Course Policies:

Please, No:

- Recording of Presentation
- Screen Shots of Presentation
- Posting to Social Media
- Sharing of Course Material with those Outside of Course

Thanks, Jaime Rubin
Types of Support and Review Processes for Research and Career Development Activities

- Government Agencies -

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

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

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

- Funding Agencies
  - Federal
    - National Institutes of Health, Dept. of Defense
  - Voluntary Health Organizations, Professional Societies, Foundations, Industry

- Types of Awards
  - Grants, Contracts, Cooperative agreements,
    - e.g. Research grants, fellowships, career development awards

- Funding Announcements

- Grant Review Processes
  - National Institutes of Health
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- Grant Review Processes
  - National Institutes of Health

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Federal Agencies

- Dept. of Agriculture
- **Dept. of Defense**
  - Congressionally Directed Medical Research Programs (CDMRP)
- Dept. of Education
- Dept. of Energy
- **Dept. of Health & Human Services**
  - National Institutes of Health
- Dept. of Homeland Security
- Dept. of Justice
- Environmental Protection Agency
- National Aeronautics & Space Administration
- **National Science Foundation**
DoD Congressionally Directed Medical Research Programs (CDMRP)
1992-2022: $19.4 Billion (appropriations)

1992-2020: 19,792 grants/contracts awarded

- Peer Reviewed Medical: $$3.4507 B (1999-06, 08-22)
- Prostate Cancer: $2.150 B (1997-22)

Additional Supported DoD Programs/Projects

- Psychological Health/Traumatic Brain Injury: $1.1906 B
Different from NIH

The CDMRP originated in 1992 via a Congressional appropriation to foster novel approaches to biomedical research in response to the expressed needs of its stakeholders—the American public, the military, and Congress.

Hallmarks of the CDMRP include:

- investing in groundbreaking research
- targeting critical gaps
- reviewing application using a two-tier formal review with no standing peer review panels and no "pay line"
- involving consumer advocates throughout the program cycle
- supporting both the next generation of researchers and established scientists.
- funding the full pipeline of research development, including basic, translational, and clinical research.
- fostering (or employing) collaboration and synergy
DoD Congressionally Directed Medical Research Programs (CDMRP)

Research Programs fund different types of “Funding Opportunities”

Funding announcements typically have “Topic Areas” or “Overarching Challenges,” one of which must be addressed in the application, and “Areas of Encouragement” or “Strategic Goals”.

e.g., Peer Reviewed Medical Research Program (PRMRP) – FY2023

https://cdmrp.health.mil/researchprograms
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Peer Reviewed Medical Research Program (PRMRP) (FY2023):
“Funding Opportunities”

<table>
<thead>
<tr>
<th>Award Mechanism</th>
<th>Investigator-Initiated Research Award Go to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Trial Award</td>
<td>Program Announcement</td>
</tr>
<tr>
<td>Go to:</td>
<td>General Application Instructions</td>
</tr>
<tr>
<td>Grants.gov Funding Opportunity Number:</td>
<td>HT9425-23-PRMRP-CTA</td>
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<tr>
<td>Discovery Award</td>
<td></td>
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<tr>
<td>Go to:</td>
<td>Program Announcement</td>
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<td></td>
<td>General Application Instructions</td>
</tr>
<tr>
<td>Grants.gov Funding Opportunity Number:</td>
<td>HT9425-23-PRMRP-DA</td>
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<tr>
<td>Focused Program Award</td>
<td></td>
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<tr>
<td>Go to:</td>
<td>Program Announcement</td>
</tr>
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<td></td>
<td>General Application Instructions</td>
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<tr>
<td>Grants.gov Funding Opportunity Number:</td>
<td>HT9425-23-PRMRP-FPA</td>
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</tbody>
</table>

Lifestyle and Behavioral Health Interventions Research Award Go to:
- Program Announcement
- General Application Instructions
Grants.gov Funding Opportunity Number:
HT9425-23-PRMRP-LBIRA

Technology/Therapeutic Development Award Go to:
- Program Announcement
- General Application Instructions
Grants.gov Funding Opportunity Number:
HT9425-23-PRMRP-TTDA

https://cdmrp.health.mil/researchprograms
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PRMARP (FY2023): “Portfolio Categories”

• Autoimmune Disorders and Immunology
• Cardiovascular Health
• Hemorrhage Control and Blood Products
• Infectious Diseases
• Internal Medicine
• Neuroscience
• Orthopaedic Medicine
• Rare Diseases and Conditions
• Respiratory Health
## PRMRP (FY2023)

### “Topic Areas” and “Strategic Goals”

<table>
<thead>
<tr>
<th>FY23 PRMRP Portfolio Categories with Associated FY23 PRMRP Topic Areas and FY23 PRMRP Strategic Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autoimmune Disorders and Immunology</strong></td>
</tr>
<tr>
<td><strong>Topic Areas</strong></td>
</tr>
<tr>
<td>- Celiac Disease</td>
</tr>
<tr>
<td>- Eczema</td>
</tr>
<tr>
<td>- Food Allergies</td>
</tr>
<tr>
<td>- Guillain-Barre Syndrome</td>
</tr>
<tr>
<td>- Inflammatory Bowel Disease</td>
</tr>
<tr>
<td>- Neuroinflammatory Responses to Emerging Viral Diseases</td>
</tr>
<tr>
<td>- Proteomics</td>
</tr>
<tr>
<td>- Rheumatoid Arthritis</td>
</tr>
<tr>
<td>- Scleroderma</td>
</tr>
</tbody>
</table>
PRMRP (FY2023)

“Topic Areas” and “Strategic Goals”

Strategic Goals

Foundational Studies
- Identify factors, to include environmental exposures, lifestyle triggers, genetic risk factors, dietary practices, and past medical history, impacting the onset and progression of associated immune-mediated diseases
- Elucidate and prevent neurological, psychiatric, and psychosocial impact of associated immune-mediated diseases
- Determine the impact of the microbiome and/or gut-mediated inflammation on associated immune-mediated diseases

Diagnosis
- Develop innovative noninvasive methods for diagnosis and continuous monitoring of inflammation
- Identify biomarkers, including multi-omics approaches, to diagnose or predict onset and/or progression of associated immune-mediated diseases
- Develop tools to assess cognitive dysfunction associated with neurological implications of associated immune-mediated diseases

Treatment
- Develop and test therapeutic interventions to promote tissue healing
- Develop and test new treatments and/or refine existing treatment strategies to minimize toxicity, and mitigate the inflammatory, immune, and/or allergic disease state

Epidemiology
- Conduct patient-centered research on onset, exacerbation, outcomes, and treatment preferences for associated immune-mediated diseases
- Conduct population-based studies to identify risk factors that contribute to onset and progression associated immune-mediated diseases and comorbidities
- Conduct patient-centered research to decrease disease burden for military families

https://cdmrp.health.mil/researchprograms
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National Science Foundation

Directorates: Science and engineering research and education

- Biological Sciences
- Computer and Information Science and Engineering
- Engineering
- Geosciences
- Mathematical and Physical Sciences
- Social, Behavioral and Economic Sciences
- STEM Education
- Technology, Innovation and Partnerships

Office of the Director (includes)

- Office of Integrative Activities
- Office of International Science and Engineering

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National Science Foundation

**Biological Sciences (BIO)**

Supports research and education on the principles and mechanisms governing life — from cells to ecosystems and across space and time.

**Divisions:**

- **Biological Infrastructure (DBI):** Supports the development and enhancement of biological research infrastructure, including human capital, technologies, and institutes and centers.

- **Environmental Biology (DEB):** Supports evolutionary and ecological research on species, populations, communities and ecosystems.

- **Emerging Frontiers (EF):** Supports multi- and interdisciplinary research and networking activities.

- **Integrative Organismal Systems (IOS):** Supports research aimed at understanding organisms as units of biological organization.

- **Molecular and Cellular Biosciences (MCB):** Supports research to decipher the molecular underpinnings of living systems.
Divisions:

- **Behavioral and Cognitive Sciences (BCS):** Promotes investigation of psychological, linguistic, anthropological and geographic sciences, including human origins, brain development and learning, and archaeology.

- **National Center for Science and Engineering Statistics (NCSES):** Collects and reports data on the science and engineering workforce, U.S. competitiveness in science and technology and the progress of education in these fields.

- **Social and Economic Sciences (SES):** Invests in the study of how societies, organizations and economies function, including how decisions are made, how institutions function and how scientific and technological progress are pursued.

- **Multidisciplinary Activities (SMA):** Cultivates interdisciplinary research and training in the social, behavioral and economic sciences, including capacity-building at minority-serving institutions, international collaborations and the ethical conduct of scientific research.

Social, Behavioral and Economic Sciences (SBE)

Advances research and education on human behavior and social organizations and how social, economic, political, cultural and environmental forces affect people's lives.
**STEM Education (EDU)**

Invests in education and education research in STEM — science, technology, engineering and mathematics — across age groups and settings.

**Divisions:**

- **Equity for Excellence in STEM (EES):** Promotes activities that strengthen STEM education for underserved communities, broaden their participation in the workforce, and increase knowledge about promoting inclusion.

- **Graduate Education (DGE):** Supports graduate students and the development of innovative programs to prepare tomorrow's leaders in STEM fields.

- **Research on Learning in Formal and Informal Settings (DRL):** Invests in research, development and evaluation of learning and teaching across all STEM disciplines in both formal and informal learning settings.

- **Undergraduate Education (DUE):** Strengthens STEM education at two- and four-year colleges and universities by improving instruction, assessment, laboratories, infrastructure, collaborations and the diversity of students and faculty.

https://www.nsf.gov/staff/orglist.jsp

Focus areas:

- **Fostering innovation and technology ecosystems**: Nurtures regional innovation and technology ecosystems to support researchers and innovators to converge, develop and accelerate use-inspired research for societal impact.

- **Accelerating research to impact**: Establishes translation pathways that support startups and researchers to move their research from the lab to market and society.

- **Partnering to engage the nation’s diverse talent**: Advances high-impact public and private partnerships across all areas of science, engineering and education to create technology solutions and build the workforce of the future.
HHS Organizational Charts
Office of Secretary and Divisions

* Components of the Public Health Service

- Administration for Children and Families (ACF)
- Administration for Community Living (ACL)
- Agency for Healthcare Research and Quality (AHRQ)*
- Administration for Strategic Preparedness and Response (ASPR)*
- Agency for Toxic Substances and Disease Registry (ATSDR)*
- Centers for Disease Control and Prevention (CDC)*
- Centers for Medicare & Medicaid Services (CMS)
- Food and Drug Administration (FDA)*
- Health Resources and Services Administration (HRSA)*
- Indian Health Service (IHS)*
- National Institutes of Health (NIH)*
- Substance Abuse and Mental Health Services Administration (SAMHSA)*

https://www.hhs.gov/about/agencies/orgchart/index.html
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Agency for Healthcare Research and Quality (AHRQ)

“Mission is to produce evidence to make health care safer, higher quality, more accessible, equitable and affordable…”

- “invests in research on the Nation's health delivery system that goes beyond the "what" of health care to understand "how" to make health care safer and improve quality…

- creates materials to teach and train health care systems and professionals to put the results of research into practice…

- generates measures and data used by providers and policymakers.”


https://www.ahrq.gov/cpi/about/mission/index.html
https://www.ahrq.gov/cpi/about/profile/index.html
Centers for Disease Control and Prevention (CDC)

Supports programs “to protect America from health, safety and security threats, both foreign and in the U.S.”

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
https://www.cdc.gov/about/organization/mission.htm
https://www.cdc.gov/about/organization/cio-orgcharts/iod.html
https://www.cdc.gov/about/pdf/organization/cdc-org-chart.pdf
Funds grants and cooperative agreements to support public health programs (national and international)

- **National Institute for Occupational Safety and Health**
  - Research Grants (R01, R21, R03)
  - Mentored Research Scientist Development Award (K01)
  - Cooperative agreements (U’s)
  - Workforce Development
  - Conference grants

- **Center for Global Health**
  - Division of Global HIV & TB
    - President's Emergency Plan for AIDS Relief (PEPFAR)

https://www.cdc.gov/niosh/oep/funding.html
https://www.cdc.gov/globalhealth/index.html

Food and Drug Administration (FDA)

- “ensuring the safety, efficacy, and security of human and veterinary drugs, biological products, and medical devices; and by ensuring the safety of our nation's food supply, cosmetics, and products that emit radiation.”

- “regulating the manufacturing, marketing, and distribution of tobacco products…”

- “helping to speed innovations that make medical products more effective, safer, and more affordable…”

- “plays a significant role in the Nation’s counterterrorism capability…”

https://www.fda.gov/about-fda/what-we-do

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**Orphan Products Clinical Trials Grants Program**

- “are a proven method of successfully fostering and encouraging the development of new safe and effective medical products for rare diseases/conditions.”
- “Products that qualify for this grant program are drugs, biologics, medical devices, and foods for medical purposes that are indicated (used) for a disease or condition that affects fewer than 200,000 people in the United States.”

**Orphan Products Natural History Grants Program**

- “a preplanned, observational study intended to track the course of the disease. Its purpose is to identify demographic, genetic, environmental and other variables (e.g., treatment modalities, concomitant medications) that correlate with the disease’s development and outcomes.

https://www.fda.gov/industry/clinical-trial-and-natural-history-study-grants
https://www.fda.gov/industry/faq-soorphan-products-grant-applicants
## Clinical Studies of Orphan Products Addressing Unmet Needs of Rare Diseases (R01) Clinical Trials Required

**Funding Opportunity Title**
Clinical Studies of Orphan Products Addressing Unmet Needs of Rare Diseases (R01) Clinical Trials Required

**Funding Opportunity Announcement (FOA) Number**
RFA-FD-23-001

## Pediatric Device Consortia Grants Program (P50) Clinical Trials Optional

**Funding Opportunity Title**
Pediatric Device Consortia Grants Program (P50) Clinical Trials Optional

**Funding Opportunity Announcement (FOA) Number**
RFA-FD-23-024


The purpose of this funding opportunity announcement (FOA) is to fund clinical trials of products evaluating efficacy and/or safety in support of a new indication or change in labeling to address unmet needs in rare diseases or conditions. Additionally, through the funding of collaborative, efficient, and/or innovative clinical trials, FDA expects to increase the number of approved treatments for rare diseases and exert a broad and positive impact on rare disease drug development.

