

Grant Writing 101

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Outline

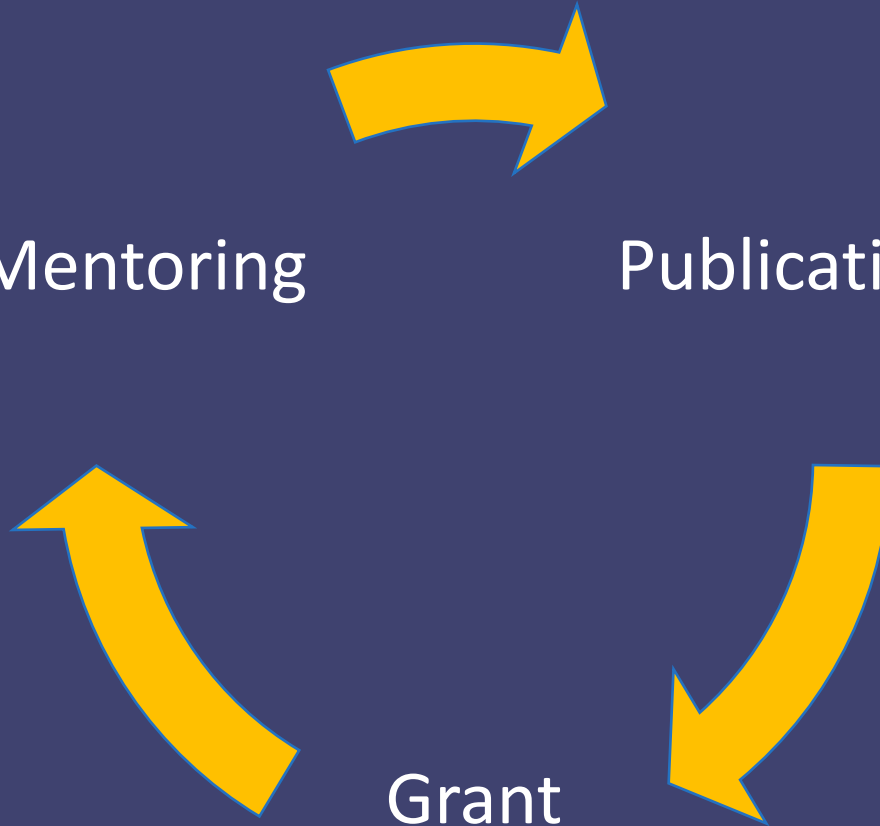
- Your research career
- Types of funding
 - Pilot grants
 - F32s
 - K grants
 - R and U grants
- NIH fun facts (review process)
- Pet peeves and dos

Your research career is judged on

Mentoring

Publications

Grant
awards





you are
one smart



Finding funding



- Types of grants
 - Research grants (pilot, exploratory, full research)
 - Career development awards
 - Others (T32s, Small business, industry contracts, etc.)
- Finding grants
 - Explore the [UCSF Research Development Office](#) and the [Office of Sponsored Research](#)
 - Career development: [William T. Grant fellowship](#) (reducing inequalities among young people aged 5-25) LOI due 3/1
 - Career development (MDs): [Doris Duke](#)
 - Challenging research: [Hellman](#) foundation (junior faculty)
 - Pilot grants: [UCSF RAP](#)
 - [NIH](#)

USCF Pilot grants

- UCSF RAP (includes CFAR Mentored Junior Scientist, CAPS Innovative Grant, others)
 - Here [RAP table](#) of awards
 - Range from \$25K - \$100K
 - 1 year of funding
 - Currently 43% success rate
 - Easier and faster than applying to the NIH
 - Deadlines January and September

Pilot grants

- Get experience writing grants
- Pilot data for K award proposal
- Establish feasibility within your area (recruitment, methods, etc.)
- Publications!
- Viewed favorably by reviewers of K-award proposals – success begets success

