NIH

Individual Pre-doctoral (F31, F30) and Post-doctoral (F32) Fellowships

New York Academy of Sciences
March 20, 2019

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/
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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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
Topics to be Discussed

- **NIH Fellowship Overview**
  - Career Timeline
  - Funding Opportunity Announcements
  - Funding Levels and Success Rate

- **Fellowship Application Review Process**
  - Application Submission, Review, and Award Timeline
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines

- **Fellowship Application Review Criteria**

- **Components of a Fellowship Application**

- **Approaches for Competitive Applications**
Topics to be Discussed

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- Components of a Fellowship Application

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Timeline of Funding for Junior Investigators

Graduate School

F31

Individual Fellowship
Training Grant
Mentor’s Research Grant

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

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Medical School

Internship/Residency

Fellowship – Research Years

Instructor/Assistant Professor

Short term Training

Year-long Enhancement Programs

MD/PhD Fellowship or Institutional T32

F30

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Timeline of NIH Funding for Junior Investigators

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

**Short term Training**
- MD/PhD Fellowship or Institutional T32

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

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

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

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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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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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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
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).

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

Funding Opportunity Announcement (FOA) Number

PA-19-195

National Center for Complementary and Integrative Health (NCCIH)
National Cancer Institute (NCI)
National Eye Institute (NEI)
National Human Genome Research Institute (NHGRI)
National Heart, Lung, and Blood Institute (NHLBI)
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 of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of Mental Health (NIMH)
National Institute on Minority Health and Health Disparities (NIMHD)
National Institute of Nursing Research (NINR)
National Institute of Neurological Disorders and Stroke (NINDS)
National Library of Medicine (NLM)
Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)
National Institute on Drug Abuse (NIDA)

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (Parent F31)

National Cancer Institute (NCI)
National Human Genome Research Institute (NHGRI)
National Heart, Lung, and Blood Institute (NHLBI)
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)
National Institute on Drug Abuse (NIDA)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental and Craniofacial Research (NIDCR)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute on Minority Health and Health Disparities (NIMHD)
National Institute of Neurological Disorders and Stroke (NINDS)
National Library of Medicine (NLM)
National Institute of Nursing Research (NINR)
National Eye Institute (NEI)
Division of Program Coordination, Planning and Strategic Initiatives, Office of Research Infrastructure Programs (ORIP)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)

Funding Opportunity Announcement (FOA) Number
PA-19-196

For the purpose of this announcement, institutions are encouraged to recruit potential student participants from diverse backgrounds, such as:

**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). 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.

**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.
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)

National Center for Complementary and Integrative Health (NCCIH)

National Cancer Institute (NCI)

National Eye Institute (NEI)

National Human Genome Research Institute (NHGRI)

National Heart, Lung and Blood Institute (NHLBI)

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)

National Institute on Drug Abuse (NIDA)

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 of Environmental Health Sciences (NIEHS)

National Institute of Mental Health (NIMH)

National Institute on Minority Health and Health Disparities (NIMHD)

Office of Research Infrastructure Programs (ORIP)

Funding Opportunity Announcement (FOA) Number

PA-19-191


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Ruth L. Kirschstein National Research Service Award (NRSA) Individual Fellowship for Students at Institutions Without NIH-Funded Institutional Predoctoral Dual-Degree Training Programs (Parent F30)

Funding Opportunity Announcement (FOA) Number PA-19-192

National Center for Complementary and Integrative Health (NCCIH)
National Cancer Institute (NCI)
National Heart, Lung and Blood Institute (NHLBI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIH)
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 Drug Abuse (NIDA)
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 of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute on Minority Health and Health Disparities (NIMHD)
National Institute of Neurological Disorders and Stroke (NINDS)
National Library of Medicine (NLM)
Office of Research Infrastructure Programs (ORIP)
National Human Genome Research Institute (NHGRI)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship (Parent F32)

National Center for Complementary and Integrative Health (NCCIH)
National Cancer Institute (NCI)
National Eye Institute (NEI)
National Human Genome Research Institute (NHGRI)
National Heart, Lung and Blood Institute (NHLBI)
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)
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National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute on Minority Health and Health Disparities (NIMHD)
National Institute of Nursing Research (NINR)
National Institute on Drug Abuse (NIDA)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)

Funding Opportunity Announcement (FOA) Number: PA-19-188
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.
Individual Fellowships

Non-government, non-profit agencies

• Voluntary Health Organizations
• Professional Societies
• Private Foundations
American Heart Association
Predoctoral Fellowship Program

- Cardiovascular function and disease and stroke
- “Pre-doctoral or clinical health professional degree students… enrolled in a post-baccalaureate Ph.D., M.D., D.O., D.V.M., Pharm.D., D.D.S., DrPH, or Ph.D. in nursing or equivalent clinical health science doctoral degree program”
- Basic science, clinical, behavioral, translational, population research, bioengineering, biotechnology, public health
- Funding: Stipend (NIH rate), Health insurance, Project support
- Award Duration: 1-2 years

- U.S. citizen, Permanent resident, Visa status (e.g., H1-B, F-1, J-1, O-1)

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American Heart Association
Postdoctoral Fellowship Program

- Cardiovascular function and disease and stroke research
- Basic, translational, clinical, behavioral, population, bioengineering, biotechnology, and public health
- Funding: Stipend, Health insurance, Project support
- Award Duration: 2 years, May apply for a second 2-year award
- US citizenship/Permanent Residency not required

