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By Kerry Grens | February 1, 2007

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Several years ago Dr. K, a neuroscience professor at a prominent academic institution on the West Coast, found her laboratory in interpersonal disarray (she requested anonymity to protect the identities of her lab members). Lab members were clashing over a range of issues: maintenance of common equipment, cleanliness in the laboratory, and often simply the way someone communicated to another. "We'd have one person yelling, another one crying ... alliances forming, alliances shifting, people talking behind others' backs," K says. "All triggered by a lack of interpersonal skill in resolving conflict. And I didn't know how to do it."

K says often she would ignore problems and trust that her lab members would work them out on their own. "I was very passive about addressing problems in lab because I always see the best in people. I would deal with things on an individual basis when I had to, but avoided dealing with things on a lab level. I stuck my head in the sand and hoped it would go away, but it didn't." When a graduate student came to K and told her that the lab was so hostile she did not want to come to work, K decided she needed to take action. But the problem, K says, was that she didn't know what to do. "I came up with some ideas and that lasted for awhile, but then things relaxed back into the previous state."

The situation in her lab is not unique. "Let's face it, in a research lab there are going to be conflicts, disagreements, and interpersonal issues," says Carl Cohen, president of Science Management Associates, a consulting firm that conducts workshops for scientists on conflict resolution. "Any scientist you talk to will have one or more anecdotes. Most are almost pathetic, because we're not talking about falsifying data or being physically abusive, but [rather] hurt feelings and the dissolution of a project or collaboration." And the results of unresolved tension, Cohen adds, can be devastating to research. "Even as a postdoc myself I was involved in a project that nearly ground to a halt because of an interpersonal conflict."

Ed O'Neil, a professor in family and community medicine at the University of California, San Francisco, and founder of the Science and Society Institute's lab management workshops, says it's imperative that principle investigators (PIs) pay attention to the interpersonal dynamics of their laboratories. "It takes countless hours or days to undo poorly handled interactions with a team or employee. I can't tell you if [those hours would] get invested in more or better science, but if you're not spending time putting out fires you can stay on point and be productive."

Yet very few academic PIs receive training in people management and conflict resolution, says MaryRose Franko, who developed a course and handbook on scientific management at the Howard Hughes Medical Institute (HHMI) in collaboration with the Burroughs Wellcome Fund (BWF). "We've noticed from our fellows, who are top researchers in the country, when they start their own labs they are great technically and don't know the first thing about running a lab," Franko says.

CREATE A LAB PHILOSOPHY

Professor K decided that to ameliorate the interpersonal dynamics of her lab she would need outside help. She attended the Science and Society Institute's leadership workshop and later sought advice from her university's ombudsman. The workshop is a one-and-a-two-day course on conflict resolution and people management. Part of the training includes a session on creating a clear lab vision. O'Neil says it is shocking how few PIs have clearly established the purpose of their research and the ways to pursue it, yet it's one of the most important elements to running a strong lab. O'Neil says to ask: "What is it we are working on here? What is my vision for how we should work together?" A clearly stated vision can help recruit members who will work best with the laboratory's stated purpose and help develop collaborations with other groups who complement the vision, O'Neil says.

> " You realize sometimes [that] no one is better than someone who is wasting your resources. So I fired him"

About a year ago Supergen, a drug development company in Dublin, Calif., acquired Montigen Pharmaceuticals. Mike McCullar, vice president of discovery operations at Supergen, says there was a large effort toward making sure the newly acquired employees espoused Supergen's core values. "It's classical organizational theory," McCullar says. "The way to manage conflict among people is to make sure they share core values." And to do that meant amending Supergen's philosophy by folding in Montigen's emphasis on innovation. McCullar says the transition is going smoothly. "When people share the same core values, we see much less conflict."

K agreed that part of the problem in her lab - in addition to a cluster of strong personalities - was that members didn't share a feeling of common purpose. She charged her team with drafting a lab philosophy. As a first step they developed a mission statement:

Our lab's goals are to explore the mechanisms of brain development, to produce important new insights into these mechanisms, and to bring a standard of excellence to all that we do as individual scientists and as a laboratory. Lab members cooperate and collaborate in planning and carrying out experiments using the following guidelines. The fundamental standard is to treat others with respect, courtesy, and consideration and to treat the laboratory as a professional environment.

