Double-duty discovery

International collaborations are common in science. But some researchers go one step further, holding formal appointments in two (or more) countries—in some cases, on opposite sides of the globe. Cassandra Willyard examines what researchers have to gain from such far-flung arrangements.

Daniele Piomelli doesn’t sleep much. Perhaps that explains how, for the past four years, he has been able maintain a professorship at the University of California–Irvine and simultaneously oversee the drug discovery department at the Italian Institute of Technology in Genoa.

Piomelli routinely works 80 hours a week, and he clocks many of those hours on planes. In June alone, for example, he flew from Rome to Baltimore for a brief stop at the US National Institute on Drug Abuse. After another short meeting at Yale University in New Haven, Connecticut, he hopped on a return flight to Italy. Seven days later he was back on a plane to the US, where he gave a lecture at the American Diabetes Association meeting in San Diego and then headed north to his lab in Irvine. A week afterward, he flew back to Italy, where he ended the month. “It is physically not something that I would recommend to anybody,” he says.

This hectic schedule may not be good for Piomelli’s health, but it is good for his research. Piomelli works in drug development. He gets to do basic science at his lab in California, which has funding from the US National Institutes of Health (NIH) to study lipid messengers in the brain. “It’s about making discoveries and publishing papers,” he says. Under normal circumstances, investigators rarely have the chance to turn those types of discoveries into useful therapeutics. In Italy, however, Piomelli has a 25,000 square-foot laboratory where 80 independent researchers focus exclusively on translation. The goal, Piomelli says, is to turn basic discoveries into drugs that will have a real-life impact. Everyone benefits. “The kind of stuff that I do in California is entirely complementary to the stuff I do here [in Italy],” he says.

Piomelli isn’t the only one shuttling between two countries for the sake of science. Neuroscientist Erwan Bezard, head of the French Neurodegenerative Disorders Institute in Bordeaux, also has a lab at the Chinese Academy of Medical Sciences in Beijing. Bezard first came to China because the primates he needs for his research were more readily available there.

For Piomelli, Bezard and others, the benefits of holding joint positions far outweigh the jet lag, lost sleep, extra work and missed vacations. And Piomelli expects to see more scientists join their ranks in the coming years. “I don’t think that science can be French or German or Italian or American,” he says. As science becomes ever more an international endeavor, “this figure of the globe-trotting type of scientist will become much more common.”

In the following pages, we profile jet-setting scientists for whom the compass is as important as the microscope in guiding their research.

The islander

Des Richardson, a cancer biologist at the University of Sydney in Australia, believes that maintaining formal ties across continents is a professional necessity for scientists in his country. Sydney lies thousands of miles from the research hubs in North America, Europe and Asia. “The isolation in Australia is incredible,” he says. “We really have to go out of our way to be noticed.”
Richardson was raised and educated in Western Australia, but in 1992 he moved to Montreal to do a postdoctoral fellowship at McGill University. Two years later, he became an assistant professor there. Despite receiving generous grants and having a “beautiful laboratory” for his experiments, Richardson decided to return to Australia in 1996. He was homesick and tired of Montreal winters. Still, he didn’t want to entirely abandon his research at McGill, so he became an adjunct professor as well as a visiting professor at the nearby Lady Davis Institute for Medical Research. He now shares a lab with Prem Ponka, an expert in iron metabolism. Together, they are studying the role that iron has in diseases such as Friedreich’s ataxia, an inherited neurodegenerative disorder, and cancer (Proc. Natl. Acad. Sci. 107, 10775–10782, 2010).

Richardson now juggles formal appointments in three places. About a year ago, he accepted a position as a visiting professor at Shanghai Jiao Tong University School of Medicine in China, where he is co-head of a cancer cell biology laboratory. In addition to exchanging ideas, Richardson’s laboratories in Sydney and China swap people, including postdocs and more senior researchers. These exchanges, along with face-to-face interactions, are important, Richardson says. When he meets with colleagues in Canada or China, “ideas can be bounced around,” he says. That’s something he doesn’t get when he sends emails and shares manuscripts.

