A FELLOWSHIP PRIMER

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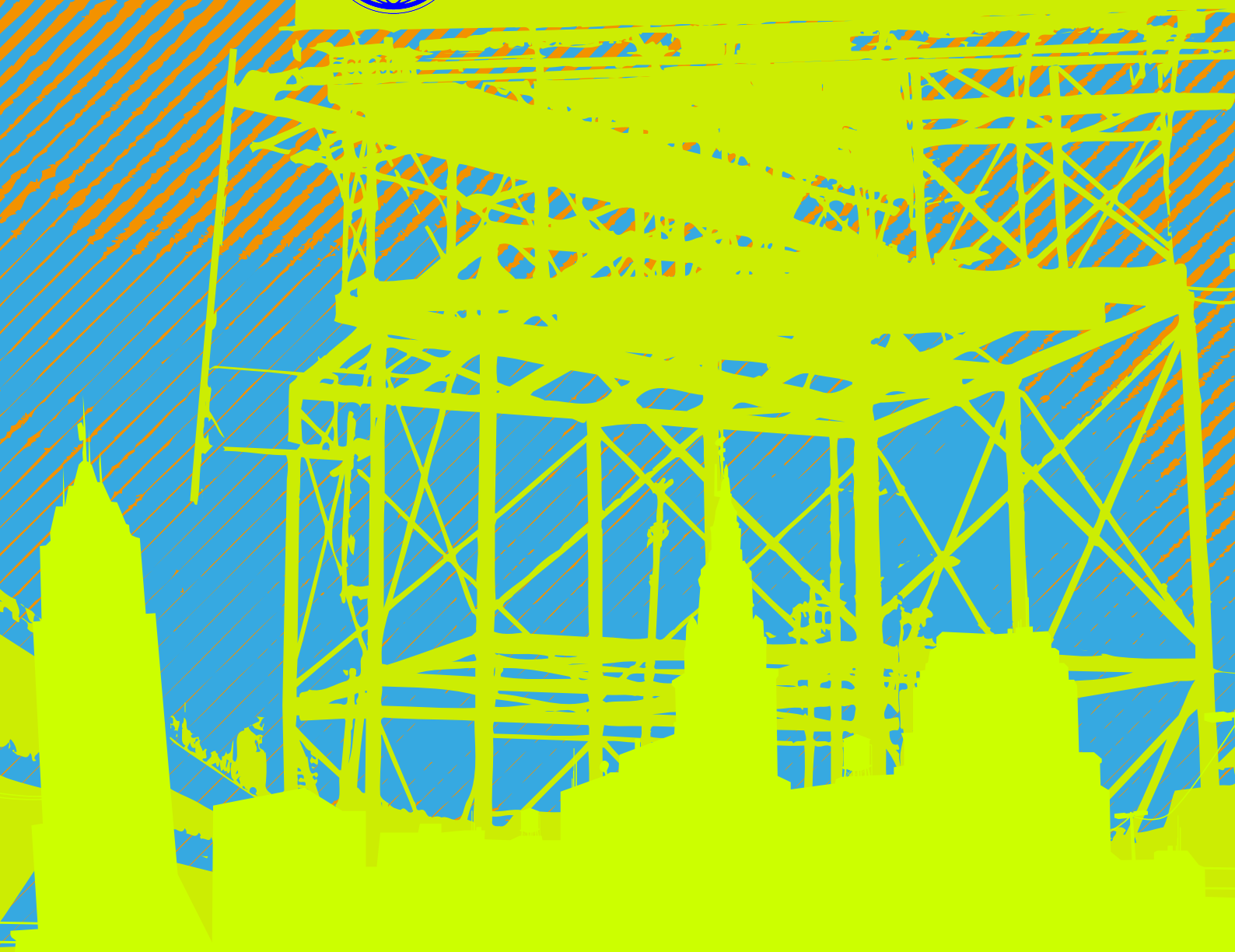


Introduction

As an HFSP program director, I meet young scientists from all over the world who are very passionate about research. Enjoyable scientific discussions often turn towards the question of how and where to find funding to support the next career step. My take home message from these exchanges is that for students and young scientists, it is much more problematic to navigate the wealth of information on funding than actually to write a fellowship proposal. The diversity of organizations and funding programs can quickly become unmanageable and difficult to digest. Over time I felt that it may be helpful to present the manifold aspects in a concise way to serve as a practical guide or handbook for fellowship applications. The concept dates back to a workshop on proposal writing that I taught for PhD students of the EMBL-EICAT in Heidelberg in March 2007 which thereafter was further developed for student courses in Strasbourg, Nice, Göttingen, Glasgow, Braunschweig, Basel and Zürich.

The primer is written for PhD students who have little experience in dealing with funding organizations and who plan on attempting their first fellowship proposal for postdoctoral support. Although I was wearing the hat of HFSP program director while writing this article, I believe that many suggestions are useful beyond the realm of HFSP's activity.

