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BEST PLACES TO WORK 2007

POSTDOCS

BY TED AGRES

It's a simple formula: Start with well-equipped research facilities, add helpful mentors and knowledgeable colleagues, allow researchers the freedom to explore new ideas, throw in enough money and benefits, and you get productive and satisfied postdocs. At least, that seems to be the winning formula for research institutes ranked by their postdocs as being the "Best Places to Work" in 2007.

The Scientist's fifth annual survey reveals that postdocs worldwide are mainly interested in getting the training and experience they need to advance their careers. They are willing to tolerate institutional quirks and lackluster compensation, at least for a time, if it means gaining the ▶

ability to land a great job afterwards, whether it's in academia, industry, or even in another field.

"The people, from the principal investigators to the support staff, are knowledgeable and willing to lend a hand any way they can," comments Amy Inselman, a postdoc at seventh-ranked National Institute of Environmental Health Sciences (NIEHS) in Research Triangle Park, NC. "Collaborations are easy to build, and we have a wide array of resources available (from equipment to career guidance) that will help us transition to the next level," she writes in her survey comments.

Because it is part of the National Institutes of Health, NIEHS pays its postdocs according to National Research Service Award stipend levels, which range from \$37,000 to \$51,000 – a practice followed by many top-ranked US universities and research institutes in the survey. Among these is the M.D. Anderson Cancer Center at the University of Texas in Houston, which catapulted from 29th place in 2006 to first place this year, despite large variances in the pay scale.

"What is important to our postdocs is accessibility to higher management," observes Toya Candelari, M.D. Anderson's associate vice president for trainee and alumni affairs. "Our president, vice president, CEO – all are accessible to and really interested in our postdoctoral fellows," she says. The postdocs have noticed. "Post-doctoral fellows at M.D. Anderson are a valued section of the research workforce," comments Tracy Costello.

Postdocs hold in high esteem those institutions that do things right: The National Cancer Institute has ranked in the top 15 for all five years, and five of the top-10 institutes from 2006 remain there this year. Of course, things do change. For the first time, a for-profit company has made it into the ranks of best places for postdocs. Genentech, the South San Francisco biotech powerhouse, breaks the rules in more ways than one. While most nonprofit research institutes eagerly offer postdocs training courses and guid-



M.D. Anderson tops 2007 list

After hopping around the top 15 for the past several years, and even dropping to number 29 last year, M.D. Anderson Cancer Center in Houston has worked itself to the top of this year's Best Places to Work for postdocs. It's the right combination of respect from the faculty, top-notch facilities, and good working benefits that keep postdocs happy. "I'm not treated as the most senior graduate student who's just doing grunt work," says postdoc Tracy Costello, a statistician working with geneticists and epidemiologists. "I'm treated more like junior faculty, someone who has a brain in their head and is headed to independent research."

In 2004, M.D. Anderson added the education of postdocs to their mission statement, a move that demonstrates how important they've become to the center as a whole. Last year, postdocs also pressed for and received half-price parking rates in the expensive lots on campus. They also now receive three weeks of vacation right from the start. In 2005, postdocs and the administration joined forces to create a \$1,000 award to recognize good mentorship of postdocs.

Varsha Gandhi, who received the award last year, says that postdocs, even those working in basic science, get training in all aspects of translational cancer work, from bench research to clinical trials. "These are our future researchers," Gandhi says.

Collaborative training is another dimension of what makes M.D. Anderson so appealing to postdocs. Since 2005 when some of the institution's research was moved out of the hospital and into several buildings on "South Campus," many postdocs find it easier to work outside their discipline and get special training. "If there's something you need to do or something you need to learn, there's someone here who knows how to do it, and lab space to teach you how to do it," says Costello.

