NAVIGATING NIH PROGRAMS TO ADVANCE YOUR CAREER AT NIH

Ericka Boone, Ph.D.
Acting Director, Division of Biomedical Research Workforce
Office of the Director, Office of Extramural Research
National Institutes of Health
Who Are We? The NIH!
FY 2020 Operating Budget: ~$40B

Training: $886,806
Career: $844,348
Total: $1,731,154

Research Project Grants: 54.4%
Intramural Research: 10.0%
R&D Contracts: 11.0%
Research Centers: 5.0%
Other Research: 5%
Research Mgmt & Support: 3.0%
Career Dev. 2.0%
Research Training: 2.3%
All Other: 5.0%

NIH includes 27 Institutes & Centers
ONE NIH, 27 Cultures

- Each IC has its own mission
- Each IC has its own budget
- Each IC has its own activities
- Each IC has its own way of doing business

So, how do you figure out WHERE to start??
Here’s some advice!
Interacting with NIH

NIH Staff

Program Officer
- Scientist & Administrator
- Identifies areas of scientific need
- Communicates NIH priorities to investigators and others
- Manages grants
- Communicates with IC Leadership about the science

Scientific Review Officer
- Scientist & Administrator
- Manages grant reviews
- Appoints members to review groups & panels
- Prepares summary statements

Grants Management Officer
- Implements the funding process
- Oversees the budget
- Ensures grantee compliance with NIH policies & regulations

NIH National Institutes of Health
Office of Extramural Research
Who Should I talk to? When? And About What?

NIH People

Program Officer

• Before applying discuss
  o Concept paper aims & fit with NIH priorities
  o Appropriate funding mechanism
  o Responsiveness to review criteria
  o After Review to discuss next steps

Scientific Review Officer

• After application is assigned to a review committee until review is complete to discuss:
  o Review committee selection
  o Missing info
  o Supplemental info

Grants Management Officer

• Before or after review to discuss:
  o NIH grants policy
  o Budget
  o Change of institutions
  o Grant start dates
Use These Resources to Find the Right IC and PO

- Talk to mentors and colleagues
- Search NIH RePORTER for funded projects
- Search NIH MATCHMAKER for similar projects and their POs
- Review IC missions, strategic plans, & research priorities
- Review IC division or program webpages
Normalize the ‘Reaching Out’...

• Contact POs via email - WELL BEFORE YOUR DEADLINE
• No dissertations, please
  – Include a 1-2 Page concept
  – Research Project Grants (RPG)
    • Include brief background, significance of the problem or question being addressed and specific aims
  – Training (e.g., F30, R36, F31, F32) and Career Development Grants (e.g., K01, K08, K23)
    • Brief background, significance of the problem or question the project will address, specific aims; training goals; mentoring team and their current funding and a CV or NIH Biosketch
• Follow-up as needed – email piles are deep
Additional Advice for Navigating NIH Programs

- Review IC priorities and goals (they can differ by IC and programs)
- Learn the NIH application & review process
- Make early contact with program officers
- Find innovative, well-respected mentors & collaborators
- Study successful grant applications
- Propose your best and most creative ideas
- Review funding opportunity announcements (FOAs)
  - Grants.gov
  - NIH Guide for Grants and Contracts

Dig deeper:
- Finding and Understanding FOAs
# Types of Funding Opportunity Announcements (FOA)

<table>
<thead>
<tr>
<th>Type of FOA</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Program Announcements (PA, PAR, PAS)** | • Highlights specific, high-priority areas of scientific focus/interest  
• PAS: PA with set aside funds; PAR: has a special receipt, referral and/or review considerations (described in PA)  
• Usually ongoing (3 years)  
• Often use standard receipt dates (you can control when you apply!)  
• Most (but not all) NIH ICs participate |
| **Requests for Applications (RFA)** | • Identifies specific scientific areas, amt of set-aside funds, anticipated # of awards  
• Usually, single receipt date  
• IC usually convenes review panel |
| **Parent Announcements**            | • Broad FOAs allowing applicants to submit “investigator initiated” or “unsolicited” research ideas to a specific activity code (e.g., R01, R03)  
• Most apps to NIH = investigator initiated  
• Usually ongoing (3 years); standard receipt dates (you have flexibility) |
NIH Research Training Website

https://researchtraining.nih.gov

NIH programs help to prepare the skilled, creative and diverse biomedical research workforce of tomorrow
Funding Options by Career Phase

