

How to Get a K Award It Is Not Just About the Science

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Basic, translational, and clinical research are fundamental to our understanding of disease and are necessary for the discovery of new or improved therapies. Indeed, it has been demonstrated time and again that cutting-edge medical advances are made primarily by well-trained biomedical scientists, many of whom started their careers with career development grants (K awards).¹ However, competition for grant funding today is fiercer than it was previously. Clinical and research fellows now often need to show fundability track records to even compete for tenured-track faculty appointments. With reduced paylines and increased numbers of applications, it is no wonder that trainees today are frustrated, do not bother to apply, or, worse, leave science all together.

Yet, despite these obviously worrisome trends, it is possible for trainees to succeed in academia. One way to propagate this success is to receive a K award, a transformative grant that can essentially lay the foundation for a successful career. Here, I will disclose the critical elements needed to secure such an award, and what is surprising is that it is not just about the science. Of course, like for all grants, having a well-written research proposal is absolutely necessary to be competitive. However, in the current climate, attention to every detail is just as imperative and can basically make the difference between a funded and an unfunded grant. In this regard, I think a well-structured career development plan, together with innovative science, strong letters of recommendation, and institutional support, can ensure success in receiving the K award.

The Career Development Plan

Because the K award is considered a training grant, having a comprehensive career development plan is critical to obtaining this award. Indeed, the biggest mistake K applicants make is to neglect this section, believing that science alone is sufficient to drive the success of the grant. There are several reasons why the career development plan is so important. First, it provides a platform for clearly and succinctly defining the goals of the trainee by identifying both professional needs and career objectives. In addition, it functions as a communication

tool between the trainee and the mentor(s). Lastly, the career plan is an opportunity for the applicant to make a compelling argument for why he/she needs additional training and time to develop skills needed to successfully compete for R01 funding in the near future.² To help applicants write this section, I have subdivided the career plan into 4 areas that should each be discussed: candidate background, mentor and project, advisory committee, and research and professional activities.

Candidate Background—An Opportunity to Get the Reviewers Interested

A strong track record that documents a sincere desire for academic research is required for a K award. The quality of graduate or medical education, research training, clinical record, and publication history is critically evaluated here, particularly because they are often used as predictors of future success. Applicants should mention the schools and departments they attended, as well as what degrees they obtained. Past research training experiences, methodologies, and academic honors, awards, or accomplishments should also be described.

Applicants must identify and document their academic strengths and weaknesses in this section. Mentors and trusted peers can often help with this assessment. Once completed, trainees can determine precisely what additional skills will be needed during the training period to help overcome weaknesses and achieve scientific and professional goals. Emphasis should be placed on the synergy between the trainee's background and the learning opportunities available in the mentor's laboratory.

The Mentor and Project

Finding and selecting a mentor is of utmost importance to a trainee. If possible, applicants should choose a primary mentor who is a senior investigator with an established track record of National Institutes of Health funding. If the mentor happens to be a junior, the inclusion of a more senior co-mentor who can complement the primary mentor's strengths is highly recommended. This is important because the applicant is judged on the quality and extent of the mentor's role in providing guidance, his/her previous experience in fostering the development of junior researchers, as well as having a strong history of productivity and grant support. In particular, the mentor will be tasked with showing adequacy of support for the trainee for the duration of the research training grant.

From the trainee's perspective, this section of the career development plan has to describe how the training experience and mentor's laboratory environment will help foster academic growth. In addition, it is important that the trainee describe how the project will eventually establish independence and distinguish him/her from the mentor's primary research interests. To help with this, the trainee should discuss the research proposal, future career goals, and any/all developmental needs

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together with the mentor(s); training objectives, benchmarks, and timelines should be defined and understood by both parties before applying for the K (eg, need for additional courses, acquisition of technical skills, teaching experience, supervisory/management roles).

The Advisory Mentorship Committee

In addition to having a primary mentor, it is essential for trainees to assemble a complementary team of 3 to 4 leading scientific experts that can provide insight and advice to the proposed study, as well as guidance, support, and mentorship to the trainee. Committee member expertise should differ somewhat from the primary mentor, offering applicants an opportunity to broaden and diversify their proposals. The committee usually consists of members from within the trainee's own institution or institution in the surrounding area, although some exception can be made for qualifying mentors outside of an institution. Most importantly, applicants should not wait until the last minute to reach out to potential advisors; relationships should already be established before putting the K award together and before needing to ask for letters of collaboration/mentorship.

