series <em>new</em></td>
<td>Research Career Development</td>
<td>February 12</td>
<td>June 12</td>
<td>October 12</td>
</tr>
<tr>
<td>K series</td>
<td>Research Career Development</td>
<td>March 12</td>
<td>July 12</td>
<td>November 12</td>
</tr>
</tbody>
</table>


[http://grants.nih.gov/grants/funding/submissionschedule.htm](http://grants.nih.gov/grants/funding/submissionschedule.htm)
### 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>All Activity Codes Cited Above 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>
</tr>
</tbody>
</table>

[http://grants.nih.gov/grants/funding/submissionschedule.htm](http://grants.nih.gov/grants/funding/submissionschedule.htm)
### Application Due Dates

<table>
<thead>
<tr>
<th>Review and Award Cycles</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's Evaluation System

9-point rating scale (1=exceptional; 9=poor)

<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
<th>Strengths/Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Impact</td>
<td>1</td>
<td>Exceptional</td>
<td><strong>Strengths</strong></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>Moderate Impact</td>
<td>4</td>
<td>Very Good</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Good</td>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Low Impact</td>
<td>7</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Marginal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
<td></td>
</tr>
</tbody>
</table>


<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></td>
<td>4</td>
<td>Very Good</td>
<td>Strong but with numerous minor weaknesses</td>
</tr>
<tr>
<td>Medium</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

---


FELLOWSHIPS & CAREER AWARDS

Overall Impact:
The likelihood that the proposed training (F) or career development (K) will enhance the candidate's potential for a productive, independent scientific research career in a health-related field.

<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>

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

Fs
- Applicant
- Sponsor(s)
- Research Training Plan
- Training Potential
- Institutional Environment & Commitment

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

*K05 and K24: Plan to Provide Mentoring
**K02: Consultants/Collaborators

Ks
- Candidate
- Career Development Plan/Goals*
- Research Plan
- Mentor(s)**
- Environment & Institutional Commitment

E.g. Proposes training or career development of high value/benefit for the candidate who has high potential for developing into a productive, independent scientist. May have some or no weaknesses in the criteria.

E.g. Proposes training or career development of moderate value/benefit for the candidate who shows moderate potential. May have some weaknesses in the criteria.

E.g. Proposes training or career development of moderate or low value/benefit for the candidate who shows low potential. May have 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
Initial Review Group or Study Section

Actions

- **Discussed applications:**
  - Receives Impact/Priority Scores
  - Receives Scores for individual core review criteria

- **Not Discussed:**
  - Receives Scores for individual core review criteria

- **Not Recommended for Further Consideration (NRFC)**

- **Other:** e.g. Deferred

Impact Score

- **Preliminary Impact Scores** determine which applications discussed at study section
- **Impact Score given by each member** of the study section
- **Overall Impact Score** (for discussed applications): Mean of reviewers’ Impact Scores $\times 10$
- 81 possible overall Impact Scores
  
  (10 – 90, whole numbers)
# Fellowship Payline: NHLBI

<table>
<thead>
<tr>
<th>Grant Program</th>
<th>Grant Program Description</th>
<th>Percentile</th>
<th>Priority Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01</td>
<td>Research Project Grant</td>
<td>15</td>
<td>N/A</td>
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<tr>
<td>R01 ESI</td>
<td>Early Stage Investigators</td>
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<tr>
<td>Kawards</td>
<td>Career Development Awards</td>
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<tr>
<td>F30</td>
<td>Pre-doctoral NRSA</td>
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<tr>
<td>F31, F32, F33</td>
<td>Pre- and Post-doctoral NRSA</td>
<td>39</td>
<td>N/A</td>
</tr>
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</table>

FY18

http://www.nhlbi.nih.gov/research/funding/general/current-operating-guidelines

Overall Impact Score

“Assessment of the likelihood that the proposed career development and research plan will enhance the candidate’s potential for a productive, independent scientific research career in a health-related field…”

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
**Overall Impact** Write a paragraph summarizing the factors that informed your Overall Impact score.
Separate Scores for the Individual Criteria

- All applications receive scores
  (even those not discussed at study section)
- Individually reported in summary statement
- Major strengths and weaknesses that influenced the overall impact/priority score - \( \frac{1}{4} \) page per criterion
1. **Candidate**

**Strengths**
- 

**Weaknesses**
- 

2. **Career Development Plan/Career Goals & Objectives/Plan to Provide Mentoring**

**Strengths**
- 

**Weaknesses**
- 

3. **Research Plan**

**Strengths**
- 

**Weaknesses**
- 

[https://grants.nih.gov/grants/peer/critiques/k_critique_template.docx](https://grants.nih.gov/grants/peer/critiques/k_critique_template.docx)
4. **Mentor(s), Co-Mentor(s), Consultant(s), Collaborator(s)**