“U.S. Food and Drug Administration (FDA)
NOTE: The policies, guidelines, terms, and conditions stated in this announcement may differ from those used by the NIH. Where this Funding Opportunity Announcement (FOA) provides specific written guidance that may differ from the general guidance provided in the grant application form, please follow the instructions given in this FOA. The FDA does not follow the NIH Page Limitation Guidelines or the NIH Review Criteria. Applicants are encouraged to consult with FDA Agency Contacts for additional information regarding page limits and the FDA Objective Review Process.”


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Health Resources and Services Administration (HRSA)

Mission:

“To improve health outcomes and achieve health equity through access to quality services, a skilled health workforce, and innovative, high-value programs.”

Goals

Goal 1: Take Actionable Steps to Achieve Health Equity and Improve Public Health

Goal 2: Improve Access to Quality Health Services

Goal 3: Foster a Health Workforce and Health Infrastructure Able to Address Current and Emerging Needs

Goal 4: Optimize HRSA Operations and Strengthen Program Engagement

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Health Resources & Services Administration

- **Bureau of Health Workforce**
  - “administers programs that are designed to strengthen the health workforce and connect skilled professionals to rural, urban, and tribal underserved communities nationwide.”

- **Bureau of Primary Health Care**

- **Healthcare Systems Bureau**

- **HIV/AIDS Bureau**
  - Ryan White HIV/AIDS Program: Parts A-F

- **Maternal and Child Health Bureau**
  - “to ensure the health and well-being of mothers, children, and families across their lives.”

- **Provider Relief Bureau**

---

https://www.hrsa.gov/about/organization/bureaus/index.html
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To which programs can individuals apply?

Individuals can apply to these scholarship and loan repayment programs.

- National Health Service Corps (NHSC)
- Substance Use Disorder Treatment and Recovery Loan Repayment Program (STAR LRP)
- Nurse Corps Loan Repayment Program
- Nurse Corps Scholarship Program
- Faculty Loan Repayment Program
- Native Hawaiian Health Scholarship Program

To which programs can schools apply?

Schools can apply to these scholarship and loan programs.

- Scholarships for Disadvantaged Students (SDS)
- Loans for Disadvantaged Students (LDS)
- Health Professions Student Loans (HPSL)
- Nursing Student Loans (NSL)
- Primary Care Loans (PCL)

https://bhw.hrsa.gov/about-us

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Substance Abuse and Mental Health Services Administration (SAMHSA)

“to lead public health and service delivery efforts that promote mental health, prevent substance misuse, and provide treatments and supports to foster recovery while ensuring equitable access and better outcomes”
HHS Organizational Charts
Office of Secretary and Divisions

* Components of the Public Health Service

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https://www.hhs.gov/about/agencies/orgchart/index.html
Jaime S. Rubin, Ph.D.; http://grantcourse.columbia.edu
National Institutes of Health

National Cancer Institute
National Eye Institute
National Heart, Lung, & Blood Institute
National Human Genome Research Inst
National Inst on Aging

National Inst of Alcohol Abuse & Alcoholism
National Inst of Allergy & Infectious Diseases
National Inst of Arthritis & Musculoskeletal & Skin Diseases
National Institute of Child Health & Human Development
National Inst on Deafness & other Communication Disorders

National Inst of Dental & Craniofacial Research
National Institute of Diabetes & Digestive & Kidney Diseases
National Institute on Drug Abuse
National Institute of Environmental Health Sciences
National Institute of General Medical Sciences

National Institute of Mental Health
National Inst of Neurological Dis and Stroke
National Institute of Nursing Research
National Library of Medicine
National Ctr for Complementary & Integrative Health
National Inst on Minority Health & Health Disparities

National Ctr Adv Translational Sciences
John E. Fogarty International Center
Office of the Director
Center for Scientific Review
Center for Information Technology
NIH Clinical Center

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Typical NIH Institute/Center

National Advisory Council

Office of the Director

Board of Scientific Counselors

Extramural

Intramural

Scientific Programs

Grants
Cooperative Agreements
Contracts

Laboratory Studies
Clinical Studies

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

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Total NIH Budget Authority: FY 2022 Final

Total NIH Budget Authority $44,869,000,000

- RPGs $25,423,000,000 (56.66%)
- Intramural Research $4,828,000,000 (10.76%)
- Research Mgmt & Support $2,160,000,000 (4.81%)
- Research Training $967,000,000 (2.16%)
- Other Research $3,110,000,000 (6.93%)
- Centers $2,846,000,000 (6.34%)
- R&D Contracts $3,682,000,000 (8.21%)
- All Others $1,853,000,000 (4.13%)
NIH Budget: 1983 – 2022

https://report.nih.gov/nihdatabook/
https://officeofbudget.od.nih.gov/spending_hist.html

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

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- Types of Awards
  - Grants, Contracts, Cooperative agreements,
    - e.g., Research grants, fellowships, career development awards

- Funding Announcements

- Grant Review Processes
  - National Institutes of Health
Types of Awards

- Individual fellowships
- Training grants
- Career transition awards
- Career development awards
- Research grants
- Cooperative agreements
- Administrative supplements
- Contracts
- Institutional Clinical & Translational Science Award (CTSA)
- Loan Repayment Program

Not All Funding Opportunities Are the Same

- **Different mission statements**
  - Fellowships (F’s)/Training grants (T’s)
  - Career development (K’s)/Scholar awards
  - Research project (R’s)/Multi-Project (P’s)

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

- **Different time frames**
  - Not renewable: e.g. 5 years (K’s), 3 years (F’s), 2 years (T’s)
  - Renewable: 4 - 5 years (R01) each competitive period
<table>
<thead>
<tr>
<th>Mechanism</th>
<th>NIH Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>Patron (Assistance, encouragement)</td>
</tr>
<tr>
<td>Cooperative Agreement</td>
<td>Partner (Assistance but substantial program involvement)</td>
</tr>
<tr>
<td>Contract</td>
<td>Purchaser (Procurement)</td>
</tr>
</tbody>
</table>

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

Supports a discrete, specified project

Specific Aims

“Comprehensive” funding

Modular budgets up to $250,000/year

Multi-year

Flexibility

Most NIH-supported investigator-initiated research is through this funding mechanism
Research Grant (NIH R01)

- Funds research project
  - Salaries of PI and other research personnel
  - Supplies, reagents, etc
  - Animal costs
  - Patient care costs
  - Core facilities
  - Travel to national meetings

- Multi-Year (4yrs – 5yrs)

- Renewable
  - e.g., original grant + 2 renewals = 15yrs
Small Research Grants (R03)

- Supports, e.g.:
  - Pilot or feasibility studies;
  - Collection of preliminary data
  - Secondary analysis of existing data
  - Small, self-contained research projects
  - Development of new research technology

- 2 years of funding
- Budget: Direct costs up to $50,000/yr
- Not renewable
- Some Institutes only accepts applications in response to their specific funding opportunity announcements

Exploratory/ Developmental Grants (R21)

- Encourages new, exploratory and developmental research projects by providing support for the early stages of project development. Sometimes used for pilot and feasibility studies.
- 2 years of funding
- Budget: $275,000 (D.C.) over two years
- Investigator-initiated R21 studies not funded by all Institutes
R01-Equivalent, New (Type 1) Grants:
Competing Applications, Awards, and Success Rates

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
### Success Rates – R01 vs. R21

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Competing Status (Type)</th>
<th>NIH Institutes / Centers</th>
<th>Activity Code</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>2022</td>
<td>New</td>
<td>NCI</td>
<td>R01</td>
<td>5,379</td>
<td>691</td>
<td>12.8%</td>
<td>$374,850,184</td>
</tr>
<tr>
<td>2022</td>
<td>New</td>
<td>NCI</td>
<td>R21</td>
<td>1,839</td>
<td>251</td>
<td>13.6%</td>
<td>$59,459,780</td>
</tr>
<tr>
<td>2022</td>
<td>New</td>
<td>NHLBI</td>
<td>R01</td>
<td>3,390</td>
<td>618</td>
<td>18.2%</td>
<td>$391,961,131</td>
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<tr>
<td>2022</td>
<td>New</td>
<td>NHLBI</td>
<td>R21</td>
<td>286</td>
<td>39</td>
<td>13.6%</td>
<td>$6,975,902</td>
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<tr>
<td>2022</td>
<td>New</td>
<td>NIDDK</td>
<td>R01</td>
<td>2,372</td>
<td>412</td>
<td>17.4%</td>
<td>$210,758,267</td>
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<tr>
<td>2022</td>
<td>New</td>
<td>NIDDK</td>
<td>R21</td>
<td>156</td>
<td>24</td>
<td>15.4%</td>
<td>$5,137,128</td>
</tr>
<tr>
<td>2022</td>
<td>New</td>
<td>NIAID</td>
<td>R01</td>
<td>3,131</td>
<td>461</td>
<td>14.7%</td>
<td>$295,613,251</td>
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<tr>
<td>2022</td>
<td>New</td>
<td>NIAID</td>
<td>R21</td>
<td>2,843</td>
<td>400</td>
<td>14.1%</td>
<td>$93,236,075</td>
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<tr>
<td>2022</td>
<td>New</td>
<td>NIAMS</td>
<td>R01</td>
<td>875</td>
<td>139</td>
<td>15.9%</td>
<td>$71,499,180</td>
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<tr>
<td>2022</td>
<td>New</td>
<td>NIAMS</td>
<td>R21</td>
<td>489</td>
<td>82</td>
<td>16.8%</td>
<td>$16,038,968</td>
</tr>
</tbody>
</table>

Success Rate: Number of awards made divided by the sum of the applications reviewed (in a specific fiscal year). Resubmissions submitted in the same fiscal year are “combined” and counted as one application.

Metric represents success of a specific project in receiving funding, rather than of the success of an individual application.
**Award Rate:** Number of awards (in a specific fiscal year) divided by the absolute number of applications (resubmissions (A1’s) are not combined)

- Increases the denominator (applications) for the same number of awards (in the numerator)
- Award Rates are lower than Success Rates
- Similar to Institute Paylines which are based on all the applications considered for funding
**Funding Rate:** Number of *individual investigators* applying for and receiving funding (in a given specific year).

- **Person-based rather than application-based metric**
  - Counts individual applicants as funded whether they receive one or more than one award (in a given fiscal year). The numerator is the number of applicants receiving any funding and the denominator is the number of applicants.

- **Funding rates are higher than either Award or Success Rates**
Funding, Award and Success Rates* for R01 Equivalents
Fiscal Years 1990-2013

*Excludes awards made with American Recovery and Reinvestment Act (ARRA) funds, and ARRA-solicited applications.

Fiscal Year
0.0% 5.0% 10.0% 15.0% 20.0% 25.0% 30.0% 35.0% 40.0%

A3+ revisions phased out
A2 revisions phased out

Funding Rate
Success Rate
Award Rate

http://nexus.od.nih.gov/all/2014/03/05/comparing-success-award-funding-rates/fundingawardsuccess-rates_r01e/
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
“As you can see award rates are consistently lower than success rates each year, by about 3-5%, even when we’ve changed the number of resubmissions NIH will accept.

In summary, success rates, award rates, and funding rates each describe the “success” of NIH applicants in distinct and important ways. The choice of which rate to use depends on whether you are interested in the success of applicants by project, by submission, or by person.”
Research Program Projects/Centers

**Research Program Projects (P01)**

- “Broadly-based, multidisciplinary, often long-term research program”
- “Directed toward a range of problems having a central research focus”
- Usually 3 or more Research Projects (“R01-like”) and Cores (administrative and technical)

**Center Core Grants (P30)**

- **Shared resources and facilities** for investigators who focus on a common research problem

https://grants.nih.gov/grants/funding/funding_program.htm

# NIH Extramural Program

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>NIH Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>Patron (Assistance, encouragement)</td>
</tr>
<tr>
<td>Cooperative Agreement</td>
<td>Partner (Assistance but substantial program involvement)</td>
</tr>
<tr>
<td>Contract</td>
<td>Purchaser (Procurement)</td>
</tr>
</tbody>
</table>

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

Cooperative Agreements

Since cooperative agreement funding frequently involves a "network" of awards, there may be NIH Institute funding considerations [e.g., programmatic priorities, diversity of research subjects in clinical research (ethnicity, socioeconomic status, age, gender, disease-related, geographic)] that are in addition to the "usual" NIH review criteria (e.g., Significance, Investigators, Innovation, Approach, Environment).

Cooperative Agreements

Example RFA: “Following initial peer review, recommended applications will receive a second level of review... The following will be considered in making funding decisions:

- **Scientific and technical merit** of the proposed project as determined by scientific peer review.
- **Availability of funds**.
- **Relevance of the proposed project to program priorities**.
- **Complementarity** to and **synergy** with other funded projects
- **Programmatic balance** among diseases to be studied, healthcare settings, and approaches to be implemented”
Cooperative Agreements

- “Ability to work effectively in large collaborative efforts or research consortia

- Public health importance of conditions to be studied

- Diversity of study patients, particularly with respect to inclusion of minority or underserved populations in the U.S., and relevance of proposed research questions related to diversity and health disparities

- Ability to recruit and study large sample sizes efficiently and cost-effectively

- Applicability of the proposed approach to other healthcare settings”

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

**Example Notice of Grant Award (NGA):**

“This award is issued as a cooperative agreement, a financial assistance mechanism in which substantial NIH scientific and/or programmatic involvement is anticipated in the performance of the activity.”
Cooperative Agreements

- **U01: Research Project**
  - To support “a discrete, specific, circumscribed project”

- **U19: Research Program**
  - Supports “a research program of multiple projects directed toward a specific major objective, basic theme or program goal, requiring a broadly based, multidisciplinary and often long-term approach”
**U54: Specialized Center**

“To support any part of the full range of research and development from very basic to clinical; may involve ancillary supportive activities such as protracted patient care necessary to the primary research or R&D effort. The spectrum of activities comprises a multidisciplinary attack on a specific disease entity or biomedical problem area…Centers may also serve as regional or national resources for special research purposes, with funding component staff helping to identify appropriate priority needs.”
Training Programs
Institutional Training Award (T32)

- Pre-docs/Post-docs (e.g., PhD, MD) selected by institution
- Research training in specific area
- Defined number of slots
- Stipend, tuition, training related expenses (e.g., health fees), travel, childcare

Short-Term Research Training (T35)

- Short term (e.g. summer) support
- e.g., Medical students in summer after 1st year

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

Predoctoral Individual Fellowship (F31)

Dual-Degree Predoctoral Individual Fellowship (F30)

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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Pre-doc Fellowships (F31’s)
Applications, awards, and success rates

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Pre-doc Fellowships (F31’s)
Applications, awards, and success rates

