

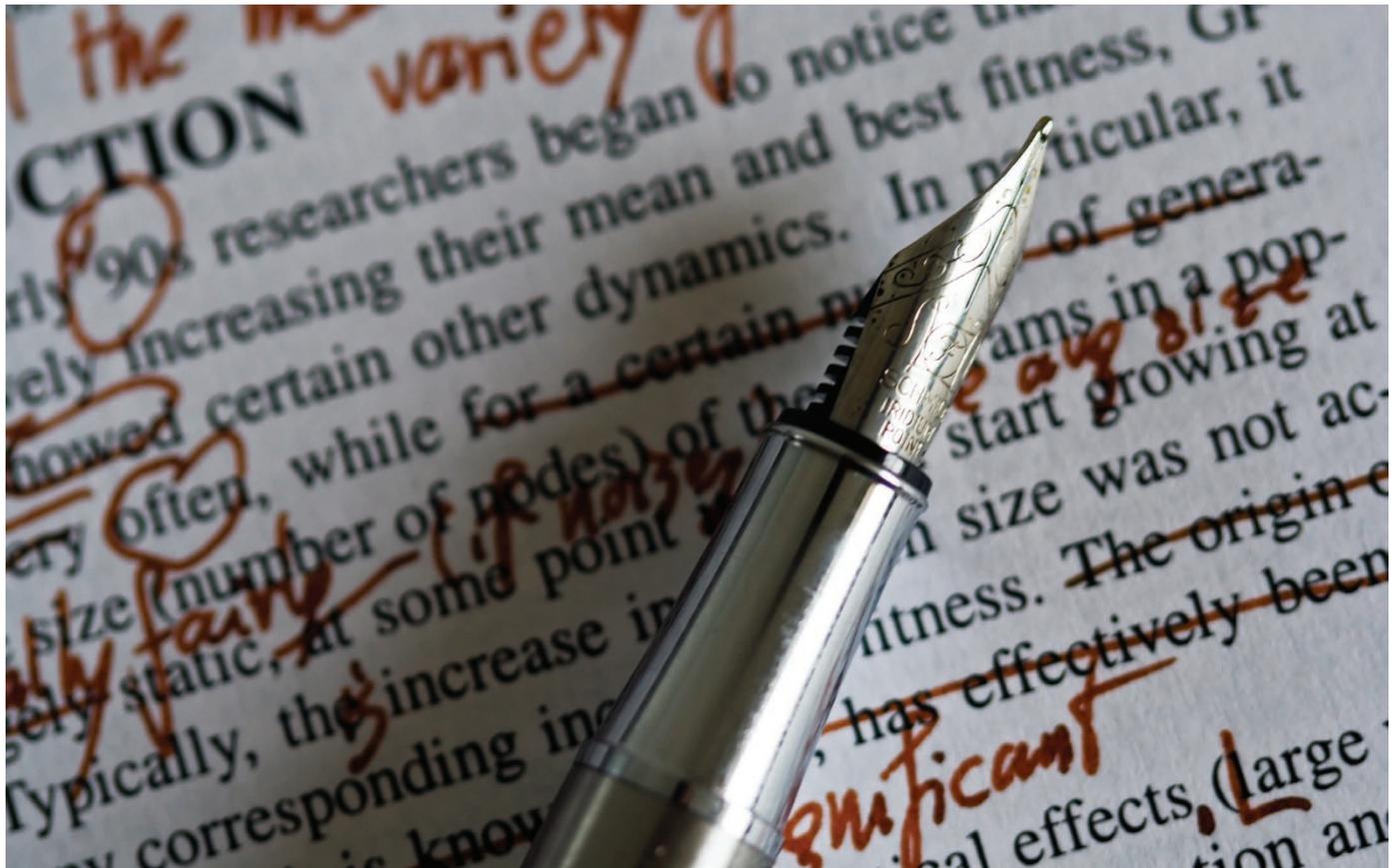
CAREERS

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NIC MCPHEE



FUNDING

Word perfect

Nervous about your grant application's chance of success? Get help to make every word count.

