



Deviating from the plan

When graduate school doesn't play out as expected

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For chemists who want a doctoral degree, the portion of the career path that passes through graduate school seems like a well-trodden way forward with few diversions: You spend five to seven years as a graduate student and then move on to the next section of the trail, whether it's a postdoc or a job.

But for some students, the path through graduate school takes an unexpected turn. Three scientists spoke with C&EN about how their original plans for graduate school changed—whether they were bumps in the road or major diversions—and took them to unexpected places.

When Christine Isabella started graduate school in the biochemistry program at the University of Wisconsin three years ago, she didn't plan to end up in Massachu-

setts. But about a year into the program her mentor called the group together and

told them she'd been offered a position at Massachusetts Institute of Technology.

The announcement was completely unexpected for Isabella. "When you're looking for a lab to join, you don't really think of asking, 'Are you thinking of moving?'" Isabella says. She had been working in the group for about six months, and she had a choice: Change groups and stay in Wisconsin, or move to Massachusetts.

She liked her adviser and her project. The idea of joining another lab sounded like starting over and losing all the work she'd already done. "It seemed like a lot of

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—Christine Isabella, graduate student, Massachusetts Institute of Technology

time to lose,” she says, “but in retrospect, six months in a lab, especially your first six months, is nothing.”

That’s particularly true, she says, in light of the fact that packing and unpacking the lab during the course of the move probably took at least six months. There’s an inevitable drop in productivity during a move, Isabella points out. “It’s very easy for that to become very stressful.”

It’s important for students who find themselves caught up in a move to advocate for themselves, Isabella says. They should ask some pointed questions: Will the degree requirements change? Will the move impact the student’s financial situation? What is the new school willing to do to make the transition easier?

Graduate students can find themselves in a vulnerable position, with their advisers having a huge amount of influence on their future, Isabella says. “You have to trust that your adviser has your interests in mind.”

Isabella found that the move to MIT made her reflect on her decision to get a Ph.D., and the time she spent away from active research gave her space to reconsider her career path. “Keeping an open mind through the process and the change has allowed me to have some great experiences that I never really anticipated, in grad school and in life,” she says. Isabella plans to finish the doctoral program and hopes the move hasn’t prolonged the time it will take to get her degree.

After finishing her undergraduate degree, Rena Ingram planned to earn an advanced degree in chemistry. But as a graduate student at Georgia Institute of Technology, she had trouble finding her groove. It took her a year to join a research group, and even though she liked her adviser, coming to work eventually became a struggle. “I was constantly questioning if this was what I was supposed to be doing,” she says.

Ingram wondered if the roller coaster of emotions she was experiencing was normal. “Is this what people who are getting their doctorate really feel like?” she wondered. Her professors and colleagues told her some frustration was to be expected, but Ingram couldn’t imagine why anyone would stay in a program for five years or more feeling so unhappy. She thought about leaving many times. But “I was afraid to disappoint my mom and my friends. I didn’t want to be that ‘you couldn’t do it’ type of person,” she says.

When the time came to take her qualifying exam two and a half years into the program—a major hurdle she had to clear to get her degree—Ingram prayed for a

sign. It came to her clearly, she says: The committee of professors that gathered to assess her progress said they could tell she wasn’t thriving. “They never told me I failed or that I should redo the exam. They simply said, ‘You’re not happy,’” she remembers. “That’s when it slapped me in the face: I asked for a sign and I got it.”

The committee also told Ingram that her presentation had been good and that she should consider a career in teaching. Ingram says she had enjoyed the teaching she had done as a graduate student, so she took the recommendation as another sign.

She left Georgia Tech with a master’s degree in chemistry and spent a year as a Woodrow Wilson teaching fellow, earning her second master’s degree in teaching secondary science from Kennesaw State University in May. She began teaching high school chemistry at Creekside High School in Fairburn, Ga., in August.

“Making that decision to leave Georgia Tech honestly saved my life. I would have

nice to be there for a year or two for the training,” he says. “But from the perspective of what I wanted to do, this was a dead end.”

Krasavin decided to return home, where he earned a Ph.D. from the Gubkin Russian State University of Oil & Gas while also working as the associate director for custom chemistry at the Chemical Diversity Research Institute. After a short postdoctoral stint in Canada, he returned to the Chemical Diversity Research Institute as director of medicinal chemistry and at the same time began working on his D.Sc. degree—an advanced qualification that’s similar to the European habilitation and required for anyone who wants to be a chemistry professor in Russia.

By 2011, Krasavin was ready to start his independent academic career. He decided to make another move, this time to Australia, where he ran his own research group at Griffith University until 2014, when he returned to Russia to take a po-

“I was constantly questioning if this was what I was supposed to be doing.”

—Rena Ingram, former graduate student, Georgia Institute of Technology

been sitting there miserable for another three to six years,” Ingram says. “I can’t say that I wish I’d left sooner because then I wouldn’t have learned the lessons I did.”

Ingram wants graduate students who find themselves in a similar situation to know that many others have stood in the same shoes. “My only advice would be to do what makes you happy,” she says. “If you sit around and wait for someone to tell you what to do or if you wait for validation on what you’re doing, you’re only going to continue to wait.”

While Ingram knows the decision to leave graduate school was the right one for her, Mikhail Krasavin has often wondered what would have happened if he’d decided to stay at Johns Hopkins University, where he started a Ph.D. program (and met this writer) in 1997.

Krasavin, originally from Russia, came to the U.S. planning to become a chemistry professor. But two years into the program, he had a falling out with his adviser. Krasavin decided to leave Johns Hopkins with a master’s degree and took a job in the pharmaceutical industry. But after a few years, he grew restless. “It’s

sition as a chemistry professor at Saint Petersburg State University. He now runs a research group with more than 20 graduate students and postdocs.

Reflecting on his circuitous path, Krasavin says he feels his time working in industry was valuable. Even as an academic, he says, understanding how industry operates is important because that’s where the majority of people who graduate from his group will go, so he needs to prepare them with skills they’ll need to succeed.

But Krasavin also says there were times he regretted leaving the graduate program at Johns Hopkins in the late 1990s. He cautions students against making similar snap decisions. “It’s just a qualification step,” he advises. “There will be opportunities to change course during a postdoc or during one’s career.”

Ultimately, Krasavin says he is happy with where he landed, even if the route was more complicated than he originally planned. “Many people who see me being successful in academia here in Russia perceive it as some sort of miracle,” he says, “considering how untraditional my path has been.” ■