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute/Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate</th>
<th>Total Funding</th>
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<tbody>
<tr>
<td>2022</td>
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<td>F31</td>
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<td>F31</td>
<td>ACTIVITY TOTAL</td>
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</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute/Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>F31</td>
<td>NIDDK</td>
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<td>2015</td>
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<td>2016</td>
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<td>2017</td>
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<tr>
<td>2018</td>
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<tr>
<td>2019</td>
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<td>NIDDK</td>
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<tr>
<td>2020</td>
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<td>NIDDK</td>
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<td>2021</td>
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<td><strong>2022</strong></td>
<td><strong>F31</strong></td>
<td><strong>NIDDK</strong></td>
<td><strong>210</strong></td>
<td><strong>50</strong></td>
<td><strong>23.8%</strong></td>
<td><strong>$2,003,131</strong></td>
</tr>
</tbody>
</table>


Postdoctoral Individual Fellowship (F32)

- Supports specific individual (e.g., PhD or MD trained)
- May be in degree program
- Stipend, tuition, institutional allowance (e.g., health fees, travel), childcare
Post-doc Fellowships (F32’s)
Applications, awards, and success rates

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Pre-doc Fellowships (F32’s)
Applications, awards, and success rates

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute/Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>F32</td>
<td>NCCIH**</td>
<td>3</td>
<td>1</td>
<td>33.3%</td>
<td>$69,290</td>
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<tr>
<td>2022</td>
<td>F32</td>
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<tr>
<td>2022</td>
<td>F32</td>
<td>NHLBI</td>
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<td>2022</td>
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<td>F32</td>
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<td>60.0%</td>
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<td><strong>27</strong></td>
<td><strong>24.1%</strong></td>
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Post-doc Fellowships (F32’s)
Applications, awards, and success rates

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute/Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate</th>
<th>Total Funding</th>
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<tbody>
<tr>
<td>2013</td>
<td>F32</td>
<td>NIDDK</td>
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<td>112</td>
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<td>24.1%</td>
<td>$1,897,435</td>
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</table>

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Post-doc Fellowships (F32’s)
Applications, awards, and success rates, by degree of applicant

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Fellow Degree 1</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded 2</th>
<th>Success Rate 3</th>
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<tr>
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<td>PhD</td>
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<td>MD-PhD</td>
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<td>Other</td>
<td>223</td>
<td>46</td>
<td>20.6%</td>
</tr>
<tr>
<td>2022</td>
<td>TOTAL</td>
<td>1,438</td>
<td>393</td>
<td>27.3%</td>
</tr>
</tbody>
</table>

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
NRSA Training Grants and Fellowships: Funding in Current and Constant Dollars

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Ruth L. Kirschstein National Research Service Award (NRSA) Stipends, Tuition/Fees and Other Budgetary Levels Effective for Fiscal Year 2023

Notice Number:
NOT-OD-23-076

Predoctoral Trainees and Fellows: For institutional training grants (T32, T35, T90, TL1) and individual fellowships (F30, F31), one stipend level is used for all predoctoral candidates, regardless of the level of experience.

<table>
<thead>
<tr>
<th>Career Level</th>
<th>Years of Experience</th>
<th>Stipend for FY 2023</th>
<th>Monthly Stipend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predoctoral</td>
<td>All</td>
<td>$27,144</td>
<td>$2,262</td>
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</table>

Ruth L. Kirschstein National Research Service Award (NRSA) Stipends, Tuition/Fees and Other Budgetary Levels Effective for Fiscal Year 2023

Notice Number:
NOT-OD-23-076

<table>
<thead>
<tr>
<th>Career Level</th>
<th>Years of Experience</th>
<th>Stipend for FY 2023</th>
<th>Monthly Stipend</th>
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</thead>
<tbody>
<tr>
<td>Postdoctoral</td>
<td>0</td>
<td>$56,484</td>
<td>$4,707</td>
</tr>
<tr>
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<td>1</td>
<td>$56,880</td>
<td>$4,740</td>
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<tr>
<td>Postdoctoral</td>
<td>2</td>
<td>$57,300</td>
<td>$4,775</td>
</tr>
<tr>
<td>Postdoctoral</td>
<td>3</td>
<td>$59,592</td>
<td>$4,966</td>
</tr>
<tr>
<td>Postdoctoral</td>
<td>4</td>
<td>$61,572</td>
<td>$5,131</td>
</tr>
<tr>
<td>Postdoctoral</td>
<td>5</td>
<td>$63,852</td>
<td>$5,321</td>
</tr>
<tr>
<td>Postdoctoral</td>
<td>6</td>
<td>$66,228</td>
<td>$5,519</td>
</tr>
<tr>
<td>Postdoctoral</td>
<td>7 or More</td>
<td>$68,604</td>
<td>$5,717</td>
</tr>
</tbody>
</table>
Training Grants and Fellowships: Pre- and Post-Doctoral Positions

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Training Grants and Fellowships: Pre- and Post-Doctoral Positions

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Training Grants and Fellowships: Pre- and Post-Doctoral Positions

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Improving graduate student and postdoctoral training

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

https://acd.od.nih.gov/working-groups/bwf.html

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

- National Eye Institute (NEI)
- National Heart, Lung, and Blood Institute (NHLBI)
- National Human Genome Research Institute (NHGRI)
- National Institute on Aging (NIA)
- National Institute on Alcohol Abuse and Alcoholism (NIAAA)
- National Institute of Allergy and Infectious Diseases (NIAID)
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
- Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
- National Institute on Deafness and Other Communication Disorders (NIDCD)
- National Institute of Dental and Craniofacial Research (NIDCR)
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
- National Institute on Drug Abuse (NIDA)
- National Institute of Environmental Health Sciences (NIEHS)
- National Institute of Mental Health (NIMH)
- National Institute of Neurological Disorders and Stroke (NINDS)
- National Institute of Nursing Research (NINR)
- National Institute on Minority Health and Health Disparities (NIMHD)
- National Library of Medicine (NLM)
- National Center for Complementary and Integrative Health (NCCIH)
- National Cancer Institute (NCI)
Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (Parent F31-Diversity)

National Eye Institute (NEI)
National Heart, Lung, and Blood Institute (NHLBI)
National Human Genome Research Institute (NHGRI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental and Craniofacial Research (NIDCR)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute of Neurological Disorders and Stroke (NINDS)
National Institute of Nursing Research (NINR)
National Institute on Minority Health and Health Disparities (NIMHD)
National Library of Medicine (NLM)
National Center for Complementary and Integrative Health (NCCIH)
National Cancer Institute (NCI)

PA-23-271

Any individual(s) with the skills, knowledge, and resources necessary to carry out the proposed research as the Program Director(s)/Principal Investigator(s) (PD(s)/PI(s)) is invited to work with their organization to develop an application for support. Individuals from diverse backgrounds, including underrepresented racial and ethnic groups, individuals with disabilities, and women are always encouraged to apply for NIH support. See, Reminder: Notice of NIH's Encouragement of Applications Supporting Individuals from Underrepresented Ethnic and Racial Groups as well as Individuals with Disabilities, NOT-OD-22-019.

Reminder: Notice of NIH's Encouragement of Applications Supporting Individuals from Underrepresented Ethnic and Racial Groups as well as Individuals with Disabilities

Notice Number:  
NOT-OD-22-019

Notice of NIH's Interest in Diversity

Notice Number: NOT-OD-20-031

Underrepresented Populations in the U.S. Biomedical, Clinical, Behavioral and Social Sciences Research Enterprise


Jaime S. Rubin, Ph.D.;  http://grantscourse.columbia.edu
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 INSTITUTES OF HEALTH (NIH)
National Eye Institute (NEI)
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 Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental and Craniofacial Research (NIDCR)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of Mental Health (NIMH)
National Institute of Nursing Research (NINR)
National Institute on Minority Health and Health Disparities (NIMHD)
National Center for Complementary and Integrative Health (NCCIH)
National Cancer Institute (NCI)
Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship (Parent F32)

National Eye Institute (NEI)
National Heart, Lung, and Blood Institute (NHLBI)
National Human Genome Research Institute (NHGRI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental and Craniofacial Research (NIDCR)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute of Nursing Research (NINR)
National Institute on Minority Health and Health Disparities (NIMHD)
National Center for Complementary and Integrative Health (NCCIH)
National Cancer Institute (NCI)

“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 the proposed postdoctoral position. 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. Inclusion of preliminary data is strongly discouraged; rather, this F32 seeks innovative research ideas and thoughtful plans for training and mentorship that will facilitate the development of the postdoctoral fellow into an outstanding scientist. 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 4 years of a candidate's activity in a specific laboratory or research environment, so as to further encourage early, thoughtful planning and timely completion of “mentored training” within a particular lab or environment.”
Eligibility:

- Citizenship:
  - US citizens, Nationals, Permanent Residents

- Degree Requirements:
  - Rules with regard to degree status (undergraduate vs. graduate student), joint degree programs, # of applications

- Research Areas not Eligible:
  - “goals are directly human disease- or health-related, including the etiology, diagnosis, and/or treatment of disease or disorder”

https://www.nsfgrfp.org/

Jaime S. Rubin, Ph.D.: http://grantscourse.columbia.edu
National Science Foundation: Graduate Research Fellowship Program

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

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

https://www.nsfgrfp.org/

National Science Foundation: Graduate Research Fellowship Program

Application includes:

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

Funding:

- Stipend
- Cost of Education allowance

https://www.nsfgrfp.org/
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Pathway to Independence Award

- Career Transition Award *(K99/R00)*
- No citizenship requirement
- Applicants must:
  - Have earned a clinical or research doctorate
  - "Have no more than 4 years of related postdoctoral research training at the time of initial application or resubmission"
  - Have not been the principal investigator "on NIH research grants (e.g. R01, R03, R21), NIH career development awards (e.g., K01, K07, K08, K23, K25), or other peer-reviewed NIH or non-NIH research grants over $100,000 direct costs per year, or Project Leads on sub-projects of program project (P01) or center (P50) grants."

https://researchtraining.nih.gov/programs/career-development/k99-r00

Pathway to Independence Award

- 1-2 years as a mentored **K award** for “post-docs”
  - Salary and Research Support (Institute-specific)
  - 75% effort
- 3 years as a **Research award** for independent investigators
  - Total/year: = $249,000 (salary and research expenses)
    - D.C. + institution’s I.C. rate
  - Must have an independent research position

https://researchtraining.nih.gov/programs/career-development/k99-r00
Pathway to Independence Award

“Eligibility Window”

“no more than 4 years of postdoctoral research experience as of the relevant application due date regardless of whether it is a new or resubmission application… must be in mentored, postdoctoral training positions to be eligible”

“Parental, medical, or other well-justified leave for personal or family situations of generally less than 12 months duration is not included in the 4-year eligibility limit, nor is clinical training with no research involvement (e.g., full-time residency training).

NIH will approve an extension of one year for childbirth within the 4 year K99 eligibility window...

Only time dedicated to research activities would count toward the 4-year limit.”


Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
“Candidates for the K99/R00 are strongly encouraged to obtain confirmation of their eligibility from the relevant IC before they begin to prepare their applications. It is incumbent upon the candidate to provide evidence that they meet all of the eligibility criteria…

Additional clarifications are provided under Frequently Asked Questions.

Potential candidates are encouraged to discuss their individual situation with an NIH Institute or Center Scientific Program Contact before applying.”

Frequently Asked Questions (FAQs)
New Investigators Program - Pathway to Independence Award

Table of IC-Specific Information, Requirements and Staff Contacts

Release Date: May 5, 2020
Expiration Date: New Date May 8, 2024

| NIH Institute or Center Contacts | Institute/Center Specific Information |

https://grants.nih.gov/faqs#/New-Investigators-Program
Jaime S. Rubin, Ph.D.: http://grantscourse.columbia.edu
NIH remains strongly committed to enhancing biomedical research workforce diversity...

Applicants for the K99 awards listed in this NOT must have no more than 4 years of postdoctoral research experience at the time of the initial (new) or subsequent resubmission application. NIH considers requests for extension of the K99 eligibility window for various reasons, including medical concerns, disability, family care, extended periods of clinical training, natural disasters, and active duty military service. Each of these requests is reviewed on a case by case basis.

Consistent with the NIH Extension Policy for Early Stage Investigator Status (ESI), effective immediately, NIH will approve an extension of one year for childbirth within the 4 year K99 eligibility window.”
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute / Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate(^1)</th>
<th>Total Funding(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>K99</td>
<td>NCI</td>
<td>236</td>
<td>42</td>
<td>17.8%</td>
<td>$5,398,961</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NHLBI</td>
<td>174</td>
<td>41</td>
<td>23.6%</td>
<td>$5,354,922</td>
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<tr>
<td>2022</td>
<td>K99</td>
<td>NIDCR</td>
<td>36</td>
<td>10</td>
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<td>$1,191,137</td>
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<tr>
<td>2022</td>
<td>K99</td>
<td>NIDDK</td>
<td>70</td>
<td>12</td>
<td>17.1%</td>
<td>$1,088,460</td>
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<tr>
<td>2022</td>
<td>K99</td>
<td>NINDS</td>
<td>133</td>
<td>29</td>
<td>21.8%</td>
<td>$3,506,704</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NIAID</td>
<td>89</td>
<td>22</td>
<td>24.7%</td>
<td>$2,516,949</td>
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<td>2022</td>
<td>K99</td>
<td>NIGMS</td>
<td>161</td>
<td>46</td>
<td>28.6%</td>
<td>$4,556,957</td>
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<td>2022</td>
<td>K99</td>
<td>NICHD</td>
<td>96</td>
<td>27</td>
<td>28.1%</td>
<td>$3,284,649</td>
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<tr>
<td>2022</td>
<td>K99</td>
<td>NEI</td>
<td>44</td>
<td>9</td>
<td>20.5%</td>
<td>$1,042,231</td>
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<tr>
<td>2022</td>
<td>K99</td>
<td>NIEHS</td>
<td>51</td>
<td>10</td>
<td>19.6%</td>
<td>$1,057,598</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NIA</td>
<td>129</td>
<td>44</td>
<td>34.1%</td>
<td>$5,278,620</td>
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<td>2022</td>
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<td>NIAMS</td>
<td>39</td>
<td>12</td>
<td>30.8%</td>
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<tr>
<td>2022</td>
<td>K99</td>
<td>NIDCD</td>
<td>21</td>
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<td>33.3%</td>
<td>$813,583</td>
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<tr>
<td>2022</td>
<td>K99</td>
<td>NIMH</td>
<td>93</td>
<td>21</td>
<td>22.6%</td>
<td>$2,502,729</td>
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<td>2022</td>
<td>K99</td>
<td>NIDA</td>
<td>57</td>
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<td>17.5%</td>
<td>$1,528,484</td>
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<tr>
<td>2022</td>
<td>K99</td>
<td>NIAAA</td>
<td>37</td>
<td>18</td>
<td>48.6%</td>
<td>$2,736,707</td>
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<tr>
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<td>K99</td>
<td>NINR</td>
<td>12</td>
<td>1</td>
<td>8.3%</td>
<td>$129,654</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NHGRI</td>
<td>18</td>
<td>10</td>
<td>55.6%</td>
<td>$1,189,396</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NIBIB</td>
<td>22</td>
<td>6</td>
<td>27.3%</td>
<td>$602,010</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NCCIH**</td>
<td>6</td>
<td>0</td>
<td>0.00%</td>
<td>$0</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NIMHD***</td>
<td>19</td>
<td>7</td>
<td>36.8%</td>
<td>$817,640</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NLM</td>
<td>8</td>
<td>1</td>
<td>12.5%</td>
<td>$89,644</td>
</tr>
</tbody>
</table>

