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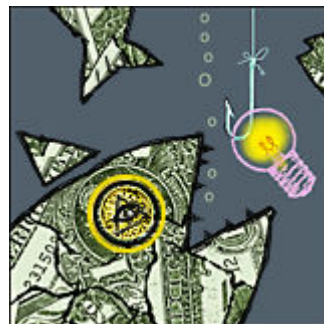
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## Murder Most Foul: How Not to Kill a Grant Application

As the sultry, murder-mystery editor Miss Fromsett told private eye Phillip Marlowe in the '40s classic *The Lady in the Lake*, "People who write usually don't know the facts and people who know the facts usually can't write." Her characterization of mystery writers could easily apply to scientists preparing grant applications: They know the facts but they have trouble writing and selling their ideas. In the movie, Marlowe's attempt at crime writing was a success because he blended real-life facts with intrigue and style--the perfect ingredients for bestsellers, but also the essential elements of competitive grant applications.

Grappling with grant applications at your desk is as central to scientific success as is wrestling with experimental conundrums at the bench. In the fight for research dollars, grant writing can make or break a research career no matter how good or innovative a scientist's ideas are. From inexperienced graduate students and struggling postdocs to exultant new faculty and world-wise senior investigators, competing for grants occurs at all stages of academic research careers. But many candidates falter, making needless mistakes that tarnish potentially award-winning applications: Research plans are overambitious, incoherent, or too diffuse, for example. Learn to address these problems and grant applications stand a good chance of receiving a favorable review.



BY VID MOHAN-RAM  
7 JANUARY 2000

### 20/20 Hindsight Without Time-Travel

Postdocs and junior faculty face tough challenges while trying to secure financial support: Between the National Institutes of Health (NIH) and the National Science Foundation (NSF), the two federal agencies regularly receive nearly 70,000 grant applications and proposals every year! The problem, however, is that the percentage of

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applicants who get grants typically swings between 25% and 33%. So how do young scientists compete on equal footing with established scientists, without the grant-writing experiences and benefits that come with age, career stage, and hindsight?

## Young Dogs, New Tricks, Old Mistakes

The first step is to be aware of certain mistakes, errors, and oversights that occur time and again in many research applications. Reviewers and administrators at the National Institute of Allergy and Infectious Diseases (NIAID) put together a [table](#) highlighting mistakes that routinely crop up during review. Applicants, they say, fail to support hypotheses or discuss how potential obstacles will be dealt with, for example. "Provide good alternative approaches and contingency plans in the event your original approaches do not work," officials suggest. They reveal that some applicants do not explain how data will be analyzed or how results will be interpreted. Other research plans are weak in describing why the studies are being done in the first place. "Describe how the proposed research addresses a gap or problem area," the troubleshooting guide informs.

A well-rounded understanding of the scientific literature is crucial in validating new ideas, but some grant writers shy away from including pertinent research findings from other groups in their applications. "Reviewers do not like to see their own relevant publications ignored!" exclaims the NIAID guide. "Impress reviewers with your up-to-date knowledge of your field ... reference work from your lab and from your competitors."

"Be clear, be organized, be detailed," informs Cheryl New, president of Polaris, a grant consulting firm. "Avoid jargon--say what you mean in clear, simple language." New, along with her husband, James Quick, conducts grant-seeking workshops around the country. "Give enough detail that a reader can see clearly how you intend to go about your research," she recommends. "Sweeping generalities," New points out, are "the kiss of death" when grant-seeking.

## Project Titles: The Sweet Smell of Success

"A lot of people think the title is not terribly important--that is a serious mistake," reveals Liane Reif-Lehrer, a former NIH study section member who presents proposal-writing workshops at universities and other organizations across the country. The title is the reviewers' first impression of a grant application. "Do your homework and research what the agencies are funding," she suggests. Some institutes at NIH are well-funded and others less so, relates Reif-Lehrer, who submitted her first application on retina research in the mid '60s. Her mentor suggested that her original title

"Control Mechanisms in Animal Cells" would have caused her application to be assigned to the National Institute of General Medical Sciences, where competition for dwindling funds was high. The mentor pointed out that the National Eye Institute (NEI), which had just come into being, had more money to fund projects. By modifying the title to show her studies involved "eyes," her application was routed through the NEI and was funded. Referral officers sometimes rely on the title when assigning applications to study sections, she says. Titles that define the project clearly and accurately help referral officers steer applications to the most appropriate review panel.

"Project titles should be clever but not cutesy," say New and Quick in their book, *The GrantSeeker's Toolkit*. "A project title with a clever twist or sound or acronym is easily remembered by a reader," they disclose. Klaus Nuesslein, a new assistant professor at the University of Massachusetts, Amherst, agrees the title should "stimulate thoughts and sound sexy."

"The title is the total summary of the proposal and should open a drawer in the readers mind," Nuesslein says, into which you drop your hypotheses and ideas. "I repeat as many of the words that are in my title in the questions that follow in the text," he explains. "This way the hypotheses sound familiar" and the reader is always referred back to the title, he says. Nuesslein is wary of proposals he's read that phrase titles as questions. Although this style can pique a reader's interest, sometimes "the proposal never answers the question!"

"Get on the phone, talk to the program officer, and find out what program areas the agency is most excited about," recommends Reif-Lehrer. "Then determine whether there is any realistic way to tailor your project and title into a good match with those topics." She adds that "Grantsmanship"--above and beyond doing good science--"has a lot to do with understanding the psychology of the reviewers."

"Very nice title," purred the svelte Miss Fromsett as she toyed with Marlowe's semi-fictional underworld crime story, *If I Should Die Before I live*: The title sealed the deal and won him a \$500 publishing contract. In the academic world, a grant application's title is the first step toward securing those much-needed research dollars. Written well, your grant proposal may itself become a timeless classic!

To be continued...

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In the next installment of "How Not to Kill a Grant Application," we shift our gaze downward to the abstract--what makes a good one and hints and tips on making it better!

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