## **Biophysical** Society

## Ask Professor Sarah Bellum

Professor Sarah Bellum answers your questions on navigating the often-uncharted waters of early career development. Professor Bellum was inspired by Ms. Mentor, a column by *Emily Toth* appearing in The Chronicle of Higher Education, and is written by Patricia L. Clark, chair of the Early Careers Committee. Do you have a question for Professor Bellum? Send it to sarah\_bellum@biophysics.org. Your privacy is assured!

 $\supset$ : I will be finishing my Ph.D. in about eight months, and I am trying to decide what would be the best  $\mathbf{Z}$  choice for a postdoc position. Do you think it would it be better in the long run to do my postdoc in cancer biology, or AIDS research?

-Stepping Ahead in Seattle

First of all, Professor Bellum does not hand out individualized career advice. She will not tell you where to postdoc, or which lab to join for graduate school, or which job offer

to accept. Nevertheless, your quesmore general considerations about postdoc AT ALL?" selecting a research

area for a postdoctoral traineeship.

Two of the more important considerations are: WHY do you want to do a postdoc in one of these areas? ....and: Why do you want to do a postdoc AT ALL?

Why have you identified two very 'hot', but very different, research areas? Ideally, a postdoctoral appointment is a fantastic opportunity to explore in-

depth a research area that is distinct from your graduate research. If you are thinking about an eventual academic job search, having experience in two distinct research areas can add real

strength to your job applications: you'll be the "well-rounded one" (if anyone with a Ph.D., postdoc experience, and academic aspirations can be considered well-rounded!) that can talk to at least two groups of people. Industry is also keen to hire people that can perform in more than one arena.

Not knowing your graduate research area, it's hard to tell how near or far these areas are to your current work, but regardless, one does not do a postdoc in

"WHY do you want to do a tion raises several postdoc in one of these areas? ....Why do you want to do a

"cancer biology" or "AIDS research": postdoc projects are tightly focused explorations of specific phenomena. That's not to say that,

at this point, you need a well-defined description like, "I want to study the effect of metabolite X on the transport of tumor suppressor Y in cell type Z," but it appears that you have only defined two very broad (and very crowded) super-fields. This sets off alarm bells in Professor Bellum's head. Right now, when you are still months away from finishing up, is the time to do some

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> you to consider cancer biology and AIDS research? What, in particular, is it that you find interesting about these areas?

It might be that there is a secondary thread from your graduate research, something that was not central to your thesis, and which you had no time to explore in detail, but which you find interesting and important and would like to explore in depth. That's great: there are probably lots of labs out there that spend all their time thinking about your secondary thread, and would love to have the expertise of someone with a Ph.D. in what is to them a peripheral but related field join their team. Remember, it's important to think not just about what you want to get out of a postdoc training period, but also what skills, knowledge, and experiences you will be bringing to strengthen your new lab.

Or maybe you were exposed to a certain technique, like fluorescence microscopy, as part of your thesis project, and for your postdoc you would like to train with the best fluorescence microscopists in the world so you can become a hotshot methods-development guru. Or perhaps you spent five plus years as a Ph.D. student becoming a card-carrying fluorescence microscopist (or expert in some other methodology), but for your postdoc, you want to enter into the applications side of things, and learn more about the questions your method might answer rather than stay on the method-development side. These, too, are great reasons to do a postdoc in a particular area, and, like the first scenario, mean that

you will probably have skills that your new postdoc lab will find very desirable. Conversely, your graduate research and

postdoc interests ...what is YOUR motivation for may have signing up for two to eight more a weaker years of underpaid lab work? connec-

tion: perhaps you were exposed to a different field while preparing a journal club presentation or a departmental literature seminar, and found it captivating (maybe you even secretly wished your thesis research was in this area!). This is also a great way to identify a postdoc research area (and one of the main reasons why Professor Bellum is a big fan of journal clubs), but if you are considering a jump to a more distant research area, you will probably want to give your next steps some serious planning. Do you (or your research advisor, or thesis committee members, or other contacts) personally know anyone in your new area? Personal connections and introductions can be a big help when dramatically shifting fields. What skills from your thesis research might be applicable to your new area? If you are skilled at one of the newer, hotter methods (say, gene expression analysis with DNA microarrays, or bioinformat-

ics methods like genome database mining, but there are plenty of other exam- science so interesting is its ably no better or ples...) you may find many labs that would love to add

your expertise to their group, even if they have minimal interest in the system you studied as a graduate student.

But, before you go any further in your soul-searching about research area, let's look at the more fundamental question: Why do you want to do a postdoc AT ALL? Have you decided to do a postdoc just because it feels like what you are "supposed to do" next? Are you receiving subtle (or not-so-subtle) pressure from your graduate advisor to do a postdoc? Remember, it's easiest for advisors to train and prepare graduate students in the same mold as them-

selves, but if you don't want an academic position and the life it entails, this very well might not be the best training model for your nascent career. So what is YOUR motivation for signing up for two to eight more years of underpaid lab work?

After five or so years of graduate school, it has hopefully become clear that science is not a good field for getting rich. So your career motivations include making lots of money, you may want to think about what a postdoc traineeship will add to that equation. There may be more money for scientists in industry than academia, so if money is a consideration, but you love science, too, you may want to consider a move

to industry, either as a postdoc or a staff scientist. Many managers

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when a scientist has

postdoc or other training in a corporate setting: it gives the postdoc a chance to learn the corporate culture after spending so many years steeped in the academic

culture.

Science is probworse than any other field for get-

ting famous, but if being famous one of your goals, Professor Bellum would point out that the fields of cancer biology and AIDS research are already crowded with extremely well-funded big shots, many of whom are already hogging the media spotlight. So if fame is one of your motivators, but you're determined to stay in science, you might want to identify a long-overlooked field that is due for a breakthrough. But don't get your hopes up too high: part of

what keeps science so interesting is its inherent unpredictability.

Even if you're not that interested in fame or fortune, it may be that five plus years of graduate school has caused you to realize that, yes, you can do the research thing, and maybe you are even really good at it, but it may not be for you. Maybe law school looks interesting, or sales, or scientific writing, or working on a winery, or maybe landscape gardening or gourmet cooking! There are lots of other career possibilities out there, many of which would value a Ph.D. in science, and many more that have nothing to do with science.

But if you love doing scientific research more than anything else you can think of, and you can handle the lifestyle (some long hours, frustrating

> - experiments, mediocre do all day), then go ahead and find the best

postdoc position you can. Most importantly: Follow your heart! Actually, even better: Follow your innate burning scientific curiosity! It takes heart and burning curiosity to make it through the lean years of graduate school; you're probably already aware of this. Making it through a postdoctoral traineeship is no different. If anything, you may need MORE heart and burning curiosity to keep driving forward as a postdoc, because the postdoc years are when a lot of scientists finally realize that other things in life (like life partners and children and retirement savings) are also important. Balancing all of the important stuff is never easy, but it will be less painful if you are working on a project that you find intensely interesting, and through which you believe you are making an important contribution. Good luck!

"Most importantly: Follow pay, and family and your heart! Actually, even better: neighbors that don't Follow your innate burning understand what you consider it a bonus scientific curiosity!"