

10 Mistakes that can Kill Your NIH Grant

By Tom Hollon, Ph.D.

Whether it's NIH R01 grants, R21s, SBIRs or what have you, there isn't and never has been enough NIH grant money to go around. Necessarily, grant reviewers have to be grant killers. If you don't want them to kill your grant, here are 10 grantsmanship mistakes to avoid.

1. Not taking the time to write things right. The graveyard of lost grants is filled with research plans that had weaknesses that never got fixed because their authors started writing late and ran out of time. Writing a persuasive research plan—clear, accurate, interesting, and reading like a winner from the very first sentence—requires a huge investment of time. With enough time, most grant application problems can be fixed, so skimping on time is self-sabotage. Grant winners can thank their lucky stars so many of their competitors insist upon committing this worst of all grantsmanship mistakes. Starting too late is the single greatest cause of failure to win funding. I call it the Number One Rule of Grantsmanshipwreck.

2. Believing the Approach section is the most important section. Since the Approach section explaining your experiments is the longest research plan section and takes by far the most time to write, it's natural to believe it's the most important. It's not, though. That honor belongs to Specific Aims, where the halo effect—the cognitive bias of first impressions—is at work. Because Specific Aims is the first section reviewers read after your abstract, its persuasiveness sets their expectations for everything that follows—including Approach. Polish your Specific Aims section until it gleams. Capture reviewers' interest in Specific Aims and you'll have them eager to

read more about your research. Fail to grab them in Specific Aims and your grant is on life support, barely alive.

3. Not contacting NIH Program Officers. Every NIH institute and center has Program Officers ready to answer all kinds of questions about the grants they're responsible for, including budget matters and questions about NIH's interest in your research. They're usually very knowledgeable and glad to help, so it's a big mistake not to get their advice. Their names and contact info are listed on institutes' websites and NIH funding opportunity announcements.

To contact a Program Officer, start by email. Send an abstract of your proposal and then call a day or two later with questions. If you can't get help from one officer, try another. Be aware that reaching them can get tough in the last two weeks before grant deadlines, when they're often drowning in emails and phone calls from applicants with last-minute questions. Contact them early or you may not be able to contact them at all.

4. Believing reviewers will be wide-awake. Grant reviewers are unlikely to consider reading your research plan nearly as high a priority as their normal work and family responsibilities. It is easily possible, then, that they won't read it until after their usual workday is done, when their ability to pay attention has begun to flag. They may even have a drink or two first.

Why does that matter? Because when reviewers are tired it's easier for them to get confused by a poorly written research plan. Research plans that confuse reviewers get bad scores. Therefore do not assume your research plan is clear just because you understand it. While it may be clear to an alert reviewer, it may not be clear to a tired reviewer. Take pains, then, to figure out where it might cause confusion and rewrite until even tired readers can get the message.

5. Failing to justify unusual choices. Say one of your key experiments uses Method A when most of your peers would choose Method B. You should anticipate reviewers seeing this as a red flag, a sign you have no idea what you're doing. The fix is to explain why A is the correct choice for your particular experiments. Anything unusual about your research strategy, whether it's an unusual experimental protocol, experimental materials, or method of data analysis, must always be explained and justified. Otherwise your grant is in trouble.

6. Focusing only on your strengths. NIH instructs reviewers to consider strengths *and* weaknesses when scoring Significance, Innovation, Approach, Environment, Investigators and Overall Impact. So highlighting your strengths—why your research is significant and innovative, and why your chances of getting exciting data are high—is not enough. Either get rid of weaknesses in your research plan or reviewers will get rid of your grant.

A weakness is anything that can cause reviewers to doubt your research plan can succeed. Here are three major grantkiller weaknesses. First, writing problems: being unclear, confusing, putting an important point in the wrong section, or inconsistencies between sections. Second, being wrong about facts in your field or not being up to date on new developments. Third, not explaining research strategy considerations such as key controls, the rationale for major experiments, and how you'll analyze data critically. Remember, reviewers can't penalize you for weaknesses they can't find. Find every weak spot and get rid of it.

7. Failing to consider what could go wrong. Reviewers know things can go awry with even the best-laid research plans. They expect you to demonstrate that you know too. For example, does your research plan explain what will you do if experiments don't support your central hypothesis? What will you do if your experimental methods don't perform as expected? What if your experimental materials turn out to be flawed? Showing you have anticipated what might go wrong and have workarounds, just in case, is essential to getting funded.

8. Not getting written critiques prior to submission. You will tremendously increase your chance of winning if, at least a week before the application submission deadline, you get experts and nonexperts in your field to critique your research plan. Their job is to go over it with a fine-tooth comb and look for every weakness that can be removed and every strength that can be made easier for reviewers to notice and understand. Then spend the last few days improving your research plan according to their advice.