Over several months K's group, with help from the university's ombudsman, drafted a laboratory philosophy, which includes behavior guidelines such as courtesy and consideration, conflict resolution, cooperation and collaboration. The guidelines explain the basics of sharing equipment and reagents, the appropriate setting to handle a dispute, and how to share research ideas. The philosophy also lays out the format for laboratory meetings, the rules of keeping a lab notebook, and the preparations a member must make before graduating from the lab.

All lab members signed the philosophy and K says it made a difference; people behaved better and the screaming matches ceased. Those lab members who were teetering on the edge of leaving the lab have stayed on because of the less hostile work environment. Now all incoming lab members are required to read and sign the lab rules. "What I would advise people to do proactively is to draft a lab statement, visit that with your lab periodically, and spend time with lab members a few times a year and ask: Are there things we could be doing to function better as a group?" Sometimes, the answer to that question might be, rather than bringing lab members together, letting some go.

IF YOU CAN'T FIX, FIRE

It was Professor W's first year running her own lab (W asked to remain anonymous to protect the identity of her postdoc). She had moved to a prestigious research institution on the West Coast to start her cell biology laboratory. At the time she was involved in a fierce race with another lab to produce data and land funding. The pressure was on, and Professor W was relying on her only (and first) postdoc to rally behind her and finish the experiments on time.

But instead, she recalls, "He'd rather leave at 5 o'clock and take long lunch breaks and relax on the weekends, even at times of high intensity. We had a real disconnect in terms of our commitment to the project." As W's research progressed, her relationship with her postdoc deteriorated. W brought her concerns to the postdoc, and "He looked at me like my priorities were screwed up."

W realized then that she had hired the wrong postdoc. She needed someone who cared as much about the work as she did and would be willing to put in the hours when it was necessary. W found herself in a difficult situation. As a new junior faculty member she was the same age as her postdoc, and her first attempt as a mentor and independent scientist was stumbling. "If not him, who else could do the work?" W remembers thinking as she tried to make a decision. W made up her mind: "You realize sometimes [that] no one is better than someone who is wasting your resources. So I fired him."

The lab management experts agree: If a relationship is not working out, first, let the person know, and if the situation does not improve, send them packing. Sometimes the solution is obvious. If a lab member is abusive or disruptive, firing that person is imperative, says Cohen. Bruce Freeman, chair of the Pharmacology Department at the University of Pittsburgh, found himself in that position after he learned a postdoc was showing up to work intoxicated and harassing other lab members. But in the more common situation where a lab member is simply difficult to work with, the best resolution is not always easy. "You need to make a decision. On the whole, is this person of more benefit than harm to my lab?" Cohen says.

For W, the decision to fire her postdoc turned out to be the right one, she says. She was able to gather the data she needed in time without being preoccupied by an unhealthy relationship in the laboratory. W says she knows now, after almost two decades of managing a lab, that there could have been an easy way to prevent the disconnection she experienced between her and her postdoc's expectations: Lay them out from the beginning. Had she done that, she might have been able to filter out someone who was only willing to work normal hours (something she couldn't tolerate) and find someone who enjoyed putting in nights and weekends. "I think [my expectations] were fair," W says, "but how can they be fair if I don't lay them out?"

LET THEM LEAD

On an unseasonably warm Friday morning in December members of Freeman's laboratory trickle into the conference room for their biweekly lab meeting. Those gathered sleepily sip their coffee or yerba mat? as Freeman runs through lab business, assigning a mentor for a summer undergraduate from Pakistan, and announcing a new journal in which the lab might want to publish.

Postdoc Nick Khoo loads up a Power Point presentation and begins his talk on the regulation of endothelial nitric oxide synthase. Shortly into his presentation Khoo's labmates begin to ask questions, suggest experiments, offer alternative ways of interpreting the data. The momentum builds slowly, but by the time the third presenter begins the mood is positively excited: Banter flies around the table as conversations spin off simultaneously. "Sometimes the meetings can go for four hours," says Paul Baker, a research assistant professor and one of the lab members who has been there the longest. "Everyone has really strong opinions, and lab meetings can get pretty heated," says graduate student Alison Groeger. "Our lab is really motivated and ambitious, but that can cause conflict."

