

Getting the First Grant

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Rather sooner than later in your career as clinical or basic stroke researcher, gaining funding will become an essential part of your work. An observational study reported that it took researchers 38 days on average to prepare a new proposal, adding up to an estimated 550 working years for 3727 proposals for a single call of the Australian National Health and Medical Research Council in 2012.¹ Considering that only a minority of grant proposals is successful, this may appear as a waste of time at first sight. However, it is time well spent, especially for younger physician-scientists at an early career stage. Why is getting grants so important? Essentially, because universities and research institutions often fund only part of salaries and infrastructure, so without additional funding most research projects would never have been conducted. Moreover, grants are important to a young researcher's career because they help to develop a reputation for excellence and over time, grants let you built up a research team of your own. Although there is no easy way or one rule to fit all to write a successful application, there are some steps one can take to make the process less nerve-wracking. The aim of this article is to summarize the strategies that can help to improve chances of being funded.

It Is Never Too Early to Get Familiar With Grant Writing

Even if it is not on your mind at the time, when you begin to work on a research project, try to think about how it was funded because that is what you will have to do on your own soon. As a resident or PhD student, ask to see proposals of studies, which are ongoing in your division. You may assist with writing a renewal for an ongoing grant. Talk to other junior members of the research team and find out about their experiences with funding. It is good to develop a certain openness in discussing the grant issue; the topic should not be secretive because one can learn a lot from each other. However, keep in mind you should always maintain confidentiality toward third parties when allowed to read protocols, proposals, and articles of colleagues. For example, you might organize a get together with peers to discuss each other's proposal and work in progress. Peer reviewing articles is also a good way to learn more about how to phrase your own specific aims and hypotheses. Ask your mentor early on about grant opportunities. Consider the long-run prospect. Does your research project have a good

chance to result in other, interesting projects with potential grant opportunities? Your mentor will be happy to guide you while writing the first grant by reading and commenting on your drafts.

Select the Right Funding Scheme

Your goal should be to be familiar with the funding institutions supporting cerebrovascular research and to have an idea of what different funding schemes at each institution are potentially suited for your research. International and national funding schemes, Universities, and private foundations support cardiovascular research projects (Table).

In general, funding is devoted either to a project or to a person (career development or training grants). For an early-stage clinical researcher, a career development grant may be most appropriate, as it allows for protected research time. In the demanding, rapidly developing field of stroke, it is important to realize early that a physician-scientist needs time devoted to research, regardless of whether the research is based in the laboratory or clinic. However, no grant is too small for a first grant. A small seed grant may allow you to receive training, cover travel expenses, collect pilot data for a larger grant, and, notably, shows your initiative. Which funding scheme is the right one for you also depends on the use of the requested funds (own salary, salary for others, equipment, etc). Discuss the funding schemes with an experienced mentor. The Dean's office of your University may provide you with a list of sources. In addition, graduate or residency programs might provide further specific information about grant opportunities. There might be colleagues at your institution who have applied for and received funding from the exact organization you are targeting; thus, they can provide very specific insights. Read the instructions for the application carefully: Are you really a valid candidate? Do you and your project fulfill the outlined criteria of this specific call? If uncertainty remains, get in contact with the responsible person at the funding institution. Program officers are usually dedicated to helping fund the best research, and they are experts in supporting applicants.

It Takes More Time Than You Think

Writing a good proposal may take months. Depending on the type of grant, preparation time will vary, but as a rule of thumb, the very first application will likely take much longer

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(*Stroke*. 2018;49:e7-e9. DOI: 10.1161/STROKEAHA.117.019897.)

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Stroke is available at <http://stroke.ahajournals.org>

DOI: 10.1161/STROKEAHA.117.019897

Table. Noncomprehensive List of Funding Opportunities in the United States and Europe

Regional/Local Institutions*	National Institutions*	International Institutions†
Universities often provide career development awards and seed grants to generate pilot data	National Science Foundations exist in most countries with several funding mechanisms including career development grants such as the K series of the NIH	European Research Council with several funding mechanisms including career development grants such as the ERC starting grants
Regional private foundations affiliated with universities often target specific research areas	National Institution of Neurological Diseases and Stroke in the United States is specific for stroke research with several funding mechanisms	The Human Frontier Science Program Organization provides funding including a career development award
Individuals (Philanthropists) sometimes provide grants	Most countries have their national neurological associations (such as the American Academy of Neurology) and a Heart and Stroke Association/ Foundation with funding mechanisms including career development grants	The Fondation Leducq, which specifically supports vascular research requires a transatlantic cooperation and allows for fellowships across the Atlantic
	Private Foundations such as Hazel K. Goddess Fund for Stroke Research in Women in the United States and Stroke Shield Foundation in the United States	Large pharmaceutical and other biomedical companies provide grants including career development grants

ERC indicates European Research Council; and NIH, National Institutes of Health.

*Always check if citizenship or permanent residence is a prerequisite.