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

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

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute/Cent</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>2018</td>
<td>F31</td>
<td>NCCIH****</td>
<td>14</td>
<td>6</td>
<td>42.9%</td>
<td>$214,547</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NCI</td>
<td>367</td>
<td>104</td>
<td>28.3%</td>
<td>$4,083,988</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NEI</td>
<td>56</td>
<td>17</td>
<td>30.4%</td>
<td>$714,724</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NHGRI</td>
<td>8</td>
<td>1</td>
<td>12.5%</td>
<td>$38,767</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NHLBI</td>
<td>214</td>
<td>89</td>
<td>41.6%</td>
<td>$3,495,967</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIA</td>
<td>106</td>
<td>28</td>
<td>26.4%</td>
<td>$1,088,187</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIAAA</td>
<td>71</td>
<td>30</td>
<td>42.3%</td>
<td>$1,186,524</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIAID</td>
<td>325</td>
<td>38</td>
<td>11.7%</td>
<td>$1,470,618</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIAMS</td>
<td>59</td>
<td>15</td>
<td>25.4%</td>
<td>$600,490</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIBIB</td>
<td>15</td>
<td>5</td>
<td>33.3%</td>
<td>$192,770</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NICHD</td>
<td>128</td>
<td>39</td>
<td>30.5%</td>
<td>$1,521,735</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIDA</td>
<td>95</td>
<td>28</td>
<td>29.5%</td>
<td>$1,080,314</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIDCD</td>
<td>72</td>
<td>22</td>
<td>30.6%</td>
<td>$829,291</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIDCR</td>
<td>28</td>
<td>18</td>
<td>64.3%</td>
<td>$630,826</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIDDK</td>
<td>172</td>
<td>53</td>
<td>30.8%</td>
<td>$1,993,026</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIEHS</td>
<td>56</td>
<td>13</td>
<td>23.2%</td>
<td>$471,710</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIGMS</td>
<td>282</td>
<td>34</td>
<td>12.1%</td>
<td>$1,253,228</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIMH</td>
<td>219</td>
<td>53</td>
<td>24.2%</td>
<td>$2,136,692</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NIMHD****</td>
<td>20</td>
<td>5</td>
<td>25.0%</td>
<td>$210,722</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NINDS</td>
<td>324</td>
<td>85</td>
<td>26.2%</td>
<td>$3,302,734</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NINR</td>
<td>35</td>
<td>14</td>
<td>40.0%</td>
<td>$595,847</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NLM</td>
<td>6</td>
<td>2</td>
<td>33.3%</td>
<td>$94,048</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>OD ORIP</td>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>$0</td>
</tr>
</tbody>
</table>

Success Rates: 26.2%  
Total Funding: $27,206,755

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Applications, awards, and success rates

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<th>Total Funding</th>
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</thead>
<tbody>
<tr>
<td>2009</td>
<td>F31</td>
<td>NCI</td>
<td>64</td>
<td>29</td>
<td>45.3%</td>
<td>$1,000,758</td>
</tr>
<tr>
<td>2010</td>
<td>F31</td>
<td>NCI</td>
<td>72</td>
<td>28</td>
<td>38.9%</td>
<td>$956,309</td>
</tr>
<tr>
<td>2011</td>
<td>F31</td>
<td>NCI</td>
<td>71</td>
<td>28</td>
<td>39.4%</td>
<td>$969,748</td>
</tr>
<tr>
<td>2012</td>
<td>F31</td>
<td>NCI</td>
<td>333</td>
<td>95</td>
<td>28.5%</td>
<td>$3,327,984</td>
</tr>
<tr>
<td>2013</td>
<td>F31</td>
<td>NCI</td>
<td>372</td>
<td>118</td>
<td>31.7%</td>
<td>$4,268,106</td>
</tr>
<tr>
<td>2014</td>
<td>F31</td>
<td>NCI</td>
<td>349</td>
<td>109</td>
<td>31.2%</td>
<td>$3,907,028</td>
</tr>
<tr>
<td>2015</td>
<td>F31</td>
<td>NCI</td>
<td>336</td>
<td>97</td>
<td>28.9%</td>
<td>$3,497,746</td>
</tr>
<tr>
<td>2016</td>
<td>F31</td>
<td>NCI</td>
<td>302</td>
<td>86</td>
<td>28.5%</td>
<td>$3,183,545</td>
</tr>
<tr>
<td>2017</td>
<td>F31</td>
<td>NCI</td>
<td>343</td>
<td>84</td>
<td>24.5%</td>
<td>$3,180,018</td>
</tr>
<tr>
<td>2018</td>
<td>F31</td>
<td>NCI</td>
<td>367</td>
<td>104</td>
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Post-doc Fellowships (F32’s) Applications, awards, and success rates

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### Application Due Dates

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<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>F Series Fellowships</td>
<td>Individual National Research Service Awards (Standard)</td>
<td>April 8</td>
<td>August 8</td>
<td>December 8</td>
</tr>
<tr>
<td>(including F31 Diversity – NOT-OD-17-029)</td>
<td>(see NRSA Training Page)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>new, renewal, resubmission</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Application Due Dates**

<table>
<thead>
<tr>
<th>All Activity Codes Cited Above</th>
<th><strong>AIDS and AIDS-Related Applications</strong></th>
<th>May 7</th>
<th>September 7</th>
<th>January 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Effective. Sept 5, 2015 - N/A for SBIR/STTR Applications using Standard Due Dates</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOTE: See Key Dates section of funding opportunity announcement to determine if AIDS dates apply.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
## 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><strong>Application Due Dates</strong></td>
<td>January 25 - May 7</td>
<td>May 25 - September 7</td>
<td>September 25 - January 7</td>
</tr>
<tr>
<td><strong>Scientific Merit Review</strong></td>
<td>June - July</td>
<td>October - November</td>
<td>February - March</td>
</tr>
<tr>
<td><strong>Advisory Council Round</strong></td>
<td>August or October *</td>
<td>January</td>
<td>May</td>
</tr>
<tr>
<td><strong>Earliest Project Start Date</strong></td>
<td>September or December *</td>
<td>April</td>
<td>July</td>
</tr>
</tbody>
</table>


