

Tips for getting a career-development award

By *Li-Shin Huang*

I often am asked “How do I get a K99/R00 award?” or “I am no longer eligible for K99/R00. What can I do?”

A K99/R00 is a career-development award entitled “Pathway to Independence.” It has been sponsored by the National Institutes of Health since 2007. A K99/R00 award helps a postdoctoral fellow transition from a mentored position into that of an independent investigator.

The K99/R00 is the only NIH-sponsored career-development award that’s open to both U.S. and non-U.S. citizens and residents who hold either terminal clinical or research doctorates. The combination of a mentored phase (K99 of one to two years) and an independent phase (R00 of three years) makes the award an effective mechanism for junior investigators to achieve independence, which often is reflected in acquiring research project grants in the form of R01s.

So what can you do to better your chance of getting a K99/R00 grant or any type of career-development award?

For six years before retiring from Columbia University in 2015, I served periodically on a special emphasis panel that reviewed about 50 K99/R00 applications per grant cycle submitted to the National Heart, Lung and Blood Institute. This experience gave me insights into the K99/R00 mechanism. In the past year, I became a program officer in the office of research training and career development in the division of cardiovascular sciences at the NHLBI. I manage a portfolio of grants that includes mentored career-development awards and



institutional training grants.

Based on my experience, I have a few tips for those who are seeking an NIH career-development award. But these tips are also applicable to other non-NIH-funded career-development awards.

Start early

No matter what grants you are applying for, your qualifications are critical. Start early to become a highly qualified candidate. Work hard and publish. Both the quality and the quantity of your peer-reviewed publications are taken into consideration. Co-authorships attest to your teamwork capability and are a means to increase your publication numbers. However, you must have first-authored original articles to show

your productivity and leadership for a project. Reference letters matter in your candidacy. Ask only referees who know you well enough to give you strong and informative letters of recommendation.

Identify possible grant mechanisms suitable for your career stage and your goals as an independent investigator. For example, apply for a predoctoral fellowship while you are in graduate school or a postdoctoral fellowship at the early stage of your postdoctoral training. Prior records of fellowships strengthen an application. Explore the NIH K Kiosk for career-development awards (1) and check out other non-NIH awards that are available to your field of research. A simplified scheme for a career path in academia with possible NIH funding mechanisms is shown in the figure.

Career Path for a Ph.D or an M.D. (or Equivalent)

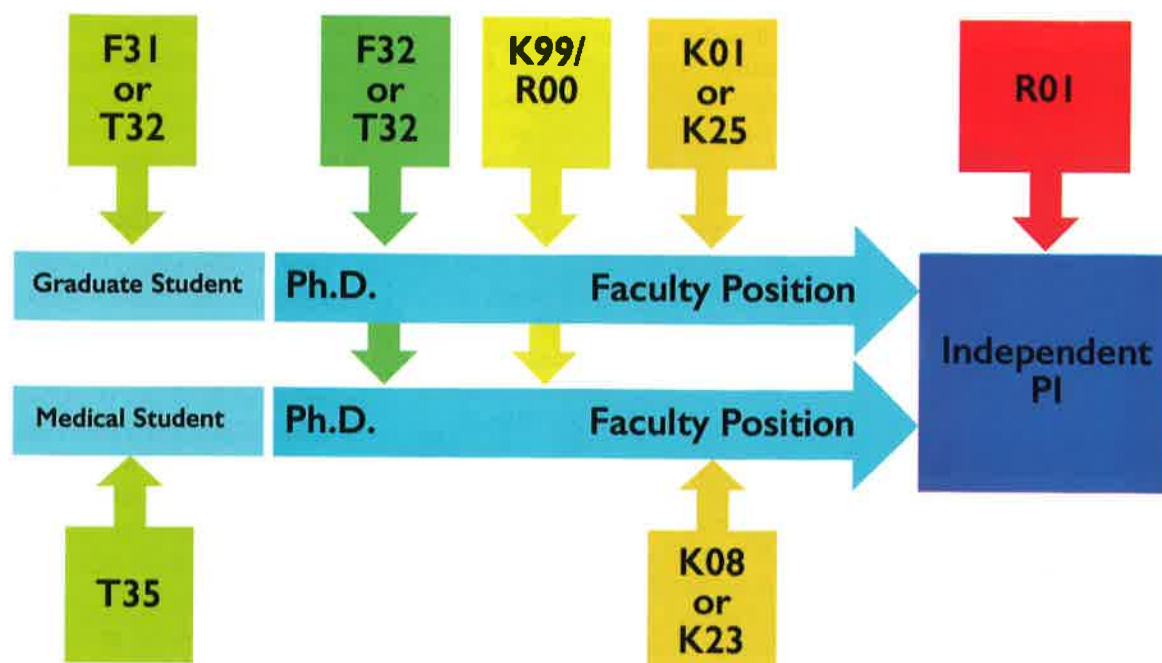


FIGURE PROVIDED BY LI-SHIN HUANG

"T"s stand for institutional research training grants; "F" are for fellowships; "K" are for mentored career development awards. K99/R00s support independent research. R01s are research grants.

