NIH F31 Fellowship Applications
- Women in Science at Columbia -
(WISC)

November 13, 2017

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

- NIH Fellowship Overview
- NIH Fellowship Grant Review Process
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines
  - Fellowship Review Criteria
- Components of a Fellowship Application
- Approaches for Competitive Applications
  - Prepare to Write the Grant Application
  - Complete the Grant Application

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  - Prepare to Write the Grant Application
  - Complete the Grant Application
Timeline of Funding for Junior Investigators

Individual Fellowship
Training Grant
Mentor’s Research Grant

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

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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

Pre-doc to Post-doc Transition Awards

Post-doctoral Years

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

Instructor/Assistant Professor

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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

Instructor/Assistant Professor

Career Transition Awards

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Funds research project
• Salaries of PI and other research personnel
• Supplies, reagents, etc
• Animal costs
• Patient care costs
• Core facilities
• Page charges for publications

Multi-Year (4yrs – 5yrs)
Renewable (e.g. original grant + 2 renewals = 15yrs)
**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

Predoctoral (F31)/Dual Degree (F30) Individual National Research Service Awards

- Supports specific individual with a specific mentor conducting a specific research project
- Stipend, health fees, tuition, travel
- Review criteria:
  - Individual Fellow
  - Mentor
  - Research project
  - Research/Career Development environment

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Post-doc Fellowships (F31’s)
Applications, awards, and success rates

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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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Improving graduate student and postdoctoral training

- A. Put individual development plans in place for all trainees
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- C. Provide F30 and F31 awards from all Institutes/Centers
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http://acd.od.nih.gov/bwf.htm
Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications

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<table>
<thead>
<tr>
<th>National Cancer Institute (NCI)</th>
<th>National Eye Institute (NEI)</th>
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</thead>
<tbody>
<tr>
<td>National Heart, Lung, and Blood Institute (NHLBI)</td>
<td>National Institute on Aging (NIA)</td>
</tr>
<tr>
<td>National Human Genome Research Institute (NHGRI)</td>
<td>National Institute on Alcohol Abuse and Alcoholism (NIAAA)</td>
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<tr>
<td>National Institute of Allergy and Infectious Diseases (NIAID)</td>
<td>National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)</td>
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<tr>
<td>National Institute of Biomedical Imaging and Bioengineering (NIBIB)</td>
<td>Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)</td>
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<tr>
<td>National Institute on Deafness and Other Communication Disorders (NIDCD)</td>
<td>National Institute of Dental and Craniofacial Research (NIDCR)</td>
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<tr>
<td>National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)</td>
<td>National Institute on Drug Abuse (NIDA)</td>
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<tr>
<td>National Institute of Environmental Health Sciences (NIEHS)</td>
<td>National Institute of General Medical Sciences (NIGMS)</td>
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<tr>
<td>National Institute of Mental Health (NIMH)</td>
<td>National Institute of Neurological Disorders and Stroke (NINDS)</td>
</tr>
<tr>
<td>National Institute of Nursing Research (NINR)</td>
<td>National Institute on Minority Health and Health Disparities (NIMHD)</td>
</tr>
<tr>
<td>National Library of Medicine (NLM)</td>
<td>National Center for Complementary and Alternative Medicine (NCCAM)</td>
</tr>
<tr>
<td>Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)</td>
<td></td>
</tr>
</tbody>
</table>
Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (Parent F31 - Diversity)

National Cancer Institute (NCI)
National Eye Institute (NEI)
National Heart, Lung, and Blood Institute (NHLBI)
National Human Genome Research Institute (NHGRI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of 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 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 Library of Medicine (NLM)
National Center for Complementary and Integrative Health (NCCIH)
Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)

Funding Opportunity Announcement (FOA) Number
PA-16-308

Will soon be updated for FORMS-E

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This announcement seeks to stimulate the participation of individuals from the following groups:

- Individuals from underrepresented racial and ethnic groups;
- Individuals with disabilities; and

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 most recent report on Women, Minorities, and Persons with Disabilities in Science and Engineering). The following racial and ethnic groups have been shown to be underrepresented in biomedical research: African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and other Pacific Islanders.

