K Club, Week 1

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Today’s Topics

- K Awards: What are they?
- Funding Opportunity Announcement (FOA)
- National Institutes of Health (NIH) process for a research grant
- Overview of the Grant Submission Process + NIH Structure
- Program Officers
- K Award Sections
- K Award Scope
- K Mentorship Team
- Action Items
K Awards: What are They?

- Training grants from National Institutes of Health (NIH)
  - What skills do you have that you want to further develop?
  - What NEW skills do you want to learn?
  - What are your career goals that this grant can help you accomplish?
  - How can training help you transition to become a successful independent investigator?
- Research section
- Career development section
K Awards: What are They?

► Applicant Requirements
  ► Senior level post-docs or faculty-level candidates
  ► Must have full-time appointment at institution
  ► Full-time effort (at least 9 months, or 75%) on research, with the rest on other career-development opportunities

► Mentor Requirements
  ► 1+ mentors should have current, active R01-level funding

► Money
  ► Salary and health insurance benefits for you
  ► Research costs: (a) tuition/fees related to career development; (b) supplies, equipment, technical personnel; (c) travel; (d) statistical services
  ► NO $$$ allowed to go to mentors
  ► Waiting period between grant submission and potential award ~ 8-9 months (if you get it the first time, which is highly unlikely)

► Types
  ► K01, K08, K23, K25, K99/R00
We will go over the basics of each K award next!

Examples tend to focus on National Institute of Mental Health (NIMH) rules because that is where many of LIBR researchers submit grant applications.

After we go through K award basics, most of my slides will be geared toward K99/R00 applications, although there is quite a bit of overlap across K applications.
K01: Mentored Research Scientist Career Development Award

- **Applicant Requirements**
  - For post-doc and early-career (within 10 years of Ph.D.) research scientists
  - Must be U.S. citizen, foreign national, or U.S. resident to apply
  - For people who **propose to train in a new field**, have had a hiatus in their research career, or can argue that this grant will enhance workforce diversity

- **You must show that you:**
  - Are committed to a research career
  - Need advanced research training
  - Need additional research experience

- **You can do a clinical trial if you want to**

- **Money**
  - 3-5 years of funding
  - Different Centers/Institutes have different salary caps
    - NIMH salary cap = $90K/year and research support = $50K/year
K08: Mentored Clinical Scientist Research Career Development Award

- **Applicant Requirements**
  - Good for clinical psychology Ph.D. or M.D. who has already shown promise in research
  - Must be U.S. citizen, foreign national, or U.S. resident to apply

- **You must show that you:**
  - Are clinically trained
  - Want to pursue a career that has a significant impact on health-related research needs in the U.S., preferably as an academic faculty member in a health-based institution

- **You can do a clinical trial if you want to (but you don’t have to!)**

- **Money**
  - Up to 5 years of funding
  - Different Centers/Institutes have different salary caps
  - NIMH salary cap = $100K/year and research support = $50K/year
K23: Mentored Patient-Oriented Research Career Development Award

- Applicant Requirements
  - Good for clinical psychology Ph.D. or M.D. who has already shown promise in research; for post-docs or early-career (within 10 years of degree)
  - Must be U.S. citizen, foreign national, or U.S. resident to apply
- You must show that you:
  - Are clinically trained
  - Want to pursue a career as a clinical investigator focusing on patient-oriented research, directly interacting with subjects
- You can do a clinical trial if you want to (but you don’t have to!)
- Money
  - Up to 5 years of funding
  - Different Centers/Institutes have different salary caps
    - NIMH salary cap = $100K/year and research support = $50K/year
K25: Mentored Quantitative Research Career Development Award

► Applicant Requirements
  ► Good for engineering or science Ph.D. whose research has not been primarily focused on health and disease (statistics, economics, computer science, physics, chemistry)
  ► Must be U.S. citizen, foreign national, or U.S. resident to apply
  ► Post-docs or any level of investigators

► Money
  ► Up to 5 years of funding
  ► Salary cap = $100K/year and research support = $40K/year
K99/R00: Pathway to Independence Award

- Applicant Requirements
  - Post-docs ONLY (no more than 4 years of post-doc experience)
  - Grant = Initial mentored research experience (K99, up to 2 years) followed by independent research (R00, up to 3 years) to secure an independent research position
  - You are supposed to apply for R01-level funding during the R00 period
  - You can do clinical trials, but you don’t have to!
  - Typically you start off at one institution and move to an Assistant Professor faculty position elsewhere (people don’t tend to stay in the same place)

- Money
  - Up to 5 years of funding
  - Different Institutes/Centers may have different salary caps for K99
  - K99 NIMH salary cap = $75K/year
  - K99 research support = $20K/year
  - R00 total costs cannot be more than $249K/year
What do I need to consider before writing a K grant application?