BY AMBER DANCE

Jiri Lukas' research centre was at a crossroads four years ago. Bankrolled by the Novo Nordisk Foundation, the organization was facing a mid-term evaluation, and its funding was at risk. Lukas, executive director of the Center for Protein Research at the University of Copenhagen, wanted to apply for a grant extension, but was worried that his efforts would be wasted. It was rare at the time for foundations that award grants for biomedical research to further their support beyond one-time, limited-term funding.

A colleague told Lukas that the science in his application was strong, but that the

application itself didn't make the best case for the societal impact and unique nature of the centre. The colleague advised Lukas to consult with scientific-communication specialists at Elevate Scientific in Malmö, Sweden. "The rest was kind of a fairy tale," Lukas says. With help from Elevate, the centre won the extension.

When it comes to seeking either government or private funding, grant writers and editors are a useful resource for scientists in both academia and industry. Scientists call on them for a variety of reasons. Some simply don't have time to do it themselves. Others know that they aren't good writers, or lack a sufficient command of English. Some

are struggling to get funding. Grant writers can help with finding the right organizations to fund a project, as well as with writing the application. They can hone and focus the message, ensure consistency between sections drafted by different authors and assure adherence to strict page limits. Grant writers and editors help with everything that isn't the science, yet can still significantly affect a proposal's chance of success.

Many researchers still go it alone in preparing grant applications, but the funding landscape has changed, and scientists are now less hesitant to ask for help, says Sheila Cherry, president of Fresh Eyes Editing in Dayton, Ohio. Many funders expect applicants to ►

► seek assistance. The written guidelines from the US National Institutes of Health (NIH), for example, make that clear: “If writing is not your forte, seek help!”

There should be no shame in asking for guidance, says Anders Tunlid, a microbial ecologist at Lund University in Sweden who has reviewed grants for the European Research Council. “We need to accept that this is the way we all do it,” he says. “I don’t think that everyone has written their proposals themselves.” Colleagues may be willing to review an application’s scientific content — but they are typically too busy to spare the hours needed for fine-tuning.

“Everyone needs a little bit of help, if only to find typos,” points out David O’Keefe, senior grant writer at the Salk Institute in La Jolla, California.

The Salk offers the service for free to its researchers, but external help comes at a price: basic editing services can run from US\$500 to thousands of dollars, depending on the application. “It’s an investment, for sure,” says Stefano Goffredo, a marine ecologist at the University of Bologna in Italy. But after spending months on a proposal, he thinks it’s worth opening his wallet to get a professional polish.

Without that polish, it’s all too easy for reviewers to quickly discount an application, says Laura Hales, principal of the Isis Group, a scientific consulting and communications service in Cambridge, Massachusetts. She has served as a reviewer herself and can attest to the fact that first impressions count for everything. “You have,” she says, “one chance.”

Independent data are essentially non-existent on how professional grant-writing services affect success rates. Companies’ claims for success range from more than three times the

average rate for NIH grants to six times the average rate for the European Union’s Horizon 2020 grants. But the companies themselves concede that they can offer no guarantees. “Just because I know the formula doesn’t mean I’m going to get every one,” says Hales.

FIND YOUR MATCH

Institutions might pay for support for a junior scientist’s first few grants, says Susan Marriott, president of BioScience Writers in Houston,

“Our role is to take all the jobs that we can from the principal investigator, so that they can focus more on the research.”

Texas, but the support can be useful for mid- to later-stage-career researchers, too. Working with Elevate Scientific was a “humbling” experience, says Lukas, even as a senior scientist. The editors identified unclear sections, improved graphics and strengthened the logic in the proposal to communicate the message more effectively.

Senior researchers in a collaboration may also use a grant editor as a project manager to ensure that all the pieces come together in a neat package by the submission deadline. It was just such a multi-investigator project that led Bruce Johnson to call in Fresh Eyes Editing. Every author tends to use their own formatting for elements such as headings and references, he notes, and editors can give the document a consistent style. “It makes it look so much more professional,” says Johnson, chief clinical research officer at the Dana Farber Cancer Institute in Boston, Massachusetts.

Editors also catch inconsistencies and redundancies in the content. For example, a large document on lung cancer does not need

to repeat in every author’s section that it’s the leading cause of cancer deaths in the United States. And one scientist might cite a statistic that 15% of people with lung cancer have a certain mutation, whereas another might write 25%. That inconsistency could cause reviewers to think that the collaborators aren’t talking to one another, Johnson says, which would not inspire a sense of confidence that the team could carry out the project together.

