Ten Top Tips for Successful Proposal Writing

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If I were asked to distill my proposal writing advice down to the 10 most important tips, the following would be my list. These best practices in grantsmanship also apply to any type of proposal writing.

1.1 TIP #1: START EARLY

These days, funding is more difficult to obtain than it has ever been before. However, graduate students and early-career faculty have certain advantages upon which they can capitalize. In fact, given the current challenging economic climate, making the most of these advantages is now more important than ever.

Doctoral and postdoctoral granting mechanisms as well as early-career awards provide the highest chances for success. A primary advantage of these mechanisms is that they typically do not require significant preliminary data. This is fortuitous, as you are unlikely to have preliminary data at this point in your career. Instead, funding decisions for these awards rely most heavily on your promise and potential as a candidate.

This potential is indicated by three items:

- Your education to date (including prior publications and project-related experience)
- The mentors with which you have surrounded yourself
- The public health importance of your topic

A key advantage of these funding mechanisms is that, unlike larger grant awards, you will be competing in a smaller pool of investigators all of whom will be at a comparable stage in their careers as yourself. This advantage should not be minimized, as it avoids the risk of competing against senior investigators who already have established track records. As a senior investigator once said, "Avoid competing against the 'big boys and girls' as long as you can!" This advantage that you now

have will quickly be over after several years pass by and you find yourself no longer eligible for these early-career investigator awards.

Therefore, if you are a graduate student, seek out grant mechanisms designed for graduate students. Such grants include National Institutes of Health (NIH) predoctoral (F31) and postdoctoral (F32) fellowship awards. If you are an early-career faculty member, look for grants designed for early-career faculty members. These may include small seed-money grants provided by your university (e.g., Faculty Research Grants) or foundation grants targeted for career development (e.g., the American Diabetes Association Career Award, the March of Dimes Starter Scholar Award). In addition, NIH offers career development awards such as the K series awards. At the same time, always be on the lookout for opportunities to collaborate as a coinvestigator on other applications where the principal investigator (PI) is a senior, established investigator. If you need help identifying these programs, most universities have resources to help you find grants relevant to your interest area and level. Online services are available as well. Chapter 17, *Choosing the Right Funding Source*, provides an in-depth discussion of how to locate these opportunities.

1.2 TIP #2: CREATE A VISION WITH THE HELP OF A MENTOR

In spite of my advice in Tip #1 to start small, this does not mean that you should not have a vision. Indeed, it is critical that postdoctoral fellows and early-career faculty have a big vision. Each small grant—be it a seed grant, a postdoctoral fellowship, or an early-career award—should be viewed as providing preliminary data for one or two of the specific aims of your ultimate larger grant. Typically, large grants are funded by the NIH R01 mechanism.

Therefore, early on in the process, it is critical to try to envision your ultimate large project. For example, let's assume that a typical R01 contains three to five specific aims. Once you are able to envision these aims, your next steps become clear: Step by step, you start *biting off* small chunks of this larger grant through writing small grants designed to support *one or two* of these ultimate aims. These small grants should not be designed to provide the definitive answer to these aims but instead to show that the aims are feasible and/or provide preliminary data in thier support. These small grants will be limited by smaller sample sizes and budgets, but will be able to show proof of principal—that you can *pull it off* (see Tip #5).

Seek the advice of your mentor

A key factor in developing a vision of your ultimate large project is the advice of your mentor(s). If you do not currently have a mentor, speak to your department chair and ask if they can provide you with a mentor. If not, it is usually considered acceptable to seek out your own mentor. Indeed, many early-career faculty will assemble a *mentorship team*, each member of which can provide guidance in different career aspects (e.g., a teaching mentor, a research mentor). Consider both on-site and off-site faculty as potential mentors. In this age of teleconferencing and

e-mail, I often find that I communicate more with my off-site mentors than with those directly down the hall. You can use web-based resources such as Community of Science (COS) (http://pivot.cos.com/) and NIH Reporter (http://projectreporter.nih.gov/reporter.cfm) to help locate a potential mentor by searching on your topic and identifying a list of PI names. Then view the grant track record by which these investigators achieved their aims. Ask yourself if it matches up with where you want to be in your grantmaking career.

