

Failure to launch? Or a thirty-year career detour? A users' manual for supporting second-career scientists in your immunology lab.

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July 8, 2023

Abstract

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PATHWAYS TO SUCCESS

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TITLE

Failure to launch? Or a thirty-year career detour? A users' manual for supporting second-career scientists in your immunology lab

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Running Head: Scientific careers' advice

Keywords: Translational immunology, Bone marrow, Lymphoid tissues

Abstract

Laboratory science sometimes looks like it's built exclusively for young people, but if you look closely, you'll find another group of scientists waiting to join your lab: those of us who didn't quite launch our careers on a normal trajectory. Welcoming a second-career scientist into your lab takes time and resources, but may just be well worth it. Here's what one second-career scientist wants you to know about supporting second careers in immunology.

Sometime in between peering at bands of dye in one of the hundreds of agarose gels I've run in the last two years, and mentally doing the math to figure out how much of my paycheck is earmarked for the babysitter this month, it occurred to me that you might be wondering what I am doing here.

I am a second-career scientist, and I am in your immunology lab.

This idea may not make any sense to you. Sometimes it doesn't make any sense to me. Life was good before immunology came knocking. I'd waded through bumpy career moments in my twenties and early thirties. I

saved a house from repossession during the financial crisis of 2008 (the single purchase I made on my own that christened my entry into official adulthood). I met a guy at a speed-dating event in Seattle, married, and started a family. But behind the smiling face in the family photos on the fireplace mantel, there was a secret that only those close to me knew. Thirty years ago, I went to college intent on a career in science—and gave up on myself.

As the Facebook relationship status listing says, “it’s complicated.” When I was younger, I thought B’s were failing grades. My parents were struggling, and I was sad and withdrawn. My father would be dead of obesity-related heart disease before I earned my first college degree. In a lot of ways, I was an adult before I ever had a chance to be a kid. In that environment, college chemistry and physics felt impossible. After a childhood of being tracked into every science program my public school system could find for me, I left it all behind.

Or so I thought.

Like a functional lentivirus, the siren call of science was still lurking inside my cells, waiting for its moment, even as I pursued other careers that came more easily: journalism, documentary filmmaking, marketing, management consulting. In early 2020, right before COVID-19 shut down the world, my cell phone rang while I was dropping off my four-year-old at preschool. It was a friend who worked at one of the top cancer research centers in the United States.

“Have you ever thought about working in a research lab? We’re looking for someone, and I think you might like it here.”

Beware the casual phone call from a friend right before the world shuts down in a global pandemic. What my friend knew was that a few years earlier, I’d quietly started premed classes at a local community college. When Covid hit, work evaporated, and so I became a full-time caregiver to our son. Classes went virtual, so I woke up early to catch up on the lectures. A year after my friend first told me about her lab, I was climbing the walls at home, impatient for the world to get back to normal. Then, the moment of opportunity arrived: a job listing appeared on the lab’s website. My friend’s lab still needed a part-time helper for minimum wage. Ten hours a week all to myself while my son attended pandemic-friendly kindergarten at the little Montessori school down the street? Sign me up.

After a few months of cleaning out bleach buckets and learning the difference between fluorochromes and phosphatidylserine, the research technician who sat next to me suddenly up and quit. The lab was busy, and they needed a body, now. I raised my hand again. A few bucks an hour more, and suddenly I was running those PCR assays and pipetting the DNA fragments into agarose gels, searching for leukemia patients whose single nucleotide polymorphisms on a specific sequence of chromosome 19 marked them eligible for an immunotherapy clinical trial that could save their lives. I realized I’d inherited my carpenter grandfather’s knack for working with my hands when I picked up a multichannel pipette to load the whole gel in one fell swoop. The post-docs in the lab gasped, but I never missed those tiny wells. I came home grinning every day. Something I was doing, right now, could change the life of a person with a devastating diagnosis. It beat management consulting hands down.

Then I opened my eyes a little wider and discovered that immunology suffers from the same problems as the rest of humanity.

Funding is perpetually too tight. Great research ideas go untested for lack of money. Good mentors are hard to find. Bullying is as prevalent as it is in the corporate world. In short, immunologists, I discovered that you’re just like everyone else. Even if what you’re doing at work is curing cancer.

And I’m still here.

When the days get hard, I sigh. “I’m just three billion base pairs trying to get through the day,” I tell myself, or anyone around who’s likely to get the joke. When the time is right, I speak up. My secret superpower is that while I’m helping you do your research, I’m also able to count on other sources of income, because I’m

older than most of your other technicians and frugal, and I still work freelance as a marketing consultant because, let's be honest, your hourly rate does not pay my mortgage. I don't have anything to lose.

And yet I don't always know how to help change this system for the better. When I see young techs working late into the night because they're afraid their lab's principal investigator won't give them a strong grad school recommendation if they complain, I want to say something to their mentors (that would be you). But I know you came up through this system, too, and oh, how academic systems are loathe to change. I could not have afforded to do this work thirty years ago, because my father was dead and my mother was still raising two more young children at home, so I was limited by my own earning power. I want you to champion your lab staff so that all of us can live on these salaries. We don't always have the power to make systemic changes, but you do.

Here's what I do when I'm down on the system: I keep showing up. I try to be the best colleague I can be. And when I need to do it, I make changes, even when they seem like risks. After two years, I changed labs. My first lab wasn't well positioned to welcome a second-career scientist. I never had a mentor or much of a relationship with the principal investigator. The priority in that lab was on finding cancer cures *now*, and to that PI's everlasting credit, she focused on the problem like no one else I've ever seen. Her work has saved many lives. But new scientists need mentors and training, and I'm thankful for the kind co-workers who took it upon themselves to teach me how to compensate a 19-color immunophenotyping flow cytometry panel. They helped me build my bench skills like bits of stardust coming together to form a new heavenly body. There was a successful flow panel here, a PCR problem solved there. I gathered the tendrils of knowledge together over many months, knitting them into something that looked like competency.

The switch to my new lab has been well worth it. My new PI wears her commitment to a vibrant, diverse scientific community on her sleeve. She talks to us daily about our work and our challenges, offering support and a commitment to our varied career paths. We are from all over, speak multiple languages, celebrate our wins together. Many of us are first-generation scientists. I am fortunate to have found a home in science in this warm and welcoming place.

There's more to this story. Thirty years after giving up on myself, this year I will finally complete my postbaccalaureate B.S. degree in biochemistry at the University of Washington. I started last year as a transfer student. My physical chemistry professor took me aside last winter. *Just curious*, he said. *I haven't seen you here before, and this is a pretty advanced class.* I explained it all to him: I started at community college, finished premed courses, got a job in immunology on a lark, and I still want to finish this degree. He nodded. *Unfinished business*, he said. I smiled. He understood. (And I passed his class.)

This is what I want to tell you: When the second-career scientist comes calling in your lab, open the door. We want to be there. We may have a different set of responsibilities and might need more understanding than the young folks we work alongside who aren't rushing home to pick up a kid from school or shuttle them to baseball practice, but we can do the job. Mentor us the same way you mentor the students who found you when they were college interns at age 18. Take us seriously, and you'll find that we take ourselves seriously as well. We all need each other. And this most fascinating and challenging of fields needs us all, because there are still so many mysteries to unravel. Let's get to work on them, together.

ACKNOWLEDGMENTS

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CONFLICTS OF INTEREST

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Figure 1. XXX-XXX add text

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