B. Individuals with disabilities, who are defined as those with a physical or mental impairment that substantially limits one or more major life activities, as described in the Americans with Disabilities Act of 1990, as amended. See NSF data at http://www.nsf.gov/statistics/wmpd/2013/pdf/tab7-5_updated_2014_10.pdf.
Topics to be Discussed

- NIH Fellowship Overview
- NIH Fellowship Grant Review Process
  - Institutes and Study Sections
  - Scoring System: Impact Scores
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## 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>
</table>
| **F Series Fellowships (including F31 Diversity – NOT-OD-17-029)**  
*new, renewal, resubmission* | *Individual* National Research Service Awards (Standard)  
(see NRSA Training Page) | April 8 | August 8 | December 8 |
## Review and Award Cycles

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

[http://grants.nih.gov/grants/funding/submissionschedule.htm](http://grants.nih.gov/grants/funding/submissionschedule.htm)
**Dual Review System for Grant Applications**

**First Level of Review**

**Scientific Review Group**
- Provides initial scientific review of grant applications
- Makes recommendations for appropriate level of support and duration of award

**Second Level of Review**

**Institute’s Council**
- Assesses quality of SRG review of grant applications
- Makes recommendations to institute staff on funding
- Evaluates program priorities and relevance
- Advises on policy

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

<table>
<thead>
<tr>
<th>Ctr Scientific Rev</th>
<th>Institutes</th>
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<tbody>
<tr>
<td>• Research Grants (R01, R03)</td>
<td>• Multi-Project Grants (P01, P50, etc)</td>
</tr>
<tr>
<td>• Fellowships (F’s)</td>
<td>• Training Grants (T’s)</td>
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<tr>
<td>• Small Business</td>
<td>• Career Development (K’s)</td>
</tr>
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<td></td>
<td>• Conference Grants (R13)</td>
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<td></td>
<td>• Research Grants in response to RFAs</td>
</tr>
<tr>
<td></td>
<td>• Contracts</td>
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</tbody>
</table>

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

NIH REFERRAL AND REVIEW SYSTEM
REGULAR RESEARCH GRANT APPLICATIONS

CSR
Application to CSR

Applicant can request IRG
and IC

CSR assigns to IRG, IC

Review by CSR IRG

Summary statement to applicant

Second level Council review

Fundable

NIAID negotiates award

Grant ends, renewal

Not funded

Applicant evaluates feedback

Revised application

CSR sends to NIAID

Review by NIAID

New RFAs, other*

New RFAs, other*

R01s, revised RFAs, other*

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Application to CSR

CSR assigns to IRG, IC

Review by CSR IRG

Second level Council review

Fundable
- NIAID negotiates award
- Grant ends, renewal

Not funded
- Applicant notified, sent feedback
- Applicant evaluates feedback
- Revised application

New RFAs, other*

Applicant can request IRG and IC

Summary statement to applicant

CSR sends to NIAID

Review by NIAID

R01s, revised RFAs, other*
Application to CSR

Applicant can request IRG and IC

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CSR assigns to IRG, IC

Review by CSR IRG

Summary statement to applicant

Second level Council review

Fundable

NIAID negotiates award

Grant ends, renewal

Not funded

Applicant evaluated for feedback

Revised application
Center for Scientific Review
- Integrated Review Groups (IRG's) -

- AIDS and Related Research
- Biobehavioral and Behavioral Processes
- Biological Chemistry and Macromolecular Biophysics
- Biology of Development and Aging
- Bioengineering Sciences and Technologies
- Brain Disorders and Clinical Neuroscience
- Cell Biology
- Cardiovascular and Respiratory Sciences
- Digestive, Kidney, and Urological Sciences
- Emerging Technologies and Training Neurosciences
- Endocrinology, Metabolism, Nutrition and Reproductive Sciences
- Genes, Genomes and Genetics
- Healthcare Delivery and Methodologies

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Immunology

Infectious Diseases and Microbiology

Integrative, Functional, and Cognitive Neuroscience

Interdisciplinary Molecular Sciences and Training

Molecular, Cellular, and Developmental Neuroscience

Musculoskeletal, Oral and Skin Sciences

Oncology 1 – Basic Translational

Oncology 2 – Translational Clinical

Population Sciences and Epidemiology

Risk, Prevention and Health Behavior

Surgical Sciences, Biomedical Imaging, and Bioengineering

Vascular and Hematology

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Infectious Diseases and Microbiology IRG [IDM]

