

Making the Right Moves

A Practical Guide to Scientific Management for Postdocs and New Faculty

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Chapter 12

SETTING UP COLLABORATIONS

Twenty-first century science is often a collaborative effort. As a beginning investigator, you may want or need to work with scientists in other labs who can offer resources or technical expertise to complement your own. Because a scientific collaboration is a complex exchange, you will need to sharpen your managerial and political skills to be a successful collaborator. This chapter summarizes some of the questions you should ask yourself before embarking on a collaborative project and provides some guidelines to help ensure that the project and your interactions with colleagues proceed smoothly.

THE VARIETIES OF COLLABORATION

Collaborators are researchers who share an interest in the outcome of a project, not service providers or customers. Sharing reagents or materials described in a publication does not in itself constitute a collaboration; scientists are expected to make published materials available to others. Similarly, a service rendered by a scientist in a core service facility within his or her own institution is usually not considered a collaboration. The core service facility exists to perform specific tasks for other laboratories.

Collaborations can vary greatly in scope, duration, and degree of formality. A limited collaboration might entail only a series of consultations about a technique or the provision of samples to be tested. At the other extreme, several scientists or laboratories might join together to establish a permanent consortium or center for the pursuit of a particular line of research. Depending on its complexity, a collaboration can be launched by an informal agreement that is sealed with a handshake or an e-mail or by a legally binding document.

SHOULD YOU COLLABORATE?

Collaboration is a major responsibility—one that is not to be entered into lightly. It will take time, effort, and the nurturing of relationships. Before you start a collaboration, you should know for sure that you can see it through. The larger the collaboration, the more complicated fulfilling your obligations may be. Be sure that you are ready to collaborate and that a given opportunity is right for you. Once you've signed on, you will be expected to follow through on your commitments, and your scientific reputation will be at stake.

Assessing a Collaborative Opportunity

Regardless of whether you are approached by another scientist to collaborate or you are thinking of approaching someone to collaborate with you, here are some questions you should ask yourself before embarking on the project:

- ◆ Do I need this collaboration in order to move my own work forward? Is there a missing piece—a technique or resource—that I must have?
- ◆ Even if collaboration is not strictly necessary to my current work, will interacting with the proposed collaborators enable me to contribute something significant to science?
- ◆ Do I really have the expertise or other resources that are sought by the other collaborator?
- ◆ Can this collaboration be conducted efficiently, given such factors as distance, restrictions imposed by my institution, and, in the case of international collaborations, cultural differences or legal and political complications?
- ◆ Is there funding for the work envisioned? If not, can it be obtained?
- ◆ Can I afford the time? How much will it take away from my other responsibilities? Is the project close enough to my central interests to warrant the necessary time expenditure?
- ◆ Is this person someone with whom I want to collaborate? What is his or her track record? Can someone I trust tell me whether this potential collaborator is honest and reliable?
- ◆ Are our professional and scientific interests compatible? Does what each of us has to gain or lose by collaborating seem comparable?
- ◆ Will this person be accessible to me and consistently interested in the project? (There is no point in collaborating if interaction will be difficult. An investigator at a small lab may be a better match than the director of a large operation because a more established scientist is likely to be busier and less in need of the collaboration.)

Question: If I am not interested in a collaborative project with my department chair or someone else who can influence my tenure appointment, how do I decline politely?

Answer: Explain to your chair that you don't have the resources at the moment to enter a collaborative project or that it would not be beneficial to your grad student, who needs to work on a project that is all his or her own. Offer instead to provide input and suggestions into the research and, if possible, suggest other people with similar expertise who may be good collaborators.

- ◆ In a larger group, will there be a reliable “point person” who is responsible for handling day-to-day issues and small matters?
- ◆ What exactly is being asked of me? (For example, if someone simply wants your technical expertise or the opportunity to run his or her experiments on your equipment, he or she may not consider you a collaborator at all. The essential ingredient of collaboration is mutual interest in the research outcome. If you have this interest, but the other party assumes that you do not, you may not be treated as a collaborator. This may be acceptable, as long as you understand what you are getting into.)
- ◆ Can I rule out potential conflicts, either personal or institutional? (For example, you do not want to collaborate with a competitor of your department chair or someone with whom your chair is already collaborating.)