Topics to be Discussed

- NIH Fellowship Overview
  - Career Timeline
  - Funding Opportunity Announcements
  - Funding Levels and Success Rate

- Fellowship Application Review Process
  - Application Submission, Review, and Award Timeline
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines

- Fellowship Application Review Criteria

- Components of a Fellowship Application

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

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

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

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]
- Topic-specific R03, R21, and R15 review committees
- 2 Small Business Study Sections [IDM -10] and (IDM-12)
- Infectious Diseases and Microbiology Fellowship Study Section [F13]
<table>
<thead>
<tr>
<th>Study Section</th>
<th>Study Section Description</th>
<th>Scientific Review Officer</th>
</tr>
</thead>
<tbody>
<tr>
<td>F01A</td>
<td>Fellowships: Brain Disorders and Related Neurosciences</td>
<td>Dr. Vilen Movsesyan</td>
</tr>
<tr>
<td>F01B</td>
<td>Fellowships: Learning and Memory, Language, Communication and Related Neurosciences</td>
<td>Dr. Susan Gillmor</td>
</tr>
<tr>
<td>F02A</td>
<td>Fellowships: Behavioral Neuroscience</td>
<td>Dr. Mei Qin</td>
</tr>
<tr>
<td>F02B</td>
<td>Fellowships: Sensory and Motor Neurosciences, Cognition and Perception</td>
<td>Dr. Sharon Low</td>
</tr>
<tr>
<td>F03A</td>
<td>Fellowships: Neurodevelopment, Synaptic Plasticity and Neurodegeneration</td>
<td>Dr. Mary Schueler</td>
</tr>
<tr>
<td>F03B</td>
<td>Fellowships: Biophysical, Physiological, Pharmacological and Bioengineering Neuroscience</td>
<td>Dr. Sussan Paydar</td>
</tr>
<tr>
<td>F04A</td>
<td>Fellowships: Chemistry, Biochemistry and Biophysics A</td>
<td>Dr. Mike Radtke</td>
</tr>
<tr>
<td>F04B</td>
<td>Fellowships: Chemistry, Biochemistry and Biophysics B</td>
<td>Dr. Sudha Veeraraghavan</td>
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<tr>
<td>F05-D</td>
<td>Fellowships: Cell Biology, Developmental Biology, and Bioengineering</td>
<td>Dr. Alexander Gubin</td>
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<tr>
<td>F05-U</td>
<td>Fellowships: Cell Biology, Developmental Biology, and Bioengineering</td>
<td>Dr. Raj Krishnaraju</td>
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<tr>
<td>F06</td>
<td>Fellowships: Endocrinology, Metabolism, Nutrition and Reproductive Sciences</td>
<td>Dr. Elaine Sierra-Rivera</td>
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<tr>
<td>F07</td>
<td>Fellowships: Immunology and Area</td>
<td>Dr. Liying Guo</td>
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<tr>
<td>F08</td>
<td>Fellowships: Genes, Genomes and Genetics</td>
<td>Dr. Lystranne Maynard Smith</td>
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<td>F09A</td>
<td>Fellowships: Oncological Sciences</td>
<td>Dr. Reigh-Yi Lin</td>
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<td>Dr. Jian Cao</td>
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<td>F09C</td>
<td>Fellowships: Oncological Sciences</td>
<td>Dr. Sarita Sastry</td>
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<tr>
<td>F10A</td>
<td>Fellowships: Physiology and Pathobiology of Cardiovascular and Respiratory Systems</td>
<td>Dr. Richard Schneiderman</td>
</tr>
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<td>F10B</td>
<td>Fellowships: Musculoskeletal and Oral Sciences, Imaging, Surgery, and Informatics</td>
<td>Dr. Anshumali Chaudhari</td>
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<tr>
<td>F13</td>
<td>Fellowships: Infectious Diseases and Microbiology</td>
<td>Dr. Tamara McNealy</td>
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<tr>
<td>F16</td>
<td>Fellowships: Risk, Prevention and Health Behavior</td>
<td>Dr. Martha Faraday</td>
</tr>
<tr>
<td>F17</td>
<td>Fellowships: AIDS and AIDS Related Applications</td>
<td>Dr. Jingsheng Tuo</td>
</tr>
<tr>
<td>F18</td>
<td>Fellowships: Epidemiology and Population Sciences</td>
<td>Dr. Ramona Gianina Dumitrescu</td>
</tr>
</tbody>
</table>
Fellowships: Infectious Diseases and Microbiology – F13

The F13 Special Emphasis Panel reviews fellowship applications involving virology and viral pathogenesis, bacteriology and bacterial pathogenesis, fungal pathogenesis, parasitology and parasitic diseases, vector biology, the innate and adaptive host responses to these microbes and viruses, and the development of anti-infective agents to treat and prevent infectious disease.
Notice of NIH Policy to All Applicants: Meeting rosters are provided for information purposes only. Applicant investigators and institutional section members about an application before or after the review. Failure to observe this policy will create a serious breach of integrity in the \texttt{NOT-OD-14-073} and \texttt{NOT-OD-15-106}, including removal of the application from immediate review.