- Bacterial Pathogenesis Study Section [BACP]
- Clinical Research and Field Studies of Infectious Diseases Study Section [CRFS]
- Drug Discovery and Mechanisms of Antimicrobial Resistance Study Section [DDR]
- Host Interactions with Bacterial Pathogens Study Section [HIBP]
- Pathogenic Eukaryotes Study Section [PTHE]
- Vector Biology Study Section [VB]
- Virology A & B Study Sections [VIRA & VIRB]
- Topics in Bacterial Pathogenesis Special Emphasis Panel [IDM-B 80]
- 2 Small Business Study Sections [IDM -10] and (IDM-12)
- Infectious Diseases and Microbiology Fellowship Study Section [F13]

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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.
Center For Scientific Review
Special Emphasis Panel
MEETING ROSTER

CHAIRPERSON
FRANK, DARA W, PHD
PROFESSOR
DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY
MEDICAL COLLEGE OF WISCONSIN
MILWAUKEE, WI 53226

MEMBERS
ANGELETTI, PETER C, PHD
ASSOCIATE PROFESSOR
NEBRASKA CENTER FOR VIROLOGY
SCHOOL OF BIOLOGICAL SCIENCES
UNIVERSITY OF NEBRASKA - LINCOLN
LINCOLN, NE 68583

AUCOIN, DAVID P, PHD
ASSOCIATE PROFESSOR
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]
<table>
<thead>
<tr>
<th>Study Section</th>
<th>Study Section Description</th>
<th>SRO</th>
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<tbody>
<tr>
<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</td>
<td>Gillmor, Susan</td>
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<td>Neurosciences</td>
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<td>F02A</td>
<td>Fellowships: Behavioral Neuroscience</td>
<td>Qin, Mei</td>
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<tr>
<td>F02B</td>
<td>Fellowships: Sensory and Motor Neurosciences, Cognition and Perception</td>
<td>Low, Mei</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</td>
<td>Schauwecker, Paula</td>
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<td>Neuroscience</td>
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<td>F04A</td>
<td>Fellowships: Chemistry, Biochemistry, Biophysics, and Bioengineering A</td>
<td>Radtke, Mike</td>
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<tr>
<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>
<td>Cao, Jian</td>
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<td>F10A</td>
<td>Fellowships: Physiology and Pathobiology of Cardiovascular and Respiratory</td>
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<td>Systems</td>
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<td>F10B</td>
<td>Fellowships: Physiology and Pathobiology of Musculoskeletal, Oral and</td>
<td>Chaudhari, Anshumali</td>
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<td>Skin Systems</td>
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<td>Fellowships: Infectious Diseases and Microbiology</td>
<td>McNealy, Tamara</td>
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<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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There were 130 results matching your search criteria.

Click on the column header to sort the results.

T: Application Type; Act: Activity Code; Project: Admin IC, Serial No.; Year: Support Year/Supplement/Amendment