Key pitfalls to avoid

Early-career faculty want to be successful and, as such, are often tempted by the wish to immediately make a big impact and *land a big grant*. Others are under pressure from their institutions and department chairs to immediately apply for a large grant (e.g., an NIH R01) without a track record of smaller grant funding. In my experience as an NIH review panel member, this approach is almost certainly destined to fail. Review panels often see a large grant as the culmination of a growing body of work. They want to see evidence of this stairway to success and it's your job to demonstrate that you have been on this stairway. You do this by showing your successful procurement and management of previous smaller grants, as well as the translation of these grants into publications. A desirable grant-funding history starts from small seed grants progressing to larger and larger awards in a cumulative fashion. Chapter 17, *Choosing the Right Funding Source*, provides example plans for a steady trajectory of grants from small to large. While it is always tempting to skip to the last page of a novel to see what happens, one needs to earn one's way there.

There are certainly some exceptions to this rule. For example, you may be an early-career faculty member within a research team that already has a track record in your area. If so, you could take advantage of their expertise by including them as coinvestigator(s) or even as a co-PI on your proposal. In addition, because they are participating on the grant, you gain the advantage of including their preliminary data in your application. However, as described in Chapter 19, *Review Process*, and Chapter 20, *Resubmission of the Grant Proposal*, one of the key criteria upon which a grant is scored is the expertise of the PI. Regardless of your investigative team, if you are the PI, the reviewers will be looking for your track record in managing a large grant. It is unlikely you will be able to provide this assurance of feasibility at an early stage in your career.

1.3 TIP #3: LOOK AT WHO AND WHAT THEY FUNDED BEFORE YOU

Funding agencies will often make publically available a list of prior grant awardees. These lists may include the grant title, recipient name, amount awarded, and institution. If the granting agency does not provide a list of past grant recipients, your own institution's grants and contracts office may have a list of investigators on your campus who have obtained these same grants. Look over this list and see if you or your mentors know any of these investigators.

This is useful for several reasons. First, it shows the interest of the funding agency in funding research in epidemiology and preventive medicine. Some funding agencies

simply don't have the interest or track record in funding population-based research and instead limit their funding to laboratory studies (*bench science*). Second, it is reasonable to consider asking successful fundees to share their applications with you, particularly if you, or your mentors, recognize any names on the fundee list or see that they are from your institution. Reassure these successfully funded investigators that you are simply seeking a model for the appropriate scope and depth of the research plan, not the actual content of their aims. When framed in this manner, people are typically willing to share.

Funding websites are a rich source of information

In addition to posting prior grant awardees on their website, funding agencies may also post a list of prior and current grant reviewers and their affiliations. Go through this list and review the expertise of these investigators. Ask yourself if their expertise overlaps with your study aims and methodology. For example, are any of these investigators population health researchers? Are any from similar departments/divisions to yours? It would be a high-risk proposition to write a proposal for a foundation that does not include investigators in epidemiology and preventive medicine on their review panels.

1.4 TIP #4: SPEND HALF YOUR TIME ON THE ABSTRACT AND SPECIFIC AIMS

The bulk of your writing time should be spent refining your abstract and specific aims. Indeed, writers of successful grant applications typically report that 50% of their time was spent on revising and rewriting their specific aims (Figure 1.1). The specific aims should be the first item that you write when you *set pen to paper*, prior to writing a literature review or methodology section. Early in the process, send a one-page sketch of your study design and aims—in the manner of an NIH grant—to your mentor and coinvestigators with the goal of kicking off an iterative process of rewriting, revising, and rereviewing. In addition, it is critical that these aims be understandable by anyone with a scientific background. Chapter 3, *How to Develop and Write Hypotheses*, discusses strategies and writing conventions for developing hypotheses and specific aims including exercises and annotated examples and tips.