I should alert the reader that this article is not an introduction to grant writing, i.e. it will not be of help to improve your proficiency in English grammar and style. For more tips on writing grants, I recommend "*The art of grantsmanship*" written by former HFSP Grant Director, Jacob Kraicer. Likewise, I will not elaborate on tips and tricks for interview preparation since these are not (yet) part of the HFSP selection process. The main thrust of this text is to offer guidance before true grantsmanship comes into play. The primer presents strategies to identify appropriate funding organizations, offers suggestions on how to approach them and finally discusses practical aspects for organizing the material you will include in your proposal in an optimal way.

First things first

An important question for PhD students is to find the right moment to submit an application: before or after defending the thesis. From a financial point of view your application should be in the mail prior to your thesis defense so as to avoid a funding gap. But if you are too early, it can backfire since you may be considered too inexperienced, for example, when a review panel assesses your peer reviewed publications in international journals. The timing demands a delicate balance of different factors and advice from an experienced mentor is crucial.

A recurring theme is the problem of identifying a suitable host laboratory for which you have to contact a principal investigator (P.I.). To overcome this hurdle, you should take your time and think carefully because this step is "*mission critical*" both from a personal and professional point of view. Therefore it is important that you overcome your anxiety when approaching the world's leader in your field. Rest assured that outstanding postdocs are always welcome.

Finding a host may be trivial for some students because their Ph.D. lab is well connected and throughout the year there is a continuous coming and going of scientific celebrities for sabbatical or seminar visits. Visiting scientists are most definitely a good source of advice and may even be approached to pop the important question of a funded postdoc vacancy. However, there may be situations when the choice of host environment is less obvious e.g. if you want to embark on a new line of research. In this case a more elaborate approach is necessary.

In general, a conversation with your Ph.D. supervisor or any other mentor in your department is an appropriate if not the preferred way to get started. If you are still groping in the dark you can of course feed search engines with scientific keywords that match your research interests. The result will probably be very ambiguous and further study is necessary to narrow down the list. Scientific databases such a PubMed also accept topical keywords for retrieving authors that publish in your area of interest. An internet search on the department could reveal information which is useful in finding possible host laboratories. But beware: University websites or the homepages of scientists (even in leading laboratories) often lack up-to-date information. Scientific websites differ a lot around the world and frustration is preprogrammed when going that path. More standard options to identify host laboratories are suggested below:

- Visit labs, if you have the possibility. Obviously this is difficult if you are living on a shoe string budget but you should consider the cost of a round trip as an investment in your future. The return on your investment may be huge. Volunteer to give a talk whenever and wherever possible. Sometimes there are funds available to cover travel expenses. Many seminar series are eager for volunteer speakers and presenting a departmental seminar can be a great way to boost your CV.

- Consider writing letters to potential host supervisors to ask for an opportunity to meet them or even present a lab seminar. I should stress, though, that it is better to write a few well-crafted letters, specifically prepared for each alternative, than to unleash a mass mailing. Emphasize specific details about how your scientific background and skills can contribute towards addressing a problem under investigation in the host lab. This is much more enticing and promises to capture the host's attention much more effectively than a bland mass mailing.
- If you attend a scientific conference, don't just go there for the free USB sticks! Talk to scientists working in your area of interest after their presentations.
- Use poster exhibits to talk with the authors; during your conversation you may learn about the organizations that provided funding for the work presented on the poster.

It is logistically challenging to maintain the focus on finishing a thesis while simultaneously planning a postdoc project, finding a host, etc. I strongly recommend starting this process early. Especially if you are interested in potential host labs overseas, it is advantageous to combine visits to labs with a trip to a conference. Visits help ensure that the lab is the right place for your postdoc career.

Many factors influence the selection of a host lab. Scientific interests in combination with personal circumstances are usually given priority. As a rule the choice of specific lab is more important than the choice of country. Family affairs however may lead you to narrow the options geographically before deciding on a laboratory. Once you have an agreement with a foreign laboratory, your host is in a better position to advise you on the availability of funding in your new country or institution. Knowing your future affiliation in advance leaves you more time to concentrate on the essentials, for example to discuss a project outline, search for funding and write the proposal. Most definitely, this question should be solved first because it may limit your choice of funding program.

Let's assume that you have found a lab and received a positive email from a renowned authority in your discipline that you are most welcome for a postdoc. Excellent, but now the real work starts because in many, if not all, cases you will find a sentence like *"…I would be happy to host you in my lab but unfortunately I have only money to support your salary for the first 3 months"*. Your search for the honey pot begins but in spite of the bad news there is no reason to agonize over a lost opportunity. Hundreds of your peers have received a similar response so you are in good company.

Navigating the funder's maze

Just as the scientific landscape is changing so are the opportunities for research support. PhD students and postdocs who are trying to find funding opportunities are overwhelmed by the complexity of program structures, particularly when identifying fellowship support for international exchange.

Large scientific conferences with hundreds and sometimes thousands of participants offer the perfect opportunity to talk directly to representatives of funding organizations. But arrive prepared. When representing HFSP at an international conference there is nothing more unedifying than to be asked *"Do you have funding for me?"* Therefore, before leaving for the conference, look up the exhibitors' list and familiarize yourself with the type of program that may suit your needs. At big conferences you may have only a few minutes to talk to a representative. Therefore you must use the short time effectively to ask specific questions, for example concerning eligibility, time line, or budget.

