

The Scientist

BEST PLACES

POSTDOCS PICK INSTITUTIONS THAT BUILD COMMUNITY

The Scientist's "Best Places for Postdocs" survey shows that postdocs prefer programs that stress collaboration and mentors | By Paula Park, Alexander Grimwade, Hal Cohen, and Sam Jaffe

Postdoctoral fellows crave collaboration: They thrive on one-on-one relationships with principal investigators, and they learn much from their peers. The top institutions ranked by postdoc participants in *The Scientist's* "Best Places for Postdocs" survey share a culture of collaboration and a commitment to teaching.

Not only did institutions that emphasize collaboration receive high marks from postdoctoral survey participants, but postdocs' colleagues also received positive ratings for providing training and counseling. Some 2,128 survey respondents, 76.4% of 2,800 participants, indicated they could talk to their peers

about personal and professional problems; 65.3% credited their colleagues with teaching lab skills; and 60.8% reported that lab members help each other balance work and family responsibilities.

"One of the reasons Rutgers is a good place for postdocs is probably because it encourages postdocs and students to interact with each other as well as with scientists from outside," says Ishita Chatterjee, a postdoc at Rutgers University, NJ, which ranked number one in the survey. "Speakers from other universities and industry are continuously being invited to give talks, thereby helping in the learning process."

To find out what postdocs like Chatterjee think about their institutions, *The Scientist* sorted through 2,800 usable responses from postdocs in the United States, Canada, and western Europe. Though not a scientific study, the survey's results, and the views expressed in it, provide a compelling portrait of postdocs' goals and expectations.

Many of those expectations—even the most basic—remain unmet. The survey aimed to help identify organizations that provide more than ample benefits and services to postdocs, but the responses point to a failure by many institutions to provide adequate mentors, career services, and salaries.

"Postdocs are in a ghost employee class," says Shirley Tilghman, president of Princeton University, which ranked third overall and first among US Ivy League institutions.

"The difficulty occurs when they are considered an extra pair of hands—where they are given relatively low status within the institution, fewer benefits, and less attention from faculty. They become glorified technicians." **LIFETIME LINKS**

Top 10 Institutions Overall*

1. Rutgers University
2. University of Miami
3. Princeton University
4. Dalhousie University
5. University of Nebraska
6. Medical College of Wisconsin
7. National Cancer Institute
8. University of California, Davis
9. University of Iowa
10. University of Kentucky

* Based on average score for 34 factors

Survey Methodology

We posted a Web-based survey and invited our postdoc readers to respond. From about 30,000 invitations, we received 2,800 usable responses from postdocs in the United States, Canada, and western Europe. We asked respondents to assess their postdoc experience by indicating their level of agreement with 34 positive statements about various factors.

We identified responses from 681 separate institutions but included only the 150 institutions with five or more responses in the institutional rankings. The overall rankings were based on the average score per institution from all respondents on all factors. More results and complete survey methodology are available on *The Scientist* Web site at www.the-scientist.com/postdoc/postdoc.htm. Although our sample of postdocs was large, it was self-selected, and we have made no attempt to standardize the results or to do detailed statistical analyses.

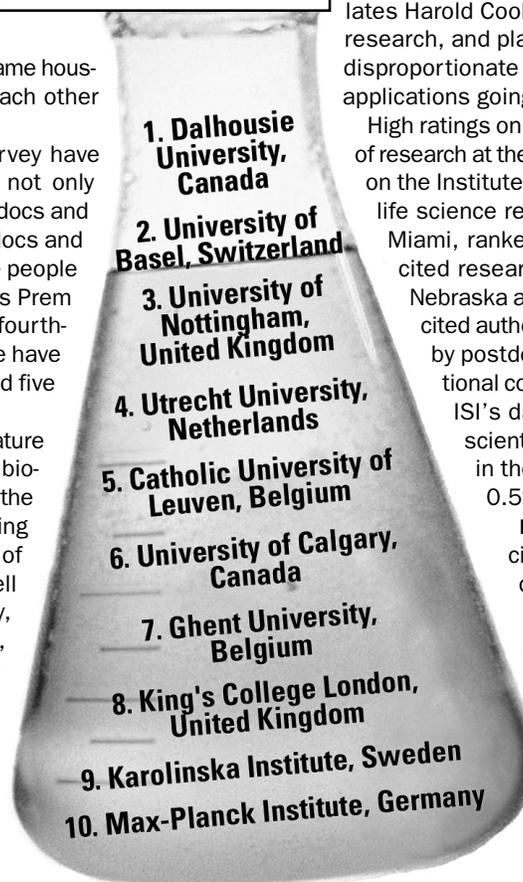
Tilgham speculates that Princeton fared well in the survey not only because of its emphasis on teaching, but also because the university dominates a small town, creating a heightened sense of community. Postdocs and graduate students live in the same housing, enabling them to socialize and help each other learn, she adds.

The top institutions in *The Scientist* survey have taken extra steps to boost collaboration not only among postdocs, but also among their postdocs and graduate students, as well as among postdocs and scientists from around the world. "We have people come to our faculty to give seminars," says Prem Paul, vice chancellor for research at the fourth-ranked University of Nebraska, Lincoln. "We have eight external advisory board members, and five are in the National Academy of Sciences."

