A Personal Guide to Applying for the NIH K99/R00 (Part I)

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The NIH's K99/R00 Pathway to Independence Award provides up to five years of grant support in two phases - two years of mentored postdoctoral training (K99) and additional funding for up to three years of independent research support (R00). This prestigious and highly competitive award can fund up to approximately 1 million dollars and is the only NIH funding available for international postdocs. This article aims to discuss the overlooked aspects of the K99/R00 award in two parts. Part I will focus on the period before and during the preparation of the application; while Part II will delve into what happens after the submission and the potential of resubmission.

(1) Should you apply?

Do you aspire to establish your own independent lab? If yes, then K99/R00 is your first crucial step. The application process will provide unique insights into the NIH funding process, especially valuable to the international postdocs initiating their first NIH grant application. Your goal for the K99/R00 application should not be to just secure the grant but to master the overall grant writing process.

(2) What is the eligibility and when should you apply?

There are three cycles of application – in February, June, and October. To be eligible, applicants must not have more than four years of postdoctoral experience at the time of initial submission or the subsequent resubmission. The four-year countdown starts from the date of receiving a doctorate and not from the start date of the postdoc. For instance, if you earned your doctoral degree in March 2024, the latest you can resubmit your application is February 2028, meaning your first application will be due in June 2027. The grant review process is time-consuming, so you won't be able to resubmit in the next cycle. Be sure to allow enough time for resubmission. Your eligibility period is therefore much shorter than you might think!

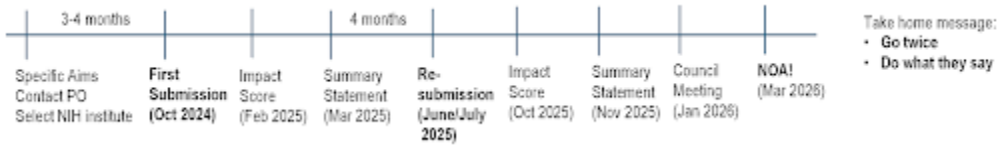
(3) Are first-author publication(s) mandatory?

It is generally perceived that a first-author publication is essential, but there have been many cases of successful applications without one. In my own experience, publications from my doctorate and co-authored publications during my postdoc were evaluated to assess productivity. However, having substantial preliminary data was considered more favorable in securing the grant.

(4) Should you contact NIH before applying?

It is important to contact NIH before applying. This will help target the most appropriate institute, thereby enhancing the chances of your application. Engaging with multiple institutes through their program officers (PO) and sending them your specific aims, NIH Biosketch, and eligibility timeline

can help the POs offer tailored advice and suggestions for modifications. Importantly, in my experience, the POs can even recommend alternative institutes where your application would fit better. Building a good relationship with your PO early on is crucial, as they serve as the point of contact between you and NIH.



(5) How much time do you require?

While preparing the application, most of your time will be spent writing the research proposal. After completing the specific aims page, it took me about three months to craft the whole application including receiving feedback and making revisions. To ensure success, allow yourself sufficient time to describe facilities, equipment, budget, career development, institutional environment, etc. In addition, the application also requires reference letters and supplemental letters, including mentor and co-mentor statements, letters of support, and an institutional letter. Seek feedback on language and the experimental approaches, and most importantly obtain an "overview feedback" – a quick review from the mentor to evaluate the significance of the research questions and clarity of aims. Considering these different levels of feedback, it's imperative to allocate enough time for yourself and those assisting with the application.

(6) How to manage time during application?

A strategy that I found effective is to dedicate specific blocks of time to writing and research. For example, I spent my mornings writing and reserved my afternoons for experiments. This approach greatly helped me both in my writing and research. Taking breaks from writing helped me edit the application with a much clearer perspective, which significantly improved my editing. Further, spending time on research resulted in generating preliminary data for the application and it also ensured that progress was made on my first-author postdoc manuscript. Remember, prioritizing publications is crucial to obtaining a faculty position. Not being able to secure a K99 won't necessarily hinder your chances, so keep making progress.

(7) What sets writing a K99/R00 grant different from other grants?

It is important to understand that the K99 is a "training" grant. The 'Candidate Section' should detail your training objectives, including two to three experimental techniques and other career development goals. Emphasizing the importance of training throughout the grant is key. For example, I ensured to highlight the significance of training in sections such as (i) a personal statement in NIH Biosketch, (ii) a few sentences at the end of the specific aims page, (iii) a summary paragraph between the K99 and R00 research proposal, and (iv) I also requested my mentors and recommenders to include specifics of my training plan in their letters. Collectively, what needs to be conveyed is the need for funding to accomplish your "training" objectives during the K99 phase, and that this "training" is integral in establishing an independent program during the R00 phase.

(8) How to manage mental health throughout the application?

Preparing the application can be extremely stressful, especially while managing lab work, preparing manuscripts, and concerns about your independent career. The period before the application was particularly challenging for me as I was overly self-critical. However, working on the research part of the application turned out to be surprisingly delightful. I thoroughly enjoyed brainstorming scientific ideas and expressing them in my writing, which helped me overcome self-doubt. I've learned that science brings me joy, while self-doubt only leads to unnecessary mental stress.