Undergraduate Graduate/ Clinical Training
- T34, R25
- T32, T35
- F30, F31

Postdoctoral Training/Clinical Residency
- T32
- F32, DP5
- R38, (K38)
- R25, K12
- K01, K07, K25

Early Research Career
- K22, R00
- K08, K23

Established Investigator
- R03, R21, DP2
- R01, R35
- R01, R35
- P01, P50
- K02, K24

Loan Repayment Programs: https://www.lrp.nih.gov/

Diversity Supplements: PA-20-166

Re-Entry Supplements: NOT-OD-20-054
Diversity Supplement

Administrative supplement to an existing, actively funded research grant designed to:

- Diversify the biomedical research workforce via support of investigators from diverse & underrepresented groups
- Support many career stages from undergraduate to faculty
- **Could be a bridge to an F or K award**
- Add to ongoing research and career development
- Expectation of a subsequent application for NIH support
- Administratively reviewed by the Institute or Center (IC) funding the original grant
- Note: different NIH ICs have different deadlines and policies
Loan Repayment Program

- 2-year Research Commitment
- Up to $50,000/year – renewals eligible
- 50% Success Rate
- LRP Resources – www.lrp.nih.gov
- Extramural LRP Application Deadline: November 18, 2021
Diversity supplements can be useful to support a transition to individual fellowship or beyond.
Goal to ensure diverse pool of highly trained scientists in appropriate scientific disciplines, to address the Nation's biomedical, behavioral, & clinical research needs

Institutional Training Programs (T32-Series):
- Awards to an institution to support research training activities for graduate student and/or postdoc trainees selected by the institution
- Require a program director and experienced faculty to serve as mentors

Individual Fellowships (F-Series)-require primary sponsor:
- Awards for combined clinical and research doctoral degree training (F30)
- Awards for graduate students working towards research doctoral degree (F31 & F31D)
- Awards for postdoctoral fellows working towards research independence (F32)
- As well as primary sponsor, a mentoring team is highly recommended
Common Features of NRSAs

- **Trainees & Fellows** are required to pursue full-time research training (40 hrs/week)
- **Stipends**: Allowance to defray living expenses: *Stipends increased each year since 2017*
- **Tuition and Fees**: NIH contributes to the combined cost of tuition and fees
- **Institutional Allowance (F) or Training Related Expenses (T)**: Defray expenses such as health insurance, research supplies, equipment, books, travel to scientific meetings: Increased each year (postdocs) to better support costs of medical expenses
- NRSA trainees or fellows may gain *clinical trials research experience* but **cannot lead an independent clinical trial**.

**FY21 NRSA Tuition, Stipend and TRE/IA Levels**

[F-Kiosk:](https://researchtraining.nih.gov/programs/fellowships)

### Institutional NRSA: Predoctoral

- **T32**: Provides a strong foundation in research design, methods, and analytic techniques to enhance the trainees’ ability to conceptualize and pursue a research project with increasing independence.

- **T35**: Short-term training programs to expose medical/clinical students to research and encourage them to pursue research careers.

### Individual NRSA: Predoctoral and Postdoctoral

- **F30**: Supports predoc fellows during clinical and graduate training leading to a combined doctoral degree, e.g., MD/PhD, DDS/PhD ([PA-21-050](#)).

- **F31**: Supports promising research doctoral candidates who have identified a mentor and will be performing dissertation research ([PA-21-051](#)).

- **Diversity F31**: Supports individuals from groups underrepresented in the biomedical or behavioral sciences ([PA-21-052](#)).

- **F32**: Supports highly promising applicants during their mentored postdoctoral training under the guidance of outstanding faculty sponsors ([PA-21-048](#)).

-----

- Training grants are restricted to domestic (U.S.) institutions; Trainees must be citizens, non-citizen nationals, or lawfully admitted for permanent residence by the time of appointment.
NIH Director's Early Independence Award (DP5)

- **DP5**: High-risk, high-reward program supporting exceptional investigators to pursue independent research *directly after completion* of their research doctoral degree or clinical residency
- Bypasses traditional post-doctoral training and accelerates entry *into an independent research career*
- Applicants must be within 12 months before or after receiving a research doctoral degree or completing clinical postgraduate training
- Awardees are expected to be competitive for continued funding of her/his research program and for a permanent research position
- Funded via Common Fund
Career Development and Other Early Career Awards