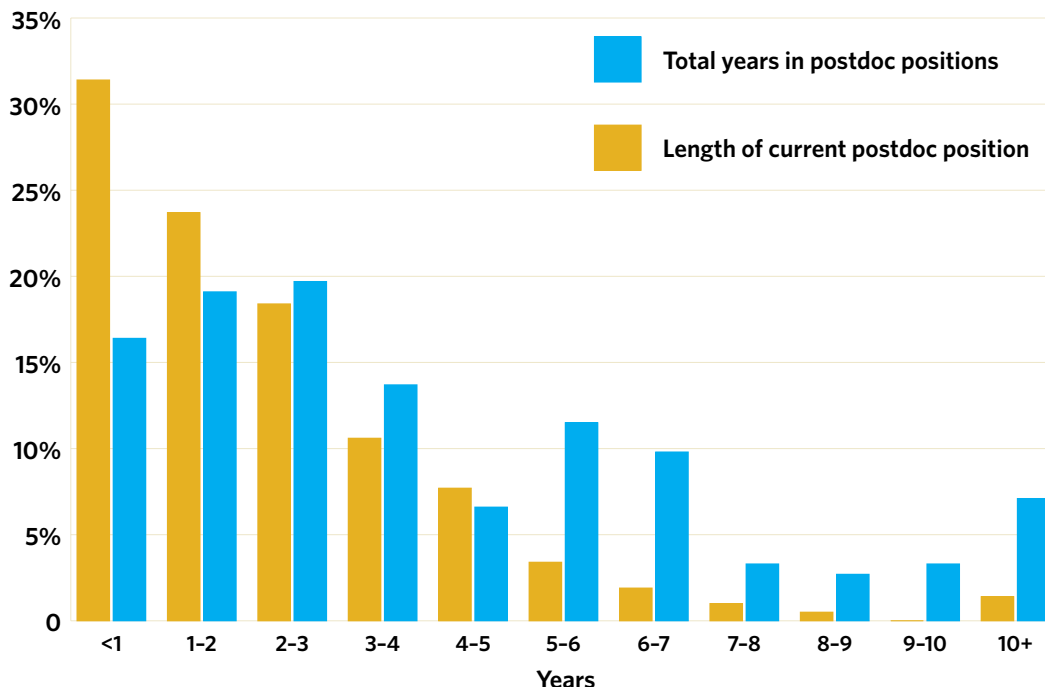
—Andrea Gawrylewski



TOP: COURTESY OF THE UNIVERSITY OF TEXAS M. D. ANDERSON CANCER CENTER LEFT: © F. CARTER SMITH

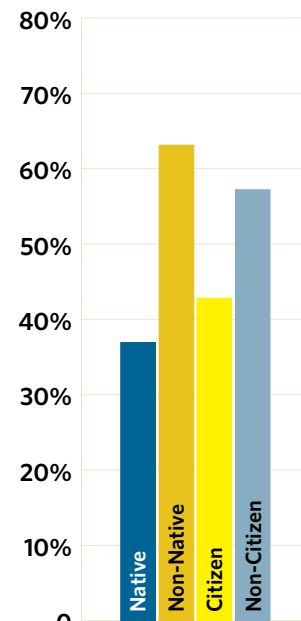
Rank in 2007	Rank in 2006	Institution	Type	Strengths		Weaknesses	
1	29	M.D. Anderson Cancer Center Houston, TX	Academic	Training	Benefits	Remuneration	Equity
2	1	The J. David Gladstone Institutes San Francisco, CA	Independent	Career	Communication	Family	Remuneration
3	3	U.S. Environmental Protection Agency Research Triangle Park, NC	Government	Remuneration	Benefits	Funding	Equity
4	NA	Genentech South San Francisco, CA	Private	Facilities	Benefits	Family	Funding
5	32	The University of Iowa Iowa City, IA	Academic	Networking	Remuneration	Benefits	Value
6	NA	National Jewish Medical and Research Center Denver, CO	Independent	Family	Benefits	Career	Remuneration
7	5	National Institute of Environmental Health Sciences Research Triangle Park, NC	Government	Training	Remuneration	Benefits	Funding
8	4	Emory University Atlanta, GA	Academic	Value	Funding	Family	Remuneration
9	12	Boyce Thompson Institute for Plant Research Ithaca, NY	Independent	Communication	Value	Funding	Remuneration
10	2	Fred Hutchinson Cancer Research Center Seattle, WA	Private	Training	Funding	Family	Remuneration
11	NA	Scripps Institution of Oceanography La Jolla, CA	Academic	Equity	Family	Funding	Benefits
12	58	University of British Columbia Vancouver, Canada	Academic	Equity	Family	Career	Benefits
13	13	National Cancer Institute Bethesda, MD	Government	Facilities	Career	Funding	Benefits
14	24	Mayo Clinic Rochester, MN	Independent	Value	Benefits	Networking	Family
15	NA	Oak Ridge National Laboratory Oak Ridge, TN	Government	Remuneration	Networking	Training	Facilities
16	42	University of Missouri Columbia, MO	Academic	Training	Communication	Equity	Benefits
17	NA	Texas A&M University College Station, TX	Academic	Remuneration	Benefits	Career	Funding
18	NA	National Institute of Standards and Technology Gaithersburg, MD	Government	Benefits	Funding	Training	Facilities
19	15	Vanderbilt University Nashville, TN	Academic	Career	Funding	Equity	Value
20	54	University of Texas Southwestern Medical Center Dallas, TX	Academic	Benefits	Facilities	Family	Equity