Read announcements thoroughly

The basics about an award are found in the grant announcements and NIH web postings. Understanding the information from these resources also will facilitate conversations with NIH staff who can help with any specific concerns or unusual situations. Check out eligibility requirements early in your training. For example, K99/R00 applications are limited to those with four years or less of postdoctoral training at the time of the submission or resubmission deadline. Also, not all NIH institutes and centers offer every kind of K award. Your options will be limited to those grants supported by those institutes and centers with missions that align with your area of research.

Set milestones at the outset of your postdoctoral training, and start

working on your proposal at least six months ahead of the application deadline.

Follow instructions carefully

A key to a good proposal lies in your ability to follow the guidelines and recommendations set by the funding agency. Be sure that you are up to date with policy changes. Font size and page limit are enforced strictly. Don't waste your energy attempting to circumvent these rules. Instead, use the time to make it a concise, well-written and visually pleasing proposal with all the required components.

Propose a research plan that is distinct from your mentor's research.

In general, a research plan is judged for its significance to advancing human health, the innovation of its concepts or approaches, and the fea-

sibility of the proposed studies within the proposed time frame. Strong preliminary data or published papers on the proposed research topics greatly strengthen your proposal. Your plan should hone skills (in the early phase of the K award) that are aligned to your career goals (in the independent phase). The proposed studies should lay the foundation for future R01 submissions.

Understand review criteria and work with your mentor(s)

Information about the "Candidate" and "Research Plan" cover two of the five scored criteria in a K-award application. Other scored criteria include "Career Development Plan/Career Goals & Objectives." The career-

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development plan should be tailored to your needs in training. These may include technical skills, didactic courses and plans for professional development in areas such as grant writing, communication training, and lab management. Set a timeline with milestones for the proposed training, completion of specific aims and manuscript/grant submissions.

Your “Mentor(s), Co-Mentor(s), Consultant(s), Collaborators” are judged by their training records, funding and research expertise. Even if your primary mentor’s expertise covers all aspects of your proposed research, it is still valuable to assemble an advisory team to evaluate your scientific and professional progress periodically and to offer suggestions. Importantly, your application should specify the role and importance of each mentor in your plan to become an independent investigator. Their letters of support should make clear their commitment, concurrence and understanding of that plan.

Finally, your application should make clear that the “Environment and Institutional Commitment to the Candidate” are of high quality. Your department chair or division chief must include a letter to assure a minimum of 75 percent protected time for research training during the award. However, strong institutional commitments also include tangible contributions to your development, such as space and resources to do your work, startup or pilot funding for research, or support for a research technician. Recognized potential for a tenure-track appointment is a plus for a K99 application, and an actual tenure-track appointment is considered a strong

commitment for most other K awards.

Don't overlook other criteria

The NIH has implemented a new policy that requires applicants to address “Scientific Premises, Scientific Rigor” and consider “Sex and Other Biological Variables” in their research plan. A good research plan always addresses these issues. However, with the new policy, the peer reviewers must assess how well these issues are addressed in your application.

Although not listed in the five scored criteria mentioned earlier, your write-ups on “Protection of Human Subjects,” “Inclusion of Women, Minorities and Children,” “Vertebrate Animals” and “Biohazards” may affect your overall impact scores, as these are considered as part of your research approaches.

There are additional review considerations that do not affect the scoring. However, concerns in any of these categories will need to be addressed prior to funding. These include “Training in the Responsible Conduct of Research,” “Select Agent Research,” “Resource Sharing Plan,” “Authentication of Key Biological and/or Chemical Resources,” and “Budget and Period of Support.”

Get critiques from your mentor(s) and colleagues

It is critical to solicit critiques from your mentor(s) and colleagues and then revise the proposal accordingly. You need to give them ample time and then allow enough additional time to incorporate their recommendations. So plan ahead and complete a draft far

ahead of the application deadline.

Proofread every section of your proposal prior to submission.

A sloppily written grant application is viewed poorly. Take the time to proofread every section of the proposal before submission. Errors distract reviewers from reading the contents of your proposal.

Be responsive to reviewers' critiques

Don't be discouraged if your application is not funded. Take a little bit time to get over your disappointment. Then read the “Summary Statement” carefully, discuss it with your mentors and advisers, contact your NIH program officer for additional input if needed and make a systematic plan to address all of the critiques raised by the reviewers. Summarize your key responses in the one-page “Introduction” section and make the revisions easily identifiable in the body of the proposal. Responsiveness to critiques is weighed heavily for scoring. Don't resubmit until you are able to address most, if not all, of the concerns.

Additional strategic advice and analysis of career-development awards are publicly available (2–5). In summary, start early from the beginning of your postdoctoral training to build up your qualifications and to formulate a plan so you have sufficient time to prepare a competitive proposal for funding.

Finally, try and try again if you don't succeed the first time.



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