<table>
<thead>
<tr>
<th>T</th>
<th>Act</th>
<th>Project</th>
<th>Year</th>
<th>Sub #</th>
<th>Project Title</th>
<th>Contact PI/Project Leader</th>
<th>Organization</th>
<th>FY</th>
<th>Admin IC</th>
<th>Funding FY Total Cost</th>
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<td>5</td>
<td>F32</td>
<td>AI126992</td>
<td>02</td>
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<td>THE ROLE OF EPISTATIC NETWORKS IN SHAPING ADAPTIVE LANDSCAPES</td>
<td>ACEVEDO, ASHLEY</td>
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<td>3</td>
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<td>THE ROLE OF EPISTATIC NETWORKS IN SHAPING ADAPTIVE LANDSCAPES</td>
<td>ACEVEDO, ASHLEY</td>
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<td>2017</td>
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<td>RNA-PROTEIN INTERACTIONS DURING HEPATITIS C VIRUS INFECTION</td>
<td>ADAMS, REBECCA LYNN</td>
<td>YALE UNIVERSITY</td>
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<td>EY025981</td>
<td>02</td>
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<td>HEPARANASE IN HERPETIC KERATITIS</td>
<td>AGELIDIS, ALEX</td>
<td>UNIVERSITY OF ILLINOIS AT CHICAGO</td>
<td>2017</td>
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<td>F32</td>
<td>AI124507</td>
<td>02</td>
<td></td>
<td>CHARACTERIZING THE GAMETOCYTE METABOLOME OF THE HUMAN MALARIA PARASITE PLASMODIUM FALCIPARUM</td>
<td>ALLMAN, ERIK L</td>
<td>PENNSYLVANIA STATE UNIVERSITY-UNIV PARK</td>
<td>2017</td>
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<td>1</td>
<td>F31</td>
<td>AI129357</td>
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<td>MOLECULAR DETERMINANTS OF HUMAN ANTIBODY-MEDIATED INHIBITION OF HUMAN NOROVIRUS</td>
<td>ALVARADO, GABRIELA</td>
<td>VANDERBILT UNIVERSITY</td>
<td>2017</td>
<td>NIAID</td>
<td>$28,726</td>
</tr>
</tbody>
</table>
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

PHS Assignment Request Form

Funding Opportunity Number:

Funding Opportunity Title:

**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)

**Assign to Awarding Component:**

<table>
<thead>
<tr>
<th>First Choice</th>
<th>Second Choice</th>
<th>Third Choice</th>
</tr>
</thead>
</table>

**Do Not Assign to Awarding Component:**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</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)

**Assign to Study Section:**

*Only 20 characters allowed*

<table>
<thead>
<tr>
<th>First Choice</th>
<th>Second Choice</th>
<th>Third Choice</th>
</tr>
</thead>
</table>

**Do Not Assign to Study Section:**

*Only 20 characters allowed*

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
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

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

Note: Please do not provide names of individuals

Expertise:

Only 40 characters allowed
Topics to be Discussed

- NIH Fellowship Overview
- NIH Fellowship Grant Review Process
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines
  - Fellowship Review Criteria
- Components of a Fellowship Application
- Approaches for Competitive Applications
  - Prepare to Write the Grant Application
  - Complete the Grant Application
Pink Sheet: Reviewers’ Comments
# 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></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Impact</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></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><strong>Moderate Impact</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></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><strong>Low Impact</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></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>

Strengths/Weaknesses:

- **Strengths**
- **Weaknesses**
<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
## 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

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

---

- 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)
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**
Topics to be Discussed

- NIH Fellowship Overview
- NIH Fellowship Grant Review Process
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines
  - Fellowship Review Criteria
- Components of a Fellowship Application
- Approaches for Competitive Applications
  - Prepare to Write the Grant Application
  - Complete the Grant Application
**Overall Impact/Merit**

*Write a paragraph summarizing the factors that informed your Overall Impact score.*
Reviewer’s assessment “that the fellowship will enhance the applicant’s potential for, and commitment to, an independent, productive scientific research career…”
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.

<table>
<thead>
<tr>
<th>1. Fellowship Applicant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
</tr>
<tr>
<td>•</td>
</tr>
<tr>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td>•</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Sponsors, Collaborators, and Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
</tr>
<tr>
<td>•</td>
</tr>
<tr>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td>•</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Research Training Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
</tr>
<tr>
<td>•</td>
</tr>
<tr>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td>•</td>
</tr>
</tbody>
</table>
### 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?”

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?”
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?”

■ “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?”
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?”

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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
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 transition to the next career stage and enhance the applicant’s ability to develop into a productive researcher?”
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?
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?*
Post Initial Review Group Actions

- Calculations of priority scores and percentile rankings
- Removal of applications from Council/Board consideration

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications
<table>
<thead>
<tr>
<th>Rank</th>
<th>Impact Score</th>
<th>Percentile</th>
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<tbody>
<tr>
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<tr>
<td>4</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percentile Value Calculation

- Relative rank for each priority score on a scale from 10 to 90.

- Follows NIH convention: Inverse relationship of priority score to scientific merit - lowest percentile value represents the highest scientific merit.