21	NA	National Cancer Institute Rockville, MD	Government	Career	Networking	Benefits	Family
22	NA	Rocky Mountain Labs - NIAID Hamilton, MT	Government	Facilities	Remuneration	Benefits	Career
23	19	University of Alabama Birmingham, AL	Academic	Career	Networking	Equity	Facilities
24	44	Yale University New Haven, CT	Academic	Career	Funding	Remuneration	Family
25	47	University of Pittsburgh Pittsburgh, PA	Academic	Training	Career	Value	Facilities
26	76	The Salk Institute for Biological Studies La Jolla, CA	Private	Facilities	Equity	Training	Career
27	88	University of Pennsylvania Philadelphia, PA	Academic	Career	Funding	Benefits	Value
28	97	Beth Israel Deaconess Medical Center Boston, MA	Academic	Equity	Remuneration	Benefits	Funding
29	28	Washington University St. Louis, MO	Academic	Facilities	Family	Benefits	Equity
30	61	St. Jude Children's Research Hospital Memphis, TN	Independent	Facilities	Benefits	Funding	Family
31	106	Harvard Medical School Boston, MA	Academic	Funding	Career	Equity	Remuneration
32	NA	Cold Spring Harbor Laboratory Cold Spring Harbor, NY	Private	Value	Training	Family	Facilities
33	NA	Indiana University School of Medicine Indianapolis, IN	Academic	Training	Family	Equity	Remuneration
34	31	University of California San Francisco, CA	Academic	Funding	Career	Communication	Remuneration
35	41	Brigham and Women's Hospital Boston, MA	Academic	Facilities	Value	Communication	Remuneration
36	25	University of Illinois Urbana, IL	Academic	Funding	Benefits	Training	Career
37	56	University of Chicago Chicago, IL	Academic	Funding	Career	Communication	Value
38	11	Woods Hole Oceanographic Institution Woods Hole, MA	Private	Remuneration	Career	Training	Benefits
39	67	Dana-Farber Cancer Institute Boston, MA	Independent	Training	Equity	Remuneration	Benefits
40	16	Cornell University Ithaca, NY	Academic	Career	Benefits	Facilities	Funding

Length of Postdocs



The average length of time postdocs plan to spend in their current position is two years. The average length of time that respondents have spent in a postdoc position overall is 2.8 years. In North America, 37.7% of postdocs spend more than five years in their position.