- Do you have at least one Mentor who has a successful track record of (a) getting NIH or other grants funded, and (b) training students to become independent scientists?
  - If yes, awesome!
  - If no, no worries, you may be able to put together a Mentorship team who has these skills [we will get to this later]
  - In either case, talk to your Primary Mentor about whether a K application is a good way to go

- How much time can you commit to this?
  - You can submit K applications three times a year
  - I recommend that you start writing a K grant SIX MONTHS before a particular due date (no joke!) because there are a LOT of pieces you need to pull together [we will go over those in a few slides]
How do I find out about these K awards?

- You can look for **Funding Opportunity Announcements (FOAs)** fitting your research/career on the NIH website.

- There are different K awards with varying eligibility criteria and timelines.
  - [https://researchtraining.nih.gov/programs/career-development](https://researchtraining.nih.gov/programs/career-development)

- For this course, we will focus on the K99/R00 grant mechanism, but most components of the K99/R00 are like other K applications.
Funding Opportunity Announcements (FOA)

Relevant Policy Notices

NIH Funding Opportunity Announcements

The links below provide details on funding amounts, period of performance, application dates, and eligibility:

- Notice of Special Interest (NOSI) of NIDCR in Supporting Dental, Oral, and Craniofacial Research Using Bioinformatic, Computational, and Data Science Approaches
- NIAID Physician-Scientist Pathway to Independence Award (K99/R00 Independent Clinical Trial Not Allowed)
- NIAID Physician-Scientist Pathway to Independence Award (K99/R00 Clinical Trial Required)
- NIH Pathway to Independence Award (Parent K99/R00 Independent Clinical Trial Required)
- NIH Pathway to Independence Award (Parent K99/R00 Independent Clinical Trial Not Allowed)
- NIH Pathway to Independence Award (Parent K99/R00 Independent Basic Experimental Study Without Clinical Requirement)
- Lasker Clinical Research Scholars Program (K99/R00 Clinical Trial Optional)
Overview of the Grant Submission Process

- Before we dive too deep into FOAs, let’s take a step back and go over what happens to a K application in the NIH after you submit it.

- Then we will review overall NIH structure to explain the role of Program Officers in your K grant application.
Overview of NIH Structure

- There are 27 institutes and centers within NIH
- Specific K grants are sponsored by one or more of these institutes/centers
- You need to find a K Funding Opportunity Announcement (FOA) and a Program Officer from an institute or center that fits your research area
Institute Director

Division Directors

Divisions within NIDA:
- Epidemiology, Services, Prevention Research
- Extramural Research
- Therapeutics and Medical Consequences
- Neuroscience and Behavior

Branch Chiefs

Branches within the Neuroscience and Behavior Division:
- Chemistry Pharmacology
- Genetics, Epigenetics, Development
- Integrative Neuroscience
- Behavioral Cognitive Neuroscience

https://www.drugabuse.gov/about-nida/organization
Program Officers: What do they do?

- Advise grant applicants on what the institute is interested in funding
- Attend scientific review meetings (where grant applications are reviewed)
- Make funding recommendations
- Monitor awarded grants
- Foster specific science through initiatives, meetings, conferences
- Talk to the public
- Maintain their own scientific expertise

