A Run Through the NIH Funding Maze
and How to Help Your Program Officer Help You

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Program Director
Division of Neuroscience
Funding mechanisms 101

Getting help - resources

Some Do’s and Don’ts of grants writing
Rule #1

Apply.
Rule #2

Know what to apply for.
Rule #3

Know when to apply.
Rule #4

Know what resources are available to help you.
RESOURCES
-they are helpful if you know about them and use them-
RESOURCES:

• Your grants office!

• NIH REPORTER

• NIH KIOSKs

• BLOGS – NIH Blog Rock talk + blog from your IC of interest

• Sign up for the NIH Guide and get weekly updates for new funding opportunities

• NIH and its 27 ICs plus the Common Fund

• Your program officer!
### F32 Success rates - FY12

<table>
<thead>
<tr>
<th>Year</th>
<th>F32</th>
<th>Institute</th>
<th>Awards</th>
<th>Applicants</th>
<th>Rate</th>
<th>Budget</th>
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<tbody>
<tr>
<td>2012</td>
<td>F32</td>
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<td>9</td>
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<td>2012</td>
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### F32 Success rates - FY13

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<tr>
<th>Year</th>
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<th>Awards</th>
<th>Applicants</th>
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<td>555</td>
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## Matchmaker Results

100 projects similar to concepts from the entered text. (100 maximum).

Click on chart labels to filter search results by the Institute/Center or Activity Code or Study Section.

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### Institute/Center

<table>
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<tr>
<th>Score</th>
<th>Act</th>
<th>Project</th>
<th>Year</th>
<th>Sub #</th>
<th>Project Title</th>
<th>Contact PI/Project Leader</th>
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<th>FY</th>
<th>Admin IC</th>
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<td>P01</td>
<td>05</td>
<td>0003</td>
<td>INTEGRATION OF LONG- AND SHORT-TERM CONTROL OF FEEDING</td>
<td>SCHWARTZ, MICHAEL W</td>
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<td>WILLIAMS, DIANA L</td>
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THE NIH BLOGOSPHERE

grantsmanship tips, changes in NIH or an Institute-specific policy, data on past and future funding, research priorities and news, concerns or misconceptions, event announcements
I’m excited to tell you about a new option for submitting your R01 applications to NIH. Today, we made ASSIST (the Application Submission System and Interface for Submission Tracking) available as an option for submitting your R01 applications, as well as most individual career development (K) award applications. ASSIST is a web-based system that was developed by NIH, in close partnership with Grants.gov, to address common application submission challenges identified by the community.
4D Nucleome

**Big Data to Knowledge**
Bioinformatics and Computational Biology
Building Blocks, Biological Pathways and Networks
Enhancing the Diversity of the NIH-Funded Workforce
Epigenomics
Extracellular RNA Communication
Genotype-Tissue Expression (GTEx)
Global Health
Glycoscience
Gulf Oil Spill
HCS Research Collaboratory
Health Economics

**High-Risk Research:**

- NIH Director's Early Independence Award (EIA)
- NIH Director's New Innovator Award
- NIH Director's Pioneer Award
- NIH Director's Transformative Research Awards

[NIH Common Fund](http://commonfund.nih.gov/about)
Human Microbiome Project
Illuminating the Druggable Genome
Knockout Mouse Phenotyping
Library of Integrated Network-Based Cellular Signatures (LINCS)
Metabolomics
Molecular Libraries and Imaging
Nanomedicine
NIH Center for Regenerative Medicine (NIH CRM)
PROMIS: Patient-Reported Outcomes Measurement Information System
Protein Capture Reagents
Regulatory Science
Science of Behavior Change
Single Cell Analysis
Stimulating Peripheral Activity to Relieve Conditions (SPARC)
Strengthening the Biomedical Research Workforce
Undiagnosed Diseases
BIOMEDICAL BIG DATA EXPLOSION

NIH National Center for Biotechnology Information

DATA STORAGE

In 1990 fit on 3 floppy disks

In 1993 fit on 1 CD-ROM

In 2014 could fill 400 MILLION
4-drawer filing cabinets

Types of BD2K Awards

- Enabling Data Utilization
- Analysis Methods and Software
- Enhancing Training
- Centers of Excellence

NIH
Big Data to Knowledge (BD2K) is an initiative of the National Institutes of Health
Know your Institute(s)
Know your program officer(s)
New Investigator VS. Early Stage Investigator
Junior faculty

- Mentored Ks (K01, K08, K23, K25)
- When do I apply for an (R03, R21)?
- When do I apply for an R01?
- DP2 (New Innovator)
- L30 loan repayment
Early middle to middle

- R01, R01, R01 contd.
- R03, R21
- K02 – independent scientist award (accelerator)
- K24 (patient-oriented, combined purpose, mentoring, advancing own research career)
On not applying...