Before making a decision about a collaboration, consider all factors. A good collaboration can take your research in a completely unexpected course; a bad one can siphon off energy and demoralize you.

SETTING UP A COLLABORATION

Someone may eventually ask you to collaborate, but if you are a beginning investigator, it is more likely that you will need to approach a potential collaborator yourself. A collaboration, like many relationships, has no fixed rules; however, there are some guidelines you can follow to ensure that the collaboration starts off on the right foot and proceeds smoothly (also see box “Personal Qualities of a Good Collaborator,” page 207).

Approaching a Potential Collaborator

Once you have identified a potential collaborator and decided that you want to go forward, develop an outline of your proposal for the joint project. Define in detail how you think each of you can complement the other's efforts.

Send an e-mail. Make your initial contact with an inquiry designed to whet the other person's appetite. Send a short e-mail describing your research in general terms and asking for the opportunity for a conversation. Do not call on the telephone first—you do not want to put the person on the spot, and you do want to give him or her a chance to find out more about you through personal contacts or your scientific publications.

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In your initial e-mail, say up front that you are interested in a collaboration. Don't pretend to be asking for expert advice.

—Tom Misteli, National Cancer Institute

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In your e-mail, focus on the big picture and on conveying your enthusiasm. You must convince your potential collaborator of the following:

- ◆ You have the expertise you claim.
- ◆ You believe that he or she is the best-possible collaborator for the project at hand.
- ◆ Both of you stand to benefit.
- ◆ The whole is indeed greater than the sum of the parts.

Be informed. To make your pitch effective, you need to be familiar with your potential collaborator's work. Be sure to read the lab's published papers. You will also need to have a clear idea of what you want to do and of the respective role each of you will play.

Your e-mail should lead to telephone conversations. After that, a trip to your collaborator's lab for a face-to-face meeting is often worthwhile.

The Collaboration Agreement

Using an informal agreement. An exchange of e-mails is usually sufficient to get a project under way. Before you actually start the work, however, it's best to develop and agree on a detailed written summary of your joint research plan. The plan should spell out the following:

- ◆ The purpose of the collaboration
- ◆ The scope of work
- ◆ The expected contribution of each collaborator
- ◆ Financial responsibilities of each collaborator
- ◆ Milestones
- ◆ Reporting obligations
- ◆ Expectations about authorship

An explicit plan offers several advantages. It prevents misunderstandings, and it helps keep the project on track. Furthermore, if you expect to apply for funding for the project, this information can function as a grant proposal. In a collaboration between two academic labs, the collaboration agreement can simply be e-mailed

back and forth until both parties are satisfied; obtaining signatures could seem overly formal, but it is very important that you conclude these negotiations and reach a clear agreement.

Using a formal agreement. A formal, legally binding written agreement is probably necessary if the collaboration involves a commercial entity such as a pharmaceutical company or a commercial application in which a patent is an expected outcome. You and your collaborator will want to consult with appropriate offices at your respective institutions to help you draft this agreement. This will typically be the technology transfer office or the grants and contracts office; their staff may also arrange for legal review by the institution's attorneys. Make sure to spell out the time period of the collaboration or provide a mechanism by which you can terminate your involvement.

Be aware that if your academic collaborator has financial support from a company for his or her share of the work, the funding agreement may contain restrictions that apply to the collaborative project. For example, the company may have the right to delay publication and to license the results of the collaboration. If the collaboration is an important one for your laboratory, be sure to ask in advance whether your collaborator will use company funding for his or her work on your joint project. If so, you can ask your institution's technology transfer office to help you determine whether there are restrictions that apply to your share of the work. It may be possible to negotiate an agreement that limits the effect your collaborator's funding arrangements have on you. (See chapter 11, "Understanding Technology Transfer," for more information about company-sponsored research.)

THE INGREDIENTS OF A SUCCESSFUL COLLABORATION

Once your agreement is in place and your expectations of one another are clear, you and your collaborator can focus on keeping your lines of communication open and maintaining attitudes of mutual consideration and respect.

Keeping the Lines of Communication Open

An open, trusting relationship is essential if you want to be able to discuss problems candidly and to give and receive critical feedback. In a good collaboration, participants stay in close touch and are accessible to one another. Make it a practice to return your collaborator's calls right away. Make fulfilling your promises to collaborators a significant priority. Don't postpone collaborative commitment for local urgencies that may not have significant impact on your career and scientific reputation.