\(^1\)Success Rate = \frac{Number of Applications Awarded}{Number of Applications Reviewed} \times 100

\(^2\)Total Funding = \sum (Number of Applications Awarded \times Average Funding per Award)
### Success Rates

**Research Portfolio Online Reporting Tools (RePORT)**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute / Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>K99</td>
<td>NHLBI</td>
<td>112</td>
<td>25</td>
<td>22.3%</td>
<td>$2,680,777</td>
</tr>
<tr>
<td>2014</td>
<td>K99</td>
<td>NHLBI</td>
<td>167</td>
<td>40</td>
<td>24.0%</td>
<td>$4,590,006</td>
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<tr>
<td>2015</td>
<td>K99</td>
<td>NHLBI</td>
<td>111</td>
<td>27</td>
<td>24.3%</td>
<td>$3,094,830</td>
</tr>
<tr>
<td>2016</td>
<td>K99</td>
<td>NHLBI</td>
<td>124</td>
<td>32</td>
<td>25.8%</td>
<td>$4,066,065</td>
</tr>
<tr>
<td>2017</td>
<td>K99</td>
<td>NHLBI</td>
<td>99</td>
<td>24</td>
<td>24.2%</td>
<td>$3,072,290</td>
</tr>
<tr>
<td>2018</td>
<td>K99</td>
<td>NHLBI</td>
<td>113</td>
<td>28</td>
<td>24.8%</td>
<td>$3,341,524</td>
</tr>
<tr>
<td>2019</td>
<td>K99</td>
<td>NHLBI</td>
<td>112</td>
<td>33</td>
<td>29.5%</td>
<td>$4,096,354</td>
</tr>
<tr>
<td>2020</td>
<td>K99</td>
<td>NHLBI</td>
<td>133</td>
<td>31</td>
<td>23.3%</td>
<td>$4,269,580</td>
</tr>
<tr>
<td>2021</td>
<td>K99</td>
<td>NHLBI</td>
<td>139</td>
<td>36</td>
<td>25.9%</td>
<td>$4,831,804</td>
</tr>
<tr>
<td>2022</td>
<td>K99</td>
<td>NHLBI</td>
<td>174</td>
<td>41</td>
<td>23.6%</td>
<td>$5,354,922</td>
</tr>
</tbody>
</table>


“Ph.D. (or equivalent research doctorate degree) candidates in positions other than postdoctoral fellow positions: It is recognized that some institutions appoint postdoctoral fellows in positions with other titles although they are still in non-independent, mentored training positions. Candidates in such positions are encouraged to obtain confirmation of their eligibility from the relevant IC before they begin to prepare their applications….

Clinicians (including those with M.D., D.D.S, D.V.M…. ) in positions not designated as postdoctoral positions: Following clinical training or fellowship training periods, clinicians often obtain a clinical faculty position that denotes independence in clinical responsibilities but not in research. A clinical faculty member who does not hold an independent research faculty position may be eligible for the K99/R00 award,… Clinicians in such positions are encouraged to obtain confirmation of their eligibility before they begin to prepare their applications. Such individuals may also wish to consider other career awards (see K Kiosk) available for junior faculty development.”
"Additional Information for Physician-Scientists: For the purposes of this program, physician-scientists include individuals with an MD, DO, DDS/DMD, DVM/VMD, or nurses with research doctoral degrees who devote the majority of their time to biomedical research. The K99/R00 is intended for those physician-scientists who already have substantial research training and are dedicated to initiating a strong, research-intensive career as physician-scientists. The K99/R00 program is designed to facilitate a timely transition of outstanding physician-scientists from mentored, research positions to independent, tenure-track or equivalent faculty positions, and to provide independent NIH research support during the transition. Individuals who need a longer period of mentored career development before they are prepared to begin the transition to research independence should consider the K08 or K23 program (see: K Kiosk).

5. NIH should establish a new physician-scientist-specific granting mechanism to facilitate the transition from training to independence. This program should be similar to the K99/R00 program whose funding currently goes almost exclusively to individuals holding a PhD degree. This new grant program could serve either as a replacement or transition from existing K Awards for physician scientists, and should provide a longer period of support, potentially lengthening the R00 phase to 5 years (with an interim staff review at year 3). This new grant series, as well as K and all other training awards, should rigorously enforce protected time of at least 75 percent effort and provide sufficient salary support to make that possible.
The purpose of the NIAID Physician-Scientist Pathway to Independence Award (K99/R00) program is to increase and maintain a strong cohort of new and talented independent physician-scientists. This program is designed to facilitate a timely transition of outstanding postdoctoral researchers with a clinical doctorate degree from mentored, postdoctoral research positions to independent, tenure-track or equivalent faculty positions. The program will provide independent NIAID research support during this transition to help awardees launch competitive, independent research careers in biomedical fields and thereby help to address the national physician-scientist workforce shortage.
Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Postdoctoral Career Transition Award to Promote Diversity (K99/R00 - Independent Clinical Trial Not Allowed)

<table>
<thead>
<tr>
<th>National Institute of General Medical Sciences (NIGMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Eye Institute (NEI)</td>
</tr>
<tr>
<td>National Heart, Lung, and Blood Institute (NHLBI)</td>
</tr>
<tr>
<td>National Human Genome Research Institute (NHGRI)</td>
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<tr>
<td>National Institute on Aging (NIA)</td>
</tr>
<tr>
<td>National Institute on Alcohol Abuse and Alcoholism (NIAAA)</td>
</tr>
<tr>
<td>National Institute of Allergy and Infectious Diseases (NIAID)</td>
</tr>
<tr>
<td>National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)</td>
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<tr>
<td>National Institute of Biomedical Imaging and Bioengineering (NIBIB)</td>
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<tr>
<td>National Institute on Deafness and Other Communication Disorders (NIDCD)</td>
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<tr>
<td>National Institute of Dental and Craniofacial Research (NIDCR)</td>
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<td>National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)</td>
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<tr>
<td>National Institute on Drug Abuse (NIDA)</td>
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<tr>
<td>National Institute of Environmental Health Sciences (NIHES)</td>
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<tr>
<td>National Institute of Mental Health (NIMH)</td>
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<tr>
<td>National Institute of Neurological Disorders and Stroke (NINDS)</td>
</tr>
<tr>
<td>National Institute of Nursing Research (NIHR)</td>
</tr>
<tr>
<td>National Institute on Minority Health and Health Disparities (NIMHD)</td>
</tr>
<tr>
<td>National Library of Medicine (NLM)</td>
</tr>
<tr>
<td>National Center for Complementary and Integrative Health (NCCIH)</td>
</tr>
<tr>
<td>Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHHD)</td>
</tr>
</tbody>
</table>

All applications to this funding opportunity announcement should fall within the mission of the Institutes/Centers. The following NIH Offices may co-fund applications assigned to those Institutes/Centers.

Office of Research on Women's Health (ORWH)
Office of Behavioral and Social Sciences Research (OBSSR)
Enhancing Diversity
The overarching goal of this program is to enhance the diversity of independent investigators conducting research within the NIH mission. **Fostering diversity by addressing underrepresentation** in the scientific research workforce is a key component of the NIH strategy to identify, develop, support and maintain the quality of our scientific human capital. In spite of tremendous advancements in scientific research, information, educational and research opportunities are not equally available to all. NIH encourages institutions to diversify their student, postdoctorate and faculty populations to enhance the participation of individuals from groups identified as underrepresented in the biomedical sciences (e.g., see the Notice of NIH's of Interest in Diversity).

For the purpose of this announcement, institutions are strongly encouraged to identify candidates who will enhance diversity on a national basis. 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.
Post-doc Fellowship/ Career Transition Support to Research Grant (R01)
Career Transition Award (K22)

- **NCI, NIA, NIAID**: Transition from mentored, non-independent research position to independent faculty (or equivalent) position

- **NCI**: Promote Diversity


Research Career Programs (K)

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

https://researchtraining.nih.gov/programs/career-development
Career Development (K) Support to Independent Research Grant (R01)

K01/K08/K23 → R01
K12/KL2 → K23 → R01
K12/KL2 → K23 → R01
K01/K08/K23 → R01
K12/KL2 → R01

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Mentored Clinical Scientist Development Award (K08)

- Support to develop outstanding independent clinician research scientists
- Basic and translational science

https://researchtraining.nih.gov/programs/career-development/K08
Mentored Patient-Oriented Research Career Development Award (K23)

“to support the career development of individuals with a clinical doctoral degree, who have the potential to develop into productive, clinical investigators, and who have made a commitment to focus their research endeavors on patient-oriented research.”

https://researchtraining.nih.gov/programs/career-development/K23

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

“support to mid-career health-professional doctorates.. to devote to patient-oriented research and to act as research mentors primarily for clinical residents, clinical fellows and/or junior clinical faculty.

https://researchtraining.nih.gov/programs/career-development/K24
“For the purposes of the K23 award, **Patient-Oriented Research** is defined as research conducted with **human subjects** (or on material of **human origin** such as tissues, specimens and cognitive phenomena) for which an investigator (or colleague) **directly interacts with human subjects**.

This area of research **includes: 1)** mechanisms of human disease; **2)** therapeutic interventions; **3)** clinical trials; and **4)** the development of new technologies.

Excluded from this definition are **in vitro** studies that utilize human tissues but do not deal directly with patients. In other words, **patient-oriented research is research in which it is necessary to know the identity of the patients from whom the cells or tissues under study are derived.** Studies falling under Exemption 4 for human subjects research are not included in this definition.”
Notice of NCI’s Withdrawal from Participation in PA-16-198 "Mentored Patient-Oriented Research Career Development Award (Parent K23)"

NCI will **no longer** be participating in PA-16-198, "Mentored Patient-Oriented Research Career Development Award (Parent K23)"

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

**NCI K08 Career Development Awards** will support training in Basic, Translational, and Patient-Oriented Cancer Research, as well as combinations of Basic, Translational, and Patient-Oriented Research.

https://grants.nih.gov/grants/guide/notice-files/NOT-CA-17-043.html

Mentored Research Scientist Development Award (K01)

Not all NIH Institutes participate in program

Participating Institutes may use for different purposes

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

Some Institutes support the parent funding announcement, some issue their own

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https://researchtraining.nih.gov/programs/career-development/K01
https://researchtraining.nih.gov/programs/career-development
Mentored Research Scientist Career Development Award

For support of a postdoctoral or early career research scientists committed to research, in need of both advanced research training and additional experience.

[Details] [View Current Funding Opportunities]
Mentored Research Scientist Development Award (Parent K01 - Independent Clinical Trial Not Allowed) (PA-20-190)

Special Note: Not all NIH Institutes and Centers participate in Parent Announcements. Applicants should check the current list of participating Institutes and Centers.

PA-20-190

Table of IC-Specific Information, Requirements and Staff Contacts

Release Date: May 7, 2020
Expiration Date: New Date May 8, 2024

See Notices of Special Interest

PA-20-190 - Mentored Research Scientist Development Award (Parent K01 - Independent Clinical Trial Not Allowed) is used for the submission of applications to the following Notices of Special Interest (NOSIs)

<table>
<thead>
<tr>
<th>Title</th>
<th>Notice Number</th>
<th>Organization</th>
<th>Release Date</th>
<th>Expiration Date</th>
<th>Activity Code(s)</th>
</tr>
</thead>
</table>

https://researchtraining.nih.gov/programs/career-development/K01
Mentored Research Scientist Development Awards (K01)

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

- **NIMHD:**
  - “involving research to improve minority health and reduce health disparities, organized around three main Research Interest Areas: Clinical and Health Services Research, Community Health and Population Sciences, and Integrative Biological and Behavioral Sciences”

https://researchtraining.nih.gov/programs/career-development/K01
Mentored Research Scientist Development Awards (K01)

- **NIDDK:**
  - “to provide an intensive, supervised, research and career development experience for nonclinical, doctoral researchers as they transition to independent research careers”

- **NIAID:**
  - Epidemiology and Data Science
  - “includes but is not limited to computational modeling, bioinformatics, big data and advanced statistical analyses”

https://researchtraining.nih.gov/programs/career-development/K01

Mentored Research Scientist Development Awards (K01)

- **NINR:**
  - “must have a clear focus in science areas related to the NINR mission, which is to promote and improve the health of individuals, families, and communities. Applicants should also consider NINR areas of special interest…”

- **NICHD:**
  - (a) Medical Rehabilitation Research
  - (b) Child Abuse and Neglect
  - (c) Population Research
  - (d) Down Syndrome (temp.)
Mentored Research Scientist Development Awards (K01)

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

- **NIDA:**
  - Implementation Sciences for Substance Abuse Prevention

- **FIC:** International Research Scientist Development

- **NCI, NHLBI, NIDCR:** To Promote Diversity

https://researchtraining.nih.gov/programs/career-development/K01

Mentored Quantitative Research
Career Development Award (K25)

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

https://researchtraining.nih.gov/programs/career-development/K25

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

For support of a postdoctoral or early career research scientists committed to research, in need of both advanced research training and additional experience.

K01

Details

View Current Funding Opportunities

Mentored Clinical Scientist Research Career Development Award

To provide the opportunity for promising clinician scientists with demonstrated aptitude to develop into independent investigators, or for faculty members to pursue research, and aid in filling the academic faculty gap in health profession’s institutions.