CHAIRPERSON
---------------------
VEDANTAM, GAYATRI, PHD
PROFESSOR
SCHOOL OF ANIMAL AND COMPARATIVE
BIOMEDEICAL SCIENCES
UNIVERSITY OF ARIZONA
TUCSON, AZ, 85721

MEMBERS
---------
ADAMSON, AMY L, PHD
PROFESSOR
DEPARTMENT OF BIOLOGY
UNIVERSITY OF NORTH CAROLINA - GREENSBORO
GREENSBORO, NC, 27402

ALLRED, DAVID R, PHD
PROFESSOR
DEPARTMENT OF INFECTIOUS DISEASES AND IMMUNOLOGY
UNIVERSITY OF FLORIDA
GAINESVILLE, FL, 32610880

ALTO, NEAL MATHEW, PHD
ASSOCIATE PROFESSOR
DEPARTMENT OF MICROBIOLOGY
SOUTHWESTERN MEDICAL CENTER

https://public.era.nih.gov/pubroster/jsp/preRosIndex.jsp?CID=101323&AGENDA=353189
Jaime S. Rubin, Ph.D.; \texttt{http://grantscourse.columbia.edu}
Notice of NIH Policy to All Applicants: Meeting rosters are provided for information purposes only. Applicant investigators and institutional officials must not communicate directly with study section members about an application before or after the review. Failure to observe this policy will create a serious breach of integrity in the peer review process, and may lead to actions outlined in NOT-OD-14-073 and NOT-OD-15-106 including removal of the application from immediate review.
Overlaps with Closely Related Study Sections

- **Immunology and Area (F07)** in the area of infectious diseases. Fellowship applications that focus on advancing the understanding of the immune response against microbial pathogens may be reviewed in F07. Fellowship applications that focus on microbial pathogenesis may be reviewed in F13.

- **Genes, Genomes and Genetics (F08)** in the area of microbiology. Fellowship applications that focus on bacterial genetics, DNA replication, recombination/repair, transcriptional regulation, and evolution may be reviewed in F (08). Fellowship applications that explore bacterial physiology or pathogenesis may be reviewed in F13.

- **Risk, Prevention and Health Behavior (F16)** in the area of infectious diseases. Fellowship applications that focus on the epidemiology, implementation science, health informatics or ethical issues as related to infectious diseases may be reviewed in F16. Fellowship applications that address infectious disease transmission and molecular epidemiology may be reviewed in F13.
There were **125** results matching your search criteria.

Click on the column header to sort the results.

<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 IC</th>
<th>FY Total Cost by IC</th>
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<td>A1126892</td>
<td>03</td>
<td></td>
<td>THE ROLE OF EPISTATIC NETWORKS IN SHAPING ADAPTIVE LANDSCAPES</td>
<td>ACEVEDO, ASHLEY</td>
<td>ROCKEFELLER UNIVERSITY</td>
<td>2018</td>
<td>NIAID</td>
<td>NIAID</td>
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<td>F32</td>
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<td>RNA-PROTEIN INTERACTIONS DURING HEPATITIS C VIRUS INFECTION</td>
<td>ADAMS, REBECCA LYNN</td>
<td>YALE UNIVERSITY</td>
<td>2018</td>
<td>NIAID</td>
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<td>5</td>
<td>F30</td>
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<td>HEPARANASE IN HERPETIC KERATITIS</td>
<td>AGELIDIS, ALEX</td>
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<td>CORONAVIRUS ANTIMVIRAL NUCLEOSIDE ANALOGS: INHIBITION AND REDUCED SUSCEPTIBILITY</td>
<td>AGOSTINI, MARIA</td>
<td>VANDERBILT UNIVERSITY</td>
<td>2018</td>
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<td>01</td>
<td></td>
<td>CATCHING THE PARPS: DEFINING THE ANTIVIRAL MECHANISMS OF ADP-ROMBSYLLATION IN SIV INFECTION</td>
<td>AGUILAR, EDUARDO G</td>
<td>ROCKEFELLER UNIVERSITY</td>
<td>2018</td>
<td>NIAID</td>
<td>NIAID</td>
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<td>5</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>2018</td>
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<td>NIAID</td>
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<tr>
<td>1</td>
<td>F32</td>
<td>GM130003</td>
<td>01</td>
<td></td>
<td>MOLECULAR MECHANISMS OF SPORE GERMINATION</td>
<td>AMON, JEREMY DAVID</td>
<td>HARVARD MEDICAL SCHOOL</td>
<td>2018</td>
<td>NIGMS</td>
<td>NIGMS</td>
<td>$56,654</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
**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>
<thead>
<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)

<table>
<thead>
<tr>
<th>Assign to Study Section</th>
<th>First Choice</th>
<th>Second Choice</th>
<th>Third Choice</th>
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</thead>
<tbody>
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<tr>
<td>Do Not Assign to Study Section</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Only 20 characters allowed</td>
<td></td>
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</tr>
</tbody>
</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*

Expertise:

Only 40 characters allowed
Topics to be Discussed

- NIH Fellowship Overview
  - Career Timeline
  - Funding Opportunity Announcements
  - Funding Levels and Success Rate

- Fellowship Application Review Process
  - Application Submission, Review, and Award Timeline
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines

- Fellowship Application Review Criteria

- Components of a Fellowship Application

- Approaches for Competitive Applications

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>Strengths/Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Impact</strong></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>4</td>
<td>Very Good</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Good</td>
<td></td>
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<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
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<tr>
<td><strong>Low Impact</strong></td>
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<td>Fair</td>
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<td></td>
<td>8</td>
<td>Marginal</td>
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<tr>
<td></td>
<td>9</td>
<td>Poor</td>
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</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>
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<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.

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

Overall Impact

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

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.

