How to be Successful with NIH

Office of Research Development
Karen Drew, Director
Logan Schmidt, Sr. Research Development Officer
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Presentation Overview

• Introductions
• NIH Review Process & Study Sections
• Director’s Awards
• Rolling R01s for Sustained Funding Success
• Q&A with Panelists
Our Panelists

University Distinguished Professor Kim Lewis,
Department of Biology

Professor & Assoc Chair of Research Rebecca Carrier,
Department of Chemical Engineering
Affiliated with Bioengineering

Assistant Professor, Qianqian Fang
Department of Bioengineering
Affiliated with Electrical & Computer Engineering
Organization of NIH

Office of the Director

27 Institutes and Centers
Other Priorities: 21st Century Cures Act

- Precision Medicine Initiative
- Brain Research Advancing Innovative Neurotechnologies (BRAIN)
- Beau Biden Cancer Moonshot
- Regenerative Medicine
New, Early-Stage, and Early Established

New Investigator
• has not previously received substantial, independent funding from NIH

Early Stage Investigator
• has completed their terminal research degree within the past 10 years and
• has not previously competed successfully as PD/PI for a substantial NIH independent research award.

A list of grants that a PI/PD can hold and still be considered an ESI can be found [here](#).

Early Established Investigator
• is within 10 years of receiving their first substantial, independent competing NIH R01 equivalent research award as an ESI.
• may be prioritized for funding if they are either:
  • Losing or at risk of losing all NIH research support if they are not funded by competing award this year;
  • Supported by only one active award
Fitting Project to Program and Mission: Where do you fit?

Once you’ve identified an FOA...

✓ Read the mission statement of the institute or center, division, and program that you’ve identified
✓ Read the website for strategic plan, big ideas, etc.
✓ Search recently funded awards from the directorate
✓ Check with your Program Officer (PO)
Writing Guides

Agency Writing Guides

National Science Foundation

- The Research Development office has copies of The Grant Application Writer’s Workbook for NSF, a very useful and comprehensive writing guide to all aspects of an NSF proposal, available for short-duration loans for NU faculty. Email us at resdev@northeastern.edu for availability.
- A Proposal Writing Guide, 2004
- How to Prepare an NSF Proposal: The Good, The Bad and the Ugly Spring 2017
- Proposal Preparation, Fall 2017 Grants Conference
- Webcast of Proposal Preparation Panel at NSF Grants Conference, 2017
- Top Ten Mistakes to Avoid in Writing CAREER Proposals, from CISE 2017

https://www.northeastern.edu/resdev/resources/proposal-writing-resources/writing-guides/
Resources include

- Tips sheets
- Grant writing workshop videos
- Sample grants
- NIH Reporter MatchMaker tutorial
- Mock peer review session created by NIH
- Early Career reviewer program
Peer Review at NIH

Qianqian Fang
Department of Bioengineering
Affiliated with Electrical & Computer Engineering
Investigator Timeline

1. Developing ideas, building preliminary data
2. Looking for funding opportunities (PA) or RFA, or Parent PA
3. Writing the proposal, developing team, budget, drafting, proof reading, getting feedback, prepare all pieces
4. Submission
   - Waiting ...
   - Waiting ...
   - Waiting ...
   - Send SRO new publications 30 days before meeting
5. Study section meeting: receiving a score/percentile – understanding your chances

See next page
Post review actions

Score is very good (<7%ile or score 20 or lower).
- Read the summary statement; call PO, keep in mind nothing is certain!
- Wait for JIT from PO
- Council meeting to confirm funding
- Receive Award notice
- Work with pre-award and NIH admin to set up
- Have fun!

Score is borderline
- Read summary statement, understand the criticism and prepare a strong reply
- If Institution has a hard cut-off (NIBIB), find last year’s payline and NIH FY budget change, and gauge your position. If below the predicted payline → see right.
- If Institution has a soft cut-off (NCI), call PO, get his/her recommendation. If PO asks you to write a 1-page response, good sign that PO is in support → see left

Score is unfundable (>20-30%ile, no score, or score ~30 or higher)
- Read Summary statement, carefully going over the criticisms, prepare a strong response
- Call PO, discuss the summary statement, understand the criticism and get suggestions on resubmission
- Prepare a resubmission, consider changes 1) cutting/adding aims, 2) writing, 3) study section, 4) study design
Parent PA vs. PA vs. RFA

• **Program Announcement (PA)** is a call for proposals of a specific area/focuses. Typically reoccurring within 2-3 of years (renewable).

• **Request for proposal (RFA)** is a special solicitation, typically 1-2 times, for a time-sensitive, important research topic, typically with a slightly varied funding duration/budget size.

• **Parent PA:** unsolicited submissions, broad coverage with no special coverage, reoccurring.

• RFA may has higher paylines, lower number of submissions, reviewed by a special emphasis panel

• **PA:** depends on study section – in experienced study section, extra criteria review criteria of the PA are well considered; for inexperienced study section/reviewer, PA is often ignored.
Choice of Institution and Study section

• A PA/RFA may be sponsored by multiple NIH Institutions. Choice of institution depends on
  1. your overall proposal focus,
  2. past/predicted payline (higher the better),
  3. typical funding duration (4 vs. 5 yr R01, longer the better)
  4. administrative budget cut (lower the better).
  5. can move between institutions if score is fundable

• A study section review proposals based on PA/RFA, independent from institution choices.