Meetings. Set up systems to ensure that regular communication takes place. A fixed schedule of face-to-face meetings or conference calls is a must. Also consider setting up occasional videoconferences if your institution and your collaborator's have such facilities. No matter what type of meeting you choose, send out agendas by e-mail, take notes during the discussions, and send out e-mail summaries of the meetings. Include in the summaries "action items" for each collaborator.

Keeping up. Once the project is under way, stay with it. Do not be the “rate-limiting step” that holds things up. When unavoidable conflicts emerge and you can’t meet a deadline, let that fact be known right away, so that the deadline can be reset.

Dealing with Authorship and Intellectual Property Issues

Expectations for authorship. Because credit for your work, expressed as authorship of publications, is crucial to your scientific career, you need to pay attention to how credit will be distributed in a collaboration. It’s best to discuss expectations for authorship, including who will be first author, before a collaboration begins. This is especially important for trainees in your laboratory whose career progress depends on producing work that gives them clear high priority among a paper’s authors. However, agree to revisit authorship as publication nears; the relative contributions of different participants often changes from what was originally envisioned. Once you have a sense of whether the data from your experiments can be published, discuss plans for publication immediately; don’t wait until a manuscript draft is prepared.

Pursuing patents. If patents are sought, applications should be filed before the work is presented publicly or is published; otherwise, rights will be lost. Do not jeopardize your own or the other party’s intellectual property rights by disclosing your results prematurely.

If your collaboration produces patentable discoveries, you will undoubtedly need to deal with the legal concept of “joint intellectual property.” Generally, you will have to assign your ownership in intellectual property to your institution or employer, and your collaborator must do the same to his or her institution. Each party to a collaboration will retain its own “background” intellectual property—that is, the intellectual property it owned before undertaking the project. Each party will also retain the intellectual property rights to discoveries created solely by its own researchers in the course of the project. Joint intellectual property is that created jointly by collaborating researchers. The collaborators’ institutions may file a joint patent application that names inventors from both institutions, and the institutions will hold the patent jointly. Often, the institutions will need to reach an agreement on management and licensing of the intellectual property so that any royalties can be shared according to an agreed-upon formula.

If you think a joint patent application is a likely outcome of your collaboration, ask yourself these questions before you begin the collaboration:

- ◆ What aspects of the proposed project are so interactive that any potential discoveries will be owned jointly?
- ◆ What aspects of shared work are the property of one laboratory?
- ◆ When and how will you discuss patents and publications with workers in your laboratories?
- ◆ Who will take responsibility for, and incur the expense of, filing joint patent applications?
- ◆ Who will maintain the patents once received?

See chapter 11, “Understanding Technology Transfer,” for more information about the patent process, including the effect disclosures can have on the ability to obtain patent rights.

SPECIAL CHALLENGES FOR THE BEGINNING INVESTIGATOR

In the early stages of your career, collaboration can present particular challenges. You are under pressure to get your own research program up and running. You can't afford to let your progress toward tenure be impeded by collaborations that do not yield good results and appropriate credit. You need to keep the following facts of scientific life firmly in mind as you decide about specific collaborations:

Personal Qualities of a Good Collaborator

Honesty

- ◆ Disclose anything that might affect someone's decision to collaborate.
- ◆ Once the collaboration is under way, be willing to “cut through the nonsense” and offer constructive criticism.

Openness

- ◆ Stay in touch with your collaborator throughout the project, especially when there are problems or delays.
- ◆ Try to resolve problems with your collaborator directly.

Fairness

- ◆ Be sure to give credit where it is due.

Industry

- ◆ Put your full effort into the project.
- ◆ Carry your fair share of the labor and financial outlays.

Respect

- ◆ Appreciate your collaborator's contributions.
- ◆ Never assume that your contributions are more important than those of your collaborator.

Reliability

- ◆ Deliver what you have promised, on time.

- ◆ If you collaborate with established, well-known scientists, your tenure committee may undervalue your role in the effort. People may assume that you played a minor role, even if you are first author on a paper. For the same reason, collaborating with your postdoctoral mentor may not enhance your reputation as an independent investigator. If you do collaborate with established scientists or your previous mentor, make sure you arrange the collaboration so that the relative contributions of each scientist are made clear in publications and other communications.
- ◆ The larger the collaborator's lab and the more complex the collaboration, the harder it will be to negotiate first or last authorship. Smaller projects may offer a better chance of getting credit.
- ◆ If you have special technical expertise that is in demand, you may be inundated by numerous requests to collaborate, even within your own department. Do not allow your time to become so fragmented that your central research projects are neglected. Learn to say no gracefully and, if needed, ask your department chair to offer some protection.