Another excellent resource is the NIH Reporter (http://projectreporter.nih.gov/reporter.cfm). This site can be invaluable in helping you to formulate the scope of

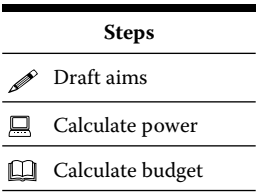

FIGURE 1.1 The first 3 steps in proposal writing.

your grant. This site lists abstracts of both active and prior NIH awards. Because these awards have all successfully been funded, they serve as excellent examples. Viewing funded abstracts can help you answer the following questions: "How many aims did the investigators include?" "What was their sample size?" You can limit your search to particular key terms as well as particular grant mechanisms (e.g., smaller and larger awards). The output, in addition to listing the abstract, will also provide the name of the review panel and the NIH institute. Therefore, *surfing* the NIH Reporter is not only useful for both the smaller grant mechanisms but also for envisioning the ultimate larger grant. More on NIH is included in Part Three "Grantsmanship."

One reason that specific aims are so critical is the nature of the peer review process, described in more detail in Chapter 19, *Review Process*. Briefly, because only three to four reviewers are assigned as primary and secondary reviewers of your grant, the majority of reviewers on the review panel may only read your abstract and/or specific aims during the 10–20 min time period that the grant is discussed. Therefore, it is critical that the aims not only provide a snapshot of the entire study but also convey what is novel. Chapter 15, *Abstracts and Titles*, provides tips and strategies for how to write, and what merits inclusion, in your abstract. See Figure 1.1.

After drafting your aims, the second step in this process is to calculate your statistical power to achieve these aims. This will help you to answer the question, "Will your sample size provide you with sufficient power to detect a difference between groups, if there is truly a difference?" If you are basing your grant upon a preexisting dataset, your sample size is typically fixed, and the question of whether or not you have adequate power can be answered quickly. A negative answer, while disappointing, can quickly and efficiently result in a change in study aims.

If instead you are proposing to launch a new study and recruit participants, you can choose the sample size you need to achieve sufficient power. However, in this case, progressing to Step #3 of calculating the budget will be critical. A common pitfall of new investigators is to be too ambitious—proposing a larger sample size than they have the budget and experience to handle. Chapter 11, *Power and Sample Size*, provides user-friendly approaches to power and sample size calculations, available software, and annotated examples with strategies and tips.

Therefore, the third step is to evaluate if your budget can afford your required sample size. The number of participants will have an immediate impact on the costs of conducting your study. Such costs include the number of assays, interviewer time for recruitment and follow-up, as well as the cost of participant incentives. Also, ask yourself whether your study site can feasibly provide this number of participants. For example, does the hospital actually see that number of patients per day/week/year? Are that many patients likely to be eligible *and* agree to participate? Such questions of feasibility can be answered by your own preliminary work, by that of your coinvestigators, or by other investigators at your proposed study site. Alternatively, if you are proposing a pilot grant, you can clearly state that the goal of your pilot is to assess recruitment and eligibility rates to calculate power for a larger grant submission. Chapter 8, *Summarizing Preliminary Studies,* describes this approach in greater detail.

Now, in light of everything you have learned from Steps 1, 2, and 3, and incorporating your mentors' and colleagues' feedback, go back and refine the aims and start the

process over again. Once you have settled on the aims, you will find that writing the rest of the application will flow easily. As described in Part Two of this text, "The Proposal: Section by Section," each section of a well-written grant proposal flows directly from and mirrors components of the specific aims.