Graduate/ Clinical Training

Postdoctoral Training/ Clinical Residency

Early Research Career

Established Investigator

K01, K07, K25
K12, KL2

K08, K23
K12, KL2

K22, K99

K22, R00

R03, R21, DP2

Loan Repayment Programs

Diversity Supplements: PA-20-166

Re-Entry Supplements: NOT-OD-20-054
Early-Stage Investigators

- **Definition of Early-Stage Investigator (ESI):** A PD/PI who has completed their terminal research degree or end of post-graduate clinical training, whichever date is later, within the past 10 years and who has not previously competed successfully as PD/PI for a substantial NIH independent research award. Following is a list of NIH grants that a PD/PI can hold and still be considered an ESI:
  - **Research Grants:** R00, R03, R15, R21, R25, R90, RL9, RL5, R34, R36, R41, UT1, R43, U43, R55, R56, SC2, SC3, X01
  - **Training-Related and Mentored Career Awards:** “F”, “K”, L30, L32, L40, L50, L60, T32, T34, T35, T90, D43
  - **Instrumentation, Construction, Education, Health Disparity Endowment Grants, or Meeting Awards:** G07, G08, G11, G13, G20, R13, S10, S15, S21, S22
ESI Status Has Its Benefits...

- **Funding**
  - NIH sets funding target ESIs and prioritizes R01 applications with meritorious scores for funding (i.e., attempt to create greater parity in success rates among early-stage and established investigators)

- **Peer Review**
  - Peer reviewers look more at potential than advanced track record
    - Weigh academic and research background
    - Expect new R01 investigators to have fewer preliminary data/publications than more established researchers
  - When feasible, early-stage investigator applications are not interspersed with those of established investigators at the review meeting
Common Features of K-Awards

- Intended for investigators at earlier phases of their research career
- Provide salary and mentored research support for up to 5 years of protected time under the guidance of an experienced mentor
- By the time of award/appointment, candidates must be citizens, U.S. nationals, or lawfully admitted for permanent residence in the U.S. *(Except for the K99-R00)*
- Awardees/appointees must have a research or clinical doctoral degree from an accredited domestic (U.S.) or foreign institution
- Awardees or appointees must have a full-time appointment at the institution, and must commit a *minimum of 9 person-months (75% of full-time professional effort)* to research career development
- Former PD/PIs on major NIH research grants (e.g. R01), other career development awards (i.e., K-awards), or the equivalent are not eligible

Career (K) Kiosk

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.

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.

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.

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.

Active FOAs (Parent & IC specific) can be found at: https://researchtraining.nih.gov/programs/career-development

At that website click on each K award type to view active FOAs

https://researchtraining.nih.gov/programs/fellowships
K01, K08 and K23 FOAs with different requirements

Funding Opportunity Announcements (FOAs) for K Awards will:

- **Require PD/PI to conduct an independent clinical trial**
  - PA-20-176 (K01; 14 IC)
  - PA-20-202 (K08; 15 IC)
  - PA-20-206 (K23; 17 IC)

  K applicant/awardee has primary or lead responsibility for conducting & executing the trial (Funding is from the K award & may be an ancillary or feasibility study)

- **Permit clinical trial research experience but will NOT permit an independent clinical trial**
  - PA-20-190 (K01; 16 IC)
  - PA-20-203 (K08; 20 IC)
  - PA-20-205 (K23; 19 IC)

  K applicant/awardee may propose research experience in a clinical trial led by the K award mentor or co-mentor.

- **Permit Basic Experimental Studies with Humans (BESH)**
  - PA-20-191 (K01; 9 IC)
  - PA-20-201 (K08; 13 IC)
  - PA-20-204 (K23; 12 IC)

  K applicant/awardee may propose basic science experimental studies involving humans which can be “prospective basic science studies involving human participants.”
Institutional Mentored K-Awards

- **K12/KL2**: Institutional program to support highly promising candidates (scholars) training for careers in specified research areas of interest to one or more NIH Institutes and Centers (IC)
  - IC specific (e.g., some K12/KL2 for clinicians or clinically relevant research)
    - Some for PhD (e.g., IRACDA program with combined research & teaching involving partnerships with research intensive institutions and institutions with an emphasis on undergraduates or graduates from under-represented groups)
  - Provides institutions with flexibility to prepare clinically-trained scientists or PhDs for independent research careers or academic careers at multiple institution types
  - Requires experienced program director with research and administrative experience, and highly competent faculty mentors
  - Individualized and intensive supervised research experiences and career development guidance for scholars selected by the grantee institution

- Encouragement/expectation to apply for either individual K award, e.g., **K08, K23, K01** – or research project grants (R03/R21/foundation/R01)
Pathway to Independence Award Mentored Scientists Awards (K99/R00)

**K99/R00:** Goal to facilitate *transition* from a mentored postdoctoral research position to an independent research position with *independent NIH research support* at an earlier stage than the current norm.

