

Creative Responses to the Current Funding Climate

Do you wake up in a cold sweat thinking, “How will I fund my exciting research program? What if my grant doesn’t get funded on the first round?” This anxiety is shared by most of your colleagues in 2012. We also share a sense of frustration because cutting-edge ideas and techniques mean that the potential for significant research has never been better, if only the funds were available.

The WICB Mentoring Theater presentation at the 2011 ASCB Annual Meeting dealt with how to get and stretch funds.¹ And it was not surprising that the “actors” in these skits, all well-funded full professors, could easily and realistically portray the anxiety we all feel. The creative thinking of those experienced and long-successful cell biologists provides suggestions for how to identify new funding sources and how to further stretch the grant dollars you have.

Finding New Grant Support

You may already have been successful in your pursuit of National Institutes of Health (NIH) or National Science Foundation (NSF) funding on your research topic, but you fear that this may not continue. Here are a few strategies to consider, most of which will also be useful for those who are not yet funded.

First, contact the appropriate NIH program officer to discuss new ideas that you are developing. He or she can tell you if your plans fit that Institute’s funding priorities or those of a different Institute. Checking in at www.grants.gov might uncover other suitable opportunities.

Second, consider pursuing a collaborative, multidisciplinary, or multi-investigator grant. Support of such grants is a major new emphasis of many funding agencies. For example, cell biologists can apply for a recently announced R01 collaborative supplement (announcement GM13-003). But be aware that collaborative grants that involve multiple institutions can be particularly complicated, and this complexity needs to be managed with appropriate advanced planning. For example, it is critical to identify who will be the PI and the submitting institution. You will also need a clear leadership plan, and should identify a mediator to settle any disputes. Two particularly important fiscal

points are: 1) to account for caps on total award costs as well as annual increases in salaries and expenses, plan the budget by working backward from the final year to the first year; 2) begin formulating the budget and working with your grants offices at least six weeks before the application deadline, because there can be many details to negotiate.

NSF also funds collaborative proposals. These grants are particularly attractive because the NSF makes the awards directly to each participating institution. Since indirect costs are deducted from the total award amount of NSF grants, having a direct award, as opposed to a sub-award, will result in a larger piece of the pie going to your institution.

Third, think outside the conventional NIH R01/NSF box. For example, NSF has a new program called Emerging Frontiers in Research and Innovation, and the Defense Advanced Research Projects Agency offers collaborative grants for engineers working on research with cell biologists. There are other unconventional sources that are more focused on funding new investigators. These include the American Heart Association, The American Chemical Society, and the American Society for Nephrology. Especially for new investigators, getting mentors and colleagues involved in reading and criticizing your grant application can increase your chances of success.

For collaborative grants you need to find collaborators. One way is to participate in low-time-commitment activities that expand your professional networks, such as serving on your departmental seminar committee. Take advantage of the opportunity to give seminars and work-in-progress presentations to other group or departments in your institution. Inquire about serving as an ad hoc member of a review panel to see how the process works from the inside.

A fourth strategy to find new funding is to remember that you are not the only grant writer in your lab: Encourage your graduate students, postdocs, and research associates to apply for their own funding. This not only teaches them grantsmanship but also helps to bring in some of the lab’s funding. It is a win-win for the lab



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and the trainee, and also gives you experience with mentoring.

Finally, try to get more money from your current grant support. See if you can negotiate with your chair or dean to receive financial credit from some of the indirect costs associated with your grant. This option is not available at all institutions, but it is worthwhile to check.

The other approach to relieving funding stress is to learn to do more with less. You have a grant, but how are other labs able to economize and do more with existing funds? Explore ways to save on reagents and equipment.

Reagents

Many labs save money with centralized storage sites for lab resources and also have centralized record-keeping. For example, they may have a single freezer to house common reagents used by the whole lab, e.g., restriction enzymes, polymerases, and antibodies. This approach requires a mechanism to ensure that the freezer is consistently well-stocked, which can be facilitated by using a single, lab-wide ordering list. A single ordering list helps prevent wasteful duplication of reagents and allows placement of fewer but larger orders. A corollary requirement for centralized resources to work well is to establish a culture in which everyone is responsible for smooth operation of the lab; lab members need to remember to add things to the ordering list before they run out.

If one person is responsible for ordering supplies, he or she can learn the cheapest sources and the lowest shipping costs (sometimes the shipping cost can exceed the cost of a reagent!). Also consider placing orders through a university supply store; shipping costs are often covered by the store or vendor.

Centralized storage works best when reagents are stored in numbered compartments (e.g., Stratacoolers or similar constant temperature devices) with regularly updated alphabetical lists of the contents located near the freezer. Finally, to make it easy to use the reagents at the freezer, construct a small work area nearby, with micropipettes, pipette tips, etc.

Another idea for saving on the cost of reagents is to purify some of your own enzymes or other reagents. This not only can save money, it can also improve your results, because in some cases the quality of the homemade reagent exceeds that of a purchased one. If you do purchase an expensive reagent, such as an antibody, and find it doesn't perform as expected, request a refund or credit. Finally, an email to all researchers at your institution may

secure that small amount of a reagent you need for a pilot study.

Equipment

We all need equipment to do our experiments, but service contracts to keep our equipment operational can be quite costly, and replacement is even more expensive. For maintenance of equipment, consider using local repair services. It can be much greener (environmentally) and lets you keep more of your green (cash).

Speaking of being environmentally conscious, consider reusing "consumables." For example, purchase glass serological pipettes, rather than disposable plastic pipettes. The glass pipettes can be washed and reused, saving money while decreasing the amount of plastic in the environment.

Additionally, you should consider using shared research facilities at your own or a neighboring institution for a fee rather than purchasing an expensive piece of equipment that is used only part-time by your lab. Supporting such facilities frees up your own resources and also contributes to your institution's ability to provide access to cutting-edge instrumentation to many investigators. If you do need expensive equipment, consider purchasing demo units and/or sharing the costs with another lab that may be in the market for a similar unit. Many manufacturers offer "new equipment" warranties on items that have been used for demonstration purposes.

In the end, the best advice in today's difficult funding climate is be tenacious and do not take "no" for an answer in your pursuit of funds. Even if your first attempt to get a grant funded fails, you will receive feedback that will help improve your chances in the future. It is important to remember that doing science not only produces valuable knowledge for society, but it is one of the most fun jobs in the world. Just remember to persevere, keep up your spirits (and obtain valuable knowledge and advice) through networking, and spend your funds wisely; exciting discoveries await (and maybe a couple of restful nights!). ■

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Reference

¹Wendland B, Hendrickson T (2012). Mentoring Theater. *ASCB Newsletter* 35(1), 52.

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