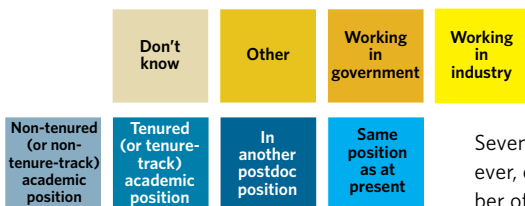
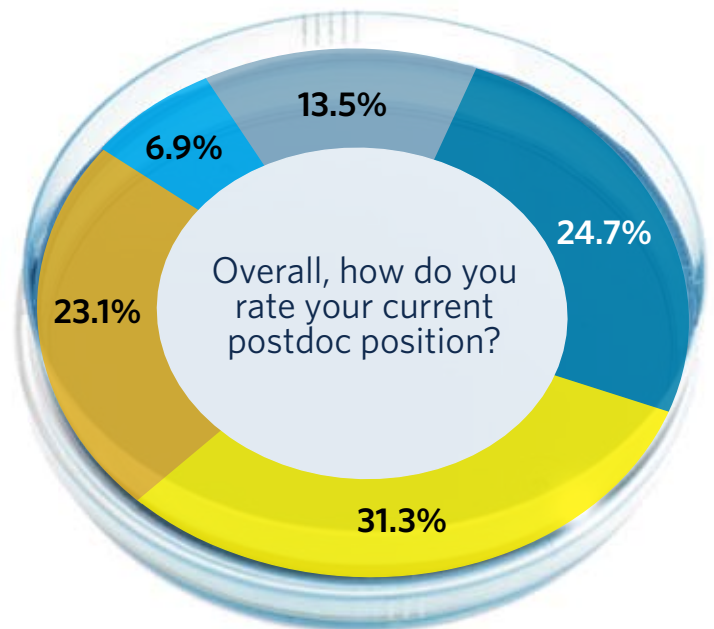
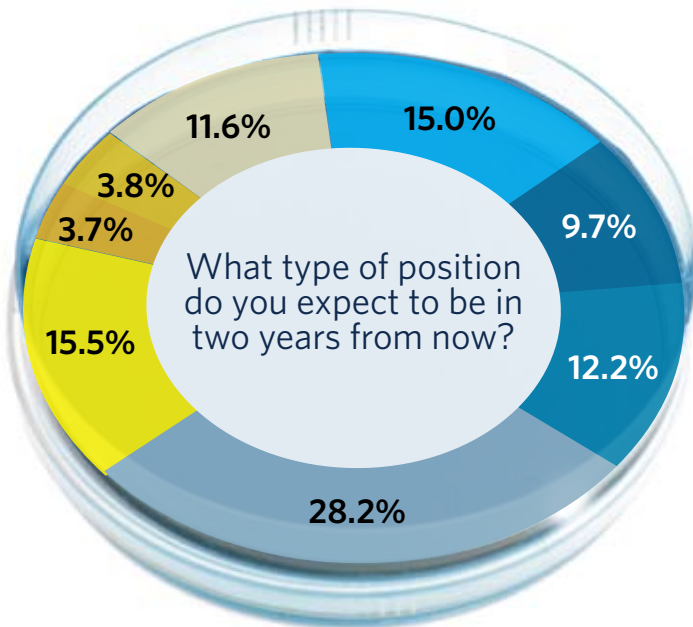
Citizenship



63.1% of postdocs in North America were not born in the country where they are doing their postdoc. Similarly, 57.2% of postdocs are not citizens in the country where they're doing their postdoc.

Most Important Factors

Rank in North America in 2007	Rank in North America in 2006	Factor	Category	
1	1	The training and experience I receive as a postdoc will be valuable to me in my future career.	Value of postdoc experience	
2	2	I have access to the books and journals I need for my research.	Quality of Facilities and Infrastructure	
3	4	My institution provides full medical insurance for me and my family at an affordable rate.	Benefits	
4	3	My institution provides the equipment and supplies I need for my research.	Quality of Facilities and Infrastructure	
5	5	My principal investigator takes time to discuss the science behind the experiments and other work that I do.	Quality of Training and Mentoring	
6	6	My principal investigator makes time available to discuss issues that arise in my research.	Quality of Communication	
7	8	The money I receive is adequate to cover my expenses and provide for reasonable leisure activities, considering the cost of living in my community.	Remuneration and Compensation	
8	13	My principal investigator understands that I have family and personal obligations and encourages me to take care of these obligations.	Family and Personal Life	
9	7	I have learned much from my principal investigator about how to succeed as a scientist.	Quality of Training and Mentoring	
10	12	My principal investigator encourages me to attend symposia and conferences, and makes money available to defray expenses.	Quality of Training and Mentoring	



Seventy-nine percent of postdocs rate their positions as Good, Very Good, or Excellent. However, expectations of future employment are relatively scattered. Compared to 2006, the number of postdocs expecting to work in industry rose 2 percentage points to 16% (see Industry Postdocs, p. 55), while the number of postdocs planning on a tenure-track academic position fell 2 percentage points to 27%. A quarter (25%) of postdocs plan to stay in their current position or to move to another postdoc position (see length of postdocs graph). Twelve percent of postdocs don't know where they will be two years from now, while 8% see themselves moving to government positions or doing something different altogether.