<table>
<thead>
<tr>
<th>Strengths</th>
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<table>
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<tr>
<th>Weaknesses</th>
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5. **Environment and Institutional Commitment to the Candidate**

<table>
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<tr>
<th>Strengths</th>
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<tr>
<th>Weaknesses</th>
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</tbody>
</table>
1. Candidate

- “Does the candidate have the potential to develop as an independent and productive researcher?
- Are the candidate's prior training and research experience appropriate for this award?
- Is the candidate’s academic, clinical (if relevant), and research record of high quality?
- Is there evidence of the candidate’s commitment to meeting the program objectives to become an independent investigator in research/patient oriented research?”

https://grants.nih.gov/grants/peer/critiques/k_D.htm
1. Candidate

“Do the letters of reference address the above review criteria, and do they provide evidence that the candidate has a high potential for becoming an independent investigator?”

https://grants.nih.gov/grants/peer/critiques/k_D.htm
2. Career Development Plan/Career Goals & Objectives/Plan to Provide Mentoring

- “What is the likelihood that the plan will contribute substantially to the scientific development of the candidate and lead to scientific independence?
- Are the candidate's prior training and research experience appropriate for this award?
- Are the content, scope, phasing, and duration of the career development plan appropriate when considered in the context of prior training/research experience and the stated training and research objectives for achieving research independence?”

https://grants.nih.gov/grants/peer/critiques/k_D.htm

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
2. Career Development Plan/Career Goals & Objectives/Plan to Provide Mentoring

- “Are there adequate plans for monitoring and evaluating the candidate’s research and career development progress?”

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

https://grants.nih.gov/grants/peer/critiques/k_D.htm
3. Research Plan

■ “Are the proposed research question, design, and methodology of significant scientific and technical merit?

■ Is there a strong scientific premise for the project?

■ Has the candidate presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed?

■ Has the candidate presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects?”

https://grants.nih.gov/grants/peer/critiques/k_D.htm

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

Will be updated
3. Research Plan

- “Is the research plan relevant to the candidate’s research career objectives?

- Is the research plan appropriate to the candidate's stage of research development and as a vehicle for developing the research skills described in the career development plan?”
4. Mentor(s), Co-mentor(s), Consultant(s), Collaborator(s)

- “Are the qualifications of the mentor(s) in the area of the proposed research appropriate?
- Do(es) the mentor(s) adequately address the candidate’s potential and his/her strengths and areas needing improvement?
- Is there adequate description of the quality and extent of the mentor’s proposed role in providing guidance and advice to the candidate?
- Is the mentor’s description of the elements of the research career development activities, including formal course work adequate?”

https://grants.nih.gov/grants/peer/critiques/k_D.htm

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

Will be updated
4. Mentor(s), Co-mentor(s), Consultant(s), Collaborator(s)

- “Is there evidence of the mentor’s, consultant’s and/or collaborator’s *previous experience* in fostering the development of independent investigators?
- Is there evidence of the mentor’s current *research productivity and peer-reviewed support*?
- Is *active/pending support* for the proposed research project appropriate and adequate?
- Are there adequate plans for *monitoring and evaluating* the career development awardee’s *progress toward independence*?”

https://grants.nih.gov/grants/peer/critiques/k_D.htm
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
5. Environment and Institutional Commitment to the Candidate

- “Is there clear commitment of the sponsoring institution to ensure that the required minimum of the candidate’s effort [usually 75%] will be devoted directly to the research described in the application, with the remaining percent effort being devoted to an appropriate balance of research, teaching, administrative, and clinical responsibilities?

- Is the institutional commitment to the career development of the candidate appropriately strong?”

https://grants.nih.gov/grants/peer/critiques/k_D.htm

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
5. Environment and Institutional Commitment to the Candidate

- “Are the research facilities, resources and training opportunities, including faculty capable of productive collaboration with the candidate, adequate and appropriate?
- Is the environment for scientific and professional development of the candidate of high quality?
- Is there assurance that the institution intends the candidate to be an integral part of its research program as an independent investigator?”

https://grants.nih.gov/grants/peer/critiques/k_D.htm

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
In addition to the standard individual K award review questions:

**Scored Review Criteria (Independent Clinical Trial Required)**
- Candidate
- Research Plan
- Mentor(s), Co-Mentor(s), Consultant(s), Collaborator(s)
- Environment & Institutional Commitment to the Candidate

**Scored Review Criteria (Independent Clinical Trial Not Allowed)**
- Career Development Plan/Career Goals and Objectives
- Research Plan
- Mentor(s), Co-Mentor(s), Consultant(s), Collaborator(s)

**Additional Review Criteria**
- Study Timeline for Clinical Trials
Implementing Rigor and Transparency in NIH & AHRQ Career Development Award Applications

Notice Number: NOT-OD-16-012

These updates focus on four areas deemed important for enhancing rigor and transparency:

1) the scientific premise forming the basis of the proposed research,
2) rigorous experimental design for robust and unbiased results,
3) consideration of relevant biological variables, and
4) authentication of key biological and/or chemical resources.