The first proposal is admittedly a big challenge, in particular when considering moving abroad because funding mechanisms and priorities are different depending on country and/or discipline, as are career opportunities and requirements. There are important aspects to consider when searching for funding as they help to structure your approach:

- The type of funding organization and host country may define your status (fellowship recipient vs. employee of a research institution).
- You can opt to compete for a prestigious fellowship or to seek employment on a grant of your host principle investigator (P.I.).
- Consider the different elements in the program portfolios of funders (i.e. continued financial support for return visits, annual fellows' meetings for networking, alumni opportunities, etc.).
- Post-award support for fellowship recipients may differ (annual meetings with fellows, access to research infrastructure, opportunities to publish in society journals, advanced training possibilities, etc.).

At this point it is worth expanding on postdoctoral remuneration. Either you will be paid through an individual fellowship stipend or you will be employed by your research institution, for example through a grant from your P.I. If you are fortunate enough to have earned such a choice, it can often be a difficult one. The current trend is that the classic stipend to the individual is on the verge of disappearance because contractual postdoc employment is becoming the standard. There are pros and cons on each side. While the employee postdoc has the possibility of providing for his retirement, is insured for unemployment and receives other benefits, the stipend-based postdoc has only a living allowance and needs to find adequate insurance

for health care, making it difficult to make savings for later in life. In contrast to the past, postdocs receiving stipends now have to deduct income tax in an increasing number of countries. However (and this is a personal point of view), whenever possible, I would recommend the individual fellowship because it may give you some additional freedom to pursue some of your own research ideas without feeling obligated to follow every experiment proposed by the advisor, or what was demanded by a specific grant. A prestigious fellowship is a first mark of success on your CV. An award from the HFSP, the Irvington Institute, the Damon Runyon Cancer Research Foundation, or the Life Science Research Foundation is an internationally recognized distinction of excellence.

Irrespective of where you are heading scientifically or geographically, you should be aware of some distinct differences between funding sources. Essentially there are two major sources of fellowship support for postdocs: national agencies or research councils (i.e. governmental programs) and private philanthropy via foundations, charities or trusts. These differ enormously in what, when, whom and how long they fund. The following table facilitates a comparison of key aspects.

National Research Agency	Private Foundation
Funding for all disciplines available, hence very diverse portfolio of support schemes (often topical)	Often support specific themes or target a highly specialized group of applicants (e.g. disease related research)
Basic support for R&T in a country/region thus changes to programs and application criteria are less frequent	Program portfolio may be subject to (unannounced) changes (3-5 years)
Potential trade off: universal career scheme with limited flexibility (social science=life science=natural science)	Reputation of focusing on support for outstanding individuals rather than projects
Higher number of awards per discipline/ category	Funding volume is small and targeted
Less flexibility in use of funds (tax payers' money)	Prestigious, hence highly competitive
Financial support, i.e. salaries reflect the domestic/national salary regimes	Stipends may be somewhat higher and allow more flexibility in the use of funds
More likely to offer contractual employment through host institution; hence health insurance and social security benefits included	Traditionally in the form of a stipend that provides a contribution towards the cost of living expenses and limited funds for research expenses; no employment benefits; occasionally health insurance

National agencies provide the basic funds for research and education *"bread & butter"* because they support the scientific community at large. Private foundations are less

well known and reflect "the will of the founder" in setting their program priorities. If the founder is still alive he disposes of some degrees of freedom to change aspects of the foundation's program portfolio. That is why you look sometimes in vain for a funding program which was running a few months previously but which has been put on hold or even discontinued since then.

More recently industrial corporations, most notably pharmaceutical companies, but also business enterprises from other sectors, have begun to support young scientists. Their activities are routed through independent foundations often carrying the name of the company or its founder. In this case, it is helpful to concentrate your search efforts on the web section on Corporate Social Responsibility (CSR) where you will find information about the appropriate entity in charge of the philanthropic operation. Equally, learned societies and professional associations provide limited fellowship opportunities (e.g. IBRO, FEBS). It is generally worth investigating this field because there is quite a bit of money around, but you should structure your search depending on your specialization area because these programs tend to be small and highly selective. A recent article from the New York Academy of Sciences (*"Pockets of plenty – Non-governmental funds for young scientists"*) offers a helpful introduction on this topic.

While governmental R&T budgets may be considered stable, private charities depend on their annual return on investment. The big hitters with endowments into the hundreds of millions of USD are well positioned to maintain a mid-term perspective. However, in times of economic and financial turmoil, nothing can be taken for granted. Programs may be put on hold or suspended, as can be seen in the wake of the recent financial crisis.

Stay tuned and make contact

The challenge when searching for funding is to cope with the overwhelming diversity of funding organizations, foundations or trusts. The density of information off and on the web is high and difficult to penetrate, let alone to find a starting point. A few suggestions for the beginner are listed below.