Least Important Factors

	Rank in North America in 2007	Rank in North America in 2006	Factor	Category
	42	43	I have opportunities to further my career within my department or institution.	Career Development Opportunities
	43	42	My institution has an effective postdoc office, association, or advisor.	Career Development Opportunities
	44	44	I am not pressured to publish the results of my research.	Value of Postdoc Experience
	45	45	The bureaucracy at my institution is transparent and easy to navigate.	Quality of Communication
	46	46	My institution has adequate and clear procedures for resolving disputes with colleagues and supervisors.	Quality of Communication

This year's survey respondents consider the quality of training and mentoring they receive in their postdoc position to be essential in overall experience—three factors ranked in the top 10. While overall training and experience for a future career tops the list of important factors in a postdoc, other career development factors rank among the least important. That a principal investigator acknowledges the importance of family and personal obligations rose from last year into the top 10 most important factors. Issues of communication at the institutional level fall at the bottom of the rankings.

ance on career development, Genentech puts a “firewall” between its postdocs and anything having to do with careers and product development – even its own (see sidebar on page 55).

While postdocs may not be in it solely for the money, being adequately compensated is important, especially for those in cities where the cost of living is extremely high. “Affordability is a big issue,” notes John R. LeViathan, postdoc adviser at second-ranked J. David Gladstone Institutes in San Francisco. “We increase the salaries every year,” he says. But even with a better-than-average salary of \$51,180, postdocs say that the expenses and the lack of retirement benefits are disheartening. “The pay is inadequate for the cost of living,” writes one postdoc who asked not to be named. “But the institute has made an honest effort to address this problem.”

While virtually every research institution now offers medical insurance to its postdocs, few offer retirement benefits and other perks reserved for regular employees. One exception is the sixth-ranked National Jewish Medical and Research Center in Denver. Postdocs get full employee benefits and are treated like regular employees, and that means they are welcome to communicate freely not only with their PIs but also with the other 120 faculty members.

“Postdocs understand they are free to navigate across [departmental] lines to get help in their research,” says John Cambier, chair of the Department of Immunology at National Jewish and mentor for six postdocs in his lab. “They can visit any lab for input, get a needed reagent, or get help in learning a technique. That’s important.” The postdocs agree. Katja Aviszus says the best thing about National Jewish is “the laid-back and yet highly driven atmosphere.” Adds fellow postdoc Jenny Chain: “Here there are many of the country’s top immunologists with which to interact, and they care deeply about student and postdoc education.” ▶



Iowa surges again

After spending two years in the lower half of the top 40, the postdoc program at the University of Iowa jumped 27 places this year to number five. Postdocs attribute the leap to a growing recognition of the importance of postdocs on campus and a tight support network among several solid research cores.

While there is no official postdoc association or campus-wide group yet, several smaller groups have taken it upon themselves to give a voice to postdocs’ needs. For example, the Women in Science Engineering (WISE) group recently met with postdocs across campus to gauge their satisfaction with the program; the Campaign to Organize Graduate Students (COGS) also has become a liaison between the fellows and the administration. Many departments and faculty members offer seminars and workshops on grant writing and career advancement.

Among several grievances – the most minor and yet most annoying being the limited parking availability on campus – is the lack of official feedback from the university on postdoc performance. While postdocs are technically classified as graduate students, they aren’t given reports on their progress, as are graduate students. “Here you join a lab and [evaluation] is very mentor-driven,” as opposed to a universal standard, says Christine Weydert, a third-year postdoc studying the role of endothelial growth factor protein in cancer metastasis.

Postdocs at Iowa, like many of their colleagues at similarly ranked institutions, say they have access to a highly collaborative research environment. “What I like about the research here is that there are excellent cores,” says Maged Harraz, a first-year postdoc who is studying macrophage enzymes. “There’s a lot of collaboration around, a lot of expertise outside the lab I’m working in, and access to equipment that makes my research easier, and expands my research,” he adds.

Outside the university, Iowa City offers postdocs some of the big city luxury with small-town charm. For some postdocs with children, the tightknit local community and growing daycare options at the university make it more appealing than a large-city research institution. —Andrea Gawrylewski



COURTESY OF KIRK MURRAY—THE UNIVERSITY OF IOWA

Industry postdocs make the grade

Sarah Hymowitz wasn't planning on moving into industry once she finished her PhD. She applied mainly for postdoctoral positions in academia, but also included one industry laboratory, whose work she greatly admired: Genentech, where she ended up at a protein engineering lab. Hymowitz had considered going back to academia after that, but said that her time at Genentech spoiled her for wanting to go anywhere else. When a position within the company opened up toward the end of her post-doc, she grabbed it. "It's a really nice balance of basic science and doing work that might help people," she says.