Once selected, applicants should discuss the formation of the advisory panel as part of their career development plan. Trainees should list the mentors and describe each advisor's contribution to the proposal in detail, whether it is in the form of advisory, financial, or scientific capacity. In addition to providing a letter of collaboration to the trainee, committee members must provide their curriculum vitae in the grant application as well.

Research and Professional Activities

Research and professional activities also need to be documented in the career development plan. Trainees should describe research learning opportunities, including attendance at laboratory meetings and seminars, enrollment in advanced coursework, and travel to national/international meetings and any presentation opportunities therein. Similarly, professional activities that assist trainees in reaching long-term career goals should be described, including attendance or participation in professional meetings, grant writing seminars, and management training opportunities.

Completing the Package: The Research Plan, Letters of Recommendation, and Institutional Support

Although the career development plan is a quintessential part of the K application, there are, of course, additional components necessary for a complete evaluation of the applicant. These include the research plan, letters of recommendation, institutional commitment, and training in responsible conduct of research.³

The Research Plan

There is no debate regarding this component; the research plan must be good. One needs to have a cohesive and well-thought-out research plan, with appropriate controls and safeguards outlined at every step in the proposal. Good science is good training and will catapult the candidate to an independent career.¹ The proposal also needs to be innovative, cohesive, and doable. There should be a clearly stated and specific hypothesis. When considering the number of specific aims to propose, the magic number seems to be 3, with some flexibility, but each should

be written clearly and concisely. In addition, although training grant applications suggest that preliminary data are optional or less significant in the evaluation criteria for K awards, reviewers still look for preliminary data to show feasibility and proof of concept that the research plan can succeed.¹ Moreover, although the study should be generally related to the expertise of the mentor, the proposal should also demonstrate a transition to independence by the applicant. The project should evolve into an independent R01 in the near future.

Letters of Recommendation

All letters of recommendation must be compelling and strong. They must be written by individuals who know the applicant and the science well and usually come from individuals such as graduate advisors, dissertation committee members, and resident chiefs. However, the most important letter in the application comes from the primary mentor. This letter addresses issues such as the current funding status of the laboratory, the significance of the applicant's research project, and the experimental details of the project, including whether the proposal is hypothesis-driven, can be completed in a reasonable time frame, and whether there is a logical sequence of studies. The mentor must convince the reviewers that he/she can commit the necessary time and effort needed to foster the development of the K applicant's career.

Mentor letters can also serve as important evaluators of the candidate. The mentor should use this opportunity to describe how the grant can help enrich the applicant's training. Specifically, the letter should provide reasoning for why the applicant is conducting research in this particular mentor's laboratory. In addition, the mentor should also focus on the trainee's qualifications, his/her scientific originality, background, previous research, publication record, commitment to patient-oriented research, or need for further research training and experience.

Institutional Support and Commitment

K applicants must provide evidence of a conducive and supportive training environment. Therefore, institutional commitment to the applicant must be strong. In addition to the detailed description of the environment and facilities provided by the trainee, the departmental chair or division chief must also provide a letter of commitment to assure reviewers that the sponsoring institution will provide space, resources, and protected time to the applicant for the duration of the training period. Ideally, the letter should also state whether the trainee may be promoted to a higher position should he/she be awarded a K award, preferably with independent research space, start-up funds, mentors, and collaborators.¹

Training in the Responsible Conduct of Research

Whether the applicant plans to enroll in a course on Responsible Conduct of Research as part of his/her career development training should be included in the application. Taking this course will satisfy the ethics training requirements set forth by the National Institutes of Health. The statement should describe the course subject matter in detail, listing faculty participation, duration, and frequency of instruction.

Implementing the Plan

In summary, a carefully constructed career development plan, together with an innovative research proposal, strong letters

of recommendation, and institutional support, can ensure success in receiving a K award. Getting a K is not easy, but it is possible. To succeed in this, one must work hard, be dedicated, and, above all, never give up.

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References

1. Houser SR. How to obtain a National Heart, Lung, and Blood Institute-sponsored K08 and K99/R00 grant in the current funding climate. *Circ Res.* 2012;110:907–909.
2. Bruce ML, Bartels SJ, Lyness JM, Sirey JA, Sheline YI, Smith G. Promoting the transition to independent scientist: a national career development program. *Acad Med.* 2011;86:1179–1184.
3. Mitchell T. *Writing NIH Mentored K Award Applications*. University of San Francisco. Available at: <http://accelerate.ucsf.edu/training/K-grant-writing>. Accessed November 6, 2013.

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