Grant helpers vary in the assistance they provide, and at different stages of the proposal process. Some get involved at the very start, strategizing about where to apply for funding. “It’s not only about how you write an application,” says Ram May-Ron, managing partner with the FreeMind Group in Boston. “The search starts with identifying which funding opportunity is the best one for a particular part of a research project.”

Scientists may have heard of big funding initiatives, such as Horizon 2020, but there might be other opportunities they should consider, says Eran Har-Paz, vice-president for sales at Sunrise Projects in Rosh Ha’Ayin, Israel. “We try to build a strategy, a few alternatives to submit to,” he says. “Don’t put all your eggs in one basket.”

At this level, grant helpers may reach out to programme officers, says May-Ron. For example, they might ask whether an agency has funded similar research recently, and whether they’re at all interested in doing so again. “If you go to the right place, you’re already in a better position,” he points out.

This full-scale service comes at a price, of course. Har-Paz estimates that the simplest proposal might cost a few thousand euros, with the cost escalating to €20,000 (US\$21,414) or more for elaborate

OPPORTUNITIES ABOUND

How to become a grant writer

When Laura Hales founded a biotechnology company, her first grant application was an abysmal failure. “I think I made every mistake in the book,” she recalls. But with time and resubmissions, she got the hang of it. Now she helps others to play the grantsmanship game through her communications company, the Isis Group in Cambridge, Massachusetts.

She’s not the only one; grant professionals say that business is booming. “The demand is larger than the service supplied,” says Dan Csontos, editorial director of Elevate Scientific in Malmö, Sweden. “It’s definitely a good job market if you want to get into it.”

And it’s a job market with significant perks. One advantage: “You can do it anywhere,” says David O’Keefe, a senior grant writer at the Salk Institute in La Jolla, California, who started editing while living in Indonesia.

O’Keefe also maintains a side gig of his own called pzerofive Editing.

Certain personal attributes help for wannabe grant writers, advises Eran Har-Paz, vice-president for sales at Sunrise Projects in Rosh Ha’Ayin, Israel. “You have to be a quick learner.” A good dose of self-confidence is required too, he says, as grant writers may need to exert a bit of authority to convince scientists they know the right way to pen a proposal.

Manuscript editing is a common place to start, as is working under someone else. Grant-writing courses and certificates are available, although not crucial, particularly if one has other experience.

But the main training is simply to read and write. “There are always people who would be happy to have an extra pair of eyes on an

application,” points out Cath Ennis, a project manager and grant editor in Vancouver, Canada. It is also possible to get a feel for the grants world by participating in study-review panels or working for funders.

One thing to be prepared for, advises O’Keefe, is that it gets very busy when grant deadlines roll around. “Three times a year, you’re going to have a horrible month,” he says, referring to deadlines for the US National Institutes of Health’s R01 grants, the organization’s most commonly used funding mechanism.

Nonetheless, grant writing and editing is a good option for someone who enjoys writing about science more than actually doing research, says Ennis. “It’s a great way to stay at the cutting edge of science without having to go into the lab and pipette anything.” **A.D.**

applications. That includes not only the strategizing, but also writing the majority of the application.

Some scientists already hand off much of the writing to others. Cath Ennis, a project manager and grant writer in Vancouver, Canada, might contribute an abstract, literature review, impact statement or budget, depending on the scientists' needs — but never the research plan itself. "Our role is to take all the jobs that we can from the principal investigator, so they can focus more on the research," she says.

Other grant professionals stick to editing — but that's more than just dotting i's and crossing t's. Grant editors consider content, clarity, logic and flow.

Grant professionals can be found in a variety of places: some work for a company and others as freelancers whereas some institutions have in-house specialists (see 'How to become a grant writer'). "Start talking early," advises Marriott, who is also a virologist at Baylor College of Medicine in Houston. "Even if you don't have a grant ready yet, even if you don't know what you're going to write." It's beneficial to get on an editor's calendar as early as possible, because by the time the deadline rolls around, they could have many scientists clamouring for their attention. Later on, editors may be still able to help, but in a more limited fashion, she says.