Recommended resource:

Among the numerous K99/R00 informational resources available online, I found the blog of Anita Devineni, Ph.D., inspiring as it simplifies the complexities of K99/R00 in relatable terms.

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A Personal Guide to Applying for the NIH K99/R00 (Part II)

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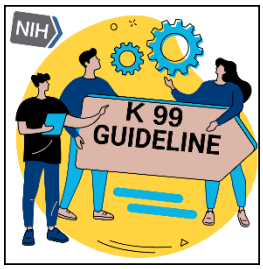

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The previous section of this article focused on the period before and during the preparation of the application. In this section, the focus will be on what happens after your submission and the possibilities of resubmission. The objective of this *POSTDOCket* article is to delve into common questions, particularly highlighting less-discussed aspects of the NIH K99/R00 grant.

(1) What is an "Impact Score"?

After four months from your submission, you will receive an impact score: a score of lower value is better. Most funded applications will have scores between 10 to 20, and up to around 35, depending on the institute. Note that only the top half of applications are 'discussed' and get scored, while the bottom half is 'not discussed' and is marked as ND, which is not a good outcome for your application. However, even an ND should not discourage you, since it is possible to go from an ND to 'fully funded', after resubmission. This was my own experience, and the sections below will discuss the approaches I followed.

(2) What is a "Summary Statement"?

Just after a month of receiving your score (i.e., five months after submission of the application), you will receive the Summary Statement, which justifies your score or ND status. This Summary Statement is the single most valuable outcome of your K99 application. It provides the original feedback from the NIH panel, on the strengths and weaknesses of your proposal. I started valuing the NIH system after receiving the Summary Statement, because, unlike all the other non-NIH applications, you receive detailed feedback on your research, regardless of whether your proposal was discussed or not. This helps you improve and refine your work.

(3) How do you Address the Summary Statement in your Resubmission?

Upon receiving the Summary Statement, it is a good time to reach out to the program officer (PO). The PO will either confirm if the score is in the fundable range (fingers crossed!) or provide guidance for resubmission. Your Summary Statement will contain separate scores for each criterion (i-iii) discussed below, and the ideal scores are between 1 and 3. Scores above 4 indicate that there is substantial room for improvement.

(i) Candidate and Career Development: This reflects the fundamental question – do the reviewers favor your application? Usually, their opinion is based on your productivity during your doctorate and postdoc. If their assessment of you is not favorable, you can turn the situation in your favor by enhancing your training plan with additional co-mentors and support letters, publishing your work as a preprint, and strengthening aspects of productivity in your mentor's statement in which you

should request your mentor or co-mentor to address specific concerns from the Summary Statement.

(ii) Research Plan: This section addresses the question of whether they appreciate your research ideas and process. This section is most likely where most concerns arise, and lower scores here will significantly impact the overall score. But the good news is that this is the most actionable part of your application. It's important to address ALL reviewer concerns with experimental data. Even if the recommended experiments seem challenging, you should still do them! You will have almost nine months from the initial submission to resubmission. Being proactive during this time can help generate as much experimental data as possible to maximize preliminary data in your application.

(iii) Mentor/Institute: This refers to the question of whether the reviewers view your research environment favorably. Addressing this is straightforward. In most cases, concerns may arise if your principal investigator (PI) is relatively new and has a limited history of NIH funding. This can be effectively overcome by establishing a senior co-mentor who holds multiple NIH-funded grants.

From my personal experience, in my first submission, I received scores of 1–2 in all criteria except in the Research Plan, where my scores were 4–6, leading to the ND. In my resubmission, I addressed all reviewer concerns, and I firmly believe this was a key factor for my application to progress from ND to 'fully funded' upon resubmission. The key point here is that you do not necessarily need a first-author publication to get the K99, but you absolutely need preliminary data.

Keep in mind that any manuscript review process is very lengthy, and the faculty job search process is also quite time-consuming. When you work the math backward, this means that by the time you get your K99, you should be close to submitting your paper and going on the job market. This means that by the time you submit your K99 application, you should ideally have a significant amount of data, that is *not* just "preliminary" but already close to publication quality.

(4) What is "Response to Summary Statement" and "Council Meeting"?

If your score falls within the fundable range, your PO might ask you to submit a response within one month after you receive your Summary Statement. This response will advocate for your application in the Council Meeting. Approximately two months after the Summary Statement, the NIH Council Meeting will determine which grants get funded. If your grant is selected, there will be a few additional formalities before you receive the Notice of Award (NOA), the official confirmation of funding. Now it's time to celebrate!

(5) How do you Manage Mental Health Through These Stages?

Managing mental health while navigating through various stages of the application process can be undeniably challenging. From my experience, the waiting period after submitting the application was particularly tough in terms of mental health. I struggled with self-doubts and harsh self-judgment during this period. Surprisingly, the phase after receiving the summary statement was very satisfying. Despite major reviewer concerns, having clear directions and an essential to-do list, motivated me to overcome self-doubt and focus purely on the science. I realized that the **ultimate goal is not just to receive the NOA, but to receive the Summary Statement**. It teaches you how

NIH grants work, helps you streamline your research, and most importantly, gives you valuable experience in navigating the NIH system.

The lesson I learned and would like to share is despite being a very intense journey, the most fun part is the science. Maintaining your focus on science and seeking feedback to improve your research can make the journey very fulfilling.

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