The holiday networker

Christmas time air travel is a pain. Last year, Heike Bischoff-Ferrari, director of the Centre on Aging and Mobility at the University of Zurich, arrived with her family at the airport in Zurich only to be told that her husband and son, who planned on accompanying her to Boston, did not have confirmed seats. After a couple of hours struggling with customer service representatives, the normally mild-mannered professor lost her cool. “Then a supervisor came, and we were on the plane,” she says. “All of us.”

Despite the hassle, Bischoff-Ferrari spends every Christmas break in Boston. Her husband and son were born in America, but that’s only part of the reason she braces international holiday travel. In addition to being a professor in Switzerland, Bischoff-Ferrari is also a visiting scientist at Tufts Medical Center in Boston. “I’m trying to be in Boston physically at least for a month each year.” Her winter vacation is the easiest time to get away.

Bischoff-Ferrari’s affiliation with Tufts began in 2002. At the time, the physician had just earned her master’s degree in public health from the Harvard School of Public Health in Boston, and received a scholarship from Harvard to work on vitamin D. That led her to Tufts, where she met with Bess Dawson Hughes, “the vitamin D queen,” as Bischoff-Ferrari describes her. The two had similar research interests, and eventually Dawson-Hughes offered Bischoff-Ferrari a visiting scientist position.

In 2005, Bischoff-Ferrari decided to return to Switzerland, her home. But she kept her visiting scientist position at Tufts, and each year she returns. She speculates that her ties to experts in Boston have helped her get funding in Europe. She has recruited many of her US colleagues to become collaborators on her European projects. She recently received a grant from the European Commission to conduct a large clinical trial in several European countries. The study—called DO-Health—is meant to complement a large US trial—the Vitamin D and Omega-3 Trial (VITAL)—led by JoAnn Manson at Boston’s Brigham and Women’s Hospital. Manson, Dawson-Huges and Harvard’s Walter Willett, Bischoff-Ferrari’s thesis advisor, are all collaborators on DO-Health. VITAL will investigate the effect of omega-3 fatty acid and vitamin D supplements on cancer, heart disease and stroke. Bischoff-Ferrari describes her. The two had similar research interests, and eventually Dawson-Hughes offered Bischoff-Ferrari a visiting scientist position.

The renegade

In 2002, when Akhilesh Pandey, a cancer researcher, took a job at Johns Hopkins University’s McKusick-Nathans Institute of Genetic Medicine in Baltimore, he had few resources but no shortage of ambition. At the time, high-throughput DNA sequencing was just starting to take off. Pandey saw a need for databases to systematize the data. “Researchers like to publish, and they generally imagine that if they publish, their results will be used by all other relevant researchers,” Pandey says. “This is a big fallacy.” In the realm of cancer biomarkers, for example, “we encourage scientists to work on discovering even more candidates without taking stock of what is already there,” he says. The only way to make the data useful, Pandey argues, “is if such data is curated by biologists, tagged appropriately and converted into a searchable database.”

Pandey wanted to create an institute that would employ dozens of scientists to do exactly that—curate the data. The cost to launch such an institute in the US would have been astronomical. So Pandey turned instead to Bangalore, a city that was fast becoming the Silicon Valley of India. To fund the venture, the then 34-year-old Pandey maxed out his credit cards and borrowed money from his brother, who had founded an internet security training facility and had some money to spare. He rented space at the “best business address in India”—a modern building on Whitefield Road in the International Tech Park Bangalore that had internet, central air-conditioning and reliable power—and launched the Institute of Bioinformatics, in May 2002.
One of their favorite questions, he says, is “when did you get back?” And the situation isn’t ideal for the researchers at the institute in Bangalore, either. “The leader is not there,” he says. But Pandey is an optimist. He has begun applying for large grants from the Indian government. “If we get them,” he says, “I think we are going to rock the planet.”

The pragmatic

In 1989, Philippe Leboulch, a native of France, accepted a postdoc position at the Massachusetts Institute of Technology in Cambridge and moved to the US. A few years later, he was offered a junior faculty position at neighboring Harvard. He accepted and, for a decade and a half, moved up the ranks. Like

Going the distance: Des Richardson and members of his Shanghai Jiao Tong University team.

