Navigating NIH Funding for your Research: Undergraduate to Professor

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Talk Highlights

• Background about NIH/NIDDK
• Career and Fellowship Awards
  • Planning
  • Application
  • Details
• Research Funding
Take Home Messages

Contact your NIH Program Officer before you submit your grant

Read through the Program Announcement or Request for Applications carefully before beginning work

Check with NIH REPORTER

Happy to serve as point of Contact: Robert.rivers@nih.gov
How the NIH works....

Great Ideas and Inspiration

Responsive Applications

Goes to NIH

Review and Resubmission

Reviewed but not Awarded

Awarded
NIH Consist of 27 Institutes and Centers
The NIDDK Research Mission

To support and conduct research to combat diabetes and other endocrine and metabolic diseases, liver and other digestive diseases, nutritional disorders, obesity, and kidney and urologic and hematologic diseases.

• Chronic
• Common
• Consequential
• Costly
Background

- Diabetes affects 34.2 million people in the U.S. and 90-95% have type 2 diabetes with obesity being a major risk factor.

- Health disparity populations are disproportionately impacted by the obesity and type 2 diabetes epidemics.

- The complex relationships between health, economic, health care, and various socioecological factors may powerfully influence prevention and intervention success.

- Novel approaches are needed.
## Glossary of (some) Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>IC</td>
<td>Institute/Center</td>
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<tr>
<td>CSR</td>
<td>Center for Scientific Review</td>
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<tr>
<td>SF 424 (R&amp;R)</td>
<td>Standard Form 424 (Research and Related)</td>
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<tr>
<td>PHS 2590</td>
<td>Public Health Service Form 2590</td>
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<tr>
<td>FOA</td>
<td>Funding Opportunity Announcement</td>
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<tr>
<td>IRG</td>
<td>Integrated Review Group</td>
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<td>SRO/A</td>
<td>Scientific Review Officer/Administrator</td>
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<tr>
<td>PO</td>
<td>Program Officer</td>
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<td>eRA</td>
<td>Electronic Research Administration</td>
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Undergraduate Opportunities
The NIDDK’s STEP-UP Program

To diversify the pool of undergraduates, graduates, postdoctoral and faculty pursuing research careers in biomedical, behavioral and social science research disciplines by providing intensive, high quality summer research experiences for underrepresented minorities, disadvantaged and disabled persons.
• Outreach Target is Expanding Diversity
• GPA of 3.0 higher
• Desire to Explore Biomedical Research
• Interest in the Sciences
Overview of STEP-UP Program

- Program Types
  - Application System

- Program Components
  - 8 to 10 weeks intensive summer research experience
  - Follow-up Mentoring for 9 Months

- Research Presentations

Research through the STEP-UP

Students are placed in research labs/projects near there home

Goal is to provide a supportive environment to explore research opportunities

Mentors – Always searching for additional mentors throughout the state and country
Applying

Personal Statement – *Why do you want to do research?*

Transcript

2 Letters of Recommendation (not from family friends or Ministers)

Activities and Employment (High School)
Undergraduate Research during COVID

• Watch this space
• In addition to STEP-UP programs are revising plans and setup
• Focus on Data Analysis
• Remote Research Opportunities
More Opportunities
Graduate and Post-doc Opportunities
Solicitations: NIH Guide

“Parent” announcements—investigator-initiated/unsolicited; mechanism specific
  - R01, R03, R21s

Special initiatives—solicited
  - RFA: Request for Applications
    Very specific research area, $ set-aside, special review panel, one submission date

  - PA: Program Announcement
    More general, no $ (usually), no special review panel (usually)

Training and Career Programs

Career Development Awards
- K08
- K23

NRSAs
- T32 for pre-docs
- T32 post-docs
- F32 post-docs
- F31
- F99/K00
- K01

T35 short-term training for med students

F30 MD/PhD students

K99/R00

LRP

R03
Finding Funding Opportunities

- Talk with your mentor
- Listen to the speaker
- Sign up to the NIH Guide
- Use NIH report tool

[Link to Project Reporter NIH.gov](https://projectreporter.nih.gov/)
Specific Aims

• **FOCUS**

• Clear statement of testable hypothesis
  • Not so good: “we hypothesize that CKD causes cardiovascular disease and early mortality”
  • Better: “we predict that individuals with CKD are more susceptible to the development of atherosclerosis due to uremic solutes directly activating MI macrophages and promoting inflammation-induced plaque deposition”

• Specific aims support/refute question

• Did I mention focus?
Significance and Innovation

• Sets the stage—get the reviewers “out of bed.” **Do not write it as a review article**

• The overall research question should pass the So What? test. Just because something is “not known” doesn’t necessarily make it significant.

• Highlight controversies and critical gaps and how they will be addressed by the proposed experiments

• A visual model can help—particularly basic, mechanistic studies
Preliminary Data

• Relevant to proposed research plan
• Demonstrate feasibility/availability of resources and critical reagents
• Incorporating into relevant Aim in Research Strategy
Approach

• The easy part! Just fill-in the blanks!
• No need for gory details
• Present expected/alternative outcomes and interpretations
• Consider not only technical pitfalls and alternatives, but conceptual ones as well (what if I’m wrong?)
Developing Strong Applications

• Clear and concise language
• WHY????
• Limitations and approach
• Responsiveness
• Track Record and Publication history
Do not give these sections short shift!!

Animals: address all five points, particularly numbers needed (power analyses)

Human subjects: pay attention to inclusion of gender/minority/children

Biohazards: don’t forget!