Updates include:

- Revisions to application guide instructions for preparing your research strategy attachment
- Use of a new "Authentication of Key Biological and/or Chemical Resources" attachment
- **Additional rigor and transparency questions reviewers will be asked to consider when reviewing applications**
# Reviewer Guidance on Rigor and Transparency: Research Project Grant and Mentored Career Development Applications

## Overview: Mentored Career Development Award (K) Applications

<table>
<thead>
<tr>
<th>Element of Rigor and Transparency</th>
<th>Section of Application</th>
<th>Criterion Score</th>
<th>Additional Review Consideration</th>
<th>Contribute to Overall Impact Score?</th>
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<tbody>
<tr>
<td>Scientific Premise</td>
<td>Research Strategy</td>
<td>Research Plan</td>
<td>NA</td>
<td>Yes</td>
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<tr>
<td>Scientific Rigor</td>
<td>Research Strategy</td>
<td>Research Plan</td>
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<td>Yes</td>
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<tr>
<td>Consideration of Relevant Biological Variables, such as Sex</td>
<td>Research Strategy</td>
<td>Research Plan</td>
<td>NA</td>
<td>Yes</td>
</tr>
<tr>
<td>Authentication of Key Biological and/or Chemical Resources</td>
<td>New Attachment</td>
<td>NA</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Topics to be Discussed

- Individual Fellowship Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Career Transition Funding Programs

- Junior Faculty Career Development Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Approaches for Competitive Applications

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
CAREER DEVELOPMENT INSTRUCTIONS
FOR NIH AND OTHER PHS AGENCIES

SF424 (R&R) APPLICATION PACKAGES


Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
The PHS 398 Career Development Award Supplemental Form is used only for career development applications and multi-project applications with an "Indiv. Career Dev" Component.

This form includes fields to upload several attachments including the Specific Aims, Research Strategy, and Candidate Background and Goals.

See NIH's Reference Letters page for information including instructions for referees and how to submit letters.

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

Quick Links

- Introduction
  1. Introduction to Application for R"
<table>
<thead>
<tr>
<th>Section of Application</th>
<th>Page Limits *</th>
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<tbody>
<tr>
<td>Project Summary/Abstract</td>
<td>30 lines of text</td>
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<tr>
<td>Project Narrative</td>
<td>Three sentences</td>
</tr>
<tr>
<td>Introduction to Resubmission or Revision Application (when applicable)</td>
<td>1</td>
</tr>
<tr>
<td>Candidate Information and Goals for Career Development and Research Strategy</td>
<td>12 (for both attachments combined)</td>
</tr>
<tr>
<td>Specific Aims</td>
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<tr>
<td>Training in the Responsible Conduct of Research</td>
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<tr>
<td>Candidate’s Plan to Provide Mentoring (Include only when required by the specific FOA, e.g., K24 and K05)</td>
<td>6</td>
</tr>
<tr>
<td>Plans and Statements of Mentor and Co-mentor(s)</td>
<td>6</td>
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<tr>
<td>Letters of Support from Collaborators, Contributors, and Consultants</td>
<td>6</td>
</tr>
<tr>
<td>Description of Institutional Environment</td>
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<tr>
<td>Institutional Commitment to Candidate’s Research Career Development</td>
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<tr>
<td>Biographical Sketch</td>
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</tbody>
</table>

https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/page-limits.htm#car
# PHS 398 Career Development Award Supplemental Form

## Introduction
1. Introduction to Application (for Resubmission and Revision applications)
   - 12 pages total

## Candidate Section
2. Candidate Information and Goals for Career Development

## Research Plan Section
3. Specific Aims
   - 1 page
4. *Research Strategy
5. Progress Report Publication List (for Renewal applications)
6. Training in the Responsible Conduct of Research
   - 12 pages total

## Other Candidate Information Section
7. Candidate's Plan to Provide Mentoring
   - 1 page

## Mentor, Co-Mentor, Consultant, Collaborators Section
8. Plans and Statements of Mentor and Co-Mentor(s)
   - 6 pages
9. Letters of Support from Collaborators, Contributors, and Consultants
   - 6 pages