1.5 TIP #5: SHOW THAT YOU CAN PULL IT OFF

Showing that you can logistically and feasibly conduct the proposed grant is critical if you are a graduate student or early-career faculty. Assurance that you can *pull it off* is a key factor for which the reviewer is seeking reassurance and can be accomplished through several techniques. First, if possible, collaborate with senior investigators who have conducted similar grants in similar populations. Their involvement on your proposal will be a critical factor supporting your potential for success.

Capitalize upon your coinvestigators

It is important that these coinvestigators do not appear in name only. Show established working relationships with these investigators via either coauthored publications (or submitted publications under review), copresentations, or an established mentoring relationship (e.g., as part of a training grant). Another way to show an ongoing relationship with coinvestigators is to list grants on which you are both investigators or consultants. Of course, much of this information will appear in your biosketches, but you cannot rely upon the reviewers to connect the dots between you and your coinvestigators. Instead, make it easy for the reviewers by pointing out this prior collaboration in your Preliminary Studies Section. Specific examples of this grantsmanship strategy as well as others are discussed in detail in Chapter 8, *Summarizing Preliminary Studies.*

A second way to show that you can *pull it off* is to present evidence that you have conducted smaller feasibility studies as mentioned in Tip #1. Such feasibility studies can provide key data on a number of factors. They can provide evidence that you, as a PI, are able to recruit subjects and collect data. Such preliminary data have the added benefit of providing key figures necessary for calculating power and sample size for your larger grants. Participant satisfaction surveys administered in a feasibility study can provide data on the acceptability of your methods. Validation studies of your proposed methods (as described in Chapter 14, *Reproducibility and Validity Studies*) can provide assurance that a study based upon these methods will work. In summary, ideally, the goal is to show proof of principal.

Avoid interdependent aims

It is important to acknowledge here that in earlier, more economically advantaged times, it was considered acceptable for a large NIH R01 grant to include pilot studies within its aims. However, in the current climate, reviewers do not look favorably upon this approach. They naturally ask, "What if the pilot study finds that the methods are not successful? How would the investigator accomplish the subsequent aims of the project?" For example, imagine if aim 1 proposes to conduct a validation study of the questionnaire to be used in aims 2 and 3. If aim 1 subsequently fails to find that the questionnaire is valid, then how can the remainder of the project proceed? These are termed interdependent

aims and reviewers often consider such aims to be a fatal flaw of a proposal. In Chapter 6, *Specific Aims*, I describe how to create a strong set of study aims, avoiding this as well as other pitfalls.

1.6 TIP #6: YOUR METHODS SHOULD MATCH YOUR AIMS AND VICE VERSA

A typical pitfall that early-career investigators fall into is to fail to include methods to address each of their study aims or, alternatively, to include additional methods that do not correspond to any study aims. These scenarios can simply be summed up as (1) proposing to study A and B, but only including methods for A, or (2) proposing to study A, but including methods designed to measure A and B.

The former situation will be viewed by reviewers as an important omission. For mentored career award applications, in particular, this mistake may be attributed to the mentor, which in some ways is even worse than having the error attributed to you. That is, this mistake can be interpreted as an indicator of poor mentorship either due to minimal effort by the mentor (e.g., in failure to spend time to adequately review your proposal) or due to the inability of the mentor to detect this problem at all. It may be viewed as reflective of the future amount and content of mentorship that you would be receiving over the course of the grant period if awarded.

Avoid being overly ambitious

The latter situation, in which the grant describes more analyses than are necessary to conduct the stated aims, is a great temptation of early-career investigators who are often driven to demonstrate to the reviewers how rich the dataset will be and therefore how many questions they can answer. However, this approach can be viewed as overly ambitious. An *ambitious* application is one of the most common reason for reviewers to give an application a poor score (or to triage the application, as described in Chapter 19, *Review Process*). Instead, it is much more impressive to exercise restraint and have a focused plan with a data analysis section directly tied to the specific aims.

