Grant Writing 101

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Outline

- Your research career
- Types of funding
- NIH review process
- Pet peeves (and pets)

Your research career is judged on

PUBLICATIONS

GRANT AWARDS

MENTORING


you are
one smart

Types of grants

Research grants

- Pilot
- Exploratory
- Full research

Career development awards

- Blend of training and research

Other

- T32s (training), small business, industry contracts, etc.

Funding resources

UCSF Websites

- UCSF Research Development Office
- Office of Sponsored Research

NIH Reporter

- NIH

Pilot grants

RAP table grants

- Range from $25K - $100K, 1 year of funding
- Currently 38% success rate
- Easier and faster than applying to the NIH
- Twice yearly

Hellman foundation

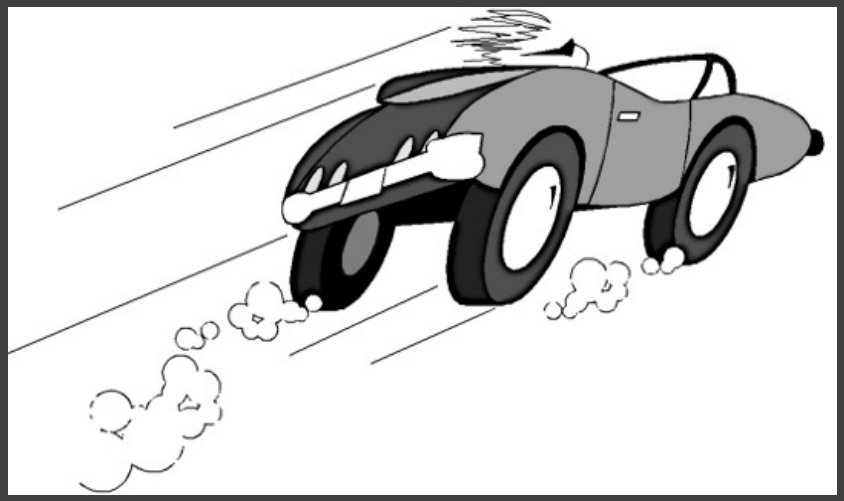
- Challenging research and/or DEI focused work: Hellman foundation (junior faculty) – 12/year

Pilot grants

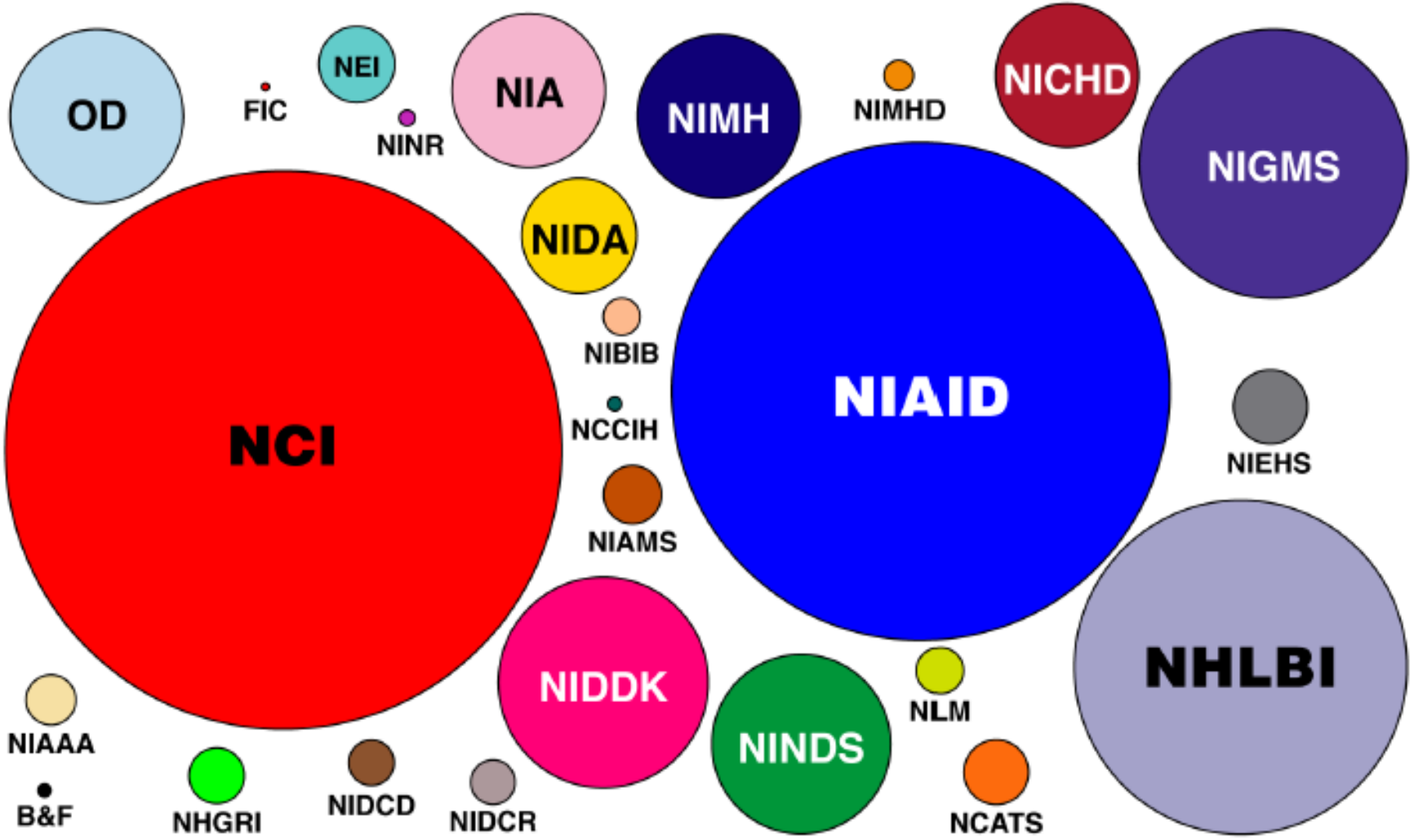
- Get experience writing grants getting reviewed
- Get pilot data for future K (or supplement your K)
- Establish feasibility of your work
- Get your own publications
- Success breeds success