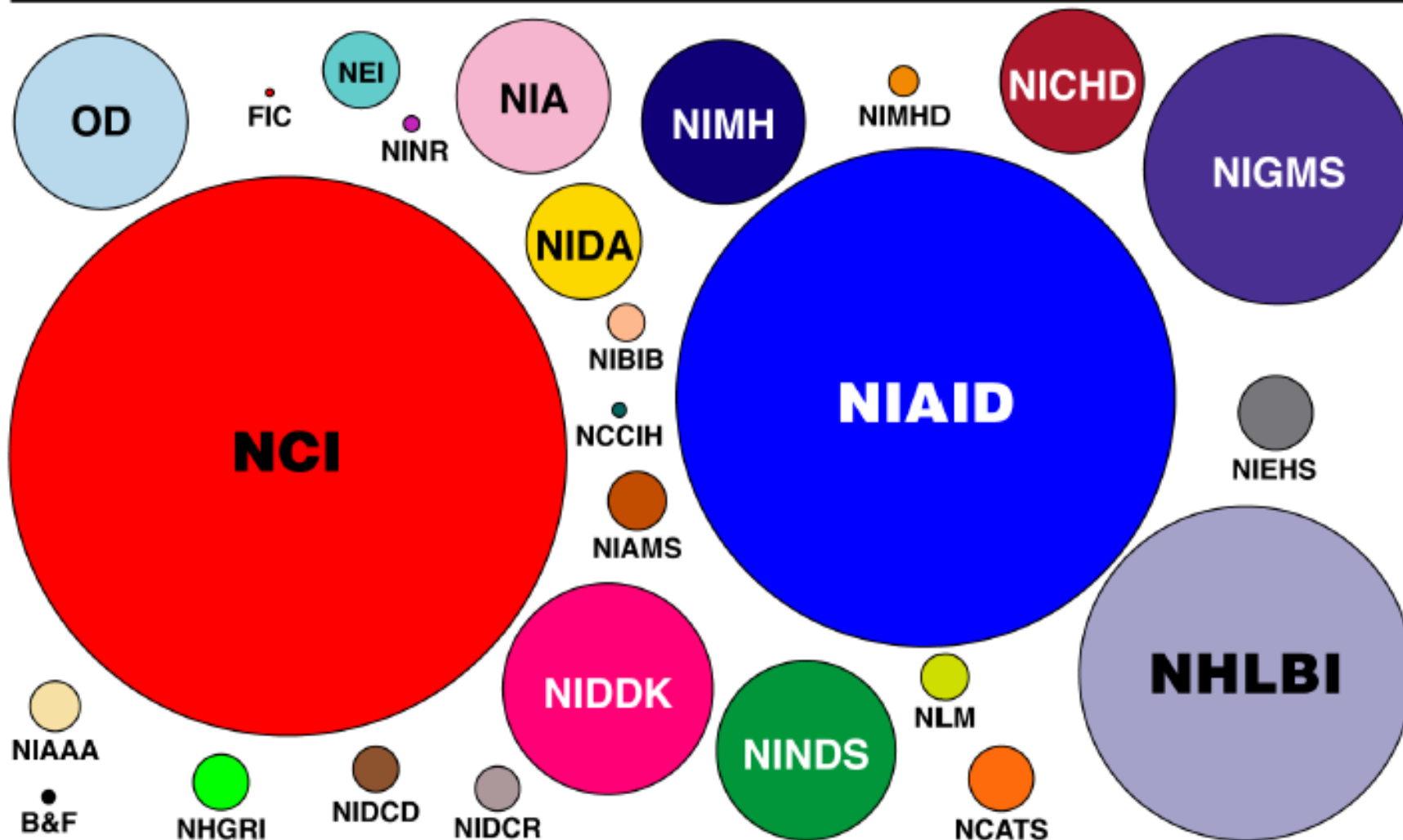
Pilot grant applications musts

- 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
- Include these things even if they are not explicitly in the instructions



National Institutes of Health

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NIH grants

- NIH grants
 - F32 grants – postdoc stipend and tuition
 - K awards – late postdoc / junior faculty
 - R-series – Independent researcher (i.e. faculty)
 - U-series – Like R grants but with collaboration from the NIH
 - Supplements to existing NIH grant awards – diversity or administrative

F32s (a.k.a. NRSAs)

- Postdoctoral awards, up to 3 years of support
 - If you are on a T award you may not be eligible
- 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 in 2019
- Establish a track record

K awards

- 3-5 year awards (duration varies by institute) for training and research towards independence as an investigator
- Support 75%-100% of your salary – protected time for research
- \$25K-\$50K for training and research / year
- 2022 Success rates:
 - K01, K08, K23: 38.1% K99: 24.8%
- Catch 22: You must be faculty or have a letter that says you will be faculty, independent of the outcome of the proposal (except for the K99)
 - Some divisions require you give a “job talk” and get approval to submit