## Environment and Institutional Commitment to Candidate Section
10. Description of Institutional Environment
    - 1 page
11. Institutional Commitment to Candidate's Research Career Development
    - 1 page

---


1 + 12 Pages Combined

- **Candidate Information**
  - Section 2

- **Research Plan**
  - 3. Specific Aims (1 page)
  - 4. Research Strategy

### Introduction
1. Introduction to Application
   (for Resubmission and Revision applications)

### Candidate Section
2. Candidate Information and Goals for Career Development

### Research Plan Section
3. Specific Aims

4. *Research Strategy*

5. Progress Report Publication List
   (for Renewal applications)

6. Training in the Responsible Conduct of Research

### Other Candidate Information Section
7. Candidate’s Plan to Provide Mentoring

### Mentor, Co-Mentor, Consultant, Collaborators Section
8. Plans and Statements of Mentor and Co-Mentor(s)

9. Letters of Support from Collaborators, Contributors, and Consultants

### Environment and Institutional Commitment to Candidate Section
10. Description of Institutional Environment

11. Institutional Commitment to Candidate’s Research Career Development

---


2. Candidate Information

- Candidate’s Background
- Career Goals and Objectives
- Candidate’s Plan for Career Development/Training Activities During Award Period

2. Candidate’s Background

- Scientific history/Unique expertise
  - Previous work
    - Consistent themes, or
    - Why research interests have changed direction
  - Relationship to career path described in application
- Other didactic/training experiences
  - e.g., Masters degree
- Other research experiences
  - e.g., MD/PhD, Medical school, Fellowship
- Reasons for basic, clinical, translational, epidemiology, behavioral, multidisciplinary research, relevant publications
Career Goals and Objectives

- Justify award
  - Fits into past and future research career
- Skills that are lacking
  - Identification of specific modules to address areas for growth, provides justification of award
  - Role of specific Mentor(s) and Advisory Committee member(s)
**Mentors/Advisory Committee**

- Scientific area per Mentor/Committee member
- Schedule of meetings

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Role</th>
<th>Area of Expertise</th>
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</thead>
<tbody>
<tr>
<td>Name (Title)</td>
<td>Mentor</td>
<td></td>
</tr>
<tr>
<td>Name (Title)</td>
<td>Co-Mentor</td>
<td></td>
</tr>
<tr>
<td>Name (Title)</td>
<td>Advisory Board Member</td>
<td></td>
</tr>
<tr>
<td>Name (Title)</td>
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<tr>
<td>Name (Title)</td>
<td>Advisory Board Member</td>
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</tr>
<tr>
<td>Name (Title)</td>
<td>Collaborator</td>
<td></td>
</tr>
<tr>
<td>Name (Title)</td>
<td>Consultant</td>
<td></td>
</tr>
</tbody>
</table>
Short-term Career Goals

Timeline for funded period

Year 1: Preliminary data

Year 2: Submit publications (possible journals), Presentations at national meetings (examples), Formulation of R01 application

Years 3-5: By the end of the funded period, applicant will be an independent investigator near to R01 funding
Long-term Career Goals

Scientific goals
- Basic science, translational, clinical, epidemiologic, behavioral

Mentoring goals
- How mentoring has been important to you
- Previous/current mentoring responsibilities

Networking goals
- Multidisciplinary activities, grants, etc.
Career Development/Training Activities During Award Period

- Review of didactic courses, clinical training, and research experiences to date
- New research skills/ knowledge required
- Identification of training required to fill gaps in knowledge in order to reach long term goals
  - Rational for each of the training activities
New Section on each Module

- Reason for module
- Specific description of each “Mode of Learning”
  - Role of Mentor(s) and Advisor(s)
  - Specific courses, workshops, and other didactics
  - Details on research meetings

Module: Career skills

- Grantsmanship
- Becoming a mentor
- Laboratory management
<table>
<thead>
<tr>
<th>Module</th>
<th>Mentor(s)</th>
<th>Mode of learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Area (1-3)</td>
<td>Specific names</td>
<td>Coursework (completed and new) 1-on-1 meetings (schedule? e.g. weekly) Guided readings Research meetings (schedule? e.g. weekly) Applied training Clinical experience</td>
</tr>
<tr>
<td>Career skills</td>
<td>All mentors</td>
<td>Improving communication skills Grant writing course Professional workshops/seminars Collaborations Abstracts and manuscripts R01/Small grant application submission</td>
</tr>
<tr>
<td>Dissemination of Research Results</td>
<td></td>
<td>Supervising technical support personnel, organizing lab meetings, journal clubs e.g. training new lab members, undergraduate, summer students</td>
</tr>
<tr>
<td>Research management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentorship</td>
<td></td>
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</tr>
</tbody>
</table>
Summary of coursework