“I heard that it’s so competitive now that a new investigator has no chance of funding.”

You have no chance of funding if you don’t apply.
On not applying...

“I applied once and the people who reviewed my application did not understand it. So I didn’t get funded. What’s the point in my applying again?”
You might get funded next time (if you apply).
On not applying...

“Joe Smith got funded under that special program. That was a one time only deal. There’s no point in my applying.”
There are many funding opportunities available (if you apply).
On knowing what to apply for...

Profile of a typical R01 grantee:

Has been in the research field post PhD/MD for several years; will have more than a few first-authored, peer-reviewed publications; will likely have been reviewing papers for journals for some time; will be known to colleagues in the research field; WILL HAVE A PRIOR GRANT HISTORY.
WILL HAVE A PRIOR GRANT HISTORY....
On knowing what to apply for...

Funding on someone else’s grant (e.g., co-investigator, diversity supplements...)

AREA (R15) grants (Academic Research Enhancement Awards)

R03 pilot grants
R21 exploratory grants.

Loan repayment programs

Fellowships (F-series awards)

Career awards (K-series)

Non-NIH sources
R03s and R21s (Small Grants and Exploratory/Developmental awards)

Community lore:

• They are part of the progression to an R01
• They are easier to obtain than an R01
• Obtaining one, makes you more competitive for an R01

Fact:

• Most people who obtain R01s have not previously held R03s or R21s
• New investigator success rates for R03s and R21s are lower than for R01s
• People who have held R03s or R21s hold no competitive advantage for R01s
So when do I apply for an R03?

When you envision a small project that will be complete in itself and will advance the science.

Like secondary data analysis.
On knowing what to apply for…

The NIH Small Grant Program (R03)


$50,000 (direct costs) per year for up to two years.
Submission dates: February 16, June 16, October 16
R21 Exploratory/Developmental Award

• Up to $275,000 across two years (e.g., $100,000 in the first year, $175,000 in second year)

• Submission: February, June, October 16

NIH Purpose for R21

• The evolution and vitality of the biomedical sciences require a constant infusion of new ideas, techniques, and points of view. These may differ substantially from current thinking or practice and may not yet be supported by substantial preliminary data. By using the R21 mechanism, the NIH seeks to foster the introduction of novel scientific ideas, model systems, tools, agents, targets, and technologies that have the potential to substantially advance biomedical research.
So when DO I apply for an R21?

When you need to test a new methodology, or test, or procedure. The work should be complete in itself. There’s an emphasis on innovation.
On knowing what to apply for...

K01 — Mentored Research Scientist Development Award
An early or mid-career award for individuals with some prior postdoctoral research experience.
(75% min effort, Salary $75k, Research $20k)

Critical: Show need for career development.
Contrast with R03, R21, R01

K08 — Mentored Clinical Scientist Development Award
An award for junior clinicians with little-to-moderate research training who wish to become independent clinician-scientists. $75k plus fringe (75% effort) $25k a year research development

For physicians or other health-professionally trained-researchers

On knowing what to apply for...

Research Career Development Awards contd.

K23 – Mentored Patient-Oriented Research Career Development Award $75k salary 25k/50k research development expenses

When a physician and patient are in the same room at the same time and at least one is alive.

On knowing what to apply for

Research Career Development Awards contd.

K25 --- Mentored Quantitative Research Career Development Award

An award for relatively junior scientists who have been trained in quantitative disciplines (mathematics, statistics, economics, computer science, imaging science, informatics, physics, chemistry and engineering) who now wish to develop their careers in biomedical research. Salary up to $75,000. Research expenses up to $40,000 a year

On knowing what to apply for

Research Career Development Awards contd.

K99/R00 – Pathway to Independence Award. Salary: Up to $75k, Research Development to $25k (mentored phase). R00 phase: Total cost to $249k

K99 applicants must have no more than 4 years of postdoctoral research experience at the time of the initial or the subsequent resubmission or revision application, and must be in mentored, postdoctoral training positions to be eligible to apply to the K99/R00 program.