K08

Details

View Current Funding Opportunities

Mentored Patient-Oriented Research Career Development Award

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

K23

Details

View Current Funding Opportunities

Pathway to Independence Award

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

K99/R00

Details

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

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

<table>
<thead>
<tr>
<th>Expiration Date</th>
<th>New Date May 8, 2024 (Original Date: May 8, 2023) per issuance of NOT-OD-23-096</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parent Announcements</strong></td>
<td></td>
</tr>
<tr>
<td><strong>K23</strong></td>
<td><strong>Mentored Patient-Oriented Research Career Development Award (Parent K23 Independent Clinical Trial Required)</strong></td>
</tr>
<tr>
<td><strong>K23</strong></td>
<td><strong>Mentored Patient-Oriented Research Career Development Award (Parent K23 Independent Clinical Trial Not Allowed)</strong></td>
</tr>
<tr>
<td><strong>K23</strong></td>
<td><strong>Mentored Patient-Oriented Research Career Development Award (Parent K23 Independent Basic Experimental Studies with Humans Required)</strong></td>
</tr>
</tbody>
</table>

https://researchtraining.nih.gov/programs/career-development
https://grants.nih.gov/grants/guide/parent_announcements.htm
Research Career Development Awards

[Bar chart showing the number of awards by fiscal year for different award types: K01, K08, K23, K25, and K99.]
Individual Research Career Development Awards – by NIH Institute

Awards for 2022

Institute / Center

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute / Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>K23</td>
<td>NHLBI</td>
<td>176</td>
<td>60</td>
<td>34.1%</td>
<td>$10,851,747</td>
</tr>
<tr>
<td>2022</td>
<td>K23</td>
<td>NIDCR</td>
<td>7</td>
<td>0</td>
<td>0.0%</td>
<td>$7,998,187</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NIDDK</td>
<td>92</td>
<td>43</td>
<td>46.7%</td>
<td>$4,534,972</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NINDS</td>
<td>72</td>
<td>24</td>
<td>33.3%</td>
<td>$3,466,431</td>
</tr>
<tr>
<td>2022</td>
<td>K23</td>
<td>NIAID</td>
<td>34</td>
<td>18</td>
<td>52.9%</td>
<td>$3,466,431</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NIGMS</td>
<td>7</td>
<td>3</td>
<td>42.9%</td>
<td>$535,272</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NICHD</td>
<td>79</td>
<td>25</td>
<td>31.6%</td>
<td>$3,940,186</td>
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<td>2022</td>
<td>K23</td>
<td>NEI</td>
<td>19</td>
<td>9</td>
<td>47.4%</td>
<td>$2,030,523</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NEIHS</td>
<td>3</td>
<td>0</td>
<td>0.0%</td>
<td>$0</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NIA</td>
<td>52</td>
<td>17</td>
<td>32.7%</td>
<td>$2,941,567</td>
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<td>2022</td>
<td>K23</td>
<td>NIAMS</td>
<td>31</td>
<td>12</td>
<td>38.7%</td>
<td>$1,922,906</td>
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<td>2022</td>
<td>K23</td>
<td>NIDCD</td>
<td>13</td>
<td>5</td>
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<td>$830,205</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NIMH</td>
<td>108</td>
<td>41</td>
<td>38.0%</td>
<td>$7,786,875</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NIDA</td>
<td>49</td>
<td>17</td>
<td>34.7%</td>
<td>$3,226,212</td>
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<td>2022</td>
<td>K23</td>
<td>NIAAA</td>
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<td>4</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NINR</td>
<td>22</td>
<td>9</td>
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<td>$1,365,873</td>
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<td>2022</td>
<td>K23</td>
<td>NIBIB</td>
<td>2</td>
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<td>$165,601</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NCCIH**</td>
<td>16</td>
<td>6</td>
<td>37.5%</td>
<td>$1,034,698</td>
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<tr>
<td>2022</td>
<td>K23</td>
<td>NIMHD***</td>
<td>19</td>
<td>15</td>
<td>78.9%</td>
<td>$2,377,783</td>
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</table>

<table>
<thead>
<tr>
<th>Fiscal Year</th>
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<th>NIH Institute / Center</th>
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<th>Success Rate</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>K23</td>
<td>ACTIVITY TOTAL</td>
<td>811</td>
<td>309</td>
<td>38.1%</td>
<td>$55,725,489</td>
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</table>


Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
# NHLBI K23 Application Success Rate

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute / Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>K23</td>
<td>NHLBI</td>
<td>107</td>
<td>32</td>
<td>29.9%</td>
<td>$4,639,354</td>
</tr>
<tr>
<td>2014</td>
<td>K23</td>
<td>NHLBI</td>
<td>77</td>
<td>29</td>
<td>37.7%</td>
<td>$4,147,948</td>
</tr>
<tr>
<td>2015</td>
<td>K23</td>
<td>NHLBI</td>
<td>94</td>
<td>36</td>
<td>38.3%</td>
<td>$5,393,783</td>
</tr>
<tr>
<td>2016</td>
<td>K23</td>
<td>NHLBI</td>
<td>101</td>
<td>45</td>
<td>44.6%</td>
<td>$8,086,510</td>
</tr>
<tr>
<td>2017</td>
<td>K23</td>
<td>NHLBI</td>
<td>138</td>
<td>52</td>
<td>37.7%</td>
<td>$9,311,596</td>
</tr>
<tr>
<td>2018</td>
<td>K23</td>
<td>NHLBI</td>
<td>137</td>
<td>50</td>
<td>36.5%</td>
<td>$8,957,091</td>
</tr>
<tr>
<td>2019</td>
<td>K23</td>
<td>NHLBI</td>
<td>127</td>
<td>43</td>
<td>33.9%</td>
<td>$7,613,342</td>
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<tr>
<td>2020</td>
<td>K23</td>
<td>NHLBI</td>
<td>175</td>
<td>75</td>
<td>42.9%</td>
<td>$13,407,457</td>
</tr>
<tr>
<td>2021</td>
<td>K23</td>
<td>NHLBI</td>
<td>140</td>
<td>59</td>
<td>42.1%</td>
<td>$10,749,458</td>
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<tr>
<td><strong>2022</strong></td>
<td><strong>K23</strong></td>
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<td><strong>60</strong></td>
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<td><strong>$10,851,747</strong></td>
</tr>
</tbody>
</table>

[NIH Online Reporting Tools](https://report.nih.gov)
[Success Rates](https://report.nih.gov/success_rates/index.aspx)

Agency for Healthcare Research and Quality

- “mission is to produce evidence to make healthcare safer, higher quality, more accessible, equitable, and affordable”

- **K08:** Mentored Clinical Scientist Research Career Development Award/Patient-Centered Outcomes Research (PCOR) Mentored Clinical Scientist Career - for individuals with a clinical doctoral degree or Ph.D./other doctoral degree in a clinical discipline

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

https://www.ahrq.gov/cpi/about/mission/index.html
https://www.ahrq.gov/funding/training-grants/k-awards.html

Centers for Disease Control and Prevention (CDC) K01

- National Institute for Occupational Safety and Health

- Mentored Research Scientist Development Award

  “career development experience in occupational health and safety research leading to research independence”


Mentored Clinical Scientist Development Program Award (K12)

- Support to an institution for the career development and research training of junior investigators, leading to research independence
- Institutions recruit and select candidates into their programs
- Candidates must meet similar criteria as for the individual mentored clinical scientist development award

https://researchtraining.nih.gov/programs/career-development/K12
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Mentored Clinical Scientist Development Program Award (K12)

- **Multi-Institute:** Women’s Health
- **Institute specific**
  - **NCI:** Clinical oncology
  - **NIDDK:**
    - Urology research
    - Physician scientists in diabetes research
  - **NICHD:**
    - Child health
    - Pediatric scientists
    - Reproductive scientists
Mentored Clinical Scientist Development Program Award (K12)

- Institute(s) specific
  - NIDA: Mentored clinical scientist development
  - NEI: Mentored physician scientist award
  - NIGMS: Institutional Research and Academic Career Development
  - NIDCR: Dental specialty and PhD program
  - NINDS: Emergency Medicine program in the Neurological Sciences

- CTSA - Clinical and Translational Scientist Award: KL2

https://researchtraining.nih.gov/programs/career-development

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Administrative Supplements

- NIH-wide program
- Supplemental funding to existing research grants (e.g., most R’s, P’s and U awards)
- May be Institute dependent
- Awarded administratively, i.e., not following a peer-review competitive process
# Parent Announcements (For Unsolicited or Investigator-Initiated Applications)

## Administrative Supplements Announcements

<table>
<thead>
<tr>
<th>Title</th>
<th>Announcement Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Supplements to Promote Diversity in Health-Related Research (Admin Supp Clinical Trial Not Allowed)</td>
<td>PA-23-189</td>
</tr>
<tr>
<td>Administrative Supplements to Existing NIH Grants and Cooperative Agreements (Parent Admin Supp Clinical Trial Optional)</td>
<td>PA-20-272</td>
</tr>
</tbody>
</table>
“designed to provide support for research experiences for individuals from diverse backgrounds throughout the continuum from high school to the faculty level… must have the potential to contribute significantly to the research career development of the candidate…. Fostering diversity in the scientific research workforce is a key component of the NIH strategy to identify, develop, support and maintain the quality of our scientific human capital”
Research Supplements to Promote Diversity in Health-Related Research (Contacts, Submission Dates and Special Instructions)

PA-23-189

Release Date: June 29, 2023
Expiration Date: May 8, 2026

NIH Institute or Center Specific Information

- NIH Institute or Center.
- Scientific Contact
- Grants Management Contact

National Institute of Neurological Disorders and Stroke (NINDS)
National Institute of Nursing Research (NINR)
National Institute on Minority Health and Health Disparities (NIMHD)
National Library of Medicine (NLM)
Fogarty International Center (FIC)
National Center for Complementary and Integrative Health (NCCIH)
National Center for Advancing Translational Sciences (NCATS)
Instrumentation
National Institutes of Health

- Shared Instrumentation Grant Program (S10)
  - “Purchase or upgrade a single item of high-priced, specialized, commercially available instruments or integrated systems”
  - Grant provides $50,000 - $750,000
  - Major User Group of ≥3 PI’s of active NIH research grants
  - Major User Group: Minimum of 35% of the Accessible User Time (AUT)
  - NIH-funded projects: Minimum of 75% of the Accessible User Time (AUT)

https://orip.nih.gov/division-construction-instruments
High-End Instrumentation Grant Program (S10)

- “Purchase or upgrade a single item of expensive, specialized, commercially available instruments or integrated systems”
- Grant provides $750,001 - $2,000,000
- Major User Group of ≥3 PI’s of active NIH research grants
- Major User Group: Minimum of 35% of the Accessible User Time (AUT) [or BRT]
- NIH-funded projects: Minimum of 75% of the Accessible User Time (AUT) [or BRT]
- Special Use Instruments: Biomedical Research Time (BRT) ≥50% of AUT

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https://orip.nih.gov/division-construction-instruments
Instrumentation
National Science Foundation - Major Research Instrumentation Program (MRI)

- “Acquisition” or “Development” of multi-user research instrumentation
- “Enhance research training of students”
- Track 1: $100,000 to < $1.4 million
  - < $100,000 in mathematics or social, behavioral and economic sciences
- Track 2: $1.4 million - $4 million
- Track 3: to reduce consumption of helium
- Limits on # of institutional proposals

https://www.nsf.gov/od/oia/programs/mri/
https://new.nsf.gov/funding/opportunities/major-research-instrumentation-program-mri
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Instrumentation

Department of Defense (DoD) - Defense University Research Instrumentation Program (DURIP)

- Army Research Office, Office of Naval Research, and Air Force Office of Scientific Research

- “DURIP is designed to improve the capabilities of accredited United States (U.S.) institutions of higher education to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment or instrumentation.”

- $50,000 - $3,000,000

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NIH CTSA Awards: A Home for Clinical and Translational Science

Source: Zerhouni (NIH) [9/06]
Institutional Clinical & Translational Science Award

- **National network** of medical research institutions (hubs)
  - > 60 medical research institutions
  - “Promote partnerships and collaborations to facilitate and accelerate translational research projects locally, regionally and nationally.

- “Advance clinical and translational science: develop, demonstrate and disseminate scientific and operational innovations that improve the efficiency and effectiveness of clinical translation from identification to first-in-human studies to medical practice implementation to community health dissemination.”

https://ncats.nih.gov/ctsa/about
https://www.ctsacentral.org/about-us/ctsa/

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## NIH Extramural Program

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>NIH Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>Patron</td>
</tr>
<tr>
<td></td>
<td>(Assistance, encouragement)</td>
</tr>
<tr>
<td>Cooperative</td>
<td>Partner</td>
</tr>
<tr>
<td>Agreement</td>
<td>(Assistance but substantial program involvement)</td>
</tr>
<tr>
<td>Contract</td>
<td>Purchaser</td>
</tr>
<tr>
<td></td>
<td>(Procurement)</td>
</tr>
</tbody>
</table>

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

Contracts

- Awards for **specific inquiry** directed towards **particular areas of research and development**
- Funding sponsor wishes to utilize advances in knowledge and technology to search for solutions to **specific requirements**
- **Contract performance is monitored closely** to ensure accomplishment of contract goals
Review Criteria

- **Differs from that of grants**

- Offerors respond to a ‘Request for Proposal’ (RFP) or a ‘Broad Agency Announcement’ (BAA)

- Proposals evaluated against *criteria specified in RFP*

- **Recommendations of peer reviewers**, and the results of *separate NIH staff reviews*, provide the basis for discussions with offerors in the competitive range
Offeror is requested to submit **Best And Final Offer (BAFO)**

Final *selection* of offeror is made on the basis of the **BAFO**, judged most advantageous to the government, according to the **RFP evaluation criteria**
Special Instructions

- Clinical trials
  - Separate funding announcements
- Direct Costs > $500,000 per year
  - May require NIH pre-approval before submission
- Role of international institutions
- Single IRB if >1 domestic site
- Investigator-initiated epidemiology studies
- Research with human fetal tissue
- Exceptions to the standard Feb/March, June/July, and Oct/Nov deadlines
NIH’s Extramural Loan Repayment Program

- Two-year award
- Up to $50,000/year towards educational loan debt
- “Repayment amount is equal to one-quarter of the total eligible educational debt, up to $50,000, for each year of the award”
- Conduct qualified research activities for an average of at least 20 hours per week

http://www.lrp.nih.gov/
NIH’s Extramural Loan Repayment Program

- “total qualified educational debt equal to or in excess of 20 percent of your institutional base salary”
- “Renewal awards can be 1 or 2 years”

Eligibility includes:

- U.S. citizen/National/Permanent Resident
- Recipient of M.D., Ph.D., D.D.S. D.M.D., or other specified equivalent doctoral degree

NIH’s Extramural Loan Repayment Program

Extramural Programs

- Clinical Research
- Research in Emerging Areas Critical to Human Health (REACH)
- Pediatric Research
- Clinical Researchers from Disadvantaged Backgrounds
- Health Disparities Research
- Contraception and Infertility Research
### Clinical Research Program (Clin)

<table>
<thead>
<tr>
<th>Number of Applications</th>
<th>Number of Awards</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,207</td>
<td>4,777</td>
<td>47%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean Award</th>
<th>Mean Age of Awardees</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>$73,119</td>
<td>35 Years</td>
<td>$349,290,559</td>
</tr>
</tbody>
</table>
6. NIH should expand Loan Repayment Programs and the amount of loans forgiven should be increased to more realistically reflect the debt burden of current trainees. This program should also be made available to all students pursuing biomedical physician-scientist researcher careers, regardless of particular research area or clinical specialty.
Apply for loan repayment

We offer programs that repay school loan debt.