- List previous relevant coursework
- Proposed coursework
  - Course number and description
  - Include career development courses (e.g., grant writing) and responsible conduct of research
- Additional didactic activities
  - e.g. Those offered by professional societies, workshops, symposiums

Clinical and/or Teaching activities

- Be specific, mention hrs. per week, restate % of time dedicated to research

Percentage of time for each activity

Timetable

Table: Career Development/Training Activities During Award Period
<table>
<thead>
<tr>
<th>Career Development Activities</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mentorship</strong></td>
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<tr>
<td>Mentor (name) – frequency (e.g. weekly) of individual meetings, frequency of lab meetings, frequency and listing of specific journal clubs, seminars, and other recurring relevant programs</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Co-Mentor (name) – frequency (e.g. weekly) of individual meetings, frequency of lab meetings, frequency and listing of journal clubs, seminars, and other recurring relevant programs</td>
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<td>X</td>
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<tr>
<td>Advisory Group – frequency (e.g. quarterly) of meetings</td>
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</table>

## Career Development Activities

### Experimental Training

<table>
<thead>
<tr>
<th>Mentor (name) – Specific area of research and/or methodology</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<table>
<thead>
<tr>
<th>Co-Mentor (name) – Specific area of research and/or methodology</th>
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<th>Year 2</th>
<th>Year 3</th>
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<table>
<thead>
<tr>
<th>Co-Investigator 1 (name) – Specific area of research and/or methodology</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<tr>
<th>Co-Investigator 2 (name) – Specific area of research and/or methodology</th>
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<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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<table>
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<tr>
<th>Collaborator 1 (name) – Specific area of research and/or methodology</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<table>
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<th>Collaborator 2 (name) – Specific area of research and/or methodology</th>
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### Formal Coursework

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<th>Year 2</th>
<th>Year 3</th>
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<thead>
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<th>Course #1: Specific Course # / Formal Title</th>
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<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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<th>Course #3: Specific Course # / Formal Title</th>
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<th>Year 3</th>
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<th>Responsible Conduct of Research and Related Policy Issues</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<table>
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<th>Funding for Research Activities</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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<td>Mentor (name) – frequency (e.g. weekly) of individual meetings, frequency of lab meetings, frequency and listing of specific journal clubs, seminars, and other recurring relevant programs</td>
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<td>Co-Mentor (name) – frequency (e.g. weekly) of individual meetings, frequency of lab meetings, frequency and listing of journal clubs, seminars, and other recurring relevant programs</td>
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<td>Advisory Group – frequency (e.g. quarterly) of meetings</td>
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<td><strong>Experimental Training</strong></td>
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<td>Mentor (name) – Specific area of research and/or methodology</td>
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<td>Co-Investigator 1 (name) – Specific area of research and/or methodology</td>
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<td>Collaborator 2 (name) – Specific area of research and/or methodology</td>
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<td><strong>Formal Coursework – e.g., Graduate School, Public Health, Engineering</strong></td>
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### PHS 398 Career Development Award Supplemental Form

**OMB Number:** 0925-0001  
**Expiration Date:** 3/31/2020

#### Introduction
1. Introduction to Application  
   (for Resubmission and Revision applications)

#### Candidate Section
2. Candidate Information and Goals for Career Development

#### Research Plan Section
3. Specific Aims
4. Research Strategy

#### Other Candidate Information Section
7. Candidate's Plan to Provide Mentoring

#### Mentor, Co-Mentor, Consultant, Collaborators Section
8. Plans and Statements of Mentor and Co-Mentor(s)
9. Letters of Support from Collaborators, Contributors, and Consultants

#### Environment and Institutional Commitment to Candidate Section
10. Description of Institutional Environment
11. Institutional Commitment to Candidate's Research Career Development

---

1 + 12 Pages Combined

- **Candidate Information**
  - Section 2

- **Research Plan**
  - 3. Specific Aims (1 page)
  - 4. Research Strategy
## Introduction

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5. Progress Report Publication List
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6. Training in the Responsible Conduct of Research

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## Environment and Institutional Commitment to Candidate Section

10. Description of Institutional Environment

11. Institutional Commitment to Candidate's Research Career Development
6. Training in the Responsible Conduct of Research

- Format, Subject Matter, Faculty Participation, Duration, and Frequency of Instruction
- Role of Mentor
- Prior instruction in RCR
- Once every four years requirement
- Don’t do the minimum
- Additional IRB-related programs?
- No more than 1 page
# PHS 398 Career Development Award Supplemental Form

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**Research Plan Section**

3. Specific Aims

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8. Plans and Statements of Mentor and Co-Mentor(s)