However, there are some specific situations where it is reasonable to mention additional methods that do not correspond to the proposed aims. For example, in a small grant proposal (e.g., a seed grant), it is often reasonable to state that some data will be collected solely to support subsequent grant applications. However, this is only considered appropriate when it is highly efficient both in terms of study design and participant burden to collect this information in real time, as opposed to returning to participants at a later point in time. The application could state,

While we are not including genetic aims within this proposal, these stored samples will be available to support the investigation of future hypotheses. Similarly, placentas will be collected and stored for future hypotheses.

In this example, it is clear that trying to collect this information at a later point in time would not be feasible, either because the samples would no longer be available or because disease may have already occurred and thereby influenced levels of these samples. In these situations, a data analysis plan would not be included for these proposed future aims.

So, moving forward, there are several ways to ensure that your methods match up with your aims and vice versa. The most traditional approach (and the approach that is most kind to your reviewer) is to copy your aims verbatim from the specific aims page and repeat them, in italics, in the data analysis section. Below each italicized aim, you will insert the relevant statistical analysis designed to achieve this aim. Alternatively, another acceptable approach is to format the structure of the proposal sequentially such that aim #1 is immediately followed by the methods to achieve aim #1; aim #2 follows, and is immediately followed with the methods to achieve aim #2, etc. This approach tends to only be efficient when each aim has a distinct methodologic and data analysis plan. Otherwise, you run the risk of repetition of similar methods and wasteful use of precious space. In Chapter 9, *Study Design and Methods*, and Chapter 10, *Data Analysis Plan*, I describe tips for efficient writing of methods and data analyses sections corresponding to study aims.

1.7 TIP #7: A PROPOSAL CAN NEVER HAVE TOO MANY FIGURES OR TABLES

In general, the more figures and tables in a grant application, the better. Not only does the process of creating these figures and tables help you to crystallize your specific aims and study methods, but they are also kinder to the reviewers. As compared to dense text, tables and figures are easier for the reviewer to digest and help them more quickly grasp your methods. This fact should not be underestimated given how pressed the reviewer is for time. Figures and tables also demonstrate your grasp of your proposal and your organizational skills. They can save space by reducing the text—critical for the page limitations of most proposals.

Indeed, the inclusion of figures and tables is relevant for every section of a grant application. For example, in the specific aims section, a figure showing how the specific aims interrelate is always appreciated by reviewers (Chapter 6, *Specific Aims*). Another key figure displaying your anticipated results can be placed in the Background and Significance section (see Chapter 7, *Background and Significance Section*). Some reviewers feel that this latter figure is essential. Other examples include study design figures, tables listing study variables, and statistical power displays. The grant application often ends with a timeline figure—showing each study activity and the quarters during which it will be conducted. Chapter 9, *Study Design and Methods* shows examples of key tables and figures that can be used throughout the proposal, ranging from specific aims tables and study design figures to tables for the data analysis and power/sample size sections.

1.8 TIP #8: SEEK EXTERNAL REVIEW PRIOR TO SUBMISSION

It is generally acknowledged that a local mock study section review almost doubles your chances of funding. A *study section* is defined as the NIH review panel that conducts the initial scientific merit review of research applications. *Mock* study sections simulate a real study section by following the grant review process as closely as possible.

Example procedures for conducting a mock study section:

Early-career faculty will submit a proposal for review using the NIH submission guidelines. The review panel will be made up of senior faculty who have served on NIH study sections, are familiar with the area of study, and have a track record of mentorship. Each proposal will be reviewed by 3 section members. Faculty will receive the written reviews of their proposals and the NIH scoring system will be applied (1–9).

To provide even greater mentorship, a mock NIH study section can be modified in a few key ways from a true NIH study section. For example, early-career faculty can be invited to sit in on mock study sections as silent observers. While it may be stressful to watch the reviewers discuss your proposal, you will experience first-hand the dynamics of study section deliberations and the proposal review process becomes demystified. After the session is over, many mock sessions schedule a short debriefing period to allow early-career faculty to ask questions and talk directly with the reviewers. This differs substantively from a true study section after which you will only receive written comments from the reviewers. NIH posts video tapes of mock study sections on their website. These are invaluable to watch.