Baker remembers the days when lab meetings consisted of walking into Freeman's office unannounced and showing him raw data. But after an exciting discovery on the anti-inflammatory properties of nitrated fatty acids, Freeman's lab swelled from four to twelve and moved from the University of Alabama to the University of Pittsburgh. As research projects multiplied and new members entered the lab, the group went through what Baker calls growing pains. "It's a real challenge to take energetic, enthusiastic people and channel their energy to the same goal."

The lab's structure is top-heavy, with most members at postdoc or research assistant professor levels. With each person having strong opinions about the direction of research and the way the lab should function, tensions emerged after the move to Pittsburgh. Part of the challenge, Freeman says, is that many of his lab members were anxious to take on more leadership roles. "People realized they weren't getting enough of an opportunity to get feedback on their results and discuss the next things to do." Though he usually lets lab members work out problems on their own, Freeman decided to step in and make some changes.

"The single most important thing a lab director can do is be cognizant of these issues." -Carl Cohen

To find a solution to the tension in his lab Freeman relied on two decades of mentoring and advice from family members in business management. He looked around at his group: a biochemist, a physician, a molecular biologist, and others, each having a unique scientific background. Freeman offered to some of the senior lab members leadership posts over minigroups of research projects. "Giving others the opportunity to lead is essential," says John Galland, director of the Lab Management Institute at UC, Davis. They can feel ownership over a certain part of the lab, and exercise their leadership skills. Freeman set it up so that lab members elect team leaders. They will be responsible for organizing weekly team meetings and progress reports on a lab-only website, which Freeman calls the lab blog. "I think the benefit from that is, on a weekly basis, someone will have the responsibility to demonstrate performance or success and [therefore] any problems will become clear." Group leaders in Freeman's lab are looking forward to having distinct roles, and the solution seems to have improved communication in the lab. To top it off, the frequency of those marathon lab meetings has been halved.

HIRE RIGHT

Simply being aware that communication and interpersonal dynamics are important to the functioning of a laboratory, as Professors K, W, and Freeman demonstrated, is the most important thing a PI can do, says Cohen. Many of Cohen's clients are in the private sector, which he says is far more advanced than academia in terms of appreciating and sculpting interpersonal skills among its scientists. "It is an organizational necessity. If you can't function as a member of a group in the private sector, you will have little or no future," Cohen says.

Christopher Flores, the Analgesics Team Leader at Johnson & Johnson Pharmaceutical Research & Development in Spring House, Pa., says he received much more training in people management at his company than when he was a professor at academic institutions. This included mentorship from experienced managers, reading and web-based materials, and workshops with outside consultants. "There's a great deal of attention to the quality of life of the employee here, including how effective management and conflict resolution comes to bear on that," Flores says.

Mary Yaroshevsky-Glanville, vice president for human capital at Anadys Pharmaceuticals in San Diego, says the most effective practice for making sure research teams run smoothly is to hire people who fit in well and who have strong interpersonal skills.

Within industry, academic scientists have a less than favorable reputation when it comes to interpersonal skills in the laboratory, says Yaroshevsky-Glanville. "We rarely hire people just out of academia," she says. "We've turned down many people who were technically perfect, but didn't fit." Yaroshevsky-Glanville recalls a search to fill a position that lasted two and half years. "We found someone who was stellar technically. But we knew that he was going to be difficult and create conflict if he came on. And we said no." The search continued for months until the company found the right fit. "It was worth it," Yaroshovsky-Glanville says, "Had we hired the wrong person it would not have worked out."

Sometimes academic laboratories don't have the luxury to hire for interpersonal as well as technical skills, says Cohen. One way to avoid conflict when technical skills are the primary selecting factor is to take the Freeman approach: Hire people with distinct sets of skills and design projects where they won't be competing.

About five years ago Joseph Lakowicz, director of the Center for Fluorescence Spectroscopy at the University of Maryland, was nearing a cross road in his scientific career. "I felt like I was approaching the limits of classical fluorescence ... because we had done it all. I was coming to a wall where I would have to move into some applications, but my mind isn't there. I like principles." Lakowicz came up with a vision to direct his pursuits toward plasmon-controlled fluorescence, and he began to hire a team that would take him there. He recruited a thin-film technologist, a spectroscopist, a theorist, and others. The lab publishes more than a paper a month, says Lakowicz, and he says the team is much more collaborative because each person relies on other labmates' varied expertise. "I paid more attention to this set of hires and it really paid off."