- Mentor’s assessment of the Candidate
- Mentor’s research and career development plans for the Candidate
  - Research
  - Career development activities
    - Seminars, scientific meetings, presentations, becoming a mentor, RCR
- Expectations for publications
What aspect of the research will the candidate be allowed to take to start their own independent research career

Mentor’s plans for providing mentoring and supervision

- How this will promote candidate’s development

Plan for Candidate’s Transition from Mentored Stage to Independent Investigator

Candidate’s additional responsibilities

- Courses, seminars, lab meetings
- Teaching, clinical, administrative
Source of support for Candidate’s research project

- Grants
- Core/shared facilities
- Technical support

Previous experience as a Mentor

- Type (e.g., graduate student, post-doctoral fellow, junior faculty), number, career outcomes

Mentor and Co-Mentors

- Current and previous co-mentorship activities
- Current and previous collaborative research activities

Addition instructions if clinical trials proposed

No more than 6 pages
9. Letters of Support from Collaborators, Contributors, and Consultants

■ Advisory Committee (described in Section 2)
  ■ Purpose
    ■ Reviews research progress, publications, R01 submission, career development activities, didactic program
    ■ Provides scientific guidance
    ■ Documents meetings with an annual report
  ■ Name, title, and short paragraph on each member in Section 2
  ■ Each should provide a letter and NIH Biosketch

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Collaborators and Consultants (described in Section 2)
- Name, title, and short paragraph on each individual in Section 2
- Each should provide a letter and NIH Biosketch

Director of Core Facility

No more than 6 pages
# PHS 398 Career Development Award Supplemental Form

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Environment and Institutional Commitment to the Candidate

- 10. Description of Institutional Environment
- 11. Institutional Commitment to the Candidate’s Research Career Development
Environment and Institutional Commitment to the Candidate

10. Description of Institutional Environment

- Information relevant to Candidate’s research and career development activities
  - Institution, Dept./Division, Institute
  - Other schools, centers, shared resources, core facilities, CTSA, etc.
  - Degree programs, courses, seminars, journal clubs
  - Institution’s/Dept.’s formal mentoring program

- No more than 1 page
11. Institutional Commitment to the Candidate’s Research Career Development

- Letter from Dept. Chair/Institute Director
  - Specifics on protected time (most K awards: 75%)
  - Specifics on faculty appointment (full-time)
  - Statement that appointment and salary are not contingent on award
  - Statement on availability of research resources, personnel, office space, etc. required for project
  - Statement that sponsors/mentors will be able to provide time and support for mentoring responsibilities

- Signed and dated on letterhead stationery

- No more than 1 page
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R&R Other Project Information:

10. Facilities & Other Resources

Scientific/Technical Resources

- Facilities to be used for the conduct of the proposed research
  - Laboratory
  - Animal
  - Computer
  - Office
  - Clinical [patient/research subject populations]
  - Other: Core facilities [e.g. research pharmacy, biostatistics, technical cores (microscopy, biomarkers), biohazards]

- Discuss how the proposed studies will benefit from the unique features of the scientific environment, subject populations, or collaborative arrangements

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R&R Other Project Information:

10. Facilities & Other Resources

Career Development Resources

- More complete descriptions of programs referenced in:
  - 2. Career Development/Training Activities During Award Period
  - 8. Plans and Statements of Mentor and Co-Mentor(s)
  - 10. Description of Institutional Environment
  - 11. Institutional Commitment to the Candidate’s Research Career Development
10. Facilities & Other Resources

Career Development Resources

- Career development programs
  - Institutional (e.g. Office of Faculty Affairs)
  - Departmental
  - Professional societies

- Formal degree programs and other didactics
  - Degree program:
  - Scientific courses: e.g., Statistics
  - Career Development courses: e.g., “Funding & Grantsmanship”

- Workshops, webinars, other training programs

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Letters of Reference

- Include a list of Referees in the Cover Letter
- 3-5 Letters of References are required
- Individuals who know you well from a research perspective (qualifications, training, and interests)
- Individuals not directly involved in the research project
- Mentor(s) cannot be one of the confidential Letters of Reference (“‘letter’” in main body of application)
- Helpful to include at least one referee who is not in your current department/institution
Letters of Reference

- “Potential to become an independent research scientist;
- Evidence of originality;
- Adequacy of scientific background;
- Quality of research endeavors or publications to date, if any;
- Commitment to health-oriented research; and
- Need for further research experience and training
- Any additional related comments that the referee may wish to provide”
21. Cover Letter Attachment

- Must include
- Title of application
- Title of funding opportunity announcement
- List of Referees (name and affiliation)
- Administrative document – not seen by reviewers
# PHS Assignment Request Form

**Awarding Component Assignment Request (optional)**

If you have a preference for an awarding component (e.g., NIH Institute/Center) assignment, use the link below to identify the appropriate short abbreviation and enter it below. All requests will be considered, however, assignment requests cannot always be honored.

