

the validity of a specific forensic technique.

Commitment is key. “Unlike other areas of science, in forensics a person’s credibility is called into question daily in a court of law,” says Medler. In addition to mastering a range of scientific techniques, he says, forensic scientists must be able to identify the most probative pieces of evidence at the crime scene, must know how to document who has physical possession of evidence and why, have knowledge of the legal process and have the ability to communicate on a court stand. Much of that training must be acquired on the job.

In Europe, the training requirements for crime-lab analysts vary depending on which body has authority over the forensics operations. For example, in France, Italy and Spain, forensic services are provided by the police; until recently, only trained police officers could work in crime labs. However, in Belgium, forensic labs are under the purview of the justice department.

Applicants with criminal records or who fail drug tests face dim prospects. Matheson says that background checks disqualify up to two out of every ten candidates.

#### CLOSING THE GAP

Forensic science is considered a young field. Police labs, frequently inundated with caseloads, are often simply unable to perform much-needed research. And although there is a growing amount of forensics research in academia, interactions between practitioners and researchers can be limited.

But as the number of forensic-science programmes at universities grows, and the PhD and MSc students chip away at research needs, the field’s scientific footing is expanding. “The advantage of having more university training programmes in forensics is the increase in research activities,” says De Kinder. Unfortunately, researchers still struggle to find funding.

“To better our profession we need to do two things: encourage people with PhDs to get into forensics and overcome the disconnect between academia and the practising field,” says Larry Quarino, chair of FEPAC and director of the forensic-science programme at Cedar Crest College in Allentown, Pennsylvania. He advocates the creation of a sabbatical that would allow practising forensic scientists to conduct academic research necessary for their positions.

“For a scientific discipline to be a living discipline, it needs to conduct research,” says Pierre Margot, head of the school of criminal justice at the University of Lausanne. “As long as researchers are working on the needs of tomorrow,” says Margot, “I’m not too worried about the state of the job market today.”

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## TURNING POINT

# Jill Venton

*Jill Venton, an analytical chemist at the University of Virginia in Charlottesville, received the 2011 Society for Electroanalytical Chemistry Young Investigator Award in March for her efforts to develop sensors able to probe neurotransmitters in fruitflies.*

#### As an analytical chemist, do you find neurochemistry messy?

Analytical chemists develop methods to quantify the composition and structure of matter, and I definitely think like an analytical chemist — I like precise measurements with small error bars. But life does not take place in a beaker, and I knew early in my career that I wanted to apply my skills to biology. I did my PhD in analytical chemistry with a neuroscience focus and found that I liked the field, so I followed up my degree by doing a postdoc supervised jointly by a chemist and a neuroscientist. By comparison with chemistry, neuroscience is messy. It’s more exploratory, which often doesn’t lend itself to nice, neat experiments, because we know so little about the brain — but it has been fun and challenging to use my talent for precision to help develop ways to measure brain functions.

#### How do you get your research ideas?

Some come from colleagues. For example, a neuroscience colleague wanted to measure neurotransmitters in the fruitfly brain and challenged me to help him find a way to do it. I had never thought of it before, but I was exploring techniques to measure fast changes in neurotransmitters in the mammalian brain, so I thought I could tackle it. Other ideas come from the need to keep pushing technology further and exploring the boundaries of what new methodology can tell us about neuroscience.

#### What’s your strategy for winning early-career awards?

I have applied for a lot of young-investigator awards, and certainly have not won them all. When I started out, I applied indiscriminately for any funding or award. I was lucky to get a US National Science Foundation career award early on, which helped to give my lab a foundation. Once I got that, I became pickier in terms of which awards to seek, because I didn’t have infinite amounts of time to apply to them. At the moment, I rely on national funding agencies for my bread and butter, and



apply for awards that have a certain level of prestige to supplement that.

#### You are awaiting a decision on tenure now. Was the tenure process what you expected?

I knew that the tenure committee would look at grants and publications, and that there would be significant emphasis on letters written on my behalf from people outside this institution. Many people do what’s called a ‘tenure tour’ in the year or so before they go up for tenure, working to raise their profiles and build a reputation in the field to ensure those positive tenure letters. I had a baby a year and a half before I went up for tenure, so my ability to travel was limited and I was more selective about where I went. For example, rather than presenting at single universities, I went to a Gordon Research Conference — an international gathering of scientists to discuss the frontiers of research. Before getting pregnant, I spent time networking by meeting people at conferences and organizing workshops or symposia.

#### Analytical chemistry is a male-dominated field. Does that pose challenges?

Yes. I’m one of only three women in a department of about 30 — and the only woman with a child. But it is very typical in chemistry for women to hold only 10% of the academic positions. Still, this department has accommodated my efforts to set a flexible schedule to balance work and life. The biggest challenge is that there weren’t — and still aren’t — many role models, successful female researchers. I had to look to biology and neuroscience for those. ■

INTERVIEW BY VIRGINIA GEWIN