Another useful way to get constructive feedback on your proposal is to participate in a *chalk-talk* forum. These consist of informal seminars to discuss your research ideas and/or specific aims early in the process—prior to writing a full proposal. If your department does not currently offer such a forum, suggest that they start one. Chapter 16, *Presenting Your Proposal Orally*, provides a step-by-step guide for creating an oral and visual presentation of your proposal.

Some departments will fund early-career faculty to attend local and national grant-writing workshops and will compensate outside scientists, with expertise on the proposed topic, to review and critique your grant proposals. Your office of grants and contracts may sponsor a grantsmanship seminar series or brown bag lunch session in which you can participate. Lastly, many departments will enlist the services of a grant writer. By encouraging you to concisely convey your aims and methods as clearly as possible, the best grant writers will help you to further refine your specific aims and convey the potential impact of your findings.

Real-world (not mock) submission and resubmission processes are carefully described in a step-by-step manner with accompanying strategic tips in Chapter 18, *Submission of the Grant Proposal*, Chapter 19, *Review Process*, and Chapter 20, *Resubmission of the Grant Proposal*.

1.9 TIP #9: BE KIND TO YOUR REVIEWERS

Reviewers are assigned a large number of applications to read and discuss. This task is in addition to their own responsibilities as a researcher themselves. So, a happy reviewer should be one of your top goals.

Subheadings should match review criteria

The most effective way to make a reviewer happy is to help them complete their review forms. Every reviewer, regardless of funding agency, is required to use a structured critique form. For example, NIH reviewers are required to write bullet points on the strengths and weaknesses of overall impact, significance, investigators, innovation, approach, and environment. However, the formatting requirements of NIH grant applications do not require clearly labeled sections for each of these criteria. Therefore, the first way to be *kind* to your reviewers is by using these key terms as subheadings in your application.

For example, the reviewer must describe whether they believe your grant is innovative. You may have thought that the innovative aspects of your application were obvious and therefore failed to include a specific subsection on *innovation*. This is risky. Not only may the reviewer fail to see all the innovative aspects of your proposal, but you run the risk that they may not deduce any innovation at all. Simply including a clearly labeled subsection on innovation will save the reviewer time. It does not guarantee that they will agree with you but provides a basis for their draft of that section in their critique. In Chapter 7, *Background and Significance Section*, I describe tips for writing the innovation section.

Highlight key sentences

A second key kindness is to bold, or otherwise highlight, one key sentence in each paragraph of the Background and Significance section. Indeed, the act of searching for this key sentence provides the added benefit of ensuring that each paragraph does indeed have a key point. With space at a premium in grant proposals (e.g., current limits for the research strategy for smaller NIH grants can be as low as six pages), each paragraph needs to count.

Another way to be kind to the reviewers is in the Preliminary Studies section. The description of each preliminary study should end with a sentence specifying the rationale for why it is relevant to the current proposal. This summary sentence removes the burden on the reviewer. It is your job to connect the dots between your preliminary work and how it relates to or supports your proposed aims. The act of creating these sentences also serves a dual purpose of ensuring that you are not including extraneous preliminary findings not directly relevant to your aims. Examples of such summaries are provided in Chapter 8, *Summarizing Preliminary Studies*.

Another way of being kind to the reviewer is by inserting a brief summary paragraph at the very beginning of the Methods section that encapsulates all the key features of the study design. This paragraph would give the sample size, study population, study design (e.g., prospective cohort case–control study, cross-sectional study), the key assessment tools to be used (e.g., self-reported questionnaire, plasma samples, medical record data), and any other key features of your study methods. This will help the

reviewer to concisely present your study to the review panel. Examples of such summaries are provided in Chapter 9, *Study Design and Methods*.