Awarding Components: [https://grants.nih.gov/grants/phs_assignment_information.htm#AwardingComponents](https://grants.nih.gov/grants/phs_assignment_information.htm#AwardingComponents)

<table>
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<tr>
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<th>First Choice</th>
<th>Second Choice</th>
<th>Third Choice</th>
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<tbody>
<tr>
<td>Do Not Assign to Awarding Component:</td>
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**Study Section Assignment Request (optional)**

If you have a preference for study section assignment, use the link below to identify the appropriate study section (e.g., NIH Scientific Review Group or Special Emphasis Panel) and enter it below. Remove all hyphens, parentheses, and spaces. All requests will be considered, however, assignment requests cannot always be honored.

Study Sections: [https://grants.nih.gov/grants/phs_assignment_information.htm#StudySection](https://grants.nih.gov/grants/phs_assignment_information.htm#StudySection)

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*Only 20 characters allowed*
**PHS Assignment Request Form**

List individuals who should not review your application and why *(optional)*

*Note: Only 1000 characters allowed*

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**Identify scientific areas of expertise needed to review your application *(optional)***

*Note: Please do not provide names of individuals*

Expertise: *(Only 40 characters allowed)*
NIH Career Development (K) Application

- Model for other career development/scholar grant programs supported by voluntary health organizations, private foundations, and professional societies
NIH “K” Sites of Interest

- K Kiosk – includes Program Announcements for K01, K07, K08, K23, K25, and K99 grant mechanisms
  https://researchtraining.nih.gov/programs/career-development

- Career Development (K) Applications Instructions
  https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/general/g.100-how-to-use-the-application-instructions.htm

- Reference Letters
  https://grants.nih.gov/sites/default/files/instructions-for-mentored-research-career-development_referees.docx

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NIH “K” Sites of Interest

- Application Page Limits

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

- Review Criteria and Considerations, Guidelines for Reviewers, Review Critique Fillable Templates
  https://grants.nih.gov/grants/policy/review_templates.htm
NIH “K” Sites of Interest

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

- Research Training and Career Development Programs at Specific Institutes
  https://researchtraining.nih.gov/institute

- Instruction in the Responsible Conduct of Research

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Topics to be Discussed

- Individual Fellowship Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Career Transition Funding Programs

- Junior Faculty Career Development Programs
  - Overview of Programs and Funding Agencies
  - NIH Review Process, Criteria, and Scoring System
  - Components of an NIH Application

- Approaches for Competitive Applications

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Approaches for Competitive Applications

- Identify Funding
- Prepare to Write the Grant Application
- Complete the Grant Application
Identify Funding

- Identify appropriate funding agencies
  - Government
  - Non-government
- Identify appropriate funding mechanisms
  - Research
  - Training
- Create a calendar of application deadlines for identified funding programs
Approaches for Competitive Applications

- Identify Funding
- Prepare to Complete the Grant Application
- Complete the Grant Application
It’s not the will to win, but the will to prepare to win that makes the difference.

Bear Bryant, University of Alabama
Prepare to Complete the Grant Application

- Speak with Agency Program Officer
- Speak with colleagues who are/were awardees
- Review funded applications if possible
- Review agency’s review criteria
- Identify what will make the application more competitive
  - Research and/or career development arrangements
  - Access to core facilities/research resources
- Strengthen “Preliminary Work/ Pilot Data”
- Who will write confidential letters of reference?
Research and Career Development Arrangements

- Multiple Principle Investigators (research awards)
- Multiple Mentors (mentored awards)
- Advisors (mentored awards)
- Co-investigators/Collaborations
- Subcontracts to other institutions
- Multidisciplinary/Interdisciplinary

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Prepare to Complete the Grant Application

- Identify and meet with Co-investigators, Collaborators, Consultants, Advisors
  - Identify roles and responsibilities
  - Administrative requirements
    (e.g. if other countries/institutions are involved)
- Identify necessary core facilities and other research resources
- Meet with research administrators
- Human subjects, lab animals, and any other regulatory issues?