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 ×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
  - Career Timeline
  - Funding Opportunity Announcements
  - Funding Levels and Success Rate

- Fellowship Application Review Process
  - Application Submission, Review, and Award Timeline
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines

- Fellowship Application Review Criteria

- Components of a Fellowship Application

- Approaches for Competitive Applications

# Fellowship Payline: NIAID

<table>
<thead>
<tr>
<th>Grant Type</th>
<th>Payline</th>
<th>Status</th>
<th>Description</th>
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<tbody>
<tr>
<td>F30</td>
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<td>NRSA Individual Predoctoral M.D./Ph.D. or Other Dual-Doctoral Degree Fellowships</td>
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<tr>
<td>F31</td>
<td>18 overall impact/priority score</td>
<td>Interim</td>
<td>NRSA Individual Predoctoral Fellowships</td>
</tr>
<tr>
<td>F32</td>
<td>20 overall impact/priority score</td>
<td>Interim</td>
<td>NRSA Individual Postdoctoral Fellowships</td>
</tr>
</tbody>
</table>

FY19

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

## Fellowship Payline: NIAID

<table>
<thead>
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<th>FY</th>
<th>F30</th>
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# Fellowship Payline: NHLBI

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<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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<td>F31, F32, F33</td>
<td>Pre- and Post-doctoral NRSA</td>
<td>39</td>
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</tr>
</tbody>
</table>


Topics to be Discussed

- **NIH Fellowship Overview**
  - Career Timeline
  - Funding Opportunity Announcements
  - Funding Levels and Success Rate

- **Fellowship Application Review Process**
  - Application Submission, Review, and Award Timeline
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines

- **Fellowship Application Review Criteria**

- **Components of a Fellowship Application**

- **Approaches for Competitive Applications**

Application Review Information from the Fellowship Funding Opportunity Announcements

“A fellowship application has a research project that is integrated with the training plan. The review will emphasize the applicant's potential for a productive career, the 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.”

https://researchtraining.nih.gov/programs/fellowships

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Overall Impact/Merit Score
Reviewer’s assessment “that the fellowship will enhance the applicant’s potential for, and commitment to, a productive independent scientific research career…”

Overall Impact/Merit
Write a paragraph summarizing the factors that informed your Overall Impact score.

https://researchtraining.nih.gov/programs/fellowships
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
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**
   - 

### 4. Training Potential

<table>
<thead>
<tr>
<th>Strengths</th>
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<th>Weaknesses</th>
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### 5. Institutional Environment & Commitment to Training

<table>
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<th>Strengths</th>
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<table>
<thead>
<tr>
<th>Weaknesses</th>
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</table>
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?”
- **Post-docs:** “Does the research project reflect a significant contribution of the candidate to the originality of the project idea, approach and/or hypotheses?”

https://researchtraining.nih.gov/programs/fellowships
1. Fellowship Applicant

- **Dual-Degree (MD/PhD):** Are the applicant's interests consistent with a career as a physician-scientist or other clinician-scientist?

- **Dual-Degree (MD/PhD):** Does the applicant have the potential to develop into an independent, productive contributor to biomedical, behavioral or clinical science as a physician-scientist or other clinician-scientist?

- **Dual-Degree (MD/PhD):** 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?”

https://researchtraining.nih.gov/programs/fellowships

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://researchtraining.nih.gov/programs/fellowships

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?
- 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?”
2. Sponsors, Collaborators, and Consultants

- **Post-docs**: “Does the sponsor's research and training record, as well as mentoring statement, indicate that the applicant will receive outstanding training in the proposed research area and have the opportunity to publish high quality papers and present research data at national meetings as the project progresses?”

https://researchtraining.nih.gov/programs/fellowships
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://researchtraining.nih.gov/programs/fellowships
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
3. Research Training Plan

■ “If proposed, will the clinical trial experience contribute to the proposed project and/or the applicant's research training?”

■ Post-docs: “Does the training plan provide adequate opportunities to present and publish research findings and meet with scientists in the community at national meetings as the work progresses?”

■ Post-docs: “Will the training plan provide the professional skills needed for the applicant to transition to the next stage of his/her research career?”

https://researchtraining.nih.gov/programs/fellowships
3. Research Training Plan

- **Dual-Degree (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?

https://researchtraining.nih.gov/programs/fellowships

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

- **Dual-Degree (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?

- **Dual-Degree (MD/PhD):** If applicable to the dual-degree program, are appropriate opportunities for electives, early and longitudinal clinical experiences, or other enhanced clinical training available to the applicant? Are appropriate opportunities available to ease the transition to clinical clerkships and for research electives during clinical training?

https://researchtraining.nih.gov/programs/fellowships

5. Institutional Environment & Commitment to Training

- “Are the research facilities, resources (e.g., equipment, laboratory space, computer time, subject populations, clinical training settings), 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

- **Post-docs**: “Does the institutional and/or lab environment provide appropriate and sufficient opportunities for the applicant to gain the professional skills needed for a successful research career?”

https://researchtraining.nih.gov/programs/fellowships

5. Institutional Environment & Commitment to Training - Dual-Degree (MD/PhD)

- Given the integrated nature of the training program, will appropriate advising be available to the applicant as he/she transitions between the research and clinical components of the integrated training program and to the next career stage?

https://researchtraining.nih.gov/programs/fellowships

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
5. Institutional Environment & Commitment to Training - Dual-Degree (MD/PhD)

- Is there appropriate institutional commitment to fostering the applicant's integrated training as a physician-scientist or other clinician-scientist?
- Does this commitment extend to support the applicant's research and training, if needed, for the duration of the proposed award?