A DEMAND FOR TRAINING

Although conflict might be an intrinsic part of working in a research laboratory, PIs have greater opportunity to improve the way they manage relationships among their lab members. Universities are beginning to pay more attention to personnel management in the laboratory and to offer management courses, mostly targeted to junior faculty or postdocs. The HHMI and the BWF helped spark this trend by starting a partnership among about a dozen science organizations and academic institutions to implement lab management programs.

Several years ago John Galland started the Lab Management Institute at UC, Davis, which offers a certificate program in laboratory leadership and management and is open to researchers from other institutions. The Institute also offers a two-day workshop program in lab management for UC, Davis postdocs, with follow-up meetings every month for one year. This spring, the Institute is starting a laboratory leadership course for graduate students. Galland says no data are available yet to indicate how much impact these courses are having on laboratory productivity, but he is confident that they make a difference. "Most of our data are anecdotal," Galland says. "I can go in and see from observation the changes in a lab - whether those changes have resulted in more publications, fewer incidents of noncompliance to regulation, fewer people missing days of work."

At a stylish Thai restaurant in Pittsburgh's Shadyside neighborhood, a group of young University of Pittsburgh faculty members gather around for dinner. Each has received training in lab management and conflict resolution either at the university or the BWF/HHMI. Without it, says Catherine Baty, a research assistant professor in the School of Medicine's Cell Biology and Physiology Department, "it's like half your training is missing." For her, conflict - in particular, scientific conflict - is positive. The training helped her recognize the nuances of communicating her excitement. "I don't see it as inherently negative. You take somebody on as an equal and discuss the ideas. I know there are other people in my lab who hate it and I modulate it for them," Baty says.

For Steven Wendell, a research assistant professor in the School of Dental Medicine, the training helped him deal with a conflict over shared equipment between his lab and another lab. In the past, Wendell says, he would not have taken the time to engage his lab member to understand the situation and find the best solution. "I would have come in and said, look, this is what we're going to do and that's that ... I think my technician would have been frustrated about the situation still and frustrated with me that I wasn't engaging her."

> Without lab management and conflict resolution, "It's like half your training is missing." - Catherine Baty

Joan Lakoski, the assistant vice chancellor for academic career development at the University of Pittsburgh, began the three-day workshop for junior faculty and postdocs in 2006. The interest was so strong that the course had to turn away a number of associate professors, and in its second year enrollment will expand by 25%. In evaluations of the course, attendees ranked the session on managing interpersonal conflict as the most valuable of more than a dozen sessions. "If every university provided training on conflict resolution to their faculty," Lakoski says, "it would be great. There would be a lot less problems."

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Resources

Consulting firms

Science Management Associates, based in Boston, runs conflict resolution workshops for scientists around the country. The company also tailors training programs for lab management. www.sciencema.com

Health Workforce Solutions conducts leadership training for research scientists. www.healthws.com/index.html

From the Laboratory to Leadership: workshops on the West Coast for lab leaders in biotechnology on personalities, goal setting, coaching staff, and resolving conflict. www.theleadershipedge.com/f-calendar.html

Books and Guides

Lab Dynamics: Management Skills for Scientists, by Carl M. Cohen and Suzanne L. Cohen, published by Cold Spring Harbor Laboratory Press

Laboratory Management: Principles and Processes, by Denise M. Harmening, published by D.H. Publishing and Consulting

Making the Right Moves: A Practical Guide to Scientific Management for Post docs and New Faculty, by the Howard Hughes Medical Institute and Burroughs Wellcome Fund
www.hhmi.org/resources/labmanagement/moves.html

The Successful Medical School Department Chair: A Guide to Good Institutional Practice, published by the Association of American Medical www.aamc.org/members/msmr/successfulchair/start.htm

Workshops and Classes

Science and Society Institute's Leadership Training course www.futurehealth.ucsf.edu/biomed/society.html

The National Postdoctoral Association occasionally sponsors programs on conflict prevention and ethical laboratory behavior. www.nationalpostdoc.org

American Society of Plant Biologists will host a lab management course for postdocs and junior faculty, including discussion on conflict resolution, in July in Chicago. www.aspb.org

The summer certificate program in laboratory leadership and management is held at the Laboratory Management Institute at the University of California, Davis.
http://extension.ucdavis.edu/unit/science_and_engineering/certificate/laboratory_leadership_and_management

Comments

Jugsharan Singh Virdi
Posts: 4

February 2, 2007

If a situation flares up in the lab, in my opinion it would be better to let it cool off for 2-3 days before taking up the whole isuue again and thrashing it out. You might take an altogather different view of the whole issue.