To address the unique multidisciplinary nature of research and training in biomedicine and biotechnology, the Rutgers faculty restructured the large biology department into an overarching division of life sciences (DLS) composed of focused departments and sections in cell biology, molecular biology/biochemistry, genetics, neurosciences, bioinformatics, behavioral neuropsychology, and chemical biology. Both undergraduates and undergraduates take core-curriculum courses before finally specializing. "We have this umbrella graduate program in molecular biosciences," says Kenneth Breslauer, dean and director of Rutgers' Division of Life Sciences. "The postdocs enter a free-flowing research environment, which the grad students and postdocs are part of creating."

Dalhousie University of Canada, which ranked fifth in the survey,

Top 10 Non-US Institutions



also concentrates on collaboration, and the Canadian government uses its funding to encourage research teams. "In the last round there were eight group grants in the country," relates Harold Cook, associate dean of the faculty of medicine, research, and planning. "We got two of them. That's certainly disproportionate to our population; we have roughly 3% of the applications going into an institute like that."

High ratings on collaboration do not interfere with the quality of research at the top-ranked universities. Five scientists named on the Institute for Scientific Information's list of highly cited life science researchers work at Rutgers; the University of Miami, ranked second in the survey, employs four highly cited researchers in life sciences; and the University of Nebraska and Dalhousie University each boast one highly cited author. The Karolinska Institute in Sweden, praised by postdocs for the quality of its mentors and international collaborations, employs 10 highly cited authors. ISI's database lists authors whose work is cited in scientific papers more often than that of any others in their fields. These authors represent less than 0.5% of all scientists who are publishing.

PRINCIPAL RELATIONSHIPS Criticisms of principal investigators (PIs) often prevail in postdoc chat rooms and discussion groups. But *The Scientist* survey participants paint a more positive portrait of their professors and mentors: 65.9% report that the PI takes time to discuss the science behind the lab work; 63.9% say the PI encourages them to attend conferences and symposia; and 61.5% say the PI communicates expectations and feedback. A slight majority of participants (56.9%) report that the PI understands when family and personal obligations interfere with lab work.

Less than half of the participants (48.1%), however, say their PIs act as mentors, help the postdocs raise independent funding (47.1%), or discuss career options (42.1%). In their



RUTGERS: A RAMBLING SUCCESS

The graduate life sciences division at Rutgers University spans two cities, straddles the Raritan River, and incorporates three separate campuses. Researchers also collaborate with two different medical schools. Yet, rather than present an obstacle to communication, the sprawling institution actually encourages it, according to professors and administrators. Of the institutions evaluated by the 2,800 postdocs from the United States, Canada, and Europe who participated in *The Scientist* survey, "Best Places for Postdocs," Rutgers not only ranked first overall, but also received the highest scores on questions relating to communication and career preparation. Ensnared among some of the world's largest pharmaceutical companies, Rutgers can also assist many of its postdocs in launching lucrative careers. "We have built strong relationships with



Courtesy of Rutgers University

industry, and that's important," says Adesoji Adelaja, executive dean of agriculture and natural resources and dean of Cook College at Rutgers.

POSTDOC PRESCRIPTION:

"Postdocs have to keep in mind their long-term career goals before choosing a lab. A good postdoc is where both the postdoc and the principal investigator [PI] get help from each other. When you are working on a project, you have to do that carefully with an aim of getting results, publishing, and also keeping in mind that you need all those steps to get a job. That is where a good PI will help you by keeping you focused on your project and at the same time helping you attain your longterm career goals."

—Ishita Chatterjee,
Rutgers University

comments, postdocs from around the world fretted that they could be stuck in “postdoc purgatory” forever, with little chance to rise through the academic ranks. “It is not too melodramatic to describe some postdoc positions as dead-end jobs,” says an Imperial College, London postdoc. “Some of us feel as if we may have a better chance of winning the lottery than tenure.”

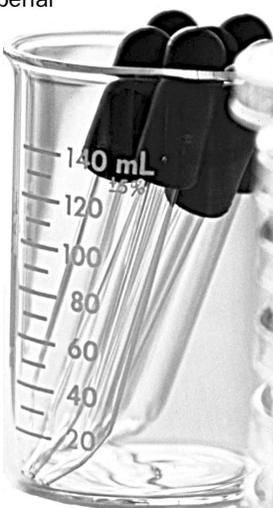
The top-ranking schools seek out professor candidates with a knack for being mentors. “You don’t just hire people and leave them on their own, you work with them to set goals,” explains Adesoji Adelaja, executive dean of agriculture and natural resources at Cook College at Rutgers. “You give them clear directions. That helps build a cadre of very well supported postdocs. They are part of the team; they aren’t just treated as students. That’s one thing they have going for them.”

Some schools depend on good mentors to give them an edge in competition with better-funded institutions.