Supports protected time (75%) in 2 distinct phases – update FOA #s below:

**K99 – Phase 1 - 2 years**
- Mentored: must be affiliated with an institution
- Within 4 years of attaining PhD or completing clinical training
- ~ 90% transition to R00.

**R00 – Phase 2 (3 years)**
- Independent (tenure-track or equivalent), own lab limited teaching and/or clinical responsibilities to assist pathway to next independent award.
- ‘Quality’ of tenure-track offer administratively reviewed by NIH staff before R00 awarded.

- **No U.S. citizenship requirement** for applicants to the parent K99 ([PAR-21-271](https://nihroadmap.nih.gov/award_briefs/par-21-271/))
- **NIAID Physician Scientist K99-R00:** [PAR-20-209; PAR-20-210; NOT-AI-19-034; Requires 50% effort; no U.S. citizenship requirement](https://nihroadmap.nih.gov/award_briefs/par-20-209/)
- **NIDCR Dual Degree Dentist Scientist K99-R00 ([PAR-18-432; PAR-19-144; PAR-19-141](https://nihroadmap.nih.gov/award_briefs/par-18-432/)) no U.S. citizenship requirement.**
- **Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative K99-R00 to promote diversity ([RFA-NS-19-043; RFA-NS-19-044](https://nihroadmap.nih.gov/award_briefs/rfa-ns-19-043/)) requires citizenship/permanent resident status.**
- **Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Postdoctoral Career Transition Award to Promote Diversity K99-R00 requires citizenship/permanent resident status;** first due date February 12th 2020 ([PAR-21-271](https://nihroadmap.nih.gov/award_briefs/par-21-271/); **Institutional UE5 Co-operative Agreement (PAR-21-277) provides courses for skills development & mentoring.**
- Due to COVID two cycle extension of eligibility announced for Parent K99 [NOT-OD-21-106; NIDCR K99 NOT-DE-21-003; Mosaic K99 NOT-GM-21-057](https://nihroadmap.nih.gov/award_briefs/not-od-21-106/)
Maximizing Opportunities for Scientific & Academic Independent Careers (MOSAIC) Transition Award to Promote Diversity - Program Goal

- MOSAIC is designed to facilitate the transition of promising postdoctoral researchers from diverse backgrounds, for example individuals from groups underrepresented in the biomedical research workforce at the faculty level, into independent, research-intensive faculty careers.

- The overarching goal of the NIH MOSAIC program is to enhance the diversity of independent investigators conducting research within the NIH mission. Program priority is to address documented underrepresentation at the faculty level (e.g., see NIH’s Notice of Interest in Diversity).
MOSAIC - Approach

Postdoctoral Career Transition Award to Promote Diversity (K99/R00) – PAR-21-271, -272, and -273
Institutionally Focused Research Education Cooperative Agreement to Promote Diversity (UE5) – PAR-21-277

MOSAIC K99/R00 Applicants

MOSAIC K99/R00 Scholars Participate in Cohorts Organized by UE5
## Timeline for (new) K Applications

<table>
<thead>
<tr>
<th>RECIPT DATE</th>
<th>REVIEW</th>
<th>COUNCIL</th>
<th>AWARD DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 12 (Mar 12)</td>
<td>Jun/July</td>
<td>October</td>
<td>December</td>
</tr>
<tr>
<td>Jun 12 (Jul 12)</td>
<td>Oct/Nov</td>
<td>January</td>
<td>April</td>
</tr>
<tr>
<td>Oct 12 (Nov 12)</td>
<td>Feb/Mar</td>
<td>May</td>
<td>July</td>
</tr>
</tbody>
</table>

Small Grant Program

- **R03**: Provides limited funding for a short period of time to support a variety of types of projects, including:
  - Pilot or feasibility studies
  - Collection of preliminary data
  - Secondary analysis of existing data
  - Small, self-contained research projects
  - Development of new technology, etc.