- Nurse Corps Loan Repayment Program
- National Health Service Corps Loan Repayment Programs
- Substance Use Disorder Treatment and Recovery Loan Repayment Program
- Pediatric Specialty Loan Repayment Program
- Faculty Loan Repayment Program

Apply for a scholarship

We offer scholarships to help pay for health professions’ education.

- Nurse Corps Scholarship Program
- Native Hawaiian Health Scholarship Program
- National Health Service Corps Scholarship Program
Topics to be Discussed

- **Funding Agencies**
  - Federal
    - National Institutes of Health, Dept. of Defense
  - Voluntary Health Organizations, Professional Societies, Foundations, Industry

- **Types of Awards**
  - Grants, Contracts, Cooperative agreements,
    - e.g. Research grants, fellowships, career development awards

- **Funding Announcements**

- **Grant Review Processes**
  - National Institutes of Health
Funding Opportunity Announcement (FOA)

- Different types of FOA’s
- Published in the **NIH Guide for Grants and Contracts** (e.g., RFAs, PAs) and **Grants.gov**
NIH Guide for Grants and Contracts

Funding Opportunity Announcement (FOA)

Program Announcement (PA)
• Usually accepted on standard receipt dates on an on-going basis
• Parent and non-Parent Program Announcements
• Special Types
  • PAR: A PA with “special receipt, referral and/or review considerations”, as described in the PAR announcement
  • PAS: A PA that includes specific “set-aside funds” as described in the PAS announcement

Request for Application (RFA)
• Identifies a more narrowly defined area for which one or more NIH institutes have set aside funds for awarding grants
• Usually has a single receipt date
• Usually reviewed by a Scientific Review Group convened by the issuing Institute

Request for Proposal (RFP)
• Solicits contract proposals. Usually has one receipt date

Notice (NOT)
• Announces policy and procedures, changes to RFA or PA announcements, RFPs and other general information items
Funding Announcements – New Clinical Trials Policy

Policy on Funding Opportunity Announcements (FOA) for Clinical Trials

“NIH will require that all applications involving one or more clinical trials be submitted through a Funding Opportunity Announcement (FOA) specifically designed for clinical trials. This means that the NIH will no longer accept clinical trial applications through "parent" FOA announcements or through other FOAs that are not specifically designed to accept clinical trials.”

Update on Clinical Trial Funding Opportunity Announcement Policy

“New Effective Date
Effective January 25, 2018, all grant applications with plans to conduct clinical trials must be submitted in response to an FOA which specifically states that clinical trials are allowed. After that date, applications planning a clinical trial that are submitted to a non-clinical trial FOA will be returned without review.”


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“new parent Funding Opportunity Announcement (FOAs) for basic science experimental studies involving humans [BESH], referred to in NOT-OD-18-212 as “prospective basic science studies involving human participants.” These studies fall within the NIH definition of a clinical trial and also meet the definition of basic research. Types of studies that should submit under this FOA include studies that prospectively assign human participants to conditions (i.e., experimentally manipulate independent variables) and that assess biomedical or behavioral outcomes in humans for the purpose of understanding the fundamental aspects of phenomena without specific application towards processes or products in mind.”
Comparison of Funding Opportunity Announcement Types by Clinical Trial Allowability

## Comparison of Notices of Funding Opportunity NOFO Types by Clinical Trial Allowability

<table>
<thead>
<tr>
<th>Clinical Trial Not Allowed NOFO</th>
<th>Clinical Trial Required NOFO</th>
<th>Basic Experimental Studies with Humans Required NOFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Studies not involving humans as research participants</td>
<td>* Studies of the safety, efficacy, or effectiveness of an intervention on biomedical or behavioral outcomes or processes</td>
<td>* Studies that prospectively assign interventions or experimentally manipulate independent variables with human participants and assess biomedical or behavioral outcomes for the purpose of understanding the fundamental aspects of phenomena without specific application towards processes or products in mind</td>
</tr>
<tr>
<td>* Studies of biospecimens obtained from humans in which any experimental manipulation is performed on the biospecimens, not on the humans</td>
<td>* Studies that prospectively assign interventions intended or anticipated to change the health status of human participants even if not for the purpose of assessing the safety, efficacy or effectiveness of the intervention (e.g., to study the mechanisms or pathways by someone other than the investigator (e.g., health service delivery studies in which the assignment is performed by the healthcare system, natural experiments in which a natural or policy event occurs outside the investigator's control)</td>
<td>* Studies that use an experimental manipulation or intervention probe in order to understand normal functioning or the interventions or experimentally manipulate independent variables to understand the fundamental aspects of phenomena with a specific application in mind (e.g., FDA Phase 0 or 1 trials, translational/applied studies in which fundamental processes are applied to a particular problem or health condition)</td>
</tr>
<tr>
<td>* Human observational studies in which no experimental manipulations of independent variables and no prospective assignment of interventions are performed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Participation in Notices of Funding Opportunities will vary by NIH Institutes and Centers (ICs)

**Note:** Many ICs will continue to accept basic experimental studies with humans through existing NOFOs that accept clinical trials (Clinical Trial Required or Clinical Trial Optional). However, these BESH studies will not have registration and results reporting flexibilities temporarily afforded to those responsive to designated BESH NOFOs.
“FOAs can now have any of the following clinical trial (CT) classifications:

• CT Not Allowed
• CT Optional
• Mechanistic CT Only
• BESH Required [Basic Experimental Studies with Humans]
• CT Required

When you’re ready to submit your next application, you **must** select a FOA that accepts the type of research you wish to propose.”
Funding Announcements

![Diagram](image)

- **RFA**
  - Targeted research

- **Institute-Specific PA**
  - Research in a stated area of scientific interest

- **Parent PA**
  - Investigator-initiated research in any area

- **narrow**
- **broad**

Parent Funding Announcement

- Funding Opportunity Announcement (FOA) for unsolicited investigator-initiated grant applications [e.g., R’s (R01, R03, R21), K’s (K01, K08, K23, K99), F’s (F30, F31, F32)]
- Allows for the submission of grant applications that are not in response to specific Program Announcement or RFA
- Published in the NIH Guide for Grants and Contracts and Grants.gov
Parent Announcements
(For Unsolicited or Investigator-Initiated Applications)

“Parent announcements are broad funding opportunity announcements allowing applicants to submit investigator-initiated applications for specific activity codes. They are open for up to 3 years and use standard due dates.

Not all NIH Institutes and Centers participate on all parent announcements. Before submitting your application, make sure the NIH Institute or Center that might be interested in your research is listed as a participating organization in the announcement.”

https://grants.nih.gov/grants/guide/parent_announcements.htm
<table>
<thead>
<tr>
<th>Activity Code(s)</th>
<th>Title</th>
<th>Announcement Number</th>
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<tbody>
<tr>
<td>R01</td>
<td>NIH Research Project Grant (Parent R01 Clinical Trial Not Allowed)</td>
<td>PA-20-185</td>
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<tr>
<td>R01</td>
<td>Research Project Grant (Parent R01 Basic Experimental Studies with Humans Required)</td>
<td>PA-20-184</td>
</tr>
<tr>
<td>R01</td>
<td>Research Project Grant (Parent R01 Clinical Trial Required)</td>
<td>PA-20-183</td>
</tr>
</tbody>
</table>

https://grants.nih.gov/grants/guide/parent_announcements.htm

NIH Research Project Grant (Parent R01 Clinical Trial Not Allowed)

PA-20-185

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

National Eye Institute (NEI)
National Heart, Lung, and Blood Institute (NHLBI)
National Human Genome Research Institute (NHGRI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute of Neurological Disorders and Stroke (NINDS)
National Institute of Nursing Research (NINR)
National Institute on Minority Health and Health Disparities (NIMHD)
National Center for Complementary and Integrative Health (NCCIH)

The following Institutes/Centers only accept **mechanistic studies** that meet NIH's definition of a **clinical trial**.
National Heart, Lung, and Blood Institute (NHLBI)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Neurological Disorders and Stroke (NINDS)
National Center for Complementary and Integrative Health (NCCIH)
National Institute of Mental Health (NIMH)
Research Project Grant (Parent R01 Clinical Trial Required)

Release Date: May 05, 2020
Expiration Date: New Date May 8, 2024

R01 Clinical Trial Required Participating Institutes and Centers:

- NIH Institutes and Centers that accept Investigator-Initiated R01 applications in response to the Parent R01 Clinical Trial Required Announcement - (PA-20-NNN): NHGRI, NEI, NIA, NIAAA, NIAID, NIDA, NIDCD, NIEHS, NIGMS, NIMHD, NINR

- NIH Institutes and Centers that only accept Investigator-Initiated R01 applications proposing mechanismic clinical trials in response to the Parent R01 Clinical Trial Required Announcement (PA-20-NNN): NCCIH, NHLBI, NIAMS, NIH, NINDS

- NIH Institutes and Centers that DO NOT ACCEPT applications in response to the Parent R01 Clinical Trial Required Announcement but ONLY accept R01 applications proposing clinical trial(s) in response to their specific funding opportunity announcements: NCI, NIBIB, NICHDI, NIDCR, NIDDK (PA-18-330), NLM, FIC, NCATS

| NIH Institute Or Center Contacts | Scientific/Research Contact | Institute/Center Specific Information | Financial or Grants Management Contact |

https://grants.nih.gov/grants/guide/contacts/parent-R01-CT-Required.html
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Research Project Grant (Parent R01 Basic Experimental Studies with Humans Required)

PA-20-184

National Eye Institute (NEI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental and Craniofacial Research (NIDCR)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of Mental Health (NIMH)
National Institute of Neurological Disorders and Stroke (NINDS)
National Institute of Nursing Research (NINR)
National Institute on Minority Health and Health Disparities (NIMHD)
National Library of Medicine (NLM)
National Center for Complementary and Integrative Health (NCCIH)
**Parent Announcements (For Unsolicited or Investigator-Initiated Applications)**

“**Not all NIH Institutes and Centers** participate on all parent announcements. Before submitting your application, make sure the NIH Institute or Center that might be interested in your research is listed as a participating organization in the announcement.”

<table>
<thead>
<tr>
<th>R21</th>
<th>NIH Exploratory/Developmental Research Grant Program (Parent R21 Clinical Trial Not Allowed)</th>
<th>PA-20-195</th>
</tr>
</thead>
<tbody>
<tr>
<td>R21</td>
<td>NIH Exploratory/Developmental Research Grant Program (Parent R21 Clinical Trial Required)</td>
<td>PA-20-194</td>
</tr>
<tr>
<td>R21</td>
<td>NIH Exploratory/Developmental Research Grant Program (Parent R21 Basic Experimental Studies with Humans Required)</td>
<td>PA-20-196</td>
</tr>
</tbody>
</table>

https://grants.nih.gov/grants/guide/parent_announcements.htm

NIH Small Research Grant Program (Parent R03 Clinical Trial Not Allowed)

National Human Genome Research Institute (NHGRI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Drug Abuse (NIDA)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of Mental Health (NIMH)
National Institute of Neurological Disorders and Stroke (NINDS)


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### Career Development (K) Announcements

<table>
<thead>
<tr>
<th>K08</th>
<th>Mentored Clinical Scientist Research Career Development Award (Parent K08 Independent Clinical Trial Not Allowed)</th>
<th>PA-20-203</th>
</tr>
</thead>
<tbody>
<tr>
<td>K08</td>
<td>Mentored Clinical Scientist Research Career Development Award (Parent K08 Independent Clinical Trial Required)</td>
<td>PA-20-202</td>
</tr>
<tr>
<td>K08</td>
<td>Mentored Clinical Scientist Research Career Development Award (Parent K08 Independent Basic Experimental Studies with Humans Required)</td>
<td>PA-20-201</td>
</tr>
<tr>
<td>K23</td>
<td>Mentored Patient-Oriented Research Career Development Award (Parent K23 Independent Clinical Trial Required)</td>
<td>PA-20-206</td>
</tr>
<tr>
<td>K23</td>
<td>Mentored Patient-Oriented Research Career Development Award (Parent K23 Independent Clinical Trial Not Allowed)</td>
<td>PA-20-205</td>
</tr>
<tr>
<td>K23</td>
<td>Mentored Patient-Oriented Research Career Development Award (Parent K23 Independent Basic Experimental Studies with Humans Required)</td>
<td>PA-20-204</td>
</tr>
</tbody>
</table>

https://grants.nih.gov/grants/guide/parent_announcements.htm

Program Announcement (PA)

- In addition to the Parent Funding Opportunity Announcement, individual NIH Institutes/Center may issue “non parent” Program Announcements for specific areas of research or initiatives.
- e.g., Highlight Institute’s interest in funding a specific area of research.
- e.g., An Institute/Center may not support the Parent R21 or R03 Funding Announcements, but will support these funding mechanisms through Institute-issued funding announcements.
Program Announcement (PA)

- No set-aside of funds
- Describes an NIH extramural research program
- May describe new or expanded interest in a specific extramural program
- May be a reminder of a continuing interest in an extramural program
- Applications reviewed at Center for Scientific Review (CSR) not the Institute
- Being phased out for Notices of Special Interests
- Published in the NIH Guide for Grants and Contracts and Grants.gov

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Program Announcement (PA): [not a Parent Announcement]

Comprehensive Care for Adults with Type 2 Diabetes Mellitus from Populations with Health Disparities (R01 Clinical Trial Optional)

Funding Opportunity Announcement (FOA) Number

PA-21-232

Components of Participating Organizations

- National Institute on Minority Health and Health Disparities (NIMHD)
- National Eye Institute (NEI)
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

All applications to this funding opportunity announcement should fall within the mission of the Institutes/Centers. The following NIH Offices may co-fund applications assigned to those Institutes/Centers.