- Many of the large scientific organizations and learned societies maintain electronic newsletters with regular updates on funding initiatives. If you sign up, the latest information will be delivered right into your inbox.
- Talk with the post-docs around you, either in your own lab, or neighboring labs, who may have advice from their own experiences on what funding sources are available.
- There are useful metasites on the internet to get started such as Nature Jobs, Science Careers, EURAXESS, or the EMBO Life Sciences Mobility Portal (the ANNEX provides a summary listing of programs and websites).
- Nowadays universities and research institutions take pride in having offices for research support. It is part of their responsibility to disseminate information on funding opportunities. A catalogue of funding sources may be available on request.
- Browsing through job listings could be a useful source of information (other than looking for a vacant position) and should become routine for you. Even if a particular job may not be along your lines, it could be that the organization or the institute mentioned in the article provides additional opportunities closer to your interests. If there is a URL indicated, I strongly recommend looking it up.
- Should you attend a conference, take the time to walk with your eyes open through the exhibition area. Many funding organizations and private philanthropies use large academic meetings to present their programs.
- Participate in career fairs or information events on your campus. In several countries these events have become a routine service sometimes attracting dozens of representatives from funding organizations.
- Follow the news section in major scientific journals. The upfront material often highlights the opening of a new university wing or short news items about new initiatives by organizations or governments. They are a good source to get started. Try to find their websites and follow up regularly.
- Read through the science section of major newspapers to spot upcoming events (such as career days) or screen the headlines for endowments made to universities in the region. New money brings new opportunities, also for young scientists.

I recommend starting your search efforts very early because keeping abreast of the funding landscape is time consuming. Anything you find can serve as a lead and your efforts may pay off in the long run. As a rule, it is true to say that new research infrastructures need new faculty and new faculty needs new postdocs. If you come across the name of a foundation you have never heard of – 'Google' it. Keep the link in your bookmark folder and revisit the site to stay informed about their funding programs.

As you read through websites and keep collecting bookmarks, you should begin to see the big picture of the main funders of research in your discipline or region. Take the time to:

- Draw up a list of primary funders in your field
- Compare the funding pipeline of organizations with respect to the timing of parallel applications, accepting awards from more than one funder, or specific eligibility criteria, etc.
- Try to get in touch with previous or recent fellows of different programs. Many funders publish the award winners on their websites. This may be helpful in finding awardees in your immediate academic surroundings.
- Make a "*cost-benefit analysis*" of different programs – this would be particularly important if you already have family (Does the fellowship provide family support?, What is the duration of fellowship?, What about travel expenses, moving expenses, parental leave, child support, etc?). Knowing how much you will be paid early may spare you an unpleasant surprise once you receive your first paycheck.

Staying on the surface, however, will not in itself lead anywhere. Over time you have to dig deeper and read the small print because no two funders are alike. Become an expert in the general philosophy or scientific scope of funders that rank at the top of your list. Collect all the relevant information about the fellowship program that you intend to apply for and study the application guidelines to make sure that you are formally eligible. Formal eligibility, although obvious, is worth emphasizing because my experience shows that year after year applications fail on at least one formal criterion. If you have even the slightest doubt concerning a particular condition in the application guidelines, write to the appropriate program officer to receive a written confirmation that you are eligible to enter the competition. Should the application forms offer a field for additional comments, you should mention the fact that you were granted an exception to participate in the competition (if this is the case).

Writing to a funding organization seems to be the next hurdle to be overcome and rumor has it that country-specific styles exist. The text box gives an example of one such inquiry.

A suggestion on how to structure your message to a funder

State your interest: *"I intend to apply for your fellowship/grant program..."*

Explain your situation/problem: *"My situation is ...."* (Beyond age limit, missing/waiting for a publication acceptance, etc.)

Quote the guidelines for reference: *"After carefully reading the fellowship application guidelines, I came across the following paragraph…[quote]..."*

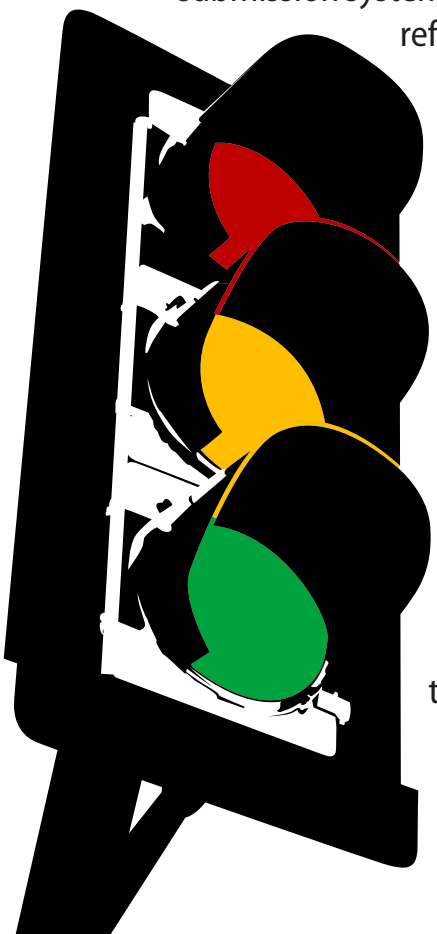
Ask for information or an exception to the rule: *"I am afraid that due to my situation outlined above I am in conflict with this rule/criterion and would like to inquire if under certain circumstances an exception can be made ...."*

A very useful exercise when researching funding organizations is to read through the abstracts or project descriptions of funded fellowship projects from previous years (if available). This helps to understand the scientific scope and breadth of what is funded by a particular organization. If you have the opportunity, it may be useful to talk to previous award recipients to hear about their experience. This is in particular interesting if you will be interviewed. But be careful, philosophies may change and a recipient from a previous year may not be fully informed about recent changes in the program. Be careful with a proposal that was funded previously because priorities might have changed in the mean time. Use it for inspiration, but no more than that!