- Specifies the percent of applications with scores equal to or better than (lower impact score) the application

\[ P = \frac{100}{N} \times (k^{1/2}) \]

- \( P \) = Percentile Value
- \( k \) = Numerical Rank of Impact Score
- \( N \) = Total number of applications

Calculating Percentile

80 applications*, 14 of which were not recommended for further consideration

<table>
<thead>
<tr>
<th>Rank</th>
<th>Impact Score</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>3.1</td>
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<tr>
<td>4</td>
<td>21</td>
<td>4.4</td>
</tr>
</tbody>
</table>

![](//)

Rank = 3

\[ P = \frac{100}{80} \times (3^{\frac{1}{2}}) = 3.1 \]

* Study section’s last three review cycles

Council Actions

- Concurrence with Study Section action
- Modification of Study Section action based on program or policy considerations
- Deferral for further review

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
What Determines which Awards are Made?

- Scientific Merit
- Program Considerations
- Availability of Funds

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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Topics to be Discussed

- NIH Fellowship Overview
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  - Prepare to Write the Grant Application
  - Complete the Grant Application

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

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

FY17

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

## Fellowship Payline: NIAID

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<tr>
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<th>R01 (new PI)</th>
<th>F30</th>
<th>F31</th>
<th>F32</th>
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<td>2015</td>
<td>12</td>
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<td>30</td>
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<tr>
<td>2013</td>
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<td>2010*</td>
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</table>


Topics to be Discussed

- NIH Fellowship Overview
- NIH Fellowship Grant Review Process
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines
  - Fellowship Review Criteria
- Components of a Fellowship Application
- Approaches for Competitive Applications
  - Prepare to Write the Grant Application
  - Complete the Grant Application
FELLOWSHIP INSTRUCTIONS FOR NIH AND OTHER PHS AGENCIES

SF424 (R&R) APPLICATION PACKAGES

FORMS VERSION E SERIES
UPDATED SEPTEMBER 25, 2017
<table>
<thead>
<tr>
<th>Section</th>
<th>Limit</th>
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</thead>
<tbody>
<tr>
<td>Project Summary/Abstract</td>
<td>30 lines of text</td>
</tr>
<tr>
<td>Project Narrative</td>
<td>Three sentences</td>
</tr>
<tr>
<td>Introduction to Resubmission or Revision Application (when applicable)</td>
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</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>
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<tr>
<td>Selection of Sponsor and Institution</td>
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</tr>
<tr>
<td>Training in the Responsible Conduct of Research</td>
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</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 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
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)
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td>1. Introduction to Application (for Resubmission</td>
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<td>applications)</td>
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<tr>
<td>Fellowship Applicant Section</td>
<td></td>
</tr>
<tr>
<td>2. Applicant's Background and Goals for Fellowship</td>
<td></td>
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<tr>
<td>Training</td>
<td></td>
</tr>
<tr>
<td>Research Training Plan Section</td>
<td></td>
</tr>
<tr>
<td>3. Specific Aims</td>
<td></td>
</tr>
<tr>
<td>4. Research Strategy</td>
<td></td>
</tr>
<tr>
<td>5. Respective Contributions</td>
<td></td>
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<tr>
<td>6. Selection of Sponsor and Institution</td>
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<tr>
<td>7. Progress Report Publication List (for Renewal</td>
<td></td>
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<tr>
<td>applications)</td>
<td></td>
</tr>
<tr>
<td>8. Training in the Responsible Conduct of Research</td>
<td></td>
</tr>
<tr>
<td>Sponsor(s), Collaborator(s), and Consultant(s)</td>
<td></td>
</tr>
<tr>
<td>9. Sponsor and Co-Sponsor Statements</td>
<td></td>
</tr>
<tr>
<td>10. Letters of Support from Collaborators,</td>
<td></td>
</tr>
<tr>
<td>Contributors, and Consultants</td>
<td></td>
</tr>
<tr>
<td>Institutional Environment and Commitment to Training</td>
<td></td>
</tr>
<tr>
<td>11. Description of Institutional Environment and</td>
<td></td>
</tr>
<tr>
<td>Commitment to Training</td>
<td></td>
</tr>
</tbody>
</table>
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”
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
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
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”

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

## Introduction

* Introduction to Application (for Resubmission applications)

## Fellowship Applicant Section

* Applicant's Background and Goals for Fellowship Training

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* Specific Aims
* Research Strategy
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* 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

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11. Description of Institutional Environment and Commitment to Training

---

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.”