Office of Research on Women's Health (ORWH)


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Program Announcement (PAR)

- Program Announcement for grant applications with “special” receipt/referral/review considerations
- Research area coincides with the programmatic interests of an NIH Institute
Program Announcement (PAR)

Limited Competition: Small Grant Program for NIDDK K01/K08/K23/K25 Recipients (R03 Clinical Trial Optional)

Funding Opportunity Announcement (FOA) Number

PAR-22-129

Components of Participating Organizations

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)


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Program Announcement (PAS)

- Program Announcement with dedicated funding
- “Set-aside funds”
- Research area coincides with the programmatic interests of an Institute

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Funding Announcements

PAR “special review”
PAS “set-aside funds”
Request For Applications (RFA)

- Addresses an Institute’s initiative in a **well-defined scientific area** (may involve >1 Institute)
- Invitation to the scientific research community to submit applications for what is often a one-time “competition”
- Usually reviewed by a committee (Scientific Review Group) formed by the Institute(s)
- Set-aside of funds for a certain number of awards
- Published in the *NIH Guide for Grants and Contracts* and [Grants.gov](https://grants.nih.gov/grants/guide/home.cfm)

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

“NIH currently has a large number of non-parent program announcements (PAs)… These PAs will be phased out over time and will be replaced with Notices of Special Interest… We will continue to post full funding opportunity announcements (FOAs) for requests for applications (RFAs), program announcements with special receipt/referral/review considerations (PARs), and program announcements with set-aside funds (PASs).”

“Notices of Special Interest
• Succinctly highlight a specific topic of interest, for example a specific area of research or program
• Direct applicants to one or more active FOAs (often parent announcements) for submission of applications for the initiative described”

“…Applicants must also adhere to any additional submission guidance described in the Notice of Special Interest… Most Notices of Special Interest require applicants to include the notice number in the Agency Routing Identifier field (4b) of the SF424 (R&R) form…”
“NIH currently has a large number of non-parent program announcements (PAs)… These PAs will be phased out over time and will be replaced with Notices of Special Interest… We will continue to post full funding opportunity announcements (FOAs) for requests for applications (RFAs), program announcements with special receipt/referral/review considerations (PARs), and program announcements with set-aside funds (PASs).”

“Notices of Special Interest
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…Applicants must also adhere to any additional submission guidance described in the Notice of Special Interest…
Most Notices of Special Interest require applicants to include the notice number in the Agency Routing Identifier field (4b) of the SF424 (R&R)

Funding Announcements

PAR “special review”
PAS “set-aside funds”
Notice of Special Interest (NOSI): Stimulating Intervention Research to Reduce Cardiopulmonary Impacts of Particulate Matter in Air Pollution among High-Risk Populations

Notice Number: NOT-HL-20-788

Related Announcements

PA-20-183 - Research Project Grant (Parent R01 Clinical Trial Required)
PA-20-184 - NIH Research Project Grant (Parent R01 Basic Experimental Studies with Humans Required)
PA-20-185 - Research Project Grant (Parent R01 Clinical Trial Not Allowed)

Request For Proposals (RFP)

- Formal announcement describing an Institute initiative in a well-defined scientific area
- Invitation to the field to submit contract proposals for usually, a one-time “competition”
- Set-aside of funds for a certain number of awards
- Published in FedBizOpps

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FOA or NOFO – It’s All About Funding

By NIH Staff
Posted March 2, 2023

What’s in a name? A funding opportunity announcement (FOA) by any other name would sound as sweet.

NIH advertises available grant support through funding opportunities that provide information on the award, who is eligible to apply, the evaluation criteria for selection of an awardee, required components of an application, and how to submit an application.

In an effort to standardize terminology across the government, NIH is joining other federal agencies in using the term notices of funding opportunities (NOFOs) rather than funding opportunity announcements (FOAs). You will see both terms in use while we work to update our websites and resources.

Avoid FOMO (fear of missing out) and apply to a NOFO today! NIH funding opportunities can be found on Grants.gov and in the NIH Guide for Grants and Contracts.
“Many NIH funding opportunity announcements (FOAs) have multiple due dates each year for up to three years. A lot can change over three years (e.g., application form updates, implementation of new policies, changes to due dates, institutes can add or discontinue participation on an FOA)...

NIH provides at least 30-days notice prior to any substantive change in requirements. So, revisit your FOA within 30 days of your due date (pay extra attention to the Related Notices section) and you can ensure you are aware of the latest requirements before finalizing and submitting your application.”
Broad Agency Announcement (BAA)

- Describes research areas of interest to a government agency
- Describes agency’s technical objectives
- Usually requests contract proposals that use creative and innovative approaches
- Similar to RFPs, except:
  - The applicant, not the government, develops the ‘Statement of Work’
  - The applicant, not the government, develops the work requirements and performance specifications
Topics to be Discussed

- Funding Agencies
  - Federal
    - National Institutes of Health, Dept. of Defense
  - Voluntary Health Organizations, Professional Societies, Foundations, Industry

- Types of Awards
  - Grants, Contracts, Cooperative agreements,
    - e.g. Research grants, fellowships, career development awards

- Funding Announcements

- Grant Review Processes
  - National Institutes of Health

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### Application Due Dates

<table>
<thead>
<tr>
<th>Activity Codes</th>
<th>Program Description</th>
<th>Cycle I Due Date</th>
<th>Cycle II Due Date</th>
<th>Cycle III Due Date</th>
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</thead>
<tbody>
<tr>
<td>R01</td>
<td>Research Grants</td>
<td>February 5</td>
<td>June 5</td>
<td>October 5</td>
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<tr>
<td>K series</td>
<td>Research Career Development</td>
<td>February 12</td>
<td>June 12</td>
<td>October 12</td>
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<tr>
<td>R03, R21, R33,</td>
<td>Other Research Grants and Cooperative Agreements</td>
<td>February 16</td>
<td>June 16</td>
<td>October 16</td>
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### RESUBMISSION AND COMPETITIVE RENEWAL APPLICATIONS

<table>
<thead>
<tr>
<th>Activity Codes</th>
<th>Program Description</th>
<th>Cycle I Due Date</th>
<th>Cycle II Due Date</th>
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</thead>
<tbody>
<tr>
<td>R01 renewal, resubmission, revision</td>
<td>Research Grants</td>
<td>March 5</td>
<td>July 5</td>
<td>November 5</td>
</tr>
<tr>
<td>K series renewal, resubmission, revision</td>
<td>Research Career Development</td>
<td>March 12</td>
<td>July 12</td>
<td>November 12</td>
</tr>
<tr>
<td>R03, R21, R33, R21/R33, R34, R36, U34, UH2, UH3, UH2/UH3 renewal, resubmission, revision</td>
<td>Other Research Grants and Cooperative Agreements</td>
<td>March 16</td>
<td>July 16</td>
<td>November 16</td>
</tr>
</tbody>
</table>

## Application Due Dates

<table>
<thead>
<tr>
<th>All Activity Codes Cited Above</th>
<th>AIDS and AIDS-Related Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>new, renewal, resubmission, revision</em></td>
<td><em>Effective. Sept 5, 2015 - N/A for SBIR/STTR Applications using Standard Due Dates</em></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Activity Codes</th>
<th>Program Description</th>
<th>Cycle I Due Date</th>
<th>Cycle II Due Date</th>
<th>Cycle III Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>F Series Fellowships (including F31 Diversity – NOT-OD-17-029)</td>
<td><em>Individual National Research Service Awards (Standard)</em> (see NRSA Training Page)</td>
<td>April 8</td>
<td>August 8</td>
<td>December 8</td>
</tr>
</tbody>
</table>
## Application Due Dates

### Review and Award Cycles

<table>
<thead>
<tr>
<th></th>
<th>Cycle I</th>
<th>Cycle II</th>
<th>Cycle III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Due Dates</td>
<td>January 25 - May 7</td>
<td>May 25 - September 1</td>
<td>September 25 - January 7</td>
</tr>
<tr>
<td>Scientific Merit Review</td>
<td>June - July</td>
<td>October - November</td>
<td>February - March</td>
</tr>
<tr>
<td>Advisory Council Round</td>
<td>August or October *</td>
<td>January</td>
<td>May</td>
</tr>
<tr>
<td>Earliest Project Start Date</td>
<td>September or December *</td>
<td>April</td>
<td>July</td>
</tr>
</tbody>
</table>

Review Process for a Research Grant Application

National Institutes of Health

Ctr for Scientific Review

Research Grant Application

School or Other Research Center

• Initiates Research Idea
  • Submits Application

• Conducts Research
  • Allocates Funds

Study Section

• Assigns to Study Section & Institute
  • Evaluates for Scientific Merit

Institute

• Evaluates for Program Relevance

Advisory Councils and Boards

• Recommends Action

Institute Director

• Takes final action for NIH Director

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
<table>
<thead>
<tr>
<th>CSR</th>
<th>Institutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• *Research Grants (e.g., R01’s)</td>
<td>• Multi-Project Grants (P01, P50, etc)</td>
</tr>
<tr>
<td>• *Fellowships (F’s)</td>
<td>• Career Development (K’s)</td>
</tr>
<tr>
<td>• Small Business</td>
<td>• Research Grants/Cooperative Agreements</td>
</tr>
<tr>
<td></td>
<td>in response to “special” PA/PAR/PAS &amp; RFA’s</td>
</tr>
<tr>
<td></td>
<td>• Training Grants (T’s)</td>
</tr>
<tr>
<td></td>
<td>• Contracts – RFP’s</td>
</tr>
</tbody>
</table>

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

NIH: one round of applications
Dual Review System for Grant Applications

First Level of Review

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

Second Level of Review

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

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
CSR: Center for Scientific Review; IC: Institute/Center; IRG: Review Branch (Study Sections)

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Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
2 “Neat” Aspects of NIH’s Grant Application Process

1. Can submit a “resubmission” (amended-A1) application for a previously unfunded application, responding the reviewers’ comments.

2. R01 (e.g.): At the end of a funded grant’s competitive project period, can submit a competitive renewal application (Type 2), discussing progress over the previous funded period (e.g., publications).
# NIH R01-Equivalent Grants Success Rates - FY2022

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Competing Status (Type) and Submission Number</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>2022</td>
<td>New First Submission (A0)</td>
<td>24,101</td>
<td>3,713</td>
<td>15.4%</td>
<td>$2,589,470,199</td>
</tr>
<tr>
<td>2022</td>
<td>New with Resubmissions (A1)</td>
<td>9,092</td>
<td>2,798</td>
<td>30.8%</td>
<td>$1,692,906,298</td>
</tr>
<tr>
<td>2022</td>
<td>Continuations (A0)</td>
<td>1,859</td>
<td>813</td>
<td>43.7%</td>
<td>$499,133,438</td>
</tr>
<tr>
<td>2022</td>
<td>Continuations with Resubmissions (A1)</td>
<td>1,104</td>
<td>476</td>
<td>43.1%</td>
<td>$272,937,290</td>
</tr>
<tr>
<td>2022</td>
<td>Supplements</td>
<td>42</td>
<td>16</td>
<td>38.1%</td>
<td>$21,914,615</td>
</tr>
<tr>
<td><strong>2022</strong></td>
<td><strong>FY Total</strong></td>
<td><strong>36,198</strong></td>
<td><strong>7,816</strong></td>
<td><strong>21.6%</strong></td>
<td><strong>$5,076,361,840</strong></td>
</tr>
</tbody>
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### NIH R01-Equivalent Grants Success Rates - FY2022

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<td>2022</td>
<td>Supplements</td>
<td>38.1%</td>
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<tr>
<td></td>
<td><strong>FY Total</strong></td>
<td><strong>21.6%</strong></td>
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</table>

[Report from NIH](https://report.nih.gov/success_rates/index.aspx)

[Grants Course](http://grantscourse.columbia.edu)

Jaime S. Rubin, Ph.D.: [Grants Course](http://grantscourse.columbia.edu)
## NIH R01-Equivalent Grants Success Rates - FY2022

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Center for Scientific Review
- Review Branches (RB’s) -

- Aging and Neurodegeneration
- Basic Neuroscience
- Basic and Translational Cancer
- Biobehavioral Processes
- Bioengineering, Biodata, and Biomodeling Technologies
- Cancer Diagnosis, Prevention & Therapeutics
- Cancer Therapeutics
- Cell and Developmental Biology
- Clinical Care and Health Interventions
- Clinical Neuroscience
- Disease Control and Applied Immunology
- Endocrine and Metabolic Systems
- Epidemiology and Population Health
- Health Services and Systems

https://public.csr.nih.gov/StudySections/ReviewBranches
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
- Imaging, Surgery, and Bioengineering
- Immunology and Infectious Diseases (A and B)
- Integrative and Cognitive Neuroscience
- Integrative Vascular Biology and Hematology
- Kidney, Urology, and Digestive Systems
- Macromolecular Biophysics and Biological Chemistry
- Molecular and Cellular Sciences and Technologies
- Molecular Genetics and Genomics
- Musculoskeletal, Skin, and Oral Sciences
- Neurotechnology and Vision
- Respiratory, Cardiac, and Circulatory Sciences
- Social and Community Influences Across the Lifecourse


Review Branch Summary

The Cancer Therapeutics Review Branch will consider applications involving translational and clinical investigations that encompass cancer therapeutic development and cancer treatment. Specifically, the Review Branch reviews research grant applications related to drug discovery and mechanism of action of cancer therapeutic agents in both in vitro and in vivo model systems; identification and validation of new druggable targets; development and evaluation of experimental therapies of neoplastic diseases; development or optimization of treatment modalities; and radiation biology and therapy.
# Study Sections

<table>
<thead>
<tr>
<th>Study Section</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oncology 2 - Translational Clinical Small Business</strong>&lt;br&gt;SBIR/STTR Special Emphasis Panels Cancer Drug Development and Therapeutics (CDDT) SBIR/STTR SEP</td>
<td>CTH (10)</td>
</tr>
<tr>
<td><strong>Mechanisms of Cancer Therapeutics A</strong></td>
<td>MCTA</td>
</tr>
<tr>
<td><strong>Mechanisms of Cancer Therapeutics B</strong></td>
<td>MCTB</td>
</tr>
<tr>
<td><strong>Mechanisms of Cancer Therapeutics C</strong></td>
<td>MCTC</td>
</tr>
<tr>
<td><strong>Radiation Therapeutics and Biology Study Section</strong></td>
<td>RTB</td>
</tr>
</tbody>
</table>

**New! Advancing Therapeutics A**<br>Begins for upcoming October/November 2022 application deadlines, with first review dates in February/March 2023

<table>
<thead>
<tr>
<th>Study Section</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New! Drug Discovery and Molecular Pharmacology</strong>&lt;br&gt;C* Begins for upcoming October/November 2022 application deadlines, with first review dates in February/March 2023</td>
<td>DMPC</td>
</tr>
</tbody>
</table>
The Radiation Therapeutics and Biology (RTB) Study Section reviews applications on therapeutic interactions of ionizing radiation, radionuclides, electromagnetic radiation, and heat at the molecular, cellular, organ, and patient levels. This ranges from basic studies of DNA damage responses and DNA repair to preclinical applications in which dose, dose rate, type of radiation, and quality of radiation are variables. RTB focuses on both clinical work and animal model.