†Always check if you belong to a member country. Some of these grants allow you to travel and undergo a fellowship in a member country.

than the second will on a similar topic. Thus, a key step is to start way before you think you should start, especially if you are prone to procrastination. Look for resources within your institution, for example, grant management offices, which can help to develop timelines and checklists, particularly with complex grants. In your planning, include plenty of time for fellow researchers and your mentor to read and comment on your proposal. Even with an experienced grant writer, the proposal improves significantly if several critical readers have gone through the grant text!

Writing Your Proposal

The focus of this article is not to give detailed instruction on how to write a proposal, but it might be worthwhile to mention some general points. More specific guidelines on grant writing are available elsewhere.²

First, be precise and clear about your research hypotheses and aims, these are the most critical parts of a grant. If you have good and clear aims, the rest will follow. Second, a proposal outlines and seeks support for work you hope to do; thus, you need to be able to show both the novelty of your idea and the potential impact of your research. In short, propose something significant and make it exciting. Third, try to tailor the proposal to the needs of the very few people reading it. Remember that most likely at least one of the reviewers will not be familiar with your specific research field; thus, you need to avoid jargon. To accomplish this you might ask friends or colleagues from other fields in medicine to review your proposal. On the other hand, be precise on how you plan to achieve your research aims without losing the focus. Fourth, as a young investigator you need to show that you are familiar with the methods you use and especially mention the potential pitfalls and your backup plan if experiments do not work as expected. People in your department can give a sense check and may help to decide whether the plan is actually feasible in research terms. Furthermore, if you or fellow researchers in your laboratory can provide preliminary data supporting your hypothesis or feasibility of the proposed research, this will significantly strengthen your proposal

and increase the likelihood of funding. Finally, discuss with more experienced colleagues and especially with your mentor about how realistic your time schedule and budget is. A common mistake is being overambitious in the expectation of what can be achieved in the timescale of an award.

The Details Matter

It is too bad if simple formatting or spelling errors distract from the quality of the science in the proposal. Imagine if you have to review hundreds of applications, you would get also annoyed if there are many spelling errors, if you have to look up acronyms because they have not been introduced, or if the figures are so small you cannot see anything on them. Reviewers are usually busy and only human, they may get impatient, or they may have only very limited time reading your application. Therefore, the grant should be written in a concise and careful way.

Your Standing

Usually grants for early-stage researchers put more emphasis on potential and less on actual accomplishments. Therefore, think about how to stand out compared with others at your career stage when preparing your résumé. Try to show that you have the technical skills (certificates, workshops, observerships, articles in preparation) and drive (eg, list presented pilot research data at meetings) to carry out your research plan. Further, at some institutions, mobility can be a parameter used to judge a young researchers potential to succeed as an independent researcher. Mobility may reflect flexibility, dedication to actively seek places to learn from the best and to succeed in different environments. So if you have traveled and worked in different countries, this might be an advantage to get a career developmental grant, and you should state it. Point out other things that are particularly interesting about your vita.

Rejection Is Part of the Game

At the US National Institutes of Health, the overall success rate for grant applications has dropped from 30% in 2003 to 19.1% in 2016.³ In the latest round of European Research

Council Starting Grants, the rate was 11.3%.³ Even the best grants and most experienced investigators meet rejection much of the time. Being rejected does not mean your idea or your person is unfundable, it is rather a natural part of the process, so be patient, try not to get discouraged. There are several reasons why an applicant or the submitted project is not funded. Often it is not even the quality of the project or the merits of an applicant, but, for example, there might be just lack of sufficient funding to support all good projects or other issues outside of the investigator's control. So keep on trying.

Response to Reviewers

At some funding institutions such as the National Institute of Neurological Disorders and Stroke, resubmission is allowed with response to comments. This is a great opportunity to improve the project, and you should take advantage of it. Be sure to answer questions directly and try to be as responsive to each comment. Even if you disagree with a reviewer, explain why you disagree, the same way you would do this in a decent conversation. Understand that writing comments is the only way a reviewer can communicate with you. Some reviewers may have excellent ideas to improve your work; some may communicate them in a perfect way, whereas others may have difficulties to do so; however, they usually are not meant to offend you, the vast majority of reviewers are supportive especially of early career applicants. Addressing suggestions from reviewers when rejected at 1 institution may improve your chances to be funded at another institution because the grant is most probably better after addressing the raised issues. Even if you decide to leave 1 idea behind pursuing another hypothesis, the work that has gone into writing a proposal is never lost; see it as a learning point. Most stroke researchers will

agree that new ideas and collaborations can arise from grant writing. With all the effort, do not forget: it feels great to get your first grant!

Helpful Resources

There are books and webpages with videos, workshops, and other means available that can help in getting the first grant.^{4,5}

Sources of Funding

Research support granted by the Swiss National Science Foundation (to Dr Wegener: PP00P3_170683).

Disclosures

None.

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KEY WORDS: confidentiality ■ foundations ■ reading ■ uncertainty ■ writing

Stroke

JOURNAL OF THE AMERICAN HEART ASSOCIATION



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Stroke. 2018;49:e7-e9; originally published online December 6, 2017;

doi: 10.1161/STROKEAHA.117.019897

Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

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Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://stroke.ahajournals.org/content/49/1/e7>

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