# PHS Fellowship Supplemental Form

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   ![Add Attachment]

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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
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Add Attachment</th>
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<tbody>
<tr>
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</table>
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.

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

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?
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11. Description of Institutional Environment  
    and Commitment to Training

[Link to NIH Fellowship Application Guide](https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/fellowship-forms-e.pdf)
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


Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
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## Institutional Environment and Commitment to Training Section

11. Description of Institutional Environment and Commitment to Training

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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

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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Advanced Notice of Coming Requirements for Formal Instruction in Rigorous Experimental Design and Transparency to Enhance Reproducibility: NIH and AHRQ Institutional Training Grants, Institutional Career Development Awards, and Individual Fellowships

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 FI2.
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)

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

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

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 unique features of the scientific environment, subject populations, or collaborative arrangements**
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

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

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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)
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

- “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

- Reference Letters

- Application Page Limits
NIH “F” Sites of Interest

- 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/reviewTemplates.htm

- NIH Research Training and Career Development Programs
  https://researchtraining.nih.gov/
NIH “F” Sites of Interest

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

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

- NIH Fellowship Overview
- NIH Fellowship Grant Review Process
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines
  - Fellowship Review Criteria
- Components of a Fellowship Application
- Approaches for Competitive Applications
  - Prepare to Write the Grant Application
  - Complete the Grant Application

Approaches for Competitive Applications

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

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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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Topics to be Discussed

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- NIH Fellowship Grant Review Process
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  - Scoring System: Impact Scores
  - Fellowship Review Criteria
- Components of a Fellowship Application
- Approaches for Competitive Applications
  - Prepare to Write the Grant Application
  - Complete the Grant Application
Complete the Grant Application

- Review the application instructions
- Identify the different components
- Create a checklist
- 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

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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 (dates?)
  - 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** 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** research/career development plan (use an **outline**)
- Ask colleagues to **review** and comment

Complete the Grant Application

- Read instructions
- Never assume 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…”)
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- Ask colleagues 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>
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<tr>
<td>Summary of Specific Aim 1a</td>
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<tr>
<td>Summary of Specific Aim 1b</td>
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<td>Summary of Specific Aim 2a</td>
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<tr>
<td>Summary of Specific Aim 2b</td>
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<tr>
<td>Summary of Specific Aim 3</td>
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</table>

Anticipate Questions and Answer them before they are asked
Elements of a Good Proposal

- Feasible
- Relevant
- Unique
- Innovative
- Clear
- Brief
- Consistent
Investigator

- Competent
- Enthusiastic
- Thorough
- Professional
Not everything that can be counted counts.
Not everything that counts can be counted.

Research Training Plan Section
3. * Specific Aims
4. * Research Strategy

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

Quote Investigator suggests crediting sociologist William Bruce Cameron
http://quoteinvestigator.com/2010/05/26/everything-counts-einstein/
Personal Statement/
Candidate’s Background

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
Possible Problems Specific for Mentored Fellowship 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
Possible Problems Specific for Mentored Fellowship Awards

Institution

- Limited scientific/technical resources
- Limited career development opportunities
- Limited opportunities for career advancement
Common Problems with Grant Applications from New Investigators

- Does not address/follow funding agency’s mission, specific instructions, budget limits, etc.
- Overly ambitious
- Not independent of previous mentor’s research
- Fishing expedition
- Not hypothesis driven
- Descriptive, not mechanistic project
- Unfocussed
- No or insufficient preliminary data
- Unrealistic budget
- Methodologies beyond the expertise of investigator or research team

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NIH: one round of applications
Bell Curve of Reviewer’s Grant Applications

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Poor Statistics
Research Resources not Adequately Described
Career Development/Research Training Plan not Comprehensive
Figure Caption Font too Small
All Components of the Application are as Strong as Possible
Good Luck!