Scientists tend to look for someone with a PhD and the right technical expertise. But the match doesn't have to be exact. "I've edited grants about nuclear physics," says Ennis, whose background is in cancer biology. "I can still catch a typo when someone's put 'proton' instead of 'photon'."

Equally important, Ennis says, is to look for editors who specialize in the kind of grant one's after — say, NIH, Horizon 2020 or foundation grants. Every programme has its own requirements, and the professional should know those inside out.

With candidates in mind, the next step is to get to know them. Ask a potential editor or writer about their process, and the services they do and don't provide, advises Cherry. "It's a lot more than just, 'What's your fee and how soon can you get this done?'" she says.

Timing and costs are, nonetheless, key questions. It's best to get an estimate in advance to avoid a surprise charge later. One should also ask for a confidentiality clause in the contract.

Then, be prepared for plenty of back-and-forth. "Remember that it's a collaborative process," says Cherry. "Don't be afraid to bring up concerns and make sure you're really collaborating." ■

Amber Dance is a freelance writer in Los Angeles.

TURNING POINT

Climate guardian

Veerabhadran Ramanathan has modelled greenhouse-gas dynamics and quantified the chlorofluorocarbon (CFC) contribution to Earth's global warming. His work at the Scripps Institution of Oceanography in La Jolla, California, shows that CFC-replacing hydrofluorocarbons (HFCs) also have a potent climate-warming effect. This finding led in October to HFCs being added to the Montreal Protocol on Substances that Deplete the Ozone Layer. He has engaged for a decade with religious leaders to act on climate change.

When did you realize that science alone might not galvanize climate-change action?

Many of my colleagues and I could see that, by mid-century, we'd shoot past 2-degrees warming, yet there was no public support for the drastic actions needed to steer us away from the cliff. I was discouraged and depressed. Then I got an e-mail telling me I'd been elected to the Pontifical Academy of Sciences in Vatican City, a body of only 80 members, one-third of whom are Nobel laureates.

How did your early contact with the Vatican affect your outlook?

I initially thought the e-mail was spam. Before I got involved with the Vatican, I didn't have the foggiest notion that religion could help to combat climate change. I've since gone on record to say that global warming has to be taught in every church, synagogue, mosque and temple before we are likely to take the sort of drastic actions necessary to head it off.

Where did your involvement lead?

At a meeting hosted by the Vatican in 2011, I teamed up with Dutch Nobel laureate Paul Crutzen to focus on glaciers. That opened my eyes to the power of the Church. In the meeting's scientific report, we included a prayer to protect humanity. There was tremendous opposition, but I stood behind its inclusion. We saw the potential of mobilizing religion to help, and proposed a Vatican-hosted meeting on sustainability. This took place in 2014 under Pope Francis.

What happened after that meeting?

In a *Science* paper that followed, we pointed out that we need a moral revolution: solving climate change requires a fundamental shift in humanity's attitude towards each other and nature (P. Dasgupta and V. Ramanathan *Science* **345**, 1457–1458; 2014). Faith leaders can make such a revolution happen. After the sustainability meeting, I had two minutes to



give a summary to the Pope in the car park. I showed him that 50–60% of climate-warming pollution comes from the wealthiest people on the planet. The bottom 3 billion contribute just 5%, but will experience the worst effects of climate change. That appealed to the Pope. He asked what to do. I told him to ask people to be better stewards of the planet.

Did you get backlash for contacting religious leaders?

I was shocked — no pushback. Scientists know we need to think outside the box. It has become a moral, ethical issue.

What happened after the Pope's encyclical, or church directive, last year on the environment?

It had a huge impact on the Paris summit, in which 175 nations agreed to limit climate-change activity. A survey of people who saw the Pope during his US visit showed a statistically significant effect on how people view climate change. Pope Francis has done what he can. It's up to us to take it from here.

What does the election of Donald Trump, who won 80% of the evangelical vote, mean for climate strategy?

The US elections and the president-elect saying that the United States would withdraw from the Paris agreement hung over November's United Nations climate-change meeting. But I don't see the vote for Trump, by evangelicals or otherwise, as a vote against climate change. I think most people are protesting against economic inequality. The elections made my work with religious leaders ten times more important. We urgently need a non-political forum where we can talk about climate change. ■

INTERVIEW BY VIRGINIA GEWIN

This interview has been edited for length and clarity.