Navigating Career Development Awards

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For young scientists on the brink of independence, attaining a career development grant can be pivotal for a successful job search.Establishing a trajectory of external funding early in your career demonstrates not only your capability for grantsmanship, but also your ability to navigate funding opportunities.In some cases, a career award can bring you to a specific institution or even (back) to a specific country.It also provides you with an unparalleled opportunity to scope out and define the pathway(s) for your future independent research, and lay out a tentative plan that will prove invaluable when you prepare research statements for job applications. Although it is arguable that scientists these days spend too much time writing grants, there are definitely benefits to the process. Grant writing provides the rare chance to catch up on relevant literature, formalize research objectives, and think about future directions.This is particularly true for young scientists, who still spend the majority of their time at the bench.While many young scientists may have had some experience with grant-writing that involved collaborations with their mentors, writing a career development grant often represents one of the first times that this endeavor is taken on independently. In this article, we have outlined a few things that we found helped the process of writing and applying for a career development award progress relatively smoothly.We also include tips for submitting a successful application. **Identify Opportunities**

Many funding opportunities exist, and your first goal is to find the opportunity that is the right fit for you. The best starting point is to search granting agencies in your country (or the country you plan to move to) and determine what career development programs they offer.Ask fellow colleagues or mentors about their experiences attaining career development funding (they may even be willing to share their successful application with you!). Find out if your institution or neighboring institutions offer workshops for identifying and preparing career development awards. Search for funding opportunity databases and check if your institution has a http://pivot.cos.com subscription. Note funding that is listed in the acknowledgement slides of talks at meetings.Keep your eyes open! Funding opportunities may also be available from non-government and private agencies but may take a little more legwork to find. **Start early**

This is the most important point of all. If you start early, you can put a lot of thought into the structure of the proposal before you start typing a lot of text or get overly committed to a specific line of investigation or approach. You'll have time to search the literature and revise the proposal based on feedback. Research your particular funding opportunity and be sure to identify all of the required components and any specific eligibility requirements.It is good to inquire about reference letters and scientific advisory committee participation early, as last-minute requests can be viewed as inconsiderate by senior investigators. It may even be advisable to plan some time "off" from experiments to focus on grant writing. **Make a**

checklist

Many career development awards involve a lot of “bits and pieces”.Navigating the guides to these proposals is not always straightforward, so staying organized is instrumental.Make a checklist of all the required components to keep track of your progress towards the deadline (K99 example: http://bit.ly/2hLzRCU).Depending on your institution, you may be able to get help from administrative staff or grant coordinators.If one of your colleagues has submitted a similar application before, looking at their example can be particularly helpful (especially if it was awarded!). Some components may need specific input from your current PI and/or collaborators, so remember to provide sufficient time for them to schedule work on your application as well. **Ask for advice**

It is extremely useful to assemble a “reading committee”, a few fellow postdocs or faculty mentors who provide critical feedback. It is helpful if you can plan a meeting where everybody explains their comments, as the resulting synergy and discussion will often pinpoint what you should focus on to improve the proposal. Ideally, this meeting would occur a month or more before the deadline so you have time to make changes. **Identify your own direction**

For those at the later stages in their training (approaching independence), it is essential that your grant identify a path for your future research that is distinct from your mentor’s current research.Depending on what kind of lab you’re in and what you’ve been working on, this may be very straightforward, or may take extra time (see “Start early”, above) and several discussions with your PI to parse out. It is important that your mentor expands on or clarifies this point in their letter within the grant application package.Having your mentor delineate their support for your independence can be an significant factor in attaining funding. As mentioned above, this important step can also be fundamental in helping you carve out your future directions as part of a job application.

Assemble a mentoring / scientific advisory committee

For many career development grants, review committees want to see interactions with and guidance from more than just your primary mentor. It is highly beneficial to establish mentoring relationships with people whose expertise will specifically benefit your career trajectory and/or your proposed research, either within your same institution or at different institutions. Are you planning to learn an exciting new technique to investigate your question of interest?Identify a mentor with expertise in that technique, and incorporate visits to their lab as part of your proposed training.Are you planning to expand your training into a slightly different field as part of your career development?Find a mentor that is an expert within that field to guide your training and with whom to discuss your research outcomes. While it may take several tries to get the mentors your desire, making these additional connections will greatly benefit your career in the future.Additionally, be prepared (and always offer) to provide draft letters for your mentors, specifying their contribution to your career development and/or research proposals.This will not only save your prospective mentors time (which they will surely appreciate) but will also allow you to craft letters that closely match the focus and aims of your grant.

Contact your funding source

It is a good idea to reach out to your fellowship office or program officer to seek feedbackas soon as you have a draft of your specific aims. Be sure that the draft or summary page you submit is refined enough to provide the funding agency with a clear vision of your aims.The purpose for this can be as basic as ensuring that your application is a good fit for the agency, and it also initiates contact.For example, the translational implications you propose may be a poor fit for that particular funding opportunity, or a National Institute of Health program officer may suggest you submit your application to another institute instead. Knowing these things early on can save you a lot of time. Once your application is submitted, your contact within the funding agency will be able to answer questions about the review process, and will often be able to help you interpret your reviews after you've received them.They can provide invaluable feedback for your resubmission, since often times they are present during the review of your proposal.

After submission

Hopefully you were funded on your first submission!If not, read through your reviews carefully and identify areas that the reviewers collectively felt could use improvement. Don't get too discouraged, as the vast majority of grants are not awarded on the first try. Instead, focus on how you can better shape your application based on the feedback.Certain areas - like research statements and career objectives - will be easier to re-shape. Other parts of your application, such as applicant biosketch, may be more difficult -but not impossible- to address directly.For example, if publication record is a weakness, one might consider waiting until you have published a relevant paper before resubmitting your application.Your goal is to identify the comments that you can work with, and most importantly, to make sure the reviewers know in your resubmission exactly how you addressed their concerns and improved your application.Career grant writing is a great opportunity to start honing those perseverance skills necessary to become a successful grant writer and independent scientist!

Anna Beaudin, PhD
ISEH Publications Committee Member Assistant Professor
UC Merced

Peter van Galen, PhD
ISEH Publications Committee Member Postdoctoral Fellow
Massachusetts General Hospital / Broad Institute of MIT and Harvard