• Choice of study section is more important than the choice of institution. Find the right group of reviewers that appreciate your project!

• RFA has little choice (but best you could get); PA/Parent PA, read study section descriptions, find who are on the study section (rosters). Write it explicitly in your cover letter! If resubmission, you want to send it back.
NIH Review Timeline

1. Receiving submission
2. Referral, assign to study section, primary and secondary institution
3. SRO invite reviewers for the upcoming study section meeting – assign 3-4 reviewers per proposal, request reporting COI
4. Reviewer read the assigned proposals (5-10), write critiques, give preliminary score; submit all scores to SRO
5. SRO/section chair average preliminary scores, rank, and place top 50% for meeting discussion. SRO announce the order of review.
6. At the meeting:
   1) SRO introduction
   2) Member self-intro
   3) post-meeting COI
   4) List of proposals
7. Section 1: New investigator proposals
   Section 2: Senior investigator proposals
8. 1) Chair: announce proposal
     2) Identify conflicts, leave room
     3) Announce reviewers
     4) Reviewer 1: detailed review
     5) Reviewer 2/3 add their review
     6) Reviewers reconciliation
     7) Finalize reviewer score range
9. 8) As panel if voting out-range
   9) Panel members to write down score
   10) Reviewer: comment on budget
    11) Move on to next
    Reviewers finalize critique in a day
    SRO write Summary statement
POs and SROs

Program Officers (PO)s
- Advise applicants and grantees
- Oversee progress of funded grants
- Encourage scientific opportunities, and
- Help develop NIH policy

Scientific Review Officers (SROs)
- Move applications through initial peer review process
- Appoint reviewers to study sections
- Run study section meetings
- Prepare summary statements

After Scoring
- After funding: POs are your contact for scientific or programmatic questions
- Rejected: POs can help explain reviewer comments
My lessons

• Study section is important

• Reviewer continuity is important for resubmissions

• Becoming a reviewer is VERY helpful – see the successful proposals & bad ones

• Preliminary data – as much as you can provide (publications too)

• Writing ritual
  
  o Spend time polishing Aims + Abstract
  
  o Save reviewers time – provide them bullet points for strengths so they can copy/paste
  
  o Motivate the proposal by applications/clinical needs, not by technology!
  
  o Write the proposal clearly, use good graphics, proof-read to make sure grammar/typo free
  
  o Use hard-data to convince out-of-field reviewers – citation count, publications, stats, numbers
Other thoughts

• Unfortunately, other people’s successful experience does not necessarily apply to you

• Keep trying, eventually, most proposals got funded!

• It is normal to fail, average age for 1st R01 is 43

• Never submit under-prepared proposals! count is not important, submit a few well-prepared proposal a year – tell yourself you did your best for every single proposal submission!

• Prefer submitting R01 instead of R21 – the lower the bar, the higher the competition.

• Let more people know your work, make academic friends, share your work (open-source if possible), build a healthy environment for growth
Upcoming Workshops

Responding to reviews for resubmission success
Thursday, March 28: 11:30 am – 1:00 pm

How to succeed: A discussion with NSF CAREER recipients
Wednesday, April 24: 11:30 am – 1:00 pm

Resources and Strategies for NSF Broader Impacts and Educational Design for Broader Impacts
Wednesday, May 15: 11:30 am – 1:00 pm

Writing an NSF CAREER Summary: An interactive workshop
Wednesday, June 12: 11:30 am – 1:00 pm
Appendix: Additional resources

• Training videos
• NIH Events Calendar
• Award types and paths
NIH Peer Review Revealed

Available at: https://www.youtube.com/watch?v=fBDxl6l4dOA
NIH Grants on Youtube

Available at https://www.youtube.com/channel/UC1ZUJIWdf-3ltBo8301YF-A
Grants.gov Youtube Channel: Tutorial Central

Available at: https://www.youtube.com/user/GrantsGovUS
What Happens to your NIH Grant Application - 2018

From Center for Scientific Review, available at: https://www.youtube.com/watch?v=Gg2nppTaLUw
In-depth Review from an SRO (1 hour)

Available at: https://www.youtube.com/watch?v=cW6fzTGCTdw
Career Path and Funding Options

Graduate/ Clinical Training
- T32, T35
- F30, F31

Postdoctoral Training/ Clinical Residency
- T32
- K01, K07, K25
- K22, K99
- K25, K12
- F32

Early Research Career
- K08, K23
- K22, R00

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

Loan Repayment Programs

Diversity Supplements

Re-Entry Supplements
Early Research Career Development

- Graduate/ Clinical Training
- Postdoctoral Training/ Clinical Residency
- Early Research Career
- Established Investigator

Loan Repayment Programs
Diversity Supplements
Re-Entry Supplements

- K08, K23
- R03, R21, R01
- K22, K99
- K22, R00
NIH Events Calendar

• Cumbersome but comprehensive

Available at: https://calendar.nih.gov/app/MCalWelcome.aspx