

Accommodating family life: mentoring future female faculty members

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The demands of family life are crucial factors in successfully retaining women in science. Retention efforts should focus on creating a family-friendly environment within the laboratory and the institute. Based on my own experiences, I suggest ways to attract top young scientists and support their development into leading researchers.

During the 47 years of directing a research laboratory I have learned that advancement of science depends on mentoring and training a rare group of scientists that are not only highly educated but are also creative, innovative, and motivated. Half the young people who have these traits – and the potential for leadership in biomedical science worldwide – are women. Unfortunately, women are dropping out of academic careers in biomedical science at an alarming rate. While women constitute over half of the bioscience PhD students, they make up only a small fraction of tenured and tenure-track principal investigator (PI) positions at universities, research institutes, and medical schools.

Many have pointed out reasons that put women at a disadvantage over their male counterparts: lower salaries, smaller lab spaces, and less access to mentors. However, concerns over balancing career and family obligations are often stated as a main factor for women leaving the academic track. Indeed, a recent survey (2007) of Whitehead postdoctoral fellows emphasized the importance of family life. Of the 87 (of 130 invited) who responded, 67% were married, and all but three of the 58 married postdocs had (60%) or expected to have (40%) children. Of the female postdocs specifically, 76% were married, and of these most either had (60%) or expected to have (36%) children (<http://wi.mit.edu/files/wi/cfile/people/postdocs/2007PDAchildcaresurvey.pdf>). As a community, we need to understand and embrace the realities that prevent women from pursuing careers in science. Only then can we attract and mentor these talented individuals for development into future scientific leaders. I have learned that attracting and retaining top scientists, especially females, to one's research group requires a very family-friendly culture, both at the level of individual labs and more broadly across institutions. Among the 168 PhD students and postdocs I have mentored, 54 were women. Of these women, 23 had one or more small children (two had three) while in my

laboratory, and many had children after they left. All have gone on to very successful careers, mostly in academia, where many have achieved leadership positions. I hope that some of what I have learned about mentoring women – and more generally scientists of both genders – into successful leaders in science will help both PIs and their institutes create a family-friendly culture that allows young scientists with families to succeed and achieve leadership positions.

The mentor's role in the development of successful scientists

I see myself as a typical faculty member who has always tried to recruit top young scientists, mentor them, and provide them with the intellectual freedom, resources, and opportunities for collaboration so they can do the best possible research. As a mentor, I push my students towards greater initiative, independence, and self-reliance by advising them and providing constructive comments on their research proposals and job talks. Most importantly, I support, and never compete with, my former postdocs, letting them take with them large parts of their current research projects. This form of training not only benefits the student's chance of becoming a successful, independent scientist, but it often opens up new areas of endeavor – and new grant support – for my own laboratory.

When building a lab culture it is important to create an environment where everyone is treated equally and set to the same high standard; each researcher should be made to feel that she or he is capable of doing great science. Lydia Villa-Komaroff, a former graduate student and recently retired CEO of Cytonome wrote:

There was not the faintest hint, often found in other labs, that the best work of women or minorities (and I was both) could not be as good as the best work of our white male colleagues. There was no hint that we were less capable. I felt that you were demanding because you believed I could live up to your expectations.

While there are many ways to achieve these objectives, some lab environments do little to support the growth and success of scientists with families, both personally and professionally. Indeed, Ursula Klingmüller, a former postdoc and now professor and Division Head at the German Cancer Research Center (DKFZ) in Heidelberg, was told by her thesis advisor that she would have to 'decide for science and against family. But I knew that I wanted both. In your group I could see that it was entirely normal to combine both.'

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Furthermore, it is clear that the success of women goes beyond creating an equal opportunity environment and is also dependent on providing guidance and support to help them achieve their goals. I learned many years ago from my wife Pamela and my two professional daughters that I could recruit spectacular young female (and male) scientists if I accommodate family life and the personal needs of everyone. Indeed, Ursula Klingmüller commented that this respect increased a scientist's confidence in achieving success. It also 'meant high expectations and responsibilities, but also a choice and this was extremely important for me.'

While some may hesitate in recruiting researchers with families because of the idea that they may devote less time to the lab, I have found that men and women who have children as graduate students or postdocs have excellent time-management skills. When in the laboratory they work and think very efficiently, and do not waste time, ultimately impacting upon the progress of our work in a positive way. As Beiyang Zhou, a former postdoc and now professor at Texas A&M University, points out: 'If these issues [integrating family and scientific roles] are dealt with directly, they can become an invaluable exercise in improving management skills and multitasking.'