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Approaches for Competitive Applications

- Identify Funding
- Prepare to Complete the Grant Application
- Complete the Grant Application
Complete the Grant Application

- Review the application instructions
- Identify the different components
- Create a checklist (sequence/date of completion)
- Create an outline
  - Content, Length of section (vis a vis page limits)
- Identify and delegate responsibilities for the different components
  - Technical/Scientific
  - Administrative – e.g. budget
  - Regulatory
  - Draft letters of collaboration/support
Complete the Grant Application

- Confirm **page limits** for each component
- Create a **schedule** for any required **meetings**
- **Determine:**
  - Shared computer drive/folders
  - Naming of files (e.g., by version # or date)
  - Track changes?
  - Font, margin, format of literature citation
- **Set a firm time-line** for each responsibility
  - Writing milestones
  - Absolute deadline date for final compilation
Complete the Grant Application

- Read **instructions**
- **Never assume** that reviewers “will know what you mean”
- Refer to **literature** thoroughly and thoughtfully
- Explicitly state the **rationale** of the proposed investigation (“**the hypothesis of my study is...**”)
- Discuss **limitations** and potential “**challenges**” and how these will be addressed (e.g., “**alternate approaches**”)
- Include well-designed **tables and figures**
- Present an **organized**, lucid write-up (use an **outline**)
- Ask colleagues (“**pseudo reviewers**”) to **review** and **comment**
Complete the Grant Application

- Read instructions
- Never assume that reviewers “will know what you mean”
- Refer to literature thoroughly and thoughtfully
- Explicitly state the rationale of the proposed investigation (“the hypothesis of my study is…”)
- Discuss limitations and potential “challenges” and how these will be addressed (e.g., “alternate approaches”)
- **Include well-designed tables and figures**
- Present an organized, lucid write-up (use an outline)
- Ask colleagues (“pseudo reviewers”) to review and comment
Include Well-Designed Tables and Figures

- Include explanatory caption with the figure (not buried in text)
- Not overly complicated
- Informative, even if printed in black and white
- Easy for the reviewers to read

Tips:
- Bold label in text (e.g., Fig. 4) so it’s easier for reviewers to locate relevant text for individual Figure
- Try to have Figure and relevant text on the same page
### Timeline for Specific Aims and Benchmarks/Milestones of Research Progress

<table>
<thead>
<tr>
<th>Benchmarks / Milestones</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of Specific Aim 1a</td>
<td></td>
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<tr>
<td>Summary of Specific Aim 1b</td>
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<tr>
<td>Summary of Specific Aim 2a</td>
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<tr>
<td>Summary of Specific Aim 2b</td>
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</tr>
<tr>
<td>Summary of Specific Aim 3</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Anticipate Questions and Answer them before they are asked
Quote Investigator suggests crediting sociologist William Bruce Cameron
http://quoteinvestigator.com/2010/05/26/everything-counts-einstein/

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Investigator

- Competent
- Enthusiastic
- Thorough
- Professional
When describing a previous research experience:

- What was the hypothesis/scientific question?
- Why was the study important?
- What were the findings and conclusions?
- What were your role and responsibilities?
- What did you learn and accomplish?
  - “Intellectual aspects”
  - Do not focus on technical aspects
- Cite any resulting publications
- Describe any honors/awards and conference/workshop presentations

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Possible Problems Specific for Mentored Career Development Awards

Mentor

- Too many other responsibilities
  (e.g. administrative, clinical)
- Too many other mentees
  (e.g. students, post-docs)
- Not appropriate scientifically
- Too junior
- Limited experience as a mentor
- Limited funds to support proposed research

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Possible Problems Specific for Mentored Career Development Awards

Institution

- Limited scientific/technical resources
- Limited career development opportunities
- Limited opportunities for career advancement
Elements of a Good Proposal

- Feasible
- Relevant
- Unique
- Innovative
- Clear
- Brief
- Consistent
Common Problems with Grant Applications from New Investigators

- Does not address/follow funding agency’s mission, specific instructions, budget limits, etc.
- Overly ambitious (e.g., $, time, expertise, career level)
- Fishing expedition
- Not hypothesis driven
- Descriptive, not mechanistic project
- Study design (e.g., Control groups(s), Unfocussed)
- Issues with Statistical aspects/Power analysis/Data analysis
- No or insufficient preliminary data
- Does not adequately describe access to “research resources”
- Unrealistic budget
- Methodologies beyond the expertise of investigator or research team
- Not independent of previous mentor’s research

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NIH: one round of applications
Pink Sheet: Reviewers’ Comments
Bell Curve of Reviewer’s Grant Applications

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Poor Statistics
Research Resources not Adequately Described
Career Development/Research Training Plan
not Comprehensive
All Components of the Application are as Strong as Possible
ADVISORY COMMITTEE TO THE DIRECTOR

Next Generation Researchers Initiative Working Group

ACD Working Group on Biomedical Workforce

ACD Physician-Scientist Workforce

ACD Working Group on Diversity

https://acd.od.nih.gov/

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Good Luck!