Pilot grant applications musts

- A vehicle to get your research career in motion
- How it fits into your research trajectory – explicitly state that this will lead to a K-proposal on xyz
- Mentoring/senior participation



National Institutes of Health $$$



NIH grants

F32

- Postdoc stipend and tuition

K awards

- Late postdoc / junior faculty

R-series

- Independent researcher

U-series / P-series

- Vary but can be like groups of R01s

Supplements

- Administrative
- Diversity

F32s (a.k.a. NRSAs)

- Postdoctoral awards, up to 3 years of support
- Provide stipends and tuition, very limited research $
- Include a research plan and a training section
- Very common in the basic sciences (PhDs), becoming more common for MDs
- 29% success rate
- Establish a track record

K awards

5 years of funding for research and training

- $ varies by institute
- 75-100% of your salary

2022 Success rates:

- K01, K08, K23: 38.1% K99: 24.8%

Some departments or divisions require you to give a "job talk", be approved to submit

- Required to give a faculty position if funded

K Funding Mechanisms

- **K01:** Mentored Research Scientist Development Award
  - Usually non-clinician PhDs
- **K08:** Mentored Clinical Scientist Development Award
  - Health professional doctoral degree not doing patient-oriented research (maybe)
- **K23**: Mentored Patient-Oriented Research Career Development Award
  - Clinicians doing patient-oriented research (better salary coverage than K01)
- **K99/R00:** Pathway to Independence Award
  - 2 years in postdoc position conducting training activities
  - 2-3 years in faculty position conducted research (like a small R01)
  - Non-US residents may receive this one, but it needs to be housed at a US institution

NIAID https://www.niaid.nih.gov/grants-contracts/career-development-awards#A2
NIMH https://www.nimh.nih.gov/funding/training/career-development-programs-k-series.shtml

K grants by institute

- Table of K01 and K23 salary and research support by institute
  - K01 salary and research support
  - K23 salary and research support

K12/KL2 funding mechanisms

- Internal training awards at UCSF
  - BIRCWH – Women's Health
  - KURe Urology
  - Women's Reproductive Health Research (WRHR) (only open to Ob/Gyns)
  - Cardiopulmonary, Hematologic, and Immunologic Comorbidities of HIV (CHIC).
  - Learning Health Scholars
  - IMPACT (**IM**plementation Science for **P**ulmonary **A**nd **C**ardiac Research **T**raining
  - CTSI K Scholars
    - CTSI K Scholars also mentors scholars who *have their own K* https://epibiostat.ucsf.edu/k-scholars-program-outside-award
      - Hint: If you are writing a K application say you intend to apply for this
- Can go on to receive a K01, K08, or K23
- Domestic research only, there are rules about applying to >1 at a time

K12 funding mechanisms, con't

- You cannot apply for a K12 if you have a K (K01, K23, etc) submitted to the NIH concurrently
- A NIH K is more prestigious and more/longer funding –
- Many people get a K12 and then go on to a NIH K
- If you are applying for a NIH K, it is good to include the CTSI K Scholars program as part of your training – for a small fee anyone with a K can participate in the training/networking activities

K award review criteria

All about you and your mentoring team

Evidence of recent productivity – your publications/grants

Your track record, consistent with proposed work/training

Vehicle to independence (R01)

Career development training plans for a K award

- **Develop a training plan that is *uniquely* suited to you.**
  - Didactic training and “hands- on” research
  - Makes perfect sense for you (and only you)
    - Previous training and experiences
    - Fit with your long term goals

Training plans for K awards

- A training plan that emphasizes “hands-on” research experience is appropriate for candidates with substantial previous formal training in research.
- Reviewers expect you to fully exploit the training resources that are available to you at UCSF (i.e. CFAR, CTSI).
- You can propose to use training resources outside UCSF, but choose the best available.
- Your training plan should be as strong or stronger than your research plan.