There is no citizenship requirement for K99 applicants.

This Career Award Wizard is designed to help you identify an Individual NIH Career Award that might be right for you. Please be warned that it isn't fool-proof. After you have identified a program that looks like it might work and you've downloaded and read the program announcement, please call the identified contact at the most likely funding Institute or Center and confirm your selection. This call might save you a lot of time and effort so it is very important to make that call before you begin work on your application. If you can think of ways to enhance the wizard, please send email to NIHTrain@mail.nih.gov.
K99/R00 Individuals are NOT eligible if they:

Have currently or previously held an independent research faculty or tenure-track faculty position, or its equivalent, in academia, industry or elsewhere; or

Have more than 4 years of related postdoctoral research training at the time of initial application or resubmission; or

Have been an independent PD/PI 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 leaders on sub-projects of program project (P01) or center (P50) grants
On knowing when to apply:

When are you likely to be competitive?

How long does it take to get an award?

The more that you know about the process in advance then the less time it takes.
FOA varieties

**RFA – request for applications**
- Focus on a particular topic, single submission date, usually about three months’ notice, special review group, set-aside money

**PAS – program announcement with a set-aside**
- Broader focus than RFA, multiple submission dates, regular review groups, set-aside money

**PAR – program announcement with special review**
- Broader focus than RFA, multiple submission dates, special review group, sometimes set-aside money
Program vs. Review

- separation
- constitutionality
- legislation
- parliament
- legislature
- powers
- presidential
- parliamentary
- majority
- state
- public
- function
- nominated
- elected
- judicial
- independent
- members
- constitution
- judicial
- constitutional
- public
- judges
- magistrates
- presidential
- overrule
- majority
- state
- bicameral
- political
- government
- independent
- champions
- president
- impeach
- power
If you can’t beat them join them.....
The average age of first-time R01 funded investigators who have PhDs remains 42 even after seven years of policies at NIH to increase the numbers of new and early-stage investigators. And, over the same interval, age has continued to increase for first-time R01-funded MDs and MD-PhDs, despite the policies we have in place. What is going on?
R01 Teams and Grantee Age Trends in Grant Funding

“That started me chasing another thought. How many investigators does it take to write an R01? I looked at the 100 top-scoring R01 applications across NIH in January 2015 and compared them to a similar set from January 2005.

In 2005, more of the top scoring applications had a single principal investigator listed as the faculty on that application—just Professor X and the students and postdocs—than had two faculty, or three faculty or any other number.

By 2015, Professor X needed more help. Now, three faculty is the most common number of faculty members on an application. By 2015, the “average” top-scoring R01 at NIH had more than four faculty listed as participating on it.”
Is Multi-PI R01 something junior faculty should apply for?

-depends
Research Plan:
DO
**Simplify** (but don’t oversimplify) your research plan.

Scientific justification, writing style, page limits
DO
Justify the proposed research scientifically, including theoretical motivations, relevant published data, and pilot data if appropriate. Obvious potential overlaps with existing grants should be thoroughly addressed.

DON’T
Don’t skip the literature review entirely or ignore large chunks of the relevant literature in order to save space. Don’t use a writing style that is dense and confuses the reviewers.
Specific aims

DO
Applications become stronger by reducing complexity and eliminating poorly developed aims from the proposed research. How many aims should an application have? No more than three or four. Select aims that are novel or fresh, and are capable of substantially advancing the field.

DON’T
Don’t include untestable aims.

Key personnel

DO
Key personnel must have appropriate expertise and experience, specific to the stated aims.

DON’T
Don’t assume that it’s irrelevant whether key personnel have a history of successful collaboration together.

Data collection

DO
When it comes to data collection activities and the analytic plan, they need to be linked to the stated aims. Use preliminary data to show feasibility of aspects of the research design—it’s important!
TAKE HOME MESSAGES

• **Maximize your chances to get funded**
  - Private Foundations
  - Shop around for an IC
  - Choose the appropriate study section
  - Work on your grantsmanship

• **Do your homework / read the funding opportunity instructions!!!** (due date, eligibility criteria, research objectives, responsiveness and/or special review criteria)

• **Know your eRA account and use it to get updates on your grant applications**

• **Spend a couple of hours each week surfing the NIH web**

• **Choose your mentor carefully/be your own mentor**

• **Be an informed and active citizen**

• **Build good working relationships including with your**

• **Think Outside Academia**
THANK YOU

petanceskas@nia.nih.gov