Others among the 90 postdocs at Genentech must agree. Genentech became the first company in the five years *The Scientist* has been surveying postdocs to make it into the top 15 Best Places to Work as a postdoc. Nationwide, nine percent of postdocs are in industry positions, while 80% are in academia and 11% are in government, according to the National Science Foundation.

No one tracks international trends as closely. Kristian Almstrup is a postdoc at Novo Nordisk in Denmark, focused on finding molecular biomarkers of type 2 diabetes. Almstrup's fellowship is part of a European Union sponsored program that partners academia with industry to address questions in genomics. He says the access to the best equipment and state of the art facilities are much better than in academia. (That includes such amenities as neck massages.)

Salaries can be slightly higher than average for industry postdocs; while academic salaries average \$40,000 for US postdocs, according to the NSF, Genentech postdocs start at \$49,000 and Schering-Plough postdocs start at \$45,000.

There are industry postdoc detractors. Bill Lindstaedt, director of the career and professional development office at University of California, San Francisco, says that some industry postdoc positions can trap PhDs in "cheap scientist positions." The work is grueling, without much opportunity to publish, and the focus is less on the scientist-in-training and more on the company's pipeline.

That's certainly not true at Genentech, which has had postdocs for about 25 years, says Vishva Dixit, director of the company's postdoc program. Genentech checks in on postdocs' progress regularly and stresses publication as the major goal. "We view it as an instrument or a program that trains scientists who are capable of doing cutting edge and innovative work," she says. The company expects nothing less than publication in high-end journals. "The only way the program is judged by the company, and the only way that I am judged every year, is based on publication," says Dixit.

Other companies have also begun creating more structured programs for their postdocs. Schering-Plough Research Institute in Kenilworth, NJ, started to consolidate its postdoc positions about two years ago, modeled after a 20-year-old program in its Biopharma division in Palo Alto, California. Postdocs are given projects that don't involve the company's proprietary products or processes, so as not to conflict with publication. But in the event that a postdoc produces patentable work, Emma Lees, who oversees the Biopharma program, says the company works to ensure the fellow has an opportunity to publish as well.



Many programs like Genentech and Schering-Plough's have two- to three-year appointments, which are shorter than many academic positions. Hymowitz didn't see this as a disadvantage, however. She said the resources available in industry make it easier to get the work done quickly. She didn't have to spend time looking for funding or training graduate students or teaching, giving her more time for her own projects.

While industry postdocs are often considered "a one-way street," says Lindstaedt, because few return to academia, others, such as Novartis' Presidential Postdoctoral Fellowship, launched in 2004, are designed to keep connections to academia strong. The fellows are required to find a second mentor in academia. Rajesh Ranganathan, director of the educational office at Novartis, says that asking postdocs to pursue projects of their choosing enriches the company's scientific research, while the connection with university faculty opens the door for fellows to return to academia as leaders.

While companies with a good track record for postdoctoral publications and mentoring can be a great choice for those curious about industry, Lindstaedt warns against jumping into an industry postdoc without doing careful research about the lab or the program. Hymowitz, whose postdoctoral work at Genentech earned her a patent, says she would recommend the experience to others. "But people should figure out if there's a scientific connection first," she says: The science needs to drive the decision. —**Edyta Zielinska**

**Ted Agres contributed to this article.*

UBC is Canada's front-runner

With few exceptions, top-ranked institutions offer their postdocs programs in career development, such as grant writing and public speaking. Ninth-ranked Boyce Thompson Institute for Plant Research at Cornell University in Ithaca, NY, offers these as well as opportunities for postdocs to speak at campus-wide seminars. "These give postdocs the chance to talk to a broad audience, not just scientists," says Tom Bollenbach, head of Cornell's postdoc association. "They can get a lot of feedback in a supportive environment."

Even though Boyce Thompson's pay scale is less than that of other institutions, postdocs appreciate the congenial atmosphere. "It's an excellent environment to do research," writes postdoc Greg Rairdan. "I appreciate the excellent communication between my adviser and myself and the collaborative relationships between labs."

In an attempt to support the growing number of fellows who have children, the 10th-ranked Fred Hutchinson Cancer Research Center in Seattle offers a childcare subsidy of as much as \$250 per child per month. "We're trying to help those postdocs who might otherwise choose to delay having a family or delay becoming a postdoc," says Karen Peterson, staff scientist and associate for interdisciplinary training.

