



In their best light. The 2000 science and career fair gave postdocs the opportunity to present their latest and greatest research to area scientists.

NIEHS Trainees: Hail Fellows, Well Met

Somewhere between the world of the graduate student and that of the independent investigator is the world of the postdoctoral researcher. Intent on building a productive career in science, “postdocs” bide their time, carrying out critical research in the labs of principal investigators at universities, research hospitals, national laboratories, and other bastions of scientific inquiry. In the best of cases (and places), trainees work with gifted mentors who free them to develop career skills, attend conferences, publish, and—provided the trainee proves him- or herself in the lab—begin research of their own that they can take with them when their fellowship ends. In lesser situations, however, postdoctoral trainees have been known to flounder in a never-never land of low salaries and nonexistent benefits, little guidance from established scientific investigators, and a diminished professional status far below what one might expect, given their academic and research pedigrees.

Fortunately, trainees at the NIEHS tend to fare well, thanks to an abundance of support from senior scientists matched by plenty of pluck and initiative on the part of the trainees themselves. Overall, the atmosphere at the NIEHS tends to be supportive, trainees say. And a key factor in assuring the success of institute postdocs is the NIEHS Trainees Assembly, known in-house as the NTA.

So successful has the NTA been in supporting trainees that other institutions and even a private company have taken notice. And earlier this year the NTA, along with a handful of other postdoctoral associations, was recognized by COSEPUP—the Committee on Science, Engineering, and Public Policy, a joint committee of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine—in its report titled *Enhancing the Postdoctoral Experience for Scientists and Engineers: A Guide for Postdoctoral Scholars, Advisors, Institutions, Funding Organizations, and Disciplinary Societies*. The report brings to light problems and issues facing postdoctoral researchers across the United States and recommends action items to resolve those problems.

Trainees Seek a Better Lot

The postdoctoral period is a time of training and preparation for a scientific career. At the NIEHS, appointments usually last for up to five years. The institute employs some 200 trainees (most of them postdoctoral fellows) in their early twenties to early forties.

As the institute’s associate director for research and training and acting deputy scientific director, Steven Akiyama’s business is, in part, to make sure trainees receive the guidance and support necessary to prepare them for life beyond the

NIEHS, be it in a lab of their own, in academia, or in industry. This involves helping them learn survival skills for working scientists, such as how to request funds or secure grants. The NTA’s role, Akiyama says, is to empower trainees so that they understand how to do things on their own, like get their own labs.

Akiyama wants to make sure that the trainees come up with their own ideas about how to run the assembly, because the whole idea is for the NTA to be self-sustaining. “I very carefully don’t tell [the trainees] what to do. It would be a major mistake to give them assignments,” he insists. One of the assembly’s primary strengths, he says, is that the initiative for programs and activities comes from the trainees themselves. Such programs and activities have included an assembly orientation manual, an annual science and career fair, and the NTA’s information-packed Web site.

“The NTA is all grass roots,” agrees Deborah Swope, the current NTA chair. The assembly is composed entirely of trainees, with no institute administrators or senior scientists sitting on its committees. “We’re extremely lucky that we get top-down support,” she adds. In fact, a careful balance of cooperation between the trainees and senior staff with support from the upper levels appears to be what makes the NTA a success.

The assembly had its genesis in 1995, when a group of NIEHS postdocs met to

discuss issues facing them, such as career development. The group shared a strong sense that something was lacking. Swope points out that, while graduate students are organized toward a definite goal, postdocs often are not. According to Swope, postdocs have a more amorphous goal, one that isn't so easily measured: "They are doing research to help them become independent scientists," she says. "It involves being able to develop projects independently, write papers on their own, perhaps get funding before they leave."

Before the NTA came on the scene, it was difficult for fellows to network or share knowledge. Recognizing a lack of solidarity with one another, they formed the assembly and chose their first chair, Jean-Louis Klein, who is now a postdoctoral biologist at the nearby company GlaxoSmithKline. Klein credits Carl Barrett, then the NIEHS's scientific director, and institute director Kenneth Olden for their initial support in establishing the NTA. "Carl set up the first meeting and told us how important postdocs were to science at the NIEHS," he recalls. "We took it from there."

Swope also praises Barrett, who lent his moral support to the assembly. "Without his support, it probably wouldn't have got-

ten as far as it has," Swope says. Thanks to Barrett's vision, the assembly has been able to act as a liaison between the trainee community and the administration and senior scientists, she adds. Today the assembly remains a diverse group of professionals—both men and women, of all ages and nationalities, and from a variety of different scientific backgrounds—all united by a number of things in common, but most important, the desire to do good research, Swope says.