The same person cannot write a proposal *and* review it for clarity

Regardless of how carefully you reread your grant, and no matter how conscientious you are, simply by virtue of your familiarity with the material, you will not be able to review it for final clarity. One common approach is to ask your colleagues to read the application. It is well accepted that a well-written application should be readable and understandable by anyone with scientific knowledge. Therefore, it is not necessary that your readers have expertise in your area of interest and perhaps even preferable if they do not.

While this is often surprising to hear, it is important to note that some of your assigned grant reviewers may not have expertise in your area of interest. That is, while one reviewer may have a specific background in your area, others are assigned based on their expertise in the proposed methodology (e.g., epidemiology), and others are assigned to review the statistical analysis section. For example, a grant designed to identify risk factors for infertility may be assigned to the following three reviewers: (1) a physician who has a track record of publications on *in vitro* fertilization techniques, (2) an epidemiologist who has conducted prospective cohort studies among infertile women, and (3) a statistician. It is even possible that the physician or the epidemiologist will not have direct experience with infertility but are instead more generalist reproductive or perinatal epidemiologists.

However, it is reassuring to note that, if your proposal is well written, even a generalist reviewer will be able to assess (1) whether your goals are clearly stated, (2) whether your proposal clearly justifies how it extends prior work in the field, (3) what is innovative about your proposal, as well as (4) the impact of your potential findings on public health and clinical practice. In recent years, the last point has become a critical factor in funding decisions. With the recent revision in the NIH grant review process, reviewers now prioritize the overall impact. This aspect alone is often the most critical in the assigned score for an application. In Chapter 7, *Background and Significance Section*, I outline tips for writing this section. Chapter 19, *Review Process*, describes how these sections are considered in the review process.

In summary, the underpinning of all of these kindnesses is to remember that it is not the job of the reviewer to justify the importance of your proposal but instead your job to lay out your rationale and give the reviewers the opportunity to critique it. You do the work; they conduct the critique. This is the recipe for a happy reviewer.

1.10 TIP #10: IF AT ALL POSSIBLE, CHOOSE A TOPIC THAT YOU FIND INTERESTING!

There is nothing less conducive to your future success and day-to-day productivity than choosing a topic that you do not find interesting. However, given today's difficult grant-funding climate, the only way to ensure grant success is to have several proposals in

the pipeline and/or under review at once. In this way, even if all the initiatives are not the most interesting to you, at least one of them will likely be. It is even more preferable if these initiatives fit within an overall research theme (as discussed in Tip #2: Create a Vision) so that, in the wonderful event that all are funded, they can all serve as pilot data for your larger R01-type grant.

Another way to ensure success is to also serve as a coinvestigator on a grant led by one of your senior colleagues while you are beginning your own independent research track. The advantages of serving as a coinvestigator on ongoing or new proposals submitted by your more established colleagues should not be underestimated. These grants will require a somewhat reduced effort on your part (in comparison to being PI). In addition, because ongoing projects were underway before you joined, you can also anticipate an earlier payoff in terms of timing of published manuscripts. Joining an established research project also provides you with the opportunity to apply for supplementary funding that builds upon the aims (and the established methods and successes) of these ongoing grants.

All this being said, developing your own independent line of research proposals is important. Indeed, one criterion for tenure and promotion at many research institutes is movement away from the area of your dissertation work and development of independence in your own research aims. If the work of your departmental colleagues does not relate to your area, then other collegial relationships and sources of grant data can be found in many locations—be they across campus or even across the state or country (see Chapter 17, *Choosing the Right Funding Source*). Luckily, in these days of electronic communication, Skype, and other electronic media, it has become increasingly easy to communicate with colleagues at other institutions electronically.

In summary, these 10 top tips for successful proposal writing should help to launch you on your proposal writing journey!

PART ONE

Preparing to Write the Proposal