Because the postdocs conduct substantial research yet are paid at NIH stipend levels in an expensive city, everyone at the Hutch tries to be supportive, Peterson says. "The science is second-to-none," writes one postdoc, who wished not to be named, "but the pay is horrible." While postdocs "get paid a pittance," writes Brian Fritz, "excellent intralab collaboration and teamwork result in a much quicker research pace as well as greater opportunities for me to develop leadership and training."

Of course, it's never possible to please everyone. "If someone is unhappy we try to figure out what we can do about it," says Peterson. "We try to help people to be more productive, to help them help themselves." ■

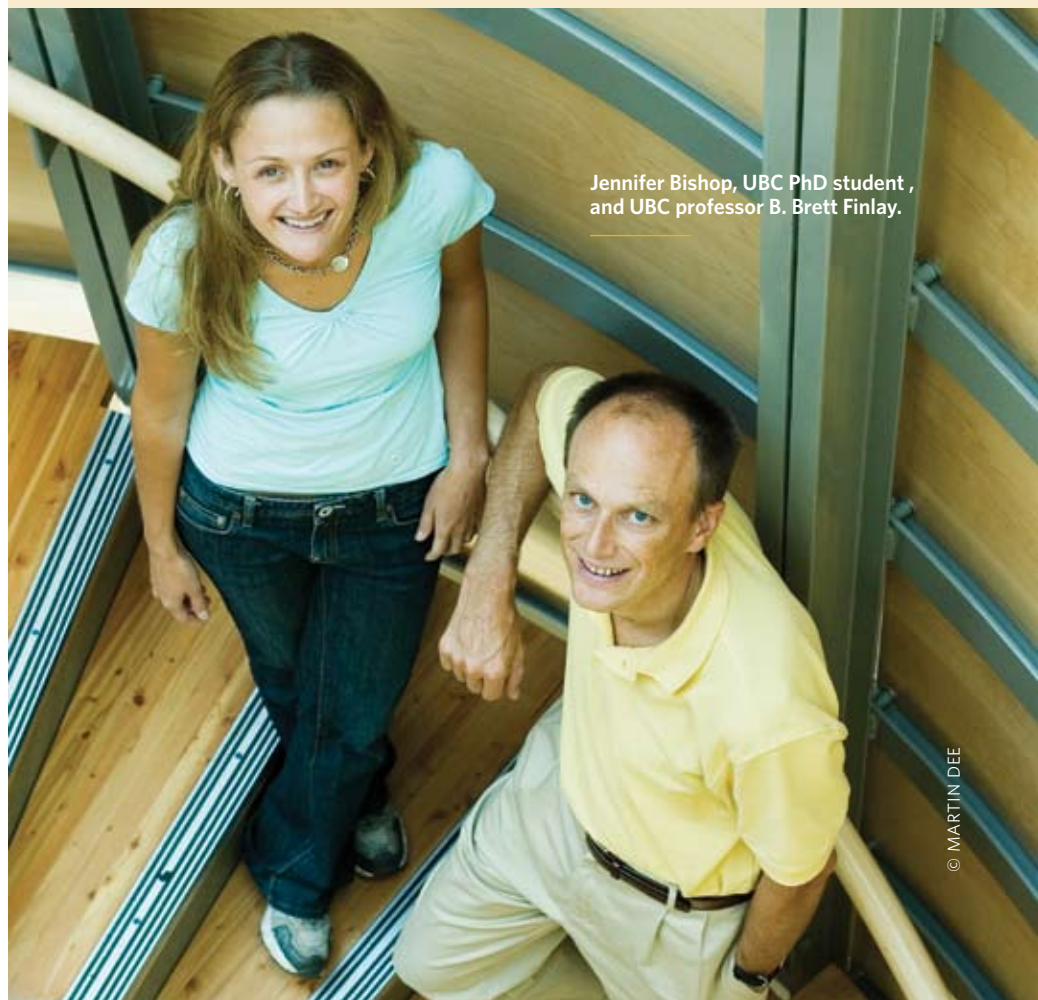
New multi-million dollar research facilities and small lab groups have helped make the University of British Columbia in Vancouver the only Canadian institution on our list of top 15 places to do a postdoc. Like others in the top 15, a close relationship with the principal investigator can make a world of difference in the postdoc experience. In the case of UBC, the 202 postdocs in life sciences are spread out in the sprawling new life sciences institute, opened in 2005. The institute is one of the results of \$700 million given by the Canada Foundation for Innovation over the past six years.