Holly Moore, Ph.D. – Program Officer
(301) 827-7376

Dr. Moore oversees a portfolio focused on preclinical and basic studies in non-human models on neural mechanisms underlying the cognitive, affective and behavioral processes that mediate the risk and maintenance of compulsive drug taking and dependence. Dr. Moore’s background is in behavioral neuroscience and translational research using primarily rodent model systems to probe neural circuit function relevant to psychiatric disease. She received a dual-degree B.S. in Psychology and Chemistry from Wright State University and a PhD in Neuroscience with an emphasis on animal cognition from The Ohio State University. She obtained post-doctoral training in translational neuroscience and techniques including neurophysiology, neurochemistry and neuroanatomy at the University of Pittsburgh. From 2001-2018, Dr. Moore was a faculty of the Department of Psychiatry at Columbia University as Assistant then Associate Professor of Neurobiology in Psychiatry and as a Research Scientist VI for the New York State Psychiatric Institute. Her research program there focused on developing and validating rodent models of the neural circuit-behavioral relationships in schizophrenia and mood disorders. She also established and directed the New York State Psychiatric Institute/Columbia Psychiatry Rodent Neurobehavioral Analysis Core, and served as Director of Research Resource Management. Dr. Moore joined NIDA in 2019.
Why Do I Need to Contact a Program Officer early on during my grant writing process?

- This person knows what a particular NIH center/institute (e.g., NIMH, NIDA etc.) is currently funding
  - If they think that their division of the center/institute won’t be interested in your research project, they may:
    - Direct you to another division
    - Give you feedback on how to revise your project to make it more fundable
- If you ask, they can give advice on whether the FOA you are using is what they would recommend, or if there is another one that better suits your application
- You don’t want to spend all this time on a grant for NOTHING!!!!
How do I figure out who my Program Officer is?

- Here is a tool to help find a Program Officer: https://projectreporter.nih.gov/reporter_matchmaker.cfm?source=RPCO&new=1
- Alternatively, if you like an adventure, you can go down a fun rabbit hole of government websites!
- After you figure out which NIH institute/center (e.g., NIMH, NIDA, etc.) you are applying to, and what funding announcement you are using, you go on that institute's/center's website
  - Read about each Division until you find one that could fit your research
  - Then within that Division, read about each Branch until you find one or more fitting your research
  - Then with those Branches, look at the Programs fitting your research
  - Write down names of these Program Officers, their phone numbers, and their email addresses along with what Program/Branch/Division they are in
  - Talk with your Mentors about your potential options on who to contact first if there is more than one Program Officer overseeing research related to your research
Do I really need SIX MONTHS to pull a K application together?
Let’s talk K Application Sections…

<table>
<thead>
<tr>
<th>Research</th>
<th>Career</th>
<th>Setting</th>
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<tbody>
<tr>
<td>• Specific Aims (1 page)</td>
<td>• Candidate Information and Goals for Career Development (6 pages:</td>
<td>• Facilities and Other Resources</td>
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<tr>
<td>• Research Strategy (6 pages: Significance,</td>
<td>Candidate Background, Career Goals/Objectives, Career Development/</td>
<td>• Equipment</td>
</tr>
<tr>
<td>Innovation, Approach)</td>
<td>Training Plan)</td>
<td>• Environment and Institutional Commitment to Candidate</td>
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<tr>
<td>• Training in Responsible Conduct of Research (1 page)</td>
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<td>• Resource Sharing Plan (if applicable)</td>
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<tr>
<td>• Project Summary / Abstract (30 lines of text)</td>
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<tr>
<td>• Project Narrative (3 sentences)</td>
<td>• Plans and Statements of Mentor and Co-Mentors (6 pages)</td>
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<tr>
<td>• Protection of Human Subjects from Research Risk</td>
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<tr>
<td>• Inclusion of Women and Minorities</td>
<td>• NIH Biosketches for you, Mentor, Co-Mentors (max 5 pages each)</td>
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<td>• Inclusion of Individuals Across the Lifespan</td>
<td>• Three Letters of Reference</td>
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<td>• Inclusion Enrollment Report</td>
<td>• Letters of Support from Collaborators, Contributors and Consultants (6 pages max)</td>
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<td>• Budget + Budget Justification</td>
<td>• Cover Letter</td>
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<td>• Bibliography + References Cited</td>
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- Your K application could easily be over 50 pages long!
- You will also write an email to at least one Program Officer
- If your research project meets criteria for a Clinical Trial, there will be additional sections you will need to write [beyond scope of this course]
Wow! That’s a lot of writing. Where Do I Start?