Critiques by nonexperts will help you find confusing passages and key points you forgot to explain. Critiques by experts will help you catch errors in facts. Critiques must be written (oral reviews generally reflect superficial scrutiny; they are usually worthless). If your project is interdisciplinary, count on NIH having your research plan reviewed by experts in each field.

Therefore you need prior-to-submission critiques from experts in each field. For example, if you have human subjects you'll probably need statistical analysis of your data. Thus you'll need a prior-to-submission critique from a PhD biostatistician, because a PhD biostatistician will probably be one of your reviewers.

9. Believing the Summary Statement says everything you need to fix to resubmit and win.

If NIH turns down your first application, feeling hurt and angry is par for the course. Later, you may feel consoled by reviewers' comments in your Summary Statement; at least, you tell yourself, they told you what to fix. Beware—a Summary Statement is not necessarily a comprehensive critique. NIH reviewers have no obligation to be comprehensive. They only need to explain enough to justify their opinion.

Put the Summary Statement away until the hurt subsides. Once you can read it dispassionately, study reviewers' comments carefully and get someone to help you read between the lines for problems they may only hint at. Then dig deep into your research plan for problems they said nothing about. You only get two tries to win with the same idea. On your last try, fixing the flaws reviewers didn't mention is just as critical as fixing the ones they did.

10. Hiring help too late. If you're struggling to explain why your work is important and innovative and your approach is sound, or if you're not sure you're providing the answers reviewers expect, a grant consultant might just be the difference between winning money and winning nothing. But trying to hire a grant consultant at the last moment is usually a mistake for two reasons. First, they're probably booked already. Second, if they find a serious flaw in your research plan (such as an unachievable specific aim, which would require a major rewrite) there may not be enough time to fix it; all you'd be doing is hiring a consultant to tell you not to submit your grant because it has no hope to win. So if you need a consultant, hire them early so they can give you the help you need.

Who Else Wants Help Winning a NIH Grant?

NIH Grant Writing, Editing and Consulting from Tom Hollon, Ph.D.



I work with scientists who want grant applications that get funded so they can get back to doing science and making discoveries. I've helped clients win nearly \$17 million in grants and contracts.

Concerned your NIH grant application isn't strong enough? Aren't sure how to make it better? I can help you highlight the importance and novelty of your work and remove research plan weaknesses before reviewers see them. Your Significance, Innovation, Approach and Overall Impact scores will be higher so you're more likely to win. If you're resubmitting, I'll help analyze your Summary Statement and develop a strategy to resubmit and score above payline.

My NIH grant services especially help:

- Researchers trying to shoehorn research plans into NIH's short page limits
- Junior faculty who lack senior faculty to mentor them in R01 and R21 grantsmanship
- Senior faculty needing to prepare grant applications in less time
- Faculty for whom English is a second language
- Groups of researchers working together on grants, such as center grants

Services to help you win include:

- ✓ **Editing more persuasion into fewer words.** I can almost always reduce a research plan by 5 - 10% without sacrificing accuracy, so fitting the page limit becomes easier. It can be like getting an extra half-page or page to explain your work.
- ✓ **Highlighting significance and originality.** The stress and pressure of grant writing can make it hard to find words to do your work justice. I can help you state the significance of your work and innovations strongly and clearly.
- ✓ **Removing research plan weaknesses.** By bringing fresh eyes and knowledge of the review process to your research plan, I can help you find and remove weaknesses reviewers will otherwise surely attack.
- ✓ **Summary Statement analysis.** I can help you read between the lines to understand what reviewers really mean so you can resubmit and win.
- ✓ **Making multi-investigator grant applications stronger.** For team projects like center grants and lab construction grants I can edit individual contributions to read as if from a single voice; plus I'll help you underscore strengths and remove weaknesses.

Need help? Contact me today at (240) 753-0376 or tom@sciencesherpa.com. There's no charge for an initial consultation.

NIH funding mechanism experience

R01, R21, T32, P50, C06, RC1, RC3, and U01 —plus SBIRs and RFPs

Grant agency experience

NIH, NSF, CDC, DOL and NIST

Clients include:

AFG Biosolutions
BioCrossroads
Boston University
Fina Biosolutions
Georgetown University
Harvard University
HDOX Bioinformatics
Health Legacy Partnership
Health Pathways
Idealert
IMC
INCAPS
Johns Hopkins
Molecular Design Intl
NanoProfessor
Pharm-Olam Intl
Rush University
Stanford University
Tacitus
Univ. of Minnesota
Univ. of Pittsburgh
Vanderbilt University