Timing is everything

In times when funding for research is tight, the option of parallel applications to several funding programs becomes standard practice. Competition is fierce and success rates are low. If you intend to tap funding from multiple resources try to remain in a position to choose. This is easier said than done and needs careful planning. A classical combination for postdocs in the life sciences is to apply first for an EMBO Long-Term Fellowship followed by an application for a HFSP Long-Term Fellowship. This is possible because EMBO maintains two deadlines per year and if the application for the Spring deadline is rejected, there is still time to apply for HFSP support in early September. Again, this requires a lot of reading and comparing of different programs prior to actually writing the proposal. Another combination could be to apply for a Marie-Curie International Outgoing Fellowship followed by the HFSP fellowship. A limited number of programs also permit fellows to combine awards from more than one funder and "work them off" sequentially (e.g. EMBO – Marie-Curie). However, combining several awards is not always accepted and you should seek approval from the respective funding organization(s). Never assume anything in this regard.

It goes without saying that you need scientists at your disposal who are willing to provide you with a stellar reference letter. For HFSP applications, you have to name two referees in addition to your host P.I. for a total of three reference letters accompanying your application. There is probably little an applicant can do to influence the reference letter as this is a matter of personal style and point of view. But you should make sure that the scientists who contribute reference letters are informed about the submission procedure (for example as attachment to an email or via an online submission system), the information required and the deadline. The selection of your referees is a crucial step for the reference letter can make or break a proposal or a career. Therefore you should not ask for a letter from someone if you even have the slightest inkling that he or she may not be 100% supportive.



During the period when you are actually writing the proposal, there are a couple of important things to keep an eye on. Naturally, the proposal will be foremost in your mind. Nevertheless I have seen dreams go up in smoke. The following recommendations should therefore not be dismissed as too banal.

First and foremost, the minute you have registered for online access to a funding program (which now is general practice), you should remain vigilant of your email traffic and be careful with your junk mail settings! Keep monitoring your correspondence regularly to respond to unexpected inquiries or questions from the program office. Not all organizations may be pro-active and

alert you if an important piece of information is missing (certainly HFSP does). If a message arrives unexpectedly, you want to make sure that the program officer receives the answer right away. The examples quoted above emphasize that an even higher degree of vigilance should be maintained as far as reference letters are concerned. If the online submission system includes an alert system as is the case for HFSP fellowships, you will receive a confirmation message when a recommendation letter has been submitted. Such a comfortable system nevertheless does not release you from the responsibility of making sure that the recommendation letters arrive in due time.

Timing is truly everything when instructing your referees.

"I am afraid Prof. XX is unable to prepare a letter of recommendation for you due to a backlog of commitments at this time. Please accept his apologies on this occasion."

[Email from the institute's secretary to the applicant two days prior to submission deadline]

"I am out of the country from Monday 21st August to Friday 8th September and will only be in intermittent e-mail contact. For urgent enquiries please contact my personal assistant via email. She may also be away for part of this time. If so please contact our departmental secretary via email."

[Automated reply from a reference person to an applicant two days before deadline on 6th September]

"The referees are generally late. Therefore does [the] HFSP web site have any provision to remind them before a week of the deadline and prompt them to fill up the application for the candidate?"

[Comment in the feedback section of an application]

A remark on email accounts. Not everybody may have access to an institutional email account with nearly unlimited hard disc memory. If you are using a private account, you must make sure that you dispose of enough disc memory to store all incoming messages. Equally important, never put all your eggs in one basket but save copies on a university or institutional server which has a daily back-up. Even better, work from your institutional user account because in this way you don't have to worry about losing your latest version (see box below)

The proposal

Avoid gaps in your record. Fellowship applications contain a CV section which is more or less similar across the board. Therefore have your CV ready in an up-to-date version at all times. Avoid gaps because they will lead to unexpected emails from program officers asking you to complete your application. Ask someone to look over your CV for blatant, embarrassing errors or typos. What applies to your CV is also valid for your list of publications and conference contributions. I recommend keeping unformatted versions of each item in a separate file. This allows you to make editorial modifications as necessary and facilitates the transfer of individual sections into online forms.