Preparing for the Life of a Scientist

Doing good research involves more than just work at the bench, Swope says. It requires a host of other practical skills, such as developing a curriculum vitae, giving scientific talks, teaching, writing grants, even networking to find a job once the fellowship period is up. To address these needs, the assembly sponsors Frontline Forum discussion groups, held monthly at lunchtime and featuring speakers from inside and outside the institute. "These outside speakers are important because they allow [trainees] to make contacts for future jobs," Swope explains. Trainees can learn how to find resources and mentors, negotiate for and set up their first lab, and in general make the

most of their postdoctoral experience. In the separate Frontline seminar series, trainees can also give lectures of their own and answer questions from the audience, which on any given day may range from 15 to 75 institute scientists and trainees. "It's a wonderful training opportunity," Akiyama says.

The COSEPUP report concludes that, while most postdocs gain valuable laboratory and research skills, they need better mentoring, compensation, information on employment opportunities, and career planning assistance, as well as the chance to learn a variety of career skills. The Frontline Forum series, now in its second year, does just that. The discussion groups have awakened NIEHS trainee and NTA steering committee member Nina Storey to other career possibilities such as science writing and science policy. "I hadn't really thought about leaving the bench," she says. "You try so hard to get [a postdoctoral] position, then you come here and find out there's more—the stuff that's not the science. You can't just be good with a test tube."

To hone career-building and networking skills, the assembly also sponsors an annual science and career fair, which this year hosted more than 400 attendees and



A foot in the door. The annual science and career fair gives trainees direct access to recruiters from a variety of biomedical and other research companies.



Real fellowship. Social activities give trainees the opportunity to discuss common interests and concerns, as well as to enjoy life outside the laboratory.

56 representatives from more than 20 companies and other institutions with job openings. Trainees presented more than 100 posters highlighting their current research, and panel discussions featured traditional and nontraditional careers in the sciences. William Schrader, vice president for scientific and technical affairs at Ligand Pharmaceuticals in San Diego, gave the fair's keynote address.

Klein, who helped organize the assembly's first science and career fair, believes the event helps prepare trainees for life after their stint at the NIEHS, primarily by helping them connect with other scientists. "There's no better thing than networking," he asserts, adding, "It's very important to learn how to present yourself to someone."

The COSEPUP report finds that many postdocs do not encounter the sorts of positions they anticipated upon completion of their research, especially ones in academia, a trend that makes savvy career planning more crucial than ever. To that end, the NIEHS science and career fair brings together a wealth of scientific talent—much of which is located right in the NIEHS's hometown of Research Triangle Park, North Carolina.

Mentoring is another service offered through the NTA. Members can consult a directory of senior scientists who are willing to act as mentors—to review a grant proposal, for example. Trainees may be mentors to each other, too, says Swope. According to Klein, the assembly has helped to define the ideal relationship between trainee and mentor, and delineate what should be the responsibility of each. "Some scientists just forgot that it is the responsibility of the mentor to introduce

those being mentored to other scientists at a meeting. It helped to put that on paper," Klein says.

A number of services are designed to enhance communication among trainees, Swope says. Via an online discussion group, trainees are able to post job announcements and fellowship and grant application deadlines, advertise seminars, or pose general questions to their peers. Another communication tool, the NTA orientation handbook, gets rave reviews from research fellows—especially those who are new to the Research Triangle area or who come from foreign countries and are thus adjusting to a new culture as well as a new job. The orientation handbook—which can be sent electronically to fellows headed to the institute from overseas—offers helpful information about the institute, a list of government acronyms, what to expect, and other practical advice about living in the United States, such as how to look for an apartment or initiate utility services and information on income taxes.

"Just knowing there's an association you can turn to if you have questions or problems, or someone . . . you can ask for advice helps so much," Swope explains. "It provides a safety net." The assembly hosts monthly socials on the last Thursday of each month, which feature pizzas, soda, and, depending on the season, extras like Halloween candy or holiday goodies. "People run in for 15 minutes to decompress and head back to work," Swope says. "It's very easy to stay in the lab and not come out." The socials allow trainees to get to know one another and chat with members of the assembly's nine-member steering committee.