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It’s a small world after all: Investigators with more than one appointment rack up a lot of air miles.
any good scientist, he began collaborating with researchers around the world. Not surprisingly, he developed especially good connections in Paris.

In 2006, Leboulch and his French colleagues launched a clinical trial in France to test whether gene therapy might be an effective tool to treat beta-thalassemia and sickle cell disease, life-threatening blood diseases caused by genetic defects in the genes that code for globin proteins, key components of oxygen-ferrying hemoglobin. Two years later, Leboulch was asked to head the French Institute of Emerging Diseases and Innovative Therapies, and he accepted.

The move from the Boston to Paris made a lot of sense. Leboulch needed to spend more time in France to be closer to the clinical trial, and so far it’s going well. The first subject, who used to require monthly transfusions, “has not has received one drop of blood for three years and counting,” he says (Nature 467, 318–322, 2010). This year, Leboulch hopes to expand the trial to Thailand, where about 1% of the population suffers from thalassemia. Leboulch and his colleagues have already signed an agreement with Mahidol University.

On the double
Globe-trotting for research is not without its drawbacks. “One has to dodge natural events as well as strikes,” says Keith Klugman, a global health researcher at Emory University in Atlanta who also directs the Respiratory and Meningeal Pathogens Research Unit at the University of the Witwatersrand in Johannesburg, South Africa. Klugman has been grounded twice in the past year and a half by ash clouds. But at least he likes the travel. Piomelli sees airplanes as a necessary evil. Not only is he constantly jet lagged, but also he misses his wife and kids, who now live full time in Italy. “Thank god for two things,” he says: “Skype and Starbucks.”

As researchers navigate the tricky terrain of dual appointments, they are laying a bet on new ways of organizing and managing lab teams. Juan Carlos Izpisúa Belmonte, a professor at the Salk Institute for Biological Studies in La Jolla, California, has come up with a peculiar lab structure at the Center of Regenerative Medicine in Barcelona (CMRB), which he heads. The CMRB, unlike a typical research center, isn’t divided into research groups. Izpisúa Belmonte runs the center and his laboratory at Salk as “one lab—a big lab,” he says. Together, the labs include about 25 postdocs, several technicians and research assistants and a few more senior scientists, each of them vying for a few minutes of his time, according to former members of the CMRB.

When lab researchers are not physically present, mentoring of postdocs and other team members can in certain circumstances take a back seat. But Izpisúa Belmonte, who spends the majority of his time in La Jolla, sees the glass as half full. “Obviously, personal contact is needed,” he says, “but sometimes to be far away is also an advantage to gain perspective and see the daily problems from another angle.” There is also the challenge of deciding how the labs will work together. Sharing reagents and data between two geographically distinct labs can set the stage for tension, with the potential for distant colleagues to feel unrecognized for their contributions. But Izpisúa Belmonte shakes off these concerns: “We have common lab meetings, the projects are shared and the publications are coauthored by members of both labs.”

Despite the difficulties of juggling labs and travel, many researchers say the benefits of having far-flung appointments far outweigh the drawbacks. Each position provides something novel—a more supportive research environment, expert collaborators, new sources of funding, different perspectives, and most importantly, face-to-face interactions.

Science is becoming an increasingly international endeavor, and although email and the Internet promote collaboration, they’re a poor substitute for being in the same room together, says Turgay Dalkara, a neurologist at Hacettepe University in Ankara, Turkey. Dalkara has spent the past 19 summers in the Harvard laboratory of neurologist Michael Moskowitz. He travels to Harvard every summer to immerse himself in the invigorating research environment that exists there.

And he is spreading the gospel: each year, Dalkara tells his Turkish students to attend the Society for Neuroscience meeting. He wants to see them interacting with their colleagues. “Until they go to their first meeting, they don’t exactly catch what I’m saying,” he says. Once they’re at the meeting, however, they begin to understand. Dalkara says it’s like the difference between watching a DVD about a beautiful country and then visiting the country. There simply is no comparison.

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