High-tech new facilities haven't changed the intimate scale of lab interaction, though. "You're not walking into a 40-person [lab] group where you have a desk down the hall and you see the boss once in a while," Don Brooks, Associate Vice President of Research at UBC. "This is a small, intimate environment centered around a world class researcher with access to fantastic facilities and equipment."

In addition to its facilities and research environment, the university works to smooth the experiences of foreign postdocs. Lindsay Wilson, a second-year microbiology department postdoc from England studying a respiratory pathogen, was impressed that when her Canadian work permit came up for renewal, the university took the initiative and set her new contract up so that there wouldn't be any gaps in her employment or benefits.

In addition, the life sciences researchers hold regular interdisciplinary sessions that encourage postdocs to present their work. "Everyone knows what everyone else is doing," says Wilson. "I get a lot of encouragement and independence as well."

Although UBC provides excellent benefits to the postdocs they fund, including full optical and dental insurance, some researchers who receive their funding from outside agencies, such as NIH in the United States, run into trouble getting covered. However, the administration has begun discussing the issue. —Andrea Gawrylewski



Jennifer Bishop, UBC PhD student, and UBC professor B. Brett Finlay.

Top 15 North American Institutions

Rank in 2007	Rank in 2006		Institution	No. of postdocs in the life sciences	Average annual postdoc salary (or salary range)	Postdoc office, association, or advisor
1	29		M.D. Anderson Cancer Center, Houston, TX	451	\$36,996-\$65,000	Postdoctoral Association and Office of Trainee and Alumni Affairs
2	1		The J. David Gladstone Institutes, San Francisco, CA	91	\$51,180	Office of Postdoctoral and Graduate Affairs
3	3		US Environmental Protection Agency, Research Triangle Park, NC	23	\$45,106-\$85,037	Network and Leadership Training Organization
4	NA		Genentech, South San Francisco, CA	90	starting at \$49,000	Postdoc Committee
5	32		The University of Iowa, Iowa City	207	\$36,996-\$50,000	None
6	NA		National Jewish Medical and Research Center, Denver, CO	140	\$42,100	None
7	5		National Institute of Environmental Health Sciences, Research Triangle Park, NC	250	\$42,000-\$65,000	Office of Fellows' Career Development
8	4		Emory University, Atlanta, GA	539	\$27,000-\$46,992	Office of Postdoctoral Education
9	12		Boyce Thompson Institute for Plant Research, Ithaca, NY	40	\$30,000-\$38,000	Postdoctoral Society
10	2		Fred Hutchinson Cancer Research Center, Seattle, WA	215	\$43,673	Student Postdoc Advisory Committee
11	NA		Scripps Institution of Oceanography, La Jolla, CA	84	\$32,304-\$66,612	Postdoctoral Scholar Affairs Office of Research Affairs, UC San Diego
12	58		University of British Columbia, Vancouver	202	\$3,216-\$77,004(CAN)	Faculty Relations
13	13		National Cancer Institute, Bethesda, MD	900	\$43,200-\$72,800	Center for Cancer Research Fellows and Young Investigators Association
14	24		Mayo Clinic, Rochester, MN	313	Not released	Mayo Research Fellows Association
15	NA		Oak Ridge National Laboratory, Oak Ridge, TN	25	\$38,000-\$45,800	None

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Survey Methodology

The Scientist posted a Web-based questionnaire and invited readers of *The Scientist* and registrants on *The Scientist* web site who identified themselves as non-tenured life scientists working in academia or other non-commercial research organizations to respond. From approximately 18,000 invitations, we received 2,555 usable responses from scientists in the United States, Canada, and Western Europe. We asked respondents to assess their working conditions and environments by indicating their level of agreement with 46 criteria in 11 different areas. They also indicated which factors were important to them. We ranked 106 institutions with 4 or more responses.

To calculate an institution's overall ranking, we first weighted each factor based on the average importance score. The overall rankings are based on the average score per institution from all respondents on all factors weighted according to their regional importance. Detailed information on the survey methodology is available on *The Scientist* web site at www.the-scientist.com. Our sample of scientists was self-selected, and we have made no attempt to standardize the results or to conduct detailed statistical analysis.

The survey was developed and responses were analyzed by AMG Science Publishing (www.amgpublishing.com)