“We have a lot of science stars, but not science superstars,” says Richard Bookman, associate dean of graduate studies at University of Miami (Fla.) and

Country Rankings*

1. Denmark
2. Belgium
3. Finland
4. Switzerland
5. Netherlands
6. Sweden
7. United States
8. Canada
9. Germany
10. United Kingdom
11. Portugal
12. France
13. Ireland
14. Spain
15. Italy



**Based on average score of 34 factors, for countries with 10 or more responses*

director of that school’s MD-PhD program. “The faculty are young, generally, and well-funded. They have great academic pedigrees, but they don’t have boatloads of ego, so they may pay more attention to their postdocs than those at other institutions.”

THE COST OF GENIUS Many postdocs describe their PIs as effective leaders enmeshed in a demoralizing system, and give their departments and institutions low marks for failing to build the support networks necessary to boost the postdoc’s development. Department initiatives scored just a 33.4% approval rating, and questions focused on institutions’ programs for career development, salaries, and benefits garnered only 27.7% approval. “My mentor is exceptionally good at mentoring,” says Pamela Hébert, a postdoc at Louisiana State University Health Sciences Center. “However, some of the more negative things [salary, benefits] here are out of his control.... The temporary



MIAMI: SCIENCE, SUN, AND SALSA



Photo: Donna Victor

POSTDOC PRESCRIPTION: “In my opinion, it isn’t necessarily where you do a postdoc; it is with whom. Great mentors can be found in less prestigious places, and horrendous mentors can be found in the best of the best. Postdocs, like many other things, are what you make of them.”

—Jennifer McCafferty, postdoc, University of Miami

Participants in *The Scientist’s* “Best Places for Postdocs” survey gave the University of Miami high marks for the quality of its mentors and for equitable salaries and benefits. The school ranked second overall. “We know that we are competing against the large, well-funded organizations like Harvard and MIT, so we have to have a different strategy,” says James Wyche,

dean of arts and sciences. “Our strategy is based on cooperation. That’s what’s taking hold in our community.” The city’s international flair—a majority of the population has Latin American roots—gives foreign postdocs an easier entrée to US culture than other cities may be able to provide, Wyche adds.

The natural environment boosts the university’s popularity as well—sun, sandy beaches, and salsa provide penurious postdocs plenty of free entertainment. “Most PIs are happy to get good postdocs and do what they can to make it attractive to come and then stay in Miami,” says Jennifer McCafferty, a Miami postdoctoral fellow. “Since many PIs only have one to two postdocs, they try to tune in to the individual needs of a given postdoc, rather than treating them like hands in the lab.”

status is a hindrance in getting benefits, and the postdoc status limits the salary.”

Only 41% of the postdocs indicated that they received adequate salaries, and complaints about salaries recurred among posted comments. UK fellows living in London raised especially poignant concerns. “The London area is so expensive that most post docs can barely survive,” writes Mark van der Giezen, a postdoc at Royal Holloway University of London. The government provides a slightly higher salary to postdocs in London, but, van der Giezen says, it has not increased since the 1990s. “The London weighting is a laugh.”

Differences between salaries of scientists with private foundation fellowships and those paid by the government also rankle many fellows, as does the

More than 60% of Postdocs Agree...

| | |
|---|--------------|
| I can easily talk with other members of the lab about any problems that arise and they can talk with me | 76.4% |
| My principal investigator takes time to discuss the science behind the experiments and other work that I do | 65.9% |
| The lab staff helps me to learn to use equipment that is new to me so that I can do what is expected | 65.3% |
| The principal investigator encourages me to attend symposia and conferences, and makes money available to defray expenses | 63.9% |
| My principal investigator communicates expectations and feedback clearly, and makes time available to discuss issues that arise in my research | 61.5% |

absence of affordable day care and, in the United States, a lack of health insurance for families. “We don’t have that perfectly nailed now,” acknowledges Bookman of the University of Miami. “It’s a sort of an embarrassing thing to present as a problem.... Where the money comes from ends up saying a lot.”

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1. Institute for Scientific Information, “Highly cited authors,” Philadelphia (www.isihighly.com).



DALHOUSIE: COLLABORATION, COMMUNITY

Dalhousie University emphasizes teamwork. The university has attracted funding from the Canadian Institutes of Health Research for collaborative research projects, and tries to ensure that postdoctoral fellows and graduate students get opportunities to work with more than their own principal investigators, says Harold Cook, associate dean, faculty of medicine, research, and planning at Dalhousie. The midsize university allows more one-on-one research than would be allowed at a larger school, Cook continues. “Our size is a factor here,” he says. “As

a whole, our research community is more interactive, cooperative, and supportive of one another.... While we have some worldclass scientists ... who are highly productive ... there’s less sort of attention to protecting self-interest and more of a cooperative nature.”

The university is still working to ensure equality of benefits and pay, Cook says. Still, postdocs rank Dalhousie fifth overall in its treatment of postdocs and first among non-US institutions. “Dalhousie is world renowned in oceanography, my advisers are extremely well-respected in the field, so it was a



Courtesy of Dalhousie University

no-brainer when I was offered the position,” says Christian Reiss, a recent Dalhousie postdoc, who now works as a research oceanographer for the National Marine Fisheries Service, Southwest Fisheries Science Center, in La Jolla, Calif.