- ◆ If you engage in multiple collaborations, the probability increases that you will find yourself with a conflict of interest. Especially in these early years, it is better to keep things simple so that you know all the actors and can identify potential conflicts.

When Your Students and Postdocs Collaborate

Your graduate students and postdocs need to learn to collaborate. You can start them off by assigning them joint projects and by guiding them in establishing their expectations of each other and in monitoring the fulfillment of promises. However, you should be prepared to referee, especially when it's necessary to contain inappropriately aggressive members of your group.

It is quite another matter when your students and postdocs approach scientists outside your lab or are themselves approached as potential collaborators. They may have no idea of the politics involved or of the extent of the commitments they are making. Encourage your trainees to look broadly for help and resources, but insist on your prerogative to approve all outside commitments in advance.

INTERNATIONAL COLLABORATIONS

The practical difficulties of international collaboration can be daunting. They include geographic distance, as well as cultural, linguistic, and political barriers. You must be realistic in judging whether you have the energy and resources to make a long-distance project worthwhile. Ask yourself these questions:

- ◆ How much travel will be required? What will be the costs of each trip in terms of airfare, hotel accommodations, and time away from the lab?
- ◆ Is travel to this country safe?
- ◆ How good are the channels of long-distance communication? (E-mail is virtually universal and certainly will help, but if the other lab is on the other side of the world, long-distance telephone conversations will be inconvenient because of the time difference.)
- ◆ Do I understand the other culture—especially its etiquette of information sharing—well enough to communicate about scientific matters?
- ◆ Do I know the language of my potential collaborators? Do they have a good command of oral and written English? Will scientific papers be published in another language? If so, how can I vouch for the translation?
- ◆ What are the country's customs regarding publishing and authorship?
- ◆ Is the other lab adequately equipped and supported by the country's infrastructure (e.g., electricity, telecommunications)?

Although physical and technical factors are important, it is the human dimension that most often makes or breaks an international collaboration. Be especially sensitive to emotions that may be in play under the surface, especially if your collaborator's lab is less well funded than your own. For example, your collaborators may have concerns about being exploited or disparaged.

Considering these special challenges, international collaboration requires extra dedication. Two key ingredients should be in place at the outset: a stable funding source and at least one individual in the other lab who is as committed to the project as you are and is willing to help push past roadblocks that may arise.

WHEN A COLLABORATION IS NOT WORKING

Collaborations can fail for various reasons. Here are some possible scenarios:

- ◆ One party loses interest or develops other priorities and intentionally or inadvertently puts the project on the back burner. There's no intent to renege, but deadlines are allowed to slip.
- ◆ Illness or family problems hinder someone's progress.
- ◆ Key personnel move on or become uninvolved.
- ◆ Scientific results are not forthcoming, and the project simply stalls.
- ◆ Honest disagreements arise about the plan, finances, or authorship.
- ◆ One or both parties behave badly (e.g., they do not honor some aspect of the agreement, steal credit, or disparage the other collaborator to others).

When such situations arise, you will have to decide how to protect yourself. The worst thing you can do is to allow a bad situation to fester. If you decide your colleague is failing to fulfill the original agreements, get on the phone, or on a plane if need be, and have a straightforward discussion. It is worth your while to try to fix a situation, especially if you have invested significant time and resources in the project. If, however, the other party has lost all interest or you really don't get along, the best thing might be to back out. Although you may be tempted to let your colleagues know about the failure, remember that such a retaliation can harm your reputation as much as that of your collaborator.

If a collaboration doesn't succeed, it's important not to become discouraged. Although collaborations can be a lot of work and, at times, challenging, you will gain much from working with other scientists. Your research can take unexpected turns and expand into new and exciting areas. You will form professional relationships with scientists outside your department who may be willing to write letters of recommendation when it is time to apply for tenure. Your collaborators can help increase your visibility by inviting you to give seminars at their institutes, and they might send graduate students or postdocs to work in your lab.

RESOURCES

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