Designing a research plan for a K award application

- The research plan is a *training vehicle*.
  - The research plan should provide an opportunity to acquire new skills and should be well integrated with your career development training plan.
- The research plan is a *means to achieve independence*.
  - The research plan should be viewed as a precursor for a subsequent R01or R34 application.
- Mentored K awards provide *limited funding*.
  - The scope of the research plan needs to be appropriate and feasible, given the modest resources available in a mentored K award.
  - It is best to be adding on to an existing funded study and infrastructure (usually your primary mentor's).

Your team for a K award is key

- Choose a primary mentor who is a *senior* investigator with a track-record of NIH funding (i.e. Associate or Full Professor)
  - At UCSF, mentored others, preferably other K awardees
  - Should be able to mentor you in the content area *and* in career development
  - Include a co-mentor if needed to fill a gap
- Include consultants who will complement the primary mentor's strengths.
- Every person included should have a unique role.
- Keep your mentoring team small (3

K award scoring criteria

- Candidate
- Career Development plan
- Research plan
- Mentors
- Environment and Institutional Comittment

NIH alphabet soup

- FOA: Funding opportunity announcement - generic term
- PA, PAR
  - Something the NIH (one or more of the institutes) wants to prioritize – no special funds attached.
- NOSI
  - Notice of special interest – could refer to a PA or PAR, or notice of intention to publish a RFA
- RFA
  - Something the NIH (one or more of the institutes) wants done, and has set aside $ for
  - Will have special review
  - Consider carefully. Note experts in the field will flock to these. If you are not established in the field think twice. Pay lines may not be any better than for other proposals.

Research (R) grants

- R03: Small Grant Program. Up to $100K over 2 years
- R21: Exploratory/Developmental Grant. Up to $275K total over 2 years.
- R34: Clinical Trial Planning Grant. Up to $450K over 1-3 years
- R01: Research Project Grant. Up to $500K/year, 3-5 years.
  - All institutes offer R01s.
  - Significant preliminary data and publications are required.
  - R01 or similar award is a sign of independence and needed for advancement to Associate Professor at UCSF.

NIH Diversity Supplements

- Diversity supplement piggy-backs off of an existing NIH grant
  - Up to $100K direct costs
- Eligibility
  - Under-represented racial or ethnic group
  - Disability
  - Disadvantaged background
- Within UCSF
  - Watson fellows (Due March 29)
  - RAP grants

Diversity R01

- For "New Investigators" and "At-Risk Investigators" from groups underrepresented in the health-related sciences
- *~50 awards: NCCIH, NEI, NIAAA, NIBIB, NIDA, NIMH, NINR, or NINDS*

R grant review criteria

- Investigators
- Significance
- Innovation
- Approach
- Environment

New R grant review criteria

Importance of the Research

- Significance + Innovation

Rigor and Feasibility

- Approach

Expertise and Resources

- Investigator and Environment, sufficient y/n.

Grant resubmissions

- Carefully analyze the comments
  - If the only problems are with approach, it may be fixable
  - If the reviewers are having a hard time with significance, you might have more trouble on a resubmission

Think like a reviewer

- Be a reviewer
  - Junior faculty can be RAP reviewers – contact Emy Volpe
- Your review hinges on communicating to the main reviewers – write simply and clearly!

Grant writing resources

- Read others' successful proposals, including their summary statements and revisions
  - NIH reporter
  - Your colleagues and mentors
- CAPS peer reviews (contact Stuart Gaffney)
- DOM peer reviews (PREPARE) - Ks and Rs
- CTSI K-grant writing workshop (6 sessions, starting in Sept, Feb, and June)
- TICR grant writing course (not offered this year)

Grant application pet peeves

- Using long words or phrases when short ones would suffice. E.g., *utilize instead of use; with respect to instead of about.*
- Using a passive voice
- Feeding the reviewer adjectives without specifics
  - *This project will have a highly significant impact on the field.*
- Filling every millimeter of every page.
- Typos and inconsistencies (e.g. you changed your sample size one place, forgot to change it in another)
- Lacking excitement for what you are doing, dry writing
- Writing the proposal* at the last minute
  - Reviewers can smell it, co-investigators don't want to deal with it

DO!

- Read others' successful grant proposals and review sheets.
- Make your proposal easy to read. Clear short headings, judicious use of bolding or underlining (only a few per page).
- Get reviews of your concept early on and then get a peer review when it is mostly done.

In grant writing and in life,

- Choose your mentors and collaborators wisely
  - Make sure you have found the experts in your field
  - Make sure they play well in the sandbox
- Reach out to new and interesting people, even if they are very senior
- Be generous
- Find and follow your passions
- Have fun

Thank you!

Feel free to e-mail me! Judy.Hahn@ucsf.edu