The Expertise of Other Organizations

One of the assembly's most recent initiatives has been to extend outreach to other postdoctoral associations. Swope spearheads that initiative, attending the meeting of the Group on Graduate Research, Education, and Training of the Association of American Medical Colleges each year. There she networks with representatives from other postdoctoral organizations from around the country. She has found that the atmosphere at the NIEHS for trainees is excellent compared to that of some other places. "Here appointments are well classified and there is fairly good communication between trainees and the administration," she explains. "At other institutions, postdocs are sometimes treated like second- or third-class citizens." Adds Storey, "We are considered trainees. The emphasis is on training. At other places, you're treated like another pair of hands. I do feel lucky to be here."

Kimberly Paul, co-vice president of the Johns Hopkins Postdoctoral Association, agrees. "The cultural view [of the postdoctoral researcher] needs to be changed," she asserts. The typical trainee today is older and more experienced than in the past. As a result, they merit more—"more pay, benefits, and respect," she explains. Postdoctoral associations can help bring about such a shift in cultural view. For instance, one of Paul's peers, upon leaving her research post to work for a biotech firm, was amazed to find that her new colleagues actually listened to her. "Your opinion and your professional standing are all you've got," Paul says. "If that is being undermined, you don't have anything."

The COSEPUP report echoes this concern. The committee's survey of postdoctoral



Learning from experience. The NTA helps to bring scientific experts together with trainees in mentoring relationships.

fellows across the United States reveals that, for many postdocs, their experience falls short of their expectations. The report reads thus: "It is not uncommon for postdocs to hold uncertain standing in the institutions where they work, to receive inadequate mentoring or technical supervision and, in some fields, to accept stipends and benefits substantially below those of their professional peers in academia, government, or industry, as well as below those of non-Ph.D. technicians."

The Johns Hopkins Postdoctoral Association has worked in the past toward a number of improvements designed to make life better for the more than 1,200 postdoctoral fellows in the Johns Hopkins School of Medicine and School of Hygiene and Public Health. The association was first formed in 1992 in response to safety concerns following the muggings of several postdocs. A survey of fellows followed, turning up areas that needed work, including issues of pay equity, salary protection, length of appointments, and benefits such as dental coverage. The association went to work quickly. "There has been a dramatic improvement in safety," Paul says. "We finally got dental coverage and were able to make it policy that NIH salary guidelines apply."

The Johns Hopkins Postdoctoral Association is currently implementing yearly evaluations of the postdocs' situations to ensure that both the postdocs themselves and their advisors are satisfied with the way things are going. "We want to provide a safe atmosphere to head off potential problems [without fear of retribution]," says Paul—such problems might include misunderstandings about what research postdocs can take with them, and whether they are

spending too much time on lab business versus technical work. An online survey is planned to assess the postdocs' interests, what problems they face, and what services they would use. Paul says the survey will be critical for framing the organization's agenda over the next few years.

Fortunately, NIEHS trainees appear to have won the respect of key members of the institute's staff. Olden recently invited members of the NTA steering committee to interview candidates for the institute's scientific director position. "That's an incredible experience for us to interview someone at that level," Swope says. Still, there are areas for improvement. Like Paul, Swope hopes to establish a system through which NIEHS trainees receive an annual evaluation. "We're discussing a format for doing that right now," she explains. Such reviews would allow advisors to constructively monitor the progress of a trainee, Swope says, and would provide a framework for dealing with complaints and problems.

In the meantime, Swope and her colleagues continue with the successful programs already in operation. So what is her advice to trainees? "Get out of the lab!" she says. If postdocs spend all their time in the lab, she says, they don't better their communications skills or generate a network, and they may never know if any other science-related careers would appeal to them.

She also suggests that trainees make an effort to meet speakers, offer to lecture at a local university, or teach or take a class. Such activities are an investment, she insists, not an annoyance. "Look to the future," she says, "not just your current experiment." —Jennifer Medlin

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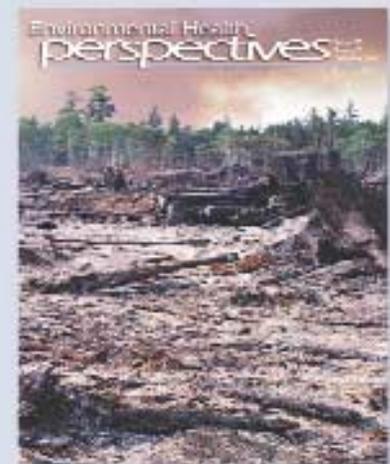


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