https://researchtraining.nih.gov/programs/fellowships
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Additional Review Criteria

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

- Protections for Human Subjects
- Inclusion of Women, Minorities, and Individuals Across the Lifespan (as of Jan 25, 2019)
- Vertebrate Animals
- Biohazards
- Resubmissions
  - Response to previous reviewers’ comments and subsequent changes made to the proposal

https://researchtraining.nih.gov/programs/fellowships
Additional Review Considerations

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

- Training in the Responsible Conduct of Research
  - Address required components

- Select Agent Research

- Resource Sharing Plans
  - 1) Data Sharing Plan; 2) Sharing Model Organisms; and 3) Genomic Data Sharing Plan

- Budget and Period of Support

https://researchtraining.nih.gov/programs/fellowships

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

- NIH Fellowship Overview
  - Career Timeline
  - Funding Opportunity Announcements
  - Funding Levels and Success Rate

- Fellowship Application Review Process
  - Application Submission, Review, and Award Timeline
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  - Scoring System: Impact Scores
  - Institute Funding Paylines

- Fellowship Application Review Criteria

- Components of a Fellowship Application

- Approaches for Competitive Applications

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 (for Resubmission applications)
## Page Limits

<table>
<thead>
<tr>
<th>Section</th>
<th>Lines/Sections</th>
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<tbody>
<tr>
<td>Project Summary/Abstract</td>
<td>30 lines</td>
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<tr>
<td>Project Narrative</td>
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<tr>
<td>Introduction to Resubmission or Revision Application (when applicable)</td>
<td>1</td>
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<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>
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<tr>
<td>Selection of Sponsor and Institution</td>
<td>1</td>
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<tr>
<td>Training in the Responsible Conduct of Research</td>
<td>1</td>
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<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>
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<tr>
<td>Applications for Concurrent Support (when applicable)</td>
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<tr>
<td>Biographical Sketch</td>
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</table>
# 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**  
   [Blank]
   [Add Attachment]

## Research Training Plan Section
3. **Specific Aims**  
   [Blank]
   [Add Attachment]

4. **Research Strategy**  
   [Blank]
   [Add Attachment]

5. **Respective Contributions**  
   [Blank]
   [Add Attachment]

6. **Selection of Sponsor and Institution**  
   [Blank]
   [Add Attachment]

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

8. **Training in the Responsible Conduct of Research**  
   [Blank]
   [Add Attachment]

## Sponsor(s), Collaborator(s), and Consultant(s) Section
9. **Sponsor and Co-Sponsor Statements**  
   [Blank]
   [Add Attachment]

10. **Letters of Support from Collaborators, Contributors, and Consultants**  
    [Blank]
    [Add Attachment]

## Institutional Environment and Commitment to Training Section
11. **Description of Institutional Environment and Commitment to Training**  
    [Blank]
    [Add Attachment]

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Research Training Plan Section
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# PHS Fellowship Supplemental Form

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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

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)
  - Include results and conclusions, publications, presentations
  - Relationship to proposed fellowship

- Graduate students:
  - Undergraduate research
  - Graduate lab rotations
  - 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), Research and Technical Skills, Career Development Skills (e.g. presentations, writing)
- How the fellowship will “facilitate your transition to the next career stage”

See more information at:
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

---

https://grants.nih.gov/grants/how-to-apply-application-guide/forms-c/general/g.430-.phs-fellowship-supplemental-form.htm

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
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 to progress in the field
  - 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

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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
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.”


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

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## 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

# PHS Fellowship Supplemental Form

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## Research Training Plan Section

3. Specific Aims

4. Research Strategy

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11. Description of Institutional Environment and Commitment to Training

[Link to NIH Grant Application Guide](https://grants.nih.gov/grants/how-to-apply-application-guide/forms-c/general/g.430-phs-fellowship-supplemental-form.htm)
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
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 on 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


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

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

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

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

Research Training Plan Section
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Institutional Environment and Commitment to Training Section
11. Description of Institutional Environment and Commitment to Training [Add Attachment]
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

- Signed on letterhead stationery


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

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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, courses, journal clubs, seminars, workshops, presentations, etc.
- Appropriate facilities and resources available for academic, research, and career development activities
- Refer to “Facilities/Resources” and “Sponsor’s Statement” sections

https://grants.nih.gov/grants/how-to-apply-application-guide/forms-c/general/g.430-phis-fellowship-supplemental-form.htm

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
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, Clinical requirements, (e.g., F30), 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
11. Description of Institutional Environment and Commitment to Training (2 pages)

- Additional Educational Information – F30 applications
  - Clinical didactic programs during the graduate research years
  - Programs to facilitate the transition from graduate/research training (PhD) to the clinical training (MD) of the dual-degree program
  - Research-related programs during the clinical years of the dual-degree program
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
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, a 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
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.”


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Individual Development Plans

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

http://myidp.sciencecareers.org/

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
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)

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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, 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
R&R Other Project Information:

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
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
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

https://grants.nih.gov/grants/how-to-apply-application-guide/forms-c/general/g.200-sf-424-(r&r)-form.htm

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The R&R Senior/Key Person Profile (Expanded) Form is used for all grant applications, and allows the collection of data for all senior/key persons associated with the project. Some information for the PD/PI may be pre-populated from the SF424 (R&R) form. See instructions in G.200 - SF 424 (R&R) Form if these fields are empty.