Meet with your Primary Mentor to:

- Brainstorm the scope/content of your K research project(s)
- Discuss new skills that you want to learn and what your short- and long-term career goals are
- Visualize an ideal potential Mentorship Team for your K that can help you achieve these research/career goals

Next week we will cover how to write:

- Specific Aims
- NIH Biosketch

After your Primary Mentor gives you feedback on both documents, you can:

- Email a Program Officer, attaching your Specific Aims/NIH Biosketch, asking for feedback
- Email potential Mentorship Team members, also attaching these documents, asking if they would be willing to join your K Team
Scope of your K Project (K99/R00 example)

- **K99** (1st 2 years of the grant, training part): Secondary data analysis of an already collected research project makes sense, or development of new protocol/pilot study
  - Up to 2 years
  - Research budget = $20K/year

- **R00** (Years 3-5 of the grant, transitioning to independence part): New data collection building on K99 themes (but not dependent on whether or not your K99 hypotheses work out!)
  - Up to 3 years
  - Research budget = $249K/year
Your mentors should NOT be a total repeat of GRAD SCHOOL advisors!

Your Primary Mentor should have a current or recent R01 (or equivalent) grant

If you plan to have Co-Mentors:
- They should have research/training strengths that your Primary Mentor does not have (they complement each other)
- They should be able to help you develop research ideas that are independent from your Primary Mentor
- It would also be good for them to have NIH R-level grants

Consultant
- This person provides advice or services
- Supplying software, providing technical assistance or training, or setting up equipment
- Could be a statistician or another researcher whose task you’re using
Work with your Primary Mentor to brainstorm K99/R00 Research and Training Goals

For the K99 phase of your grant, devise:
- At least one research goal (involving hypothesis-testing)
- At least one career goal (e.g., gaining advanced training in a particular skill or area, securing Assistant Professor position)

For the R00 phase of your grant, devise:
- At least one research goal (involving hypothesis-testing)
- At least one career goal (e.g., setting up your own lab and training staff as you transition to an independent investigator)
Two Accounts You Need to Set Up and Link Together

- Electronic Research Administration (eRA) Commons
  - Online interface where NIH officials, Principal Investigators, Trainees, and Post-Docs can access and share administrative info related to grants
  - Talk to your Primary Mentor about who you should contact at your Institution to set this up
  - [https://era.nih.gov/FAQS.htm#1](https://era.nih.gov/FAQS.htm#1)

- Open Researcher and Contributor ID (ORCID)
  - This is used within NIH to relate your publications to your grants
  - After you get an eRA Commons account, you can create an ORCID account and link them together yourself
  - [https://era.nih.gov/erahelp/commons/PPF_Help/8_2_orcid.htm](https://era.nih.gov/erahelp/commons/PPF_Help/8_2_orcid.htm)
  - [https://nexus.od.nih.gov/all/2019/09/04/dont-forget-to-link-your-orcid-id-to-your-era-commons-profile/](https://nexus.od.nih.gov/all/2019/09/04/dont-forget-to-link-your-orcid-id-to-your-era-commons-profile/)

- All key personnel listed on your grant (we will discuss these people in Week 2) need to have these accounts as well!
Other Important Things to Note

- Your grant application is based on your project AND your history of productivity/success
- You want to have 2-3 papers published on the topic you’re covering (unless you are going into a new field or innovation area)
- Grant applications are a total time-killer (some of you already know this! 😊) so get ready to set aside many hours for this writing process
- Regardless of whether you’re a last-minute person or an early planner, MAKE SURE YOU FAMILIARIZE YOURSELF WITH ALL OF THE REQUIRED GRANT SECTIONS WAY AHEAD OF TIME, at least 2 months before the grant is due
  - You will need letters of support from your Institute/University, your Mentor, Co-Mentors, any Collaborators, and reference letter-writers (if required) and often you end up writing the drafts of these letters YOURSELF that the people then slightly edit 😊
  - If your University/place of research has a grants office, please contact them to determine when they will need all of your grant documents
Action Items

- Talk with your **Primary Mentor** about whether a K application is right for you – review the various K funding mechanisms and see which one is the best fit given your research and career goals
- Work on setting up eRA Commons and ORCID accounts
- Figure out what NIH Center/Institute fits your research best, and search for a **FOA** sponsored by that Center/Institute that you will use when applying
- Carve out time with your **Primary Mentor** to:
  - Brainstorm the scope/content of your K research project(s)
  - Discuss potential K **Co-Mentors** to aid in your research/career goals
  - Develop a timeline for K submission, picking the K deadline ~6 months away from your starting point