



# Why grants are important

- Necessary for the progression of research
- Necessary to support you and your lab
- An opportunity to clarify ideas and to receive feedback about them

## Agenda

1. Survey: (7 min)
2. Faculty survey (5 min)
3. My experience (5 min)
4. Protocol that worked for me (5 min)
5. Questions (10 min)

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## Survey about your experience - show of hands

How many of you are students? Postdocs?

How many people have written their own grant?

How many people have helped their PI write a grant?

## Survey about your experience - neighbor discussion (5 min)

What are your best practices for writing grants?

If you haven't written your own grant yet, discuss questions you have about writing grants.

## Faculty Survey (UCSF faculty, $n = 9$ )

What advice would you give a trainee about writing grants?

Identify the key gap that your work will fill and explain clearly why it is important. Get feedback from colleagues.

Take it as an opportunity to organize your thoughts and data.

Spend the most time on the specific aims page and figures.

Don't spend too long on writing the grant to the exclusion of doing other things. Write about the science you want to do, but write it in the language best for your audience. Give your readers at least a week to review and respond.

Write your best ideas

Get an experienced person at least slightly out of the field to critique it early. If at first you don't succeed, try, try again.

There are multiple strategies for funding your lab, including (1) write a few grants, put a fair amount of effort, prelim data, increase chance of success -- this strategy may allow you to spend more time in lab getting the data & mentoring students, or (2) write a lot of grants, hope some work.

Don't be shy about asking trusted colleagues for advice. They are busy, but I found asking two colleagues to look over my aims and give me advice about NIH grants was transformative

If and when you are rejected, try not to take it personally, but do take it seriously. Seek feedback from rejections, whenever possible, so you can hone your communication skills and hopefully learn what grant reviewers care about

It can be fun

More work than it seems. Get advice on budgets and things, not just the science. And talk to the NIH SROs! (scientific review officer)

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Faculty Survey (UCSF faculty,  $n = 9$ )

*No formal training or formula for grant writing*

How far in advance would you recommend starting to write a grant?

2 months

2 months

2-3 months

3 months or more

3-6 months

6 months

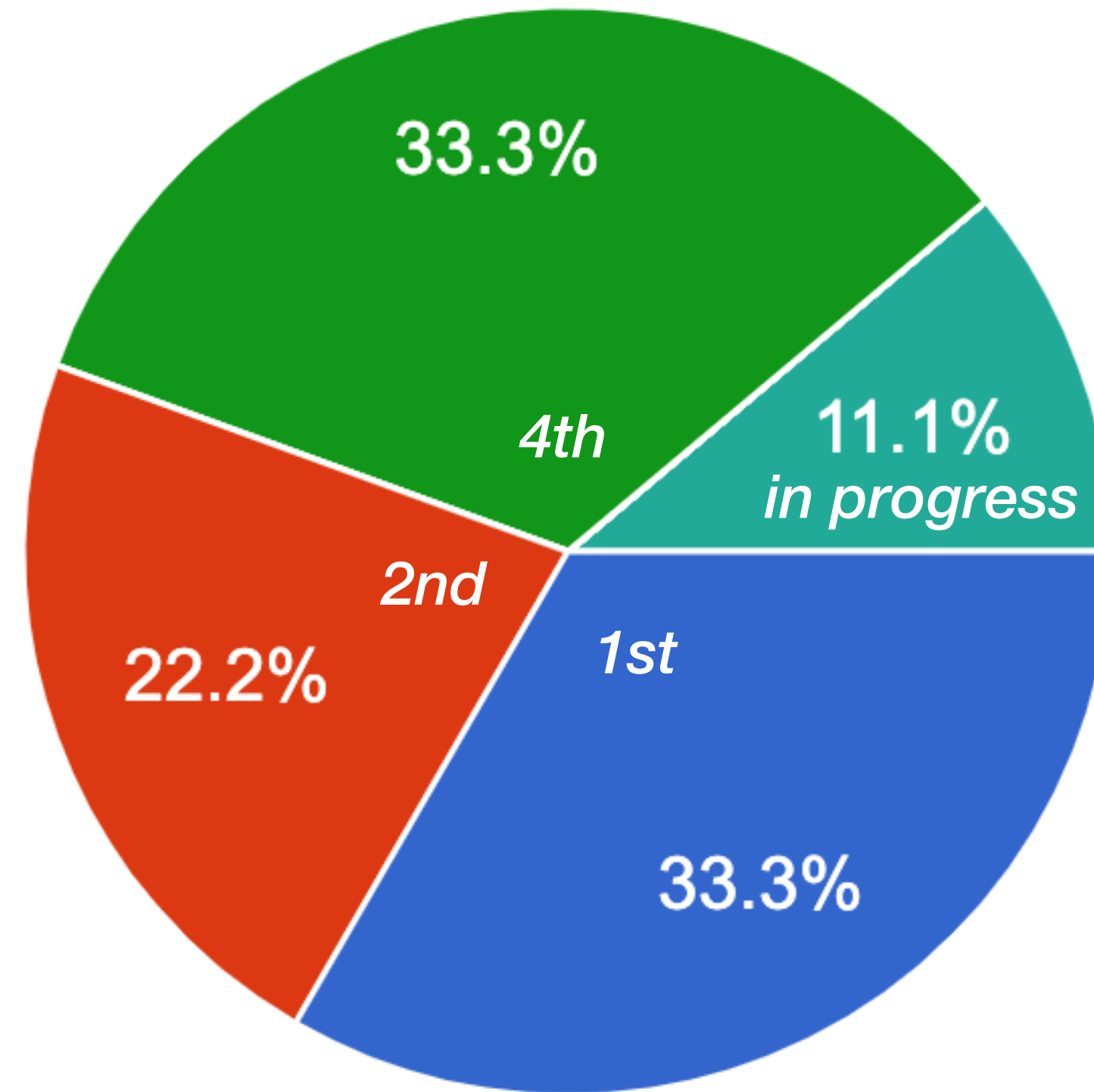
1 year for R01 or equivalent

1 year

1 year

## Faculty Survey (UCSF faculty, $n = 9$ )

How many grants did you submit before your first R01 or equivalent was funded?