Write your own proposal. When working on your proposal text, there is one rule that you should always keep in mind: there are limits to how often "copy & paste" works. As an incoming postdoc, your proposal is naturally embedded within the general thrust of research in your host laboratory. There is a great temptation to rely entirely on the grant application of your host P.I. Such perfectly written proposals are easily spotted by reviewers because the style and wording may not sound like a fellowship application. Copying text from a grant application may come back to haunt you when applying for a program that interviews candidates. The panel will question you to find out whether or not you have 'read around' the subject of your research. Further recommendations are:

- When writing in English, simple language and style can be very convincing. At HFSP, we receive fellowship applications from about 30-40 different nationalities each year. While, we and our reviewers. are aware that nobody is perfect, you should still solicit outside readers to help clean things up whenever possible.
- Most funding programs have online submission systems in place, thus eliminating the need to think in front of the monitor while logged in (and in doing so block expensive bandwidth that prohibits other applicants from connecting to the online interface).
- Tailor your proposal according to the specific objectives of the program. For example, you waste your time and ours if you send a fellowship application to HFSP seeking support for a clinical study.
- If available, use FAQ sheets for guidance because often they convey advice from previous rounds.
- Working towards deadlines: set yourself a date one week prior to the official submission deadline to finish the proposal. In this way you gain a full week to deal with unpleasant surprises such as missing reference letters and harsh comments from your friends who proof read the text.

- Do not submit a proposal that has not been proofread by a friend or colleague. This is very helpful, considering that scientists from many different fields sit on review panels.

The 1000 character challenge. While writing a successful proposal requires a high degree of grantsmanship, getting the research abstract right is also a fine art because space is very limited. Scientific abstracts are very important because initially your fellowship application is reviewed by experts in the field but later, committee members from different fields decide about funding in a plenary meeting. These short sections of your application constitute a very important source of information for high level scientific panels. In many programs not all reviewers are asked to read all proposals in the first round of evaluation. Therefore the abstract is read diagonally by the reviewers during the panel discussions when award decisions are made.

What I wrote above in relation to scientific abstracts is also true for all kinds of personal accounts that are sometimes required for a fellowship application. Reviewers not only evaluate your scientific achievements and potential, they also have a keen interest in knowing at least a little about the person. Programs, such as the HFSP fellowship program, that waive the interview tend to ask for a personal statement so that reviewers can get some impression of the professional horizon of a candidate. In this context it may be interesting for a reviewer to browse your website (should you maintain one) so as to learn what kind of other activities you carry out. Thus, if applicable, refer to your website, or else mention the URL in a field for additional comments. For an HFSP fellowship application, four different abstract sections have to be prepared (full details available in the application instructions):

1. *Abstract of research plan* (max. 1,700 characters including spaces and punctuation) to summarize the proposed research project.
2. *Summary of previous research* (max. 1,700 characters) in which applicants have to summarize the research carried out immediately prior to submitting the fellowship application.
3. *Achievements and research goals* (max. 5,000 characters): applicants have to describe what they consider to be their most important research findings.
4. *Intellectual contribution to the proposal and change in research direction* (max. 1,000 characters): in this section applicants must comment on the originality and on their intellectual contribution to the study (whose idea was this project originally?) and describe the nature and degree of change in research direction (e.g. new techniques, change in study species/system).

The risks associated with the recycling of existing texts were mentioned already. However, there are proposal sections that are required from all funding organizations in one form or another. A summary of your Ph.D. thesis is one such item that can be prepared in advance and kept on record. Similarly, you should prepare an

abstract of your proposed research or modified versions of the proposal should you intend to apply for multiple programs.

As explained above, fellowship reviewers read the individual sections of applications at different stages of the selection process. Understandably your need for fellowship support puts you under pressure to succeed. Reviewers are well aware that all candidates need financial support. But no matter how desperate your situation is, you should refrain from sharing your personal family situation in exchange for an award-winning scientific abstract. The example below is typical of what not to write because it is not helpful for the reviewers when evaluating the scientific originality of your proposal. Instead of providing a convincing account of your scientific credentials and demonstrating your scientific originality, you alienate the entire committee with a single paragraph.

> "In recent years, [my country] has experienced an increase in funding levels and in the number of investigators in the biological sciences. As a member of this community, I have felt this improvement and this has had a major positive impact in my motivation to pursue a career in science. Having recently concluded my PhD, I am sure that to further develop my career I should now pursue post-doctoral training in a country with a more developed science. However, it is still difficult to obtain good fellowships from [my country's] agencies to work abroad. The sources are few and stipends offered are not compatible with [cost of living elsewhere]. This is especially important in my case. My wife will have to take an unpaid leave of absence from her work for the period we will be out of country. In addition, and most importantly, happily our first baby is coming! Therefore, we will need a stipend sufficient to cover the living expenses of our family. In this regard, the additional family/child allowances offered by HFSP would be a great help to enable my dream of doing a post-doc abroad…."