Sign in to Report

Sue S. Sipkovsky
Posts: 2

February 2, 2007

A PI can avoid a lot of conflict by having a lab manager. Having what you need at your fingertips can assuage a lot of angst in the lab. A lab manger or lead technician brings continuity into the lab and helps conserve valuable resources. It also helps keep the most senior scientists in the group from playing a technician?s role in lab, which can lead to resentment and loss in productivity. I work closely, in a supportive role, with the research scientists and can spot trouble brewing more quickly than can the PI. I am also always available to lend a hand or an ear. Sometimes, my excitement over an experiment?s progress is just what a scientist needs.

Sign in to Report

Reader -- Grad Student
Posts: 1

February 2, 2007

Regarding the PI who fired her postdoc... Since she admits that she did not make it clear to her postdoc that she expected work on nights and weekends, I think it was incredibly unprofessional to fire him for only being willing to work 40 hours per week. There certainly could have been mitigating issues not mentioned in the article, but the unexpressed expectation of overtime is a failing on the part of the PI, not her employee.

Sign in to Report

mz
Posts: 1

September 4, 2007

that is less than that of the janitor's and the secretary's. how many PIs are sympathetic to the postdoc's situation ?

Sign in to Report

PI
Posts: 1

November 27, 2007

I can only say that I feel great sadness that there is any abuse at all in a research environment. We should always remember our youthful ambitions and dreams to excel in research, and not to allow our expectations to exceed the reality. Everyone desires recognition and, ultimately, happiness in their research work. We need to remember this, and that we are all extremely fortunate to have the opportunity to work in research. This is a work environment that encourages independent, original thinking (and you do have the freedom to think or believe whatever you like, regardless of others' beliefs). Go back even further, and recognize that we are also exceptionally fortunate to have been educated at such a high level. The vast majority of people in the world do not even have the slightest chance of ever reaching high school, never mind tertiary education. \n\nI know I sound overwhelmingly positive and trying to make the best of what seems like a bad situation, but I also came from an abusive laboratory environment where my supervisor continually abused her students and technicians. She told people off about every tiny thing that happened, including missing styrofoam containers in the cold room, the liquid nitrogen cylinder depleting accidentally, and even late library books. It got to the point that her lab staff and students left science altogether and never wanted to return to research again. I kept hoping it would be better in other institutions and travelled to several of them around the world. I found that, actually, she wasn't that bad and there are many others who are far worse. It was a shock to realize that, and very saddening. \n\nI realized then that the main reason that people

are attracted to research is not the money, but the personal glory and recognition that they could achieve. Papers published in high impact journals, grants awarded, invitations to speak at international meetings all serve to reinforce the ego and encourage its growth. Competitive behavior is amply rewarded, which is particularly painful for others if it is at their expense. These are negative human attributes that are ultimately destructive for each individual and can only be balanced by remembering that we are doing research for the sake of all people on Earth. Each one of us needs to dedicate our efforts at the end of each day to all other living creatures for the sake of increasing our knowledge of the world around us and improving their health and wellbeing.

Sign in to Report

anonymous poster
Posts: 5

July 7, 2010

This is an excellent article and should be linked with a antoher The-Scientist post aboutScripps' whistleblower Eric Tippmann \nhttp://www.the-scientist.com/blog/display/56190/

Sign in to Report

anonymous poster
Posts: 1

February 20, 2011

There is a PI who has ruined the career of every single individual worked with him, including post doc and PhD students. This PI moved to a new place from his previous University recently. In his previous University there are at least five official complaints against this PI. But the university did nothing (only said we are sorry). This PI gets peoples from Asia, Russia etc places, abuse them anyway he can. When they get a new job and want to move on he is always very successful in ruining it and ultimately force them to go back to their own country. There is not even a single person, who got a proper reference or help from this PI.

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