

Ask Professor Sarah Bellum

Professor Sarah Bellum answers your questions on navigating the often-uncharted waters of early career development. Do you have a question for Professor Bellum? Send it to sarah_bellum@biophysics.org. Your privacy and anonymity are assured!

Scientific Puberty

Q: *I am in the middle of a huge fight with my postdoc advisor; this is our second big fight this month. Even when we are not fighting, I don't feel like I am receiving any scientific support from him. I must do everything on my own, and I rarely get feedback on my experimental results. Sometimes I do offer my own interpretations of my results, but if it disagrees with his interpretations, it falls on deaf ears; there is no room in his mind for another viewpoint. Even worse, my advisor is often invited to speak at big conferences, where he is quite happy to take credit for my work (and of course, present only his interpretations!). Since my fellowship provides travel support for only one conference per year, I am often left behind in the lab, toiling without support, and I do not feel like I have ownership of my own results. We are supposed to be writing a big paper (my first in his lab) on this stuff, but I just can't seem to get started. After all, how can I expect to produce a manuscript with this guy when I cannot stand being in the same room with him?*

— *Scorned in Santa Barbara*

A: It sounds like you have got a big, classic case of "postdoctoral angst"! In many ways, the symptoms of postdoctoral angst are a lot like the symptoms of adolescent angst. For example, consider the following statements:

"He doesn't love me/care about my project!"
 "He doesn't listen to me!"
 "He doesn't understand me!"
 "He treats me like a child!"
 "I'm old/experienced enough to do this on my own!"
 "I need my own money!"
 "I can't stand being with him!"

Sound like anyone you've seen around your lab bench recently? Or hanging out at the mall? If so, rest assured you are not alone: postdoc angst, like adolescent angst, is a near-

universal phenomenon and a natural part of the (sometimes painful) maturation of a student/trainee into an independent scientist.

Postdoc advisors are in a position to exert a great deal of influence on your nascent scientific career, and this can be a major source of conflict, internal and external. On the one hand, you are still learning to navigate the minefields of scientific research, and assistance

from your advisor would be enormously helpful. But on the other hand, you are starting to develop your own ideas about how research (particularly as it pertains to your own project) should be

done, and that leads to a natural desire to stand up for your results and your interpretations and ask for credit.

But on the *third hand*, most postdocs are loath to piss off their advisors when there are still many recommenda-

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tion letters left to write. Professor Bellum could go on and on, covering a centipede worth of hands, but you probably get the idea: You are in mid-metamorphosis, trapped between your carefree (and often highly supervised) student days

and the smudge on the horizon that is scientific independence. Much as your transition from child to adult probably involved some friction with your parents, completing your scientific meta-

morphosis will undoubtedly require some friction with your advisor and some inherent conflict between your role as a trainee versus your growing independence as a person/scientist.

Professor Bellum notes, however, that many of your comments sound a lot like whining. After all, it sounds like you have a great project that is moving along nicely, and an advisor who is on the road promoting this work, regardless of how the credit is divided. It also sounds like your PI is trying to give you space to do your own thing, and not micromanage your project. This is admirable, as it will give you a chance to spread your wings, solve your own problems, and develop your skills at project management. So, as an alternative to complaining, consider the merits of recognizing this angst for what it is, and where it comes from; recognition alone might help alleviate the angst. Changing your attitude about how you approach your project (and your interactions with your advisor) will probably help you suck in your breath and focus on doing the work required to move your project forward, even through the frictions.

You probably came to your advisor's lab for a variety of reasons, but one of them (hopefully) was that you like and/or admire your advisor. Other people probably like and admire him, too (do they?). If so, seek out some of these people, particularly former post-doctoral trainees. Talk about the conflicts you are experiencing, ask if they

experienced something similar, and ask how they worked through it. Perhaps there are some strategies there that you can use in your own situation.

If you are at loggerheads with your advisor over the interpretation of a particular result, take this opportunity to design additional experiments to test your conflicting models. You can turn this negative situation into a positive one: manuscripts are often strengthened when at least one author is not in love with the interpretation of the data, because that kind of friction keeps everyone on their toes, and often turns up potential weaknesses that manuscript reviewers would have flagged. In addition to bolstering (or disproving) your own interpretation of the results, an extra set of experiments might enable you to effectively remove those flags prior to submission.

You specifically mentioned your dread surrounding the writing of a manuscript, and this has Professor Bellum particularly worried. Manuscripts are the currency of scientific progress, and they are crucial at every stage of your scientific career. Even if

your thesis project produced a big stack of publications, you still need to demonstrate that you can execute on a different project, and work with a different group of people.

Fortunately for you, it sounds like

your project is proceeding nicely, since you are planning to write a big manuscript. Start planning and outlining concretely, and start doing it *on your own*. You are not a student any more,

and you need to take responsibility for writing your own papers. Expect your advisor to *advise*, but not to lead this writing project. For exam-

ple, start by putting together a rough outline and list of figures on your own. Review it with your advisor to check that you both roughly agree on the general 'shape' of the manuscript (and there are no missing experiments), then get cracking on the writing as soon as you possibly can. Take the practice of writing very seriously: as your career progresses, writing will assume an ever-increasing role. If you know (or even suspect) that writing does not come easily to you, start checking out some of the excellent texts available on improving your scientific writing skills [1], and facilitating the process of writing [2]. Check back in with your advisor if you get really stuck, or when you have a good draft for a significant chunk of the manuscript. At that point, you can and should expect your advisor to talk seriously with you, as a (near) equal, about how to proceed.

[1] Gopen, G.D. (2004) *Sense of Structure* (Longman, New York).

[2] Boice, R.M. (1990) *Professors as Writers: A Self-Help Guide to Productive Writing* (New Forums, New York).

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