Topics

Shared Interests and Overlaps

Membership Panel

The membership panel is a list of chartered members only.

- [ ] View Membership Panel

Review Dates

- List of Reviewers on 10/23/2023
- List of Reviewers on 06/12/2023
- List of Reviewers on 02/13/2023

Discover Other Possible Study Sections

https://public.csr.nih.gov/StudySections/DTCS/CTH/RTB

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-22-044, including removal of the application from immediate review.

Maintaining Security and Confidentiality in NIH Peer Review: Rules, Responsibilities and Possible Consequences

Notice Number:
NOT-OD-22-044

The Radiation Therapeutics and Biology (RTB) Study Section reviews applications on therapeutic interactions of ionizing radiation, radionuclides, electromagnetic radiation, and heat at the molecular, cellular, organ, and patient levels. This ranges from basic studies of DNA damage responses and DNA repair to preclinical applications in which dose, dose rate, type of radiation, and quality of radiation are variables. RTB focuses on both clinical work and animal model.
The Assisted Referral Tool (ART) was developed by the NIH Center for Scientific Review (CSR) to recommend potentially appropriate study section. The information you provide ART is only used to recommend study sections and is not stored or persisted. The recommendations made by ART are solely for the benefit of the user.

Assisted Referral Tool
# Assisted Referral Tool (ART)

Enter application text and hit the Submit button to get a list of relevant study sections in two groups, “Strong” and “Possible”. Within a group, study sections are listed alphabetically by the SRG acronym.

## Title
Acid-catalyzed hydration of reduced nicotinamide adenine dinucleotide and its analogues

The rate of the primary acid modification reaction of 1,4-dihydronicotinamide adenine dinucleotide (NADH) and 1,4-dihydro-2-acetylpyridine adenine dinucleotide (APADH) and their analogues has been studied over a wide pH range (pH 1–7) with a variety of general acid catalysts. The rate depends on [H+] at moderate pH and becomes independent of [H+] at low pH. This behavior is attributed to substrate protonation at the carbonyl group (pK of NADH = 0.6). The reaction is general acid catalyzed; large solvent deuterium isotope effects are observed for the general acid and hydrogen ion terms. Most buffers cause a linear rate increase with increasing buffer concentration, but certain buffers cause a hyperbolic rate increase. The nonlinear buffer effects are due to complexation of the buffer with the substrate, rather than to a change in rate-limiting step. The rate-limiting step is a proton transfer from the general acid species to the C5 position of the substrate. Anomerization is not a necessary first step in the case of the primary acid modification reaction of P-NADH, in which P to E anomerization takes place.

Terms will be weighted by frequency of appearance in the text above. The process is automated and confidential. ART does not track or store submitted text. For more information, please see the User Guide.

### Table

<table>
<thead>
<tr>
<th>Relevance</th>
<th>SRG</th>
<th>IRG</th>
<th>Membership</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>Strong</td>
<td>DDNS</td>
<td>MDCN</td>
<td>Roster</td>
<td>Drug Discovery for the Nervous System Study Section</td>
</tr>
<tr>
<td>Strong</td>
<td>MSFA</td>
<td>BCMB</td>
<td>Roster</td>
<td>Macromolecular Structure and Function A Study Section</td>
</tr>
<tr>
<td>Strong</td>
<td>SBCA</td>
<td>BCMB</td>
<td>Roster</td>
<td>Synthetic and Biological Chemistry A Study Section</td>
</tr>
<tr>
<td>Strong</td>
<td>SBCB</td>
<td>BCMB</td>
<td>Roster</td>
<td>Synthetic and Biological Chemistry B Study Section</td>
</tr>
<tr>
<td>Possible</td>
<td>BBM</td>
<td>BCMB</td>
<td>Roster</td>
<td>Biochemistry and Biophysics of Membranes Study Section</td>
</tr>
<tr>
<td>Possible</td>
<td>DMP</td>
<td>OTC</td>
<td>Roster</td>
<td>Drug Discovery and Molecular Pharmacology Study Section</td>
</tr>
<tr>
<td>Possible</td>
<td>EITN</td>
<td>ETTN</td>
<td>Roster</td>
<td>Emerging Imaging Technologies in Neuroscience</td>
</tr>
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<td>MSFB</td>
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https://public.csr.nih.gov/ForApplicants/ArtHome

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
How to Direct a Grant Application to the Appropriate Study Section

- Review research areas of Integrated Review Group
- 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 PHS Assignment Request Form in Application
PHS Assignment Request Form

Funding Opportunity Number: Pre-populated from funding opportunity information.

Funding Opportunity Title:

Awarding Component Assignment Suggestions (optional)
If you have a suggestion for an awarding component (e.g., NIH Institute/Center) assignment, use the link below to identify the appropriate short abbreviation (e.g., "NCI" for National Cancer Institute) and enter it below in the boxes for "Suggested Awarding Components". All suggestions will be considered; however, not all assignment suggestions can be honored.

Information about Awarding Component can be found here: https://grants.nih.gov/grants/phs_assignment_information.htm#AwardingComponents

Suggested Awarding Components: 

Study Section Assignment Suggestions (optional)
If you have a suggestion for a study section assignment, enter suggested study sections for the relevant study section in the boxes for "Suggested Study Sections." Remove all hyphens, parentheses, and spaces. All suggestions will be considered; however, not all assignment suggestions can be honored.

For example, enter "CAMP" if you wish to suggest assignment to the NIH Cancer Molecular Pathobiology study section, or "ZRG1HDMR" if you wish to suggest assignment to the NIH Healthcare Delivery and Methodologies SBIR/STTR panel for informatics.

Information about Study Sections can be found here: https://grants.nih.gov/grants/phs_assignment_information.htm#StudySection

Suggested Study Sections:

Only 20 characters allowed

Rationale for assignment suggestions (optional)
Entry is limited to 1000 characters.

Up to 1000 characters.
PHS Assignment Request Form

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

Provide sufficient information (e.g., name organization affiliation) to correctly identify each individual. Provide specific reason why an individual should not review your application. Information will be considered, but listing an individual does not guarantee they will not be on review panel.

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

Note: Do not provide names of individuals

Expertise: Each entry is limited to 40 characters

Limit your answers to expertise. DO NOT enter the names of individuals you'd like to review your application.
Early Career Reviewer (ECR) Program

The program aims to help early career scientists become more competitive as grant applicants through first-hand experience with peer review and to enrich and diversify CSR’s pool of trained reviewers.

Benefits of ECR | Qualifications for ECR | Apply to ECR | ECR Training | ECR Webinars

1. Work side-by-side with some of the most accomplished researchers in your field to help NIH identify the most promising grant applications
2. Learn how reviewers determine overall impact scores
3. Improve your own grant writing skills by getting an insider’s view of how grant applications are evaluated
4. Serve the scientific community by participating in NIH peer review
5. Develop research-evaluation and critique-writing skills

ECR Qualifications

Employment
You have at least 1 year of experience as a fulltime faculty member or researcher in a similar role. Post-doctoral fellows are not eligible.

You must be an Assistant Professor or in an equivalent role. Because the program is focused on early career scientists, Associate Professors are not eligible.

Grant & Review History
You have not served on an NIH study section in any capacity aside from as a mail reviewer. (Mail reviews do not include participation in the meeting.)

You have not held an R01 or R01-equivalent (R35, R37, RF1, R23, R29, DP1, DP2, DP5, U01, RL1) grant in the PD/PI role

You must have submitted a grant proposal, in the PI/PD role, to the NIH and received the associated summary statement.

Research
You show evidence of an active, independent research program. Examples include publications, presentations, institutional research support, patents, acting as supervisor of student projects.

You have at least 1 senior-authored research publication in a peer-reviewed journal in the last 2 years plus at least 1 additional senior-authored research publication since receiving a doctorate.

- In press publications are considered; preprints are not.
- We consider “senior author” as single author, corresponding author, or first or last author.
- There is no requirement that the recent publication cover work performed at the current institution.

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
How are Assignments Made?

To Study Sections Based on:

- Specific review guidelines of each Study Section

To Institutes Based on:

- Overall mission of the Institute
- Specific programmatic mandates and interests of the Institute
Who Assigns Applications?

**Referral Officers** – Trained as scientists, most of whom serve as Scientific Review Officers (SROs) of Study Sections

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

Scientific Review Officers

- Performs administrative and technical review of applications
- Selects reviewers
- Manages Study Sections
- Prepares summary statements
- Provides any requested information about Study Section recommendations

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Criteria for Selection of Peer Reviewers

- Demonstrated scientific expertise
- Doctoral degree or equivalent
- Mature judgment
- Balanced perspective and objectivity
- Ability to work effectively in a group context
- Interest in serving
- Adequate representation of women and diverse scientists

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications
Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Pink Sheet: Reviewers’ Comments
What’s the problem?

Payline

Study Section A

Study Section B

Great application

Not great application

Courtesy of Dr. Jon Lorsch, NIGMS
What’s the problem?

Payline

Study Section A

Study Section B

Great application
Not great application

Courtesy of Dr. Jon Lorsch, NIGMS
Post Initial Review Group Actions

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

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

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

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

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

Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
What Determines which Awards are Made?

- Scientific Merit
- Program Considerations
- Availability of Funds

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

Figure 1. Average Age of Principal Investigators with MD, MD-PhD, or PhD at the time of First R01 Equivalent Award from NIH, Fiscal Years 1980 to 2011.
“Over the past three decades, we’ve seen profound shifts in the average age at which a principal investigator receives their first R01. During the period from 1980 to 2001, the average age increased nearly 0.3 years per year. Since that time, the average age at first R01 award has leveled off near 42 for PhDs. It is higher for researchers with an MD or an MD/PhD.”
Percentage of NIH R01 Equivalent Principal Investigators of All Degrees: Age 35 and Younger vs. Age 66 and Older

Fiscal Year 1980 - 2014

Young, Brilliant and Underfunded

By ANDY HARRIS

We'll never know what medical breakthroughs were missed because young scientists were not provided with resources.

Comments

The New York Times

OCT. 2, 2014
A study for the National Bureau of Economic Research from 2005 examined the age at which over 2,000 Nobel Prize winners and other notable scientists in the 20th century came up with the idea that led to their breakthrough. Most were between 35 and 39. Yet the median age of first-time recipients of R01 grants, the most common and sought-after form of N.I.H. funding, is 42, while the median age of all recipients is 52. More people over 65 are funded with research grants than those under age 35.
“...in the late 2000’s, we implemented an Early-Stage Investigator policy... Here we present data from fiscal years 1995 to 2020 on age at first R01-equivalent grant. ... While age has been continuously increasing, the rate of increase has slowed over the last 10 years.”

Figure 2: Degree-based distributions by fiscal year of age of Principal Investigators receiving support on NIH R01 award for the first time.
Early Stage Investigator (ESI)

- Has **not** previously been awarded “significant NIH independent research award”
  - Includes R01’s
  - Does not include: R03’s, R21’s, F’s, K’s, loan repayment

- Within 10 years of terminal research degree/completion of post-graduate clinical training
  - Extensions permitted; e.g., medical, family care, lapses in research/research training, military service
  - “effective immediately, NIH will approve an ESI extension of one year for childbirth within the ESI period”


Jaime S. Rubin, Ph.D.; http://grantscourse.columbia.edu
Early Stage Investigator (ESI) Status

ESI status may give you special funding consideration when applying for certain grants.

https://public.era.nih.gov/commons/jsp/index.jsp

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Early Stage Investigator (ESI)

- **New and Early Stage Investigator Policies**
  

- **Frequently Asked Questions**
  
  [https://grants.nih.gov/grants/new_investigators/investigator_policies_faqs.htm](https://grants.nih.gov/grants/new_investigators/investigator_policies_faqs.htm)

- **Extension to the Early Stage Investigator Period**
  
  - Request submitted (with justification) via the Education section of an investigator’s Personal Profile in **NIH Commons**

## NIAID Paylines for FY 2024

These paylines are for investigator-initiated applications reviewed for the September 2023, January 2024, and June 2024 Council meetings.

<table>
<thead>
<tr>
<th>Grant Type</th>
<th>Payline</th>
<th>Status</th>
<th>Description</th>
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<tbody>
<tr>
<td>R01 (non-new PIs)</td>
<td>8 percentile</td>
<td>Interim</td>
<td>Research Projects for established investigators</td>
</tr>
<tr>
<td>R01 (new PIs)</td>
<td>12 percentile</td>
<td>Interim</td>
<td>Research Projects for new and early-stage investigators</td>
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https://www.niaid.nih.gov/grants-contracts/niaid-paylines

## NHLBI: Payline

### Payline

<table>
<thead>
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<th>Grant Program</th>
<th>Grant Program Description</th>
<th>Percentile</th>
<th>Priority Score</th>
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<tbody>
<tr>
<td>R01</td>
<td>Research Project Grant</td>
<td>14</td>
<td>N/A</td>
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<tr>
<td>R01 ESI</td>
<td>Early Stage Investigators</td>
<td>24</td>
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</tr>
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</table>

### FY2023

https://www.nhlbi.nih.gov/current-operating-guidelines

R01-Equivalent Investigators, New (Type 1): Funding rates, by career stage of investigator

Funding Rate (%)

Fiscal Year
The 21st Century Cures Act, enacted December 13, 2016, includes a section entitled, “Investing in the Next Generation of Researchers” that requires the Director to “Develop, modify, or prioritize policies, as needed, within the National Institutes of Health to promote opportunities for new researchers and earlier research independence, such as policies to increase opportunities for new researchers to receive funding, enhance training and mentorship programs for researchers, and enhance workforce diversity”. NIH must encourage successful, independent careers for Early Stage Investigators (ESIs) in a way that enhances workforce diversity, and must create a sustainable workforce across all career stages to ensure the long term stability of the biomedical research enterprise.
ADVISORY COMMITTEE TO THE DIRECTOR

ACD Working Group on Re-envisioning NIH-Supported Postdoctoral Training

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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