What makes a successful fellowship application? There are many ways how to pitch a fellowship proposal, but the final decision for or against a particular strategy should be guided by the scientific scope of the program you apply for. If you apply for support from an organization that targets a specific subject (e.g. disease), the main thrust of your research proposal should develop around that theme. At the fellowship stage, applicants are overwhelmingly driven to save the world by alleviating a medical condition, to solve a technical problem or develop break-through methods to observe a particular process. In the case of HFSP programs, which only support basic research, it is important to stress the fundamental biological questions approached. National and international funding agencies increasingly require applicants to comment on the social relevance of projects (e.g. 'European added value') and the scientific community has been conditioned to emphasize practical implications of research projects ("Milestones & Deliverables"). When applying for HFSP funding, you should overcome this reflex and go straight for the scientific jugular! The reviewers don't have to be told about the devastation caused by Alzheimer's disease or Malaria. They will assess applications in the light of how important they are for

understanding basic processes such as mechanisms of protein folding/misfolding or host-parasite co-evolution and they will look for indications of the originality of your approach.

In writing your proposal, you are poised to show that you have successfully completed your previous research project as indicated by seminal contributions to internationally peer-reviewed journals. Likewise you want to show that you are interested in adding new components to your existing portfolio of skills. This is particularly relevant when applying for HFSP fellowship funding. Thus a successful proposal:

- Is an original study that marks a departure from your previous work. This does not mean that you cannot build on previous knowledge and experience. On the contrary, you should emphasize what your previous skills will bring to the field and your new biological question.
- Exposes you to new theory (literature) and methodology.
- Contains new elements such as learning new techniques that open a new approach to the research question even if risky (taking on a risky project does not apply to all funders – it certainly does to HFSP!).
- Is deemed to make a major contribution to the research field.

There are of course plenty of reasons other than formal criteria why a proposal fails. Competition is tight and funding organizations place a strong emphasis on supporting original applications. In the case of HFSP fellowships, a poor choice of project can lead to rejection because:

- It is considered "*standard*" despite a high level of sophistication (e.g. applying high throughput technology that is not connected to a research question; a so-called 'fishing exercise')
- It merely represents a continuation of the PhD project (lack of new research components)
- It was given to the applicant by the host P.I. (lack of originality on the part of the applicant)
- It is part of a larger consortium (EC type network), making it difficult to appraise the candidate's individual contribution
- The candidate's contribution is not considered to be intellectually challenging.

Not all the do's and don'ts quoted above are equally relevant for all funding organizations. A thorough understanding of the organization's philosophy and the specific application guidelines will shed some light on what is asked for. Neither should the list above detain you from accepting an invitation from a P.I. to join a project that is funded through a large network grant. The important point is to highlight your individual contribution in your fellowship proposal. Working in an international network can be very rewarding and beneficial (as is the author's personal experience).

Conclusions

Of course, there is a lot on your mind while in proposal mode. The aim of this fellowship primer is to help you to get organized to rise to the proposal challenge. For the beginner, it is important to start collecting information early and to devise a plan based on scientific interests, personal needs and any aspect required by the application guidelines. Pay special attention when communicating with funding organizations or prospective host supervisors for the first time. Act professionally and write to the point. Following the advice of this primer does not guarantee success. It should however prevent you from unexpected surprises as you embark on the most rewarding and enjoyable stage of your academic career – the postdoc.

