and will drive the country's demand for toxicologists, says Kenneth Leung, an aquatic toxicologist at the University of Hong Kong. He says that the number of industry and academic postgraduate and postdoctoral jobs in the field is growing and this is likely to continue as China attempts to meet demands for efficiency, cleaner air and water, and action on addressing climate change.

"North America confronted decades ago the problems now emerging in Asia, so individuals trained in environmental toxicology can make a substantial contribution in Asia," says Michael Newman, an ecotoxicologist at the Virginia Institute of Marine Science in Gloucester Point. China has a number of well-known training programmes, including a programme at the Guangzhou Institute of Geochemistry of the Chinese Academy of Sciences, known for its monitoring of environmental pollution, and the Research Center for Eco-Environmental Sciences, also part of the Chinese Academy of Sciences in Beijing, which is working to develop an early-warning system for environmental contamination.

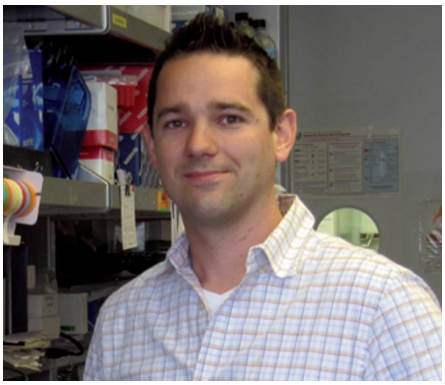
Globally, the field is moving away from a focus on individual chemicals and towards understanding the cocktail of chemicals that pervade the environment, says Linda Birnbaum, head of both the National Institute of Environmental Health Sciences in Research Triangle Park, North Carolina and the US National Toxicology Program, a federal interagency programme. "People are finally beginning to realize that nobody is exposed to one chemical at a time," says Birnbaum. "We live in a soup. We've got to go beyond looking at one chemical or one exposure at a time and start looking in a more integrated fashion." In the future, toxicologists will need to consider cumulative effects of many exposures and work as part of multidisciplinary research teams.

Most environmental toxicologists say they are highly satisfied with their work, partly because they can apply their expertise to pressing, real-world problems. Erica Holloman, who recently completed her PhD in toxicology at the Virginia Institute of Marine Science, is building on her doctoral work, assessing the effects of mercury in seafood and other pollutants in a low-income community in Newport, Virginia, through a community grant from the US Environmental Protection Agency. "I wanted to see my work make a difference in everyday life," says Holloman. "I found this was a way that my passion for science and the research could lead to something that was dear to my heart, and that I could really have an impact in." ■

Amanda Mascarelli *is a freelance writer based in Denver, Colorado.*

TURNING POINT
Sean Bendall

Sean Bendall, a postdoctoral fellow in stem-cell and cancer biology at Stanford University in Palo Alto, California, won the Dale F. Frey Award for Breakthrough Scientists from the Damon Runyon Cancer Research Foundation in New York on 9 January 2012.



How did you decide where to do your PhD?
After earning my bachelor's degree in biochemistry and microbiology at the University of Victoria in Canada, I decided to work for a year at a proteomics facility while I applied to graduate programmes. I was accepted to some very prestigious places, including the University of Oxford, UK and the Institute for Systems Biology in Seattle, Washington. The decision was tough because the research project that excited me the most was not happening at Oxford or in Seattle. I wanted to work on the mechanism that makes an embryonic stem cell continue to be a stem cell and stops it from differentiating into another type of cell, and I was able to do this at the University of Western Ontario in London, Canada.

Was it a good decision?
I definitely do not regret deciding to follow my passion. My stem-cell work ended up making a big splash in *Nature* (S.C. Bendall *et al. Nature* **448,** 1015–1021; 2007), even though it took a while to get the paper out. I think if you could tell any PhD student that their project would culminate in a high-profile paper in a top journal, they would consider that the best-case scenario. As it was, I left little bits of my soul behind on a long journey to get to that end point.

What did you learn while writing that paper?
How to tell the story better. Like many academics, I was blind when it came to my own research. I had to find a way to write that laid out how my observations could help to guide science in a new direction, rather than simply saying the research so far had been wrong.

How many iterations did the paper undergo?
Several. The first version was two stories — the method development and the actual stem-cell analyses — that were poorly tied together. We sent it to one journal, not *Nature*, and the reviews were not good. But the reviewers did suggest experiments that could strengthen the paper, which helped us to describe, in a new version, how some of the pathways that we had thought were most important in stem-cell cultures were not even acting on the stem cells, but on the support cells. Once I combined my work with a colleague's, a bigger story emerged of how growth factors help to control how human embryonic stem cells differentiate into, say, bone marrow or skin.

Are there downsides to training at the cutting edge of science?
There can be. In 2008, next-generation flow cytometers were so new that I was almost a year into my postdoc before we got the instrument in the laboratory. Until then, I had to send my samples to the manufacturer in Toronto. Still, once we got everything running well, we were able to quickly publish a paper that illustrated the technology's capabilities and potential. Every project in our lab is now using this technology. It is an exciting time.

Has your ongoing success delayed your efforts to seek a permanent position?
Yes. I haven't applied for any jobs yet because everything is going so well, and I want to focus on the research. But I realize that I need to put myself on the job market and that now is probably best because my work is going so well. Receiving the US$100,000 Dale F. Frey award is a nice nest egg for when I get my own lab.

What is your secret for success?
Research topics in the top journals are probably not the best PhD or postdoc topics. They already have enough people working on them. I like finding the empty space in research in which no one else is poking around. And my publication record is good partly because I work in multidisciplinary groups. Some researchers think that they should do everything on their own, but that can take so much longer, and a collaborative project might also result in a better interpretation of the data because the case has to be proved to many disciplines. ■

INTERVIEW BY VIRGINIA GEWIN