- Limited to two years of funding, and grants are not renewable
- Direct costs generally up to $50,000 per year
- Check FOAs to see which ICs participate

**PA-20-200**

Academic Research Enhancement Award

- **R15**: Supports small-scale research projects conducted by faculty and students at educational institutions that have not been recipients of major NIH research grant funds
  - The goals of the program are to: (a) support meritorious research; (b) expose students to research; and (c) strengthen the research environment of the institution
  - The project period is limited to 3 years, and grants are renewable
  - While preliminary data are not required, it may be provided as appropriate
  - Direct costs are limited to $300,000 over the entire project period
**Exploratory/Developmental Research Award**

- **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
  - **Preliminary data are not required** but may be included if available
  - Limited to up to two years of funding
  - Combined budget for direct costs for the two-year project period usually may not exceed $275,000
  - Not all Institutes/Centers participate in this program

**NIH Director’s New Innovator Award**

- **DP2**: Supports exceptionally creative early career investigators who propose innovative, high-impact projects in the biomedical, behavioral or social sciences within the NIH mission. No detailed experimental plan or preliminary data are required
  - Work proposed ‘high risk, high reward’ – more innovative than outside the standard R01
  - Awardees are required to commit at least 25% of their research effort each year to activities supported by the New Innovator Award
  - Awards are up to $300,000 in direct costs each year for 5 years, plus applicable indirect costs
  - Complements ongoing efforts by NIH to fund early-stage investigators through R01 grants
  - Funded through the Common Fund

[NIH Director's New Innovator Award](#)
Maximizing Investigators Research Award (MIRA) for Early-Stage Investigators (R35)

Goals:
• Enable ESIs to apply earlier in their independent research careers
• Secure funding to launch & sustain successful research careers.
• Enhance ability to move into research areas distinct from their postdoctoral mentors, which could lead to new scientific discoveries.
• Reduce time writing and reviewing grant applications & allow more time to conduct research.
• Enable investigators to mentor trainees in a more stable research environment.

Katz Award (R01)

Goals:
• PD/PI must be designated as an ESI
• Proposed research can rely on the prior work and expertise as foundation, but must represent a different direction (not just incremental expansion)
• Change in direction can involve a new approach, methodology, technique, discipline, therapeutic target, paradigm
• Make sure you talk to your PO prior application (be sure to get the deets!)
• New program! **First awards announced December 2021**
• Can request up to $500K/year in direct costs

PAR-20-117

PAR-21-038
Research Project Grant

- **R01**
  - Supports a discrete, specified, circumscribed project in areas representing the specific interests and competencies of the investigator(s)
  - Proposed project must be related to the programmatic interests of one or more of the participating Institutes and Centers based on their scientific missions
  - Most NIH Institutes and Centers support the R01 grant mechanism
  - Typically provides funding support for up to 5 years
  - Modular budget format allows you to request up to $250,000 per year in direct costs; traditionally capped at $500,000 per year
  - Successful R01 grant application requires preliminary data to support proposed research
Wrapping Up...Additional Helpful Information
NIH Issues Important Policy Updates via Notices (NOT)

- **NOT-OD-21-073** - Upcoming Changes to the Biographical Sketch and Other Support Format Page for Due Dates on or after May 25, 2021
- **NOT-OD-21-109** - Expanding Requirement for eRA Commons IDs to All Senior/Key Personnel
- **NOT-OD-21-110** - Implementation of Changes to the Biographical Sketch and Other Support Format Page
- **NOT-OD-21-122** - Announcing New Inbox for Inquiries Related to Changes to Biographical Sketch and Other Support Format Page
- **NOT-OD-21-170** - Updates: Notification of Upcoming Change in Federal-wide Unique Entity Identifier Requirements
- **NOT-OD-19-109** - ORCID iD Requirement for Trainees, Fellows & Career Development (K) Appointees or Awardees:
Search Grants.gov for funding opportunities from all agencies.
Subscribe to Receive the Weekly NIH Guide Table of Contents

NIH Guide is published daily.

Subscribe to listserv to receive table of contents each Friday...
or subscribe to our RSS feed or follow us on Twitter

http://grants.nih.gov/grants/guide/listserv_dev.htm
Extramural Nexus and Open Mike Blog

Subscribe to the monthly Nexus for a summary of NIH grant happenings, resources, events.

Provide comment, join the discussion!

http://nexus.od.nih.gov
Thank You!

Division of Biomedical Research Workforce
Office of Extramural Research

• Research Training/Career Development
  Questions: https://researchtraining.nih.gov
• Questions about ESI extension requests: esi_extensions@od.nih.gov