K Funding Mechanisms

- Eligibility, \$ awarded, flavor, and rules vary somewhat by NIH Institute
 - Find out which institute has the most relevant work and search “K award”
- **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 funding mechanisms

- NIH grant awarded to an institution to train junior faculty; supply several years of funding plus research \$
- There are several K12s at UCSF
 - BIRCWH – Women’s Health <https://bircwh.ucsf.edu/>
 - KURe Urology: <https://urology.ucsf.edu/research/kure>
 - Women’s Reproductive Health Research (WRHR) (only open to Ob/Gyns): <https://obgyn.ucsf.edu/education-training/wrhr>
 - CHIC K12: UCSF Career Development Program in Cardiopulmonary, Hematologic, and Immunologic Comorbidities of HIV (CHIC). <https://k12chic.ucsf.edu/about-chic>
 - Learning Health Scholars <https://epibiostat.ucsf.edu/learning-health-systems-k12-career-development-program>
 - IMPACT (IMplementation Science for Pulmonary And Cardiac Research Training) <https://epibiostat.ucsf.edu/impact-k12>
 - CTSI K Scholars <https://epibiostat.ucsf.edu/k-scholars-program>
 - 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 criteria

- All about you and your mentoring team
- Evidence of *recent* productivity
 - First-author publications of original research in a peer-reviewed journal.
- A track record of training and research consistent with the proposed research/training
- A career development plan and a research plan that will prepare you to compete successfully for an R01 grant.
- The proposal includes a career development training plan and a research plan (together totaling 12 pages), plus LOTs of letters

Career development training plans for a K award

- **Develop a training plan that is *uniquely* suited to you.**
 - Propose a mix of didactic training and “hands- on” research experience that make perfect sense for you (and only you), given your previous training and research experience and your short- and long-term career 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 R01 or 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 (3-5 members).



K award study section review criteria

- Candidate
- Career Development Plan/Career Goals & Objectives
- Research Plan
- Mentor(s), Co-Mentor(s), Consultant(s), Collaborator(s)
- Environment and Institutional Commitment to the Candidate

NIH alphabet soup

- FOA: Funding opportunity announcement - generic term
- PA, PAS, PAR
 - Something the NIH (one or more of the institutes) wants to prioritize – no special funds attached. **PAS or PAR might mean it will go to a special review panel, which may be an advantage.**
- 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 <https://grants.nih.gov/grants/guide/pa-files/PA-21-071.html>
- Up to \$100K direct costs
- Eligibility <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-089.html>
 - Under-represented racial or ethnic group
 - Disability
 - Disadvantaged background
- Within UCSF
 - Watson fellows <https://medschool.ucsf.edu/about/diversity-equity-and-inclusion/deans-diversity-fund> (Due March 31)
 - RAP grants <https://rap.ucsf.edu/under-represented-faculty-senior-fellows-clinical-and-translational-research-awards>

Diversity R01

- R01 grant applications from "New Investigators" and "At-Risk Investigators" from diverse backgrounds, including those from groups underrepresented in the health-related sciences
 - <https://www.ninds.nih.gov/funding/about-funding/types-research-support/research-project-grants/diversity-r01-new-and-risk-investigators>.
And <https://grants.nih.gov/grants/guide/pa-files/PA-22-181.html>
- ~50 awards: NCCIH, NEI, NIAAA, NIBIB, NIDA, NIMH, NINR, or NINDS
- "At-Risk Investigator" means you have had prior support as a Principal Investigator on a substantial independent NIH research award and will have no substantial research grant funding in the following fiscal year unless successful in securing a substantial research grant award in the current fiscal year.

R grant reviews

- R grant review criteria
 - Investigators
 - Significance
 - Innovation
 - Approach
 - Environment
- For R grants, the investigators and environment can score perfect scores, but proposals are mostly sunk on significance or approach
- If re-submitting a proposal, 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 reporter.nih.gov
 - Your colleagues
- CAPS peer reviews (contact Stuart Gaffney)
- DOM peer reviews (<https://dom.ucsf.edu/prepare>) - Ks and Rs
- CTSI K-grant writing workshop <https://epibiostat.ucsf.edu/k-grant-writing-workshop> (6 sessions, starting in Sept, Feb, and June)
- [TICR grant writing course](#)

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