Quick Links
- Profile - Project Director/Principal Investigator
- Instructions for a Biographical Sketch
- Profile - Senior/Key Person 1
- Additional Senior/Key Person Profile(s)
# Biosketch Format Pages, Instructions and Samples

<table>
<thead>
<tr>
<th>Form Name</th>
<th>Form Number</th>
<th>Description</th>
<th>How to Access</th>
<th>Instructions</th>
<th>Additional Information</th>
<th>Updated Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biographical Sketch Format Page (non-fellowship)</td>
<td></td>
<td>Prepare biographical sketches for applications and progress reports for non-fellowship applications and awards.</td>
<td>Blank biosketch format page – non-fellowship</td>
<td>Biosketch instructions – non-fellowship</td>
<td>Sample of non-fellowship biosketch Try SciENcv to help you develop your biosketch and automatically format it according to NIH requirements.</td>
<td>September 2017</td>
</tr>
<tr>
<td>Biographical Sketch Format Page (fellowship)</td>
<td></td>
<td>Prepare biographical sketches for applications and progress reports for fellowship applications and awards.</td>
<td>Blank biosketch format page - fellowship</td>
<td>Biosketch instructions – fellowship</td>
<td>Sample for Predoctoral Fellowship Sample for Postdoctoral Fellowship Try SciENcv to help you develop your biosketch and automatically format it according to NIH requirements.</td>
<td>September 2017</td>
</tr>
</tbody>
</table>

https://grants.nih.gov/grants/forms/biosketch.htm

Biographical Sketch

- **Keep Yours Current!**
- Include all information that is relevant – even if mentioned/discussed elsewhere in the application
- “Stand alone” document that conveys to the reviewers everything you want them to know about you
- Make sure that the NIH Biosketches others give you for your application are current and programmatically appropriate
- 5 pages in length total

https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/general/g.240-r&r-seniorkey-person-profile-(expanded)-form.htm#Instructions

Biosketch for Fellowship Applications

- “Special” NIH Biosketch for Fellowship (F) applicants
- C. Contributions to Science
  - High School Research:
  - Undergraduate Research:
  - Graduate Research:
  - Post-doctoral Research:
- Additional section - Scholastic Performance (courses and grades) [D. Additional Information]
- https://grants.nih.gov/grants/forms/biosketch.htm

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BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Robertson-Chang, Leilani

eRA COMMONS USER NAME (credential, e.g., agency login): RobertsonL

POSITION TITLE: Graduate Student Research Assistant

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>START DATE MM/YYYY</th>
<th>END DATE MM/YYYY</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swarthmore College</td>
<td>BA</td>
<td>08/2008</td>
<td>05/2012</td>
<td>Biology</td>
</tr>
<tr>
<td>UC San Diego</td>
<td>PHD</td>
<td>08/2012</td>
<td>05/2018</td>
<td>Molecular Biology</td>
</tr>
</tbody>
</table>
A. Personal Statement

My long term research interests involve the development of a comprehensive understanding of key developmental pathways and how alterations in gene expression contribute to human disease. My academic training and research experience to date have provided me with an excellent background in molecular biology and microbiology. While in high school I was awarded an NIH Diversity Supplement award to work as a research technician for two summers in Dr. Indira Creative’s lab at the University of Hawaii. As an undergraduate at Swarthmore College, I conducted research with Dr. Xavier Factor on the mechanisms of action of a new class of antibiotics. This resulted in a co-authorship publication, as well as an invitation to present a poster at the annual Antibiotica meeting in Denver, Colorado. For my graduate training at UC San Diego, I have moved into the fields of genetics and biochemistry by studying the regulation of transcription in yeast, under Dr. Tanti Auguri. Dr. Auguri is an internationally recognized leader in the field of yeast genetics and has an extensive record for training predoctoral and postdoctoral fellows. Along with giving me new conceptual and technical training, the proposed training plan outlines a set of career development activities and workshops – e.g. public speaking, literature analysis, biomedical ethics, and career options. For my initial project I am currently developing a novel protocol for the purification for components of large transcription complexes which I hope to submit as a first author publication in the next few months. As a native Hawaiian, I am the first in my family to graduate from college so I am excited to keep pushing forward with my education. Overall, I feel that my choice of sponsor, research project, and the training I will get from this fellowship will give me a solid foundation for my long-term goal to become an academic researcher.

1. Robertson-Chang L, Factor X. Testing the ability of antibiotic Gen Y to kill Gram-negative bacteria. Antibiotica annual meeting; 2011 September; Denver, CO.

2. Robertson-Chang L, Auguri T. A tandem affinity purification tag approach allows for isolation of interacting proteins in Saccharomyces cerevisiae. Yeast Genetics and Molecular Biology Meeting; 2013 September; Seattle, WA.
### B. Positions and Honors

#### Positions and Employment

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Position Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007 - 2008</td>
<td>Lab Technician, University of Hawaii</td>
</tr>
<tr>
<td>2012 -</td>
<td>Graduate Student Research Assistant, UC San Diego</td>
</tr>
</tbody>
</table>

#### Other Experience and Professional Memberships

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Membership Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007 -</td>
<td>Member, Association for Women in Science</td>
</tr>
<tr>
<td>2009 -</td>
<td>Member, Sigma Xi</td>
</tr>
</tbody>
</table>

#### Honors

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Honor Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007 - 2008</td>
<td>Diversity Supplement, National Institutes of Health</td>
</tr>
<tr>
<td>2008</td>
<td>Scholarship, Daughters of Hawaii Society</td>
</tr>
<tr>
<td>2008 - 2012</td>
<td>Scholarship, National Merit Scholarship Program</td>
</tr>
<tr>
<td>2012</td>
<td>Paula F. Laufenberg award for best senior project in the Biology Department, Swarthmore College</td>
</tr>
</tbody>
</table>
C. Contribution to Science

1. **High School Research:** I spent two summers doing research in the laboratory of Dr. Indira M. Creative at University of Hawaii, funded by a NIH Diversity Supplement award. Dr. Creative has developed several new anti-fungal drugs that might protect against skin infections. Over the course of two summers I set up in vitro cultures of skin cell lines and conducted a wide range of toxicity assays. We were excited to find that one of the new agents showed almost no toxicity, even at fairly high doses. Dr. Creative is now testing the drug in animals exposed to different types of fungal infections, including *Candida albicans*.