How then does one create a family-friendly environment that also produces quality research? First, it is important to create an environment where families are welcome. When interviewing potential students or postdocs, I never ask anything about family matters or children – such questions are illegal in any case. I do volunteer the information that Whitehead operates its own child-care facility and has a lactation room. Often I show them pictures of my own seven grandchildren or of our annual lab swimming party where 20 or so small children, with parents, fill the pool. These comments make the point that I welcome researchers with children. I also make sure that interviewees meet both male and female postdocs, many of whom have small children. I have found this approach extremely useful in recruiting outstanding researchers of both genders. Furthermore, this family-focused environment also provides students and postdocs with the added opportunity to exchange experiences, challenges, and opportunities with each other, which can ultimately enhance self-confidence and a commitment to one's career. Indeed, Merav Socolovsky, a former postdoc and now professor at the University of Massachusetts Medical School, recently wrote to me:

I interviewed in your lab in 1992, nearly two years before I actually started my postdoc. It was the 7th lab I visited in the USA. I was struck by the very large number of parents, mostly women, who were articulate, enthusiastic scientists doing great projects. I didn't yet have children and was anxious about how to do it all, but realized that people in your lab somehow worked it out. There was no question in my mind by the end of that one-day visit that that's where I wanted to do my postdoc.

Furthermore, it is important to understand and empathize with the demands that family can place on researchers. Stephanie Watowich, a former postdoc and now

professor at MD Anderson Cancer Center points out: 'A good mentor also needs to understand the flexibility needed to raise children, and/or care for aging parents.' An important way of creating a family-friendly environment is to treat all lab members as adults, free to plan their own schedules. Aside from attending our weekly lab meeting, and being available to talk with me for an hour or so each week, I have never kept track of anyone's face time in the laboratory. Their scientific progress is all I really care about. Rebecca Wells, now a professor at the University of Pennsylvania School of Medicine, put it succinctly:

This [mentoring] gave parents like me the extraordinary gift of flexibility, which in turn made it possible to function in science and be happy parents simultaneously. Whether you realized it or not, there was an exodus every night at dinnertime as parents went home, ate with their children, and put them to bed, but then those same people came back at about nine and worked late into the night. I never felt that I had to sacrifice time with my family so that my face would be visible in the lab – I knew that you had confidence in my ability to be there when and for as long as I needed to be.

Being sympathetic to families and children is, I have found, one way to attract the best students and postdocs.

The Institute's role in supporting postdoctoral fellows

PI's cannot do this alone. Institutions have a responsibility to insure that graduate and postdoctoral training is compatible with a reasonable family life. Childcare was and is the main issue for postdocs, both male and female. The substantial cost of child care (on average, 25% of a postdoc's salary) places a financial burden on most postdoc families.

In 2007, MIT had one child-care facility, but the waiting list included several hundred children. Seeing the results that many postdocs do or want to have families, one Whitehead Board member donated funds such that Whitehead now owns its own childcare facility. Whitehead offers discounts to students and postdocs to help to alleviate the burden of rising costs of childcare. Furthermore, during a lunch several years ago with the Biology Department Visiting Committee, several faculty members complained about the paucity of affordable and nearby childcare. On the spot, an MIT Corporation member promised to support a new facility; it opened last year.

Institutional support of childcare is not only the right thing to do; it is important in attracting and retaining the best students, faculty, and staff in an increasingly competitive environment. Equally importantly, onsite or nearby childcare gives postdocs and students as well as faculty the piece of mind so that they can work at their optimum levels in the laboratory.

Looking ahead

As PIs and institutes begin to create an environment that is permissive to families, more women will likely continue to pursue a career in science and ultimately correct the

leaky academic pipeline. Moreover, the actions I noted may inspire future generations to create a similar lab culture, which could ultimately increase the number of successful leaders that remain in science. Indeed, it is more than training leading academic scientists; Stephanie Watowich also wrote to me:

To have an informed, educated population, women themselves need to be educated and accomplished.... More women in science will mean more women able to translate the importance of scientific breakthroughs to children, neighbors, friends and colleagues, to help sustain vibrant and healthy communities.

My final comments are directed to students of both genders who are looking for a postdoc position and aspire to a tenure-track faculty position. Ask the question of your potential mentors that I am almost never asked: ‘What happened to your last five (or ten) postdoctoral fellows; where are they now?’ And make sure your mentor not only will provide you with excellent career opportunities, but also respects and appreciates your personal and family life.

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