Monitoring plans: required for Phase III.

Best reference
Know who to talk to when

CSR receives and makes assignments

PI submits application

Upper half applications receive a priority score/percentile; summary statement prepared

PO assigns reviewers; reviews application

PO and GMO

PO

IC funds application

SRO assigns reviewers; reviews application

SRO

PI revises after consulting with IC PO

PI

PO and GMO
Pre-doctoral Fellowships – F31

• Predoctoral students to obtain individualized, mentored research training from outstanding faculty sponsors while conducting dissertation research in scientific health-related fields that are relevant to the missions of the participating NIH institutes and centers.

• Applicant fellows must be citizens or non-citizen nationals of the United States, or must have been lawfully admitted to the United States for Permanent Residence.

• Currently enrolled in a Ph.D. or equivalent research degree program, a formally combined M.D./Ph.D. program; or other combined professional doctoral/research Ph.D. graduate program in the biomedical, behavioral, health services, or clinical sciences.

• The applicant must be at the dissertation research stage of training at the time of award and must show evidence of high academic performance in the sciences, and commitment to a career as an independent research scientist.

• As an applicant, the candidate together with his/her sponsor(s) and institution are jointly responsible for planning, directing, and executing the proposed project.

• The fellowship award provides an annual stipend, an allowance for tuition and fees, and an annual institutional allowance.
Follow the Money

• Application Success Rates
Career Development

• A key component of the supplement is ensuring that the candidate will receive the necessary training and opportunities for successful independent research career. The plan should be unique to the candidate and meets all requirements.

Proposed Research

• The research plan should be within the framework of the currently funded DK parent award. Contact the Program Officer of the parent award to make sure the research proposed for the supplement is within scope.
The NIDDK supports several types of K awards:

- If you are an M.D. and are doing basic research, you are eligible for a K08.

- If you are a clinician and you interact directly with patients for your research (not just to fulfill your commitment to your department), you are eligible for the K23 award.

- If you are a Ph.D. or a non-board eligible M.D., you can apply for a K01.

- If you are a non-biomedically trained Ph.D. (mathematics, organic chemistry, etc.) moving into biomedical research, you are eligible for a K25.

- The NIDDK does not support the K02 award for more senior scientists.

- The Pathway to Independence award (K99/R00) is a two-phased approach to shortening the post-doctoral period for outstanding fellows, and it is open to non-U.S. citizens.
• We encourage K-awards in all areas of research supported by the NIDDK. All mentored K awards require that the awardee:
  • Be a U.S. citizen or permanent resident of the United States (does NOT apply to K99/R00)
  • Be located at a U.S. institution
  • Have preliminary data on which to base his/her hypothesis-driven 3 to 5-year research project in an area of interest to the NIDDK
  • Have at least one mentor
  • Devote 9 calendar months (75 percent) worth of effort to the K award

• K Kiosk:
  • [https://researchtraining.nih.gov/programs/career-development](https://researchtraining.nih.gov/programs/career-development)
Each grant is assigned 3 reviewers: primary, secondary and reader

Reviewers comment and score on the five “core” review criteria; assign an overall impact score for discussed applications (not necessarily average of criterion scores)

All members vote on each application
Unsure about the Right Mechanism – call your PO

- Provide advice as to IC relevance of project and right grant mechanism
- Insight into summary statements
- Help you work through decisions
  - Revise or new
  - Renew the grant or new
  - RFA or submit an R01?
- Advocate within NIH
- Help you find more $
- Initiative development
Due Dates

• F Series Fellowship
  • April 8, August 8, & Dec 8

• K Series – Research Career Developments
  • February 12, June 12, & October 12
Research Funding Opportunities
Rapid Acceleration of Diagnostics (RADx) Underserved Populations (UP)

The Striking Racial Divide in How Covid-19 Has Hit Nursing Homes

Homes with a significant number of black and Latino residents have been twice as likely to be hit by the coronavirus as those where the population is overwhelmingly white.

Black Americans Face Alarming Rates of Coronavirus Infection in Some States

Data on race and the coronavirus is too limited to draw sweeping conclusions, experts say, but disparate rates of sickness — and death — have emerged in some places.

COVID-19 in Prisons and Jails in the United States

Laura Hawks, MD1,2, Steffie Woolhandler, MD, MPH2,3, Danny McCormick, MD, MPH1,2

Author Affiliations | Article Information

Rural America Could Be the Region Hardest Hit by the COVID-19 Outbreak

Many Who Need Testing For COVID-19 Fail To Get Access

April 3, 2020 - 5:00 AM ET
Supplemental Appropriations Language:

...not less than $1,000,000,000 shall be transferred to the “National Institutes of Health—Office of the Director” to develop, validate, improve, and implement testing and associated technologies; to accelerate research, development, and implementation of point of care and other rapid testing; and for partnerships with governmental and non-governmental entities to research, develop, and implement the activities outlined in this proviso...
RADx-UP: Phase I

• Four FOAs:
  1. Notice of Special Interest (NOSI): Limited Competition for Emergency Competitive Revisions for Community-Engaged Research on COVID-19 Testing among Underserved and/or Vulnerable Populations (NOT-OD-20-121)
  4. Emergency Awards: RADx-UP Coordination and Data Collection Center (CDCC) (U24 Clinical Trial Optional; RFA-OD-20-013)

For Application Resources: https://www.nih.gov/research-training/medical-research-initiatives/radx/funding
Thanks!

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