Further Reading

- The Art of Grantsmanship. Jacob Kraicer (former HFSP Grant Director); available for download at *www.hfsp.org*.
- Websites and searching for collaborators. HFSP Grant Director Geoff Richards; available for download at *www.hfsp.org*.
- The Art of writing proposals: Some candid suggestions for applicants to Social Science Research Council competitions. Adam Przeworski and Frank Salomon; available at *http://fellowships.ssrc.org/*.
- Writing a research proposal for a B.I.F. PhD fellowship. U. Benjamin Kaupp; available at *www.bifonds.de*.
- Pockets of Plenty. Non-government funds for young scientists. Leslie Knowlton. Science Alliance Career Article, the New York Academy of Sciences, March 2008.
- Globe Trotting. Mapping international career opportunities for postdocs. Mrudula Donepudi. Science Alliance Career Article, the New York Academy of Sciences, January 2007.
- The right fit. *Nature*, Vol. 467, 2 September 2010.
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- For love and money. *Nature*, Vol. 465, 24 June 2010.
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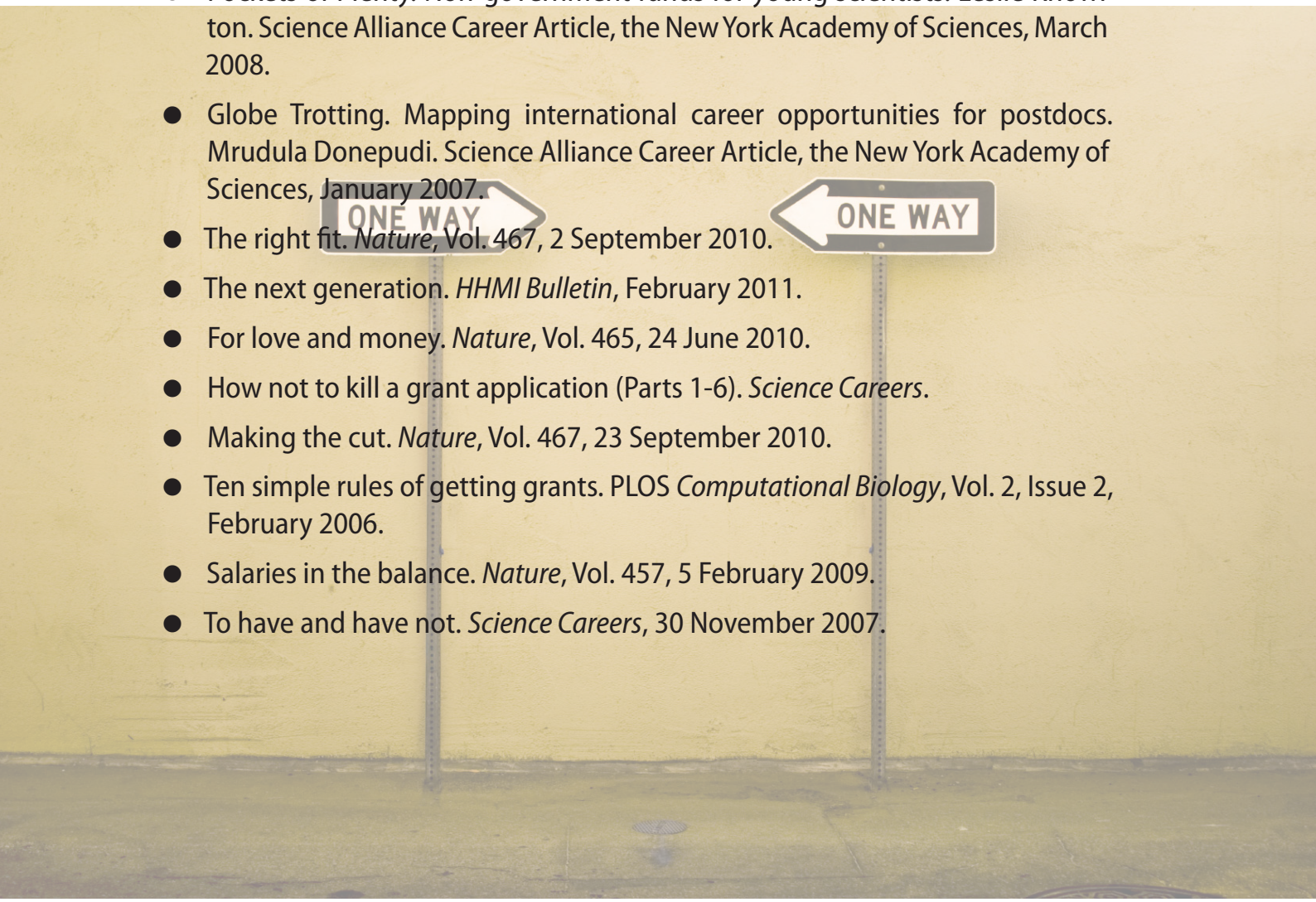

ANNEX

Places to start searching for fellowships on the WWW

Major hubs with link collections, search engines or fellowship listings

- National agencies of the host country (DFG, NIH, NSF, BBSRC, MRC,…)
- Institute of International Education (IIE, Washington)
- German Academic Exchange Service (DAAD)
- French Agency for International Mobility (EGIDE)
- Academic Cooperation Association (ACA): Study in Europe
- Association of Commonwealth Universities (ACU)
- Higher Education Resource Hub, USA
- The European Foundation Center, Belgium
- The Council on Foundations, USA
- Association of German Foundations (Bundesverband Deut. Stiftungen)
- Bildungsstiftungen, Germany
- The Japan Foundation Center
- UNESCO fellowships (managed through National Commission of individual member countries)
- Foundations On-line (focus USA, California)
- EMBO Life Science Mobility Portal
- EURAXESS Researchers in Motion

Specific sites of funding organizations or foundations

- *Professional societies*: IBRO, FEBS, GDCh, etc.
- *Foundations supporting bilateral exchange*: Anglo-German Foundation, Asia-Europe Foundation, the Giovanni Armenise-Harvard Foundation, The American-Scandinavian Foundation, The German-Israeli Foundation for Scientific Research & Development, The Matsumae International Foundation,...
- *Philanthropic foundations*: Alexander von Humboldt Foundation, Gatsby Charitable Foundation, Ford Foundation, La Fondation Bettencourt Schueller, The Soros Foundation Network, Oak Foundation, Mava Foundation for Nature,…

- *Foundations of large enterprises & businesses*: Daimler-Benz Foundation, Ford Foundation, Canon Foundation in Europe, Deutsche Bank Foundation,...
- *Foundations that focus on biomedical research and/or certain diseases*: FRAXA Research Foundation, Fragile X Research Foundation of Canada, The Ellison Medical Foundation, Damon Runyon Cancer Research Foundation, The Wellcome Trust, The Burroughs Wellcome Fund, The Dana Foundation, American Foundation for AIDS research (amfAR), Kay Kendall Leukaemia Fund, Michael Smith Foundation for Health Research, Lundbeck Foundation, Sigrid Juselius Foundation, Irvington Institute Fellowship Program,…
- *Foundations/organizations supporting research in the life sciences*: The Life Sciences Research Foundation; EMBO, HFSPO, EU Framework Program, Newton International Fellowships, Camille & Henry Dreyfus Foundation, Wenner-Gren Foundation,...

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