*According to NIH data, the average age at which PhD scientists receive their first R01 grant—a sign of a successful research career—has increased from 35.7 in 1980 to 43 in 2016. For MD investigators the average age is 45. Even after getting that first grant, it can be challenging to maintain funding for early established investigators, or researchers who are within 10 years of receiving their first independent R01.*

# My (limited) experience writing grants

Experience	Method	Result
2002: Applied for NSF and Howard Hughes Predoctoral Fellowships	Months of revisions at the writing center	Funded
2009: Applied for a Helen Hay Whitney Postdoctoral Fellowship	Feedback from PI's and colleagues on several drafts	Funded even after switching labs
2013: Applied for a K99	Followed <i>The Grant Application Writer's Workbook</i> Feedback from PI's and colleagues on several drafts	Funded
2014: Started as faculty position at UCSF. R00 began		
2016: Submitted first R01	Feedback from colleagues	Triaged - not discussed
2017: Submitted second R01 as a revision of the first	Feedback from colleagues. Hired a grant-writing consultant	Not funded but discussed (impact score: 39, percentile: 36)
2017: Submitted third R01 as a new grant	Feedback from colleagues. Hired a grant-writing consultant	Not funded but discussed (impact score: 49, percentile: 46)
2018 (February): Submitted fourth R01 as a new grant	Mock study section hosted by my postdoc advisor	Funded (impact score: 25, percentile: 9)
2018 (June): Submitted fifth R01 as a new grant	Mock study section run by colleagues	Funded (impact score: 21, percentile: 7)
2018 (June): Participated in Study Section as an Early Career Reviewer		



## Lessons I have learned so far...

Writing an R01 grant is different than writing other grants.

Begin with the end: Asking for review in the format that it will be reviewed was the best way for me to receive feedback.

A grant is discussed for a fraction of the time that it took to write. What reviewers can pick up on easily is if the grant was thrown together at the last minute.

Make time to write (focused) and think (diffuse). The earlier I started, the more opportunities I had to think about the grant.

## Purpose of a Mock Study Section

### Objective:

A mock study section is intended as a pre-review of a NIH R01 grant to help improve the application before submission. This process is especially intended to help new investigators who have not yet experienced the review process. This mechanism is open to all investigators.

### Benefits:

The intended benefits of the mock study section are three-fold

1. The investigator can receive feedback that is pertinent to the study section.
2. The reviewers can come to consensus about the criticism so that the investigator has a more focused set of critiques to address. This can be more efficient than receiving disparate feedback from multiple readers.
3. Prior knowledge about the scores the grant would likely receive will inform the investigator of how much editing is required for the grant to be viable in NIH study section.

## Guidelines for Mock Study Section

>8 weeks before the deadline: The investigator will organize the study section by asking 3 reviewers to participate. The reviewers ideally have experience in the study section where the grant will likely be reviewed; however informed feedback does not necessarily require association with a particular study section as much as it does require some experience with NIH study sections.

6 weeks before the deadline: The investigator will distribute the grant (including Specific Aims, Research Plan, Biosketch, Budgets, etc.) with the current study section evaluation template. If the grant is a resubmission, please also provide the summary statement from the previous review. Primary, secondary, and tertiary reviewers will be assigned. A date will be set for the mock study section.

4 weeks before the deadline: A meeting will be held among the reviewers and investigator and any other members chosen by the investigator, e.g., lab members.

### Meeting:

15-20 min: The 3 reviewers will give preliminary scores, discuss the grant, and give final scores. The primary reviewer will run the discussion. The investigator is asked to not participate in this portion of the meeting.

45-60 min: The reviewers will give more constructive critique of the grant and suggestions for editing. The investigator is invited to participate in the discussion\*.

At the end of the meeting, the reviewers will give the investigator the written critiques and commented grant, if available.

Grant is due (If this is your first submission, consider preparing the front in the cycle prior)

# Peter Sterling's advice about receiving feedback

## Criticism is essential

- To discover what others find problematic.
- Criticism is hard to obtain.
- Few can identify and articulate the problems.
- It's painful to see your imperfections.
- You must feel the pain, accept it.
- Then you can revise.

## The goals are to

- Maximize your grasp of the problems so that you can revise.
- Minimize your critic's time and effort.
- Leave your critic feeling good.

## Rules for obtaining criticism

- Never explain why you wrote it that way.
- Don't try to revise during the critique.
- Just listen and take notes.
- Ask questions to clarify what you don't understand.
- Show appreciation for the critic's efforts.

# Resources

Read funded grants from your colleagues and mentors

NIH Early Career Reviewer

*The Grant Application Writers Workbook*

Brett Mensh, MD, PhD, Optimize Science

NIH Home Page

[www.nih.gov](http://www.nih.gov)

Office of Extramural Research Home Page

[www.grants.nih.gov](http://www.grants.nih.gov)

Center for Scientific Review

[www.csr.nih.gov](http://www.csr.nih.gov)

Research Portfolio Online Reporting Tools  
(RePORT)

[www.RePORT.nih.gov](http://www.RePORT.nih.gov)

Peer Review Process

[www.grants.nih.gov/grants/peer\\_review\\_process.htm](http://www.grants.nih.gov/grants/peer_review_process.htm)