2. **Undergraduate Research:** I was part of a project in the laboratory of Dr. Xavier Factor at Swarthmore College. Dr. Factor’s laboratory studies the mechanisms of action of antibiotics. During my time in his lab I was looking at how a new antibiotic, Gen Y, is able to unravel bacterial DNA. My contributions to this work were included in a publication recently accepted in Cellular and Molecular Biology. The work was particularly exciting because it looks like the mechanism used by Factor Y might be completely novel, making it a potential candidate for treating patients infected with antibiotic resistant organisms. Dr. Factor was recently awarded a patent for this new drug.
   b. Robertson-Chang L, Factor X. Testing the ability of antibiotic Gen Y to kill Gram-negative bacteria. Antibiotica annual meeting; 2011 September; Denver, CO.
3. **Graduate Research:** My ongoing predoc research is focused on transcriptional gene regulation in *Saccharomyces cerevisiae*. I believe the results from my research will likely be highly relevant to human health as they will provide new details into the workings of complex biological systems, which will allow for further extrapolations into the development of certain diseases and their progression. I am currently developing a novel protocol for the purification of components of large transcription complexes which I hope to submit as a first author publication in the next few months.

a. Robertson-Chang L, Auguri T. A tandem affinity purification tag approach allows for isolation of interacting proteins in *Saccharomyces cerevisiae*. Yeast Genetics and Molecular Biology Meeting; 2013 September; Seattle, WA.
D. Additional Information: Research Support and/or Scholastic Performance

### Scholastic Performance

<table>
<thead>
<tr>
<th>YEAR</th>
<th>COURSE TITLE</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>Cellular and Molecular Biology</td>
<td>A</td>
</tr>
<tr>
<td>2008</td>
<td>Foundations of Chemical Principles</td>
<td>A</td>
</tr>
<tr>
<td>2009</td>
<td>Organismal and Population Biology</td>
<td>B</td>
</tr>
<tr>
<td>2009</td>
<td>Omics</td>
<td>B</td>
</tr>
<tr>
<td>2008</td>
<td>First Year Seminar: Nation and Migration</td>
<td>A</td>
</tr>
<tr>
<td>2009</td>
<td>Statistics, Probability, and Reliability</td>
<td>A</td>
</tr>
<tr>
<td>2009</td>
<td>Calculus I</td>
<td>B</td>
</tr>
<tr>
<td>2009</td>
<td>General Physics I</td>
<td>B</td>
</tr>
<tr>
<td>2009</td>
<td>Introductory Chemistry</td>
<td>A</td>
</tr>
<tr>
<td>2009</td>
<td>Organic Chemistry</td>
<td>B</td>
</tr>
<tr>
<td>YEAR</td>
<td>COURSE TITLE</td>
<td>GRADE</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>2012</td>
<td>Seminar in Genetics</td>
<td>P</td>
</tr>
<tr>
<td>2013</td>
<td>Statistics for the Life Sciences</td>
<td>P</td>
</tr>
<tr>
<td>2013</td>
<td>Ethics in Biological Research</td>
<td>CRE</td>
</tr>
<tr>
<td>2014</td>
<td>Seminar in Physiology and Behavior</td>
<td>P</td>
</tr>
</tbody>
</table>

Except for the scientific ethics course, UC San Diego graduate courses are graded P (pass) or F (fail). Passing is C plus or better. The scientific ethics course is graded CRE (credit) or NC (no credit). Students must attend at least seven of the eight presentation/discussion sessions for credit.
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

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NIH “F” Sites of Interest

- Application Page Limits

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

- Instruction in the Responsible Conduct of Research
NIH “F” 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
Topics to be Discussed

- NIH Fellowship Overview
  - Career Timeline
  - Funding Opportunity Announcements
  - Funding Levels and Success Rate

- Fellowship Application Review Process
  - Application Submission, Review, and Award Timeline
  - Institutes and Study Sections
  - Scoring System: Impact Scores
  - Institute Funding Paylines

- Fellowship Application Review Criteria

- Components of a Fellowship Application

- Approaches for Competitive Applications
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

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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>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of Specific Aim 1b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of Specific Aim 2a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of Specific Aim 2b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of Specific Aim 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Don’t Do the Minimum

- “Optional”: Does not mean don’t do
- PHS Assignment Request Form
  - e.g., Request an Institute, specific Study Section, reviewers’ areas of expertise
- When appropriate, fill the page – ½ of page of text means you have nothing more to say
- “Description of Institutional Environment”
Anticipate Questions
and
Answer them before they are asked
Not everything that can be counted counts.

Not everything that counts can be counted.

Research 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/

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Investigator

- Competent
- Enthusiastic
- Thorough
- Professional
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

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Possible Problems Specific for Mentored Fellowship & 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
Possible Problems Specific for Mentored Fellowship & 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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
NIH: one round of applications
Pink Sheet: Reviewers’ Comments
Bell Curve of Reviewer’s Grant Applications

Definitely do not fund

Fine

Definitely fund

Great

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Poor Statistics
Research Resources not Adequately Described

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Career Development/Research Training Plan not Comprehensive
All Components of the Application are as Strong as Possible
Good Luck!