FACES OF MASS SPECTROMETRY / Khatereh Motamedchaboki

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Harnessing Transformative Potential

Spanning the spheres of both academia and industry, Khatereh Motamedchaboki's career has been dedicated to improving human health through the advancement of proteomics and multi-omics technologies. After earning a master's degree in genetic engineering, when she became interested in the power and complexity of proteomes, Khatereh studied biochemistry for her Ph.D., when she was trained in mass spectrometry–based proteomics technologies.

For ten years, Khatereh worked as Director of the NCI-designated Proteomics Core at Sanford Burnham Prebys in La Jolla. While there, she supported numerous research teams through various types of mass spectrometry–based projects. These experiences became valuable in a new way for Khatereh when in 2016, after relocating to northern California, she began exploring new career opportunities and shifted her focus toward the world of technical marketing, which turned out to be an excellent fit for her.

Khatereh is currently Senior Global Business Development Manager for Translational Omics at Thermo Fisher Scientific based in San Jose, California. She has also held senior product and technical marketing roles at organizations such as Seer and Sciex, where she supported the successful launch of many proteomics and metabolomics products and workflows. At Thermo Fisher Scientific, Khatereh provides customers with comprehensive workflow support and collaborative guidance. When making this career shift, Khatereh was inspired by the transformative potential of mass spec technology. She appreciates the innovative and collaborative nature of her role and enjoys working to empower researchers while expanding access to state-of-the-art mass spec technologies. Furthermore, Khatereh is deeply motivated by the positive impacts on patient care associated with customers' research.

Did your interest in mass spec begin before or during your education at University of Southern California?

I was first introduced to mass spectrometry at the H.E.J. Research Institute of Chemistry during an analytical chemistry course focused on the topic. When I moved to the University of Southern California (USC) gene therapy laboratory, I was introduced to Thermo Finnigan's LTQ Deca mass spectrometer. Since I already had experience in liquid chromatography, protein purification, and enzymatic activity assays, I was sent to Thermo Fisher Scientific's West Palm Beach training center in 2003. There, I learned to operate, troubleshoot, and maintain the MS system with Dr. Craig Dufresne. I had the privilege of training under outstanding professors, such as Dr. Ebrahim Zandi at USC, and working with Dr. Scott Paterson in my PI's startup FARMAL. Later, at the Sanford Burnham Prebys (SBP) Medical Discovery Institute, I directed the NCI-designated Proteomics Core for a decade. With my background in genomics and biology, we quickly recognized that LC-MS is a powerful tool for addressing researchers' complex biological questions.

When did you decide to focus specifically on the field of proteomics and multi-omics?

My interest in proteomics began during my master's degree in genetic engineering, when I was purifying restriction enzymes for cutting DNA. During that process, I became deeply fascinated by enzymes and proteins, with their complexity, diversity, and vital roles in biological systems. This passion led me to shift my focus from genetic engineering to biochemistry for my Ph.D., where I could explore advanced proteomics technologies like mass spectrometry–based proteomics. During my doctoral research, I became involved in collaborative projects that integrated proteomics data with genomics and transcriptomics. It was through these experiences that I recognized the tremendous value of proteogenomics. Later, when I transitioned from academia to industry, I received advanced training in metabolomics and lipidomics and gained firsthand experience in multi-omics profiling of human plasma samples. Through collaborations, we were able to demonstrate that integrating proteomics, metabolomic, and lipidomic data with other molecular modalities revealed powerful insights into mechanisms underlying life-threatening diseases. These collaborations strengthened my commitment to multi-omics research.

At the India 2025 Orbitrap summit. (Photo courtesy of Khatereh Motamedchaboki.)

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When did you become interested in product and technical marketing?

While directing the Proteomics Core at the Sanford Burnham Prebys Medical Discovery Institute in La Jolla, I had the privilege of supporting over fifty-eight academic labs and fifteen industry partners through a variety of mass spectrometry–based proteomics assays. In 2016, after my family relocated from San Diego to the Bay Area, I began exploring new career opportunities, since proteomics core director positions are rarely open. Around that time, an industry connection suggested that I consider a career in technical marketing. Initially, I laughed at the idea and told him, "I'm a scientist, not a marketer." But he reminded me that I had already been successfully marketing the SBP Proteomics Core services—through compelling data, technical expertise, and scientific storytelling that demonstrated our capabilities and scientific impact. I then moved to my first industry role, always believing that great data is the best marketing tool for any new technology introduction, and my career in technical marketing and business development has been motivated by that philosophy.

How did you come to your current role at Thermo Fisher Scientific?

With the launch of Thermo Fisher Scientific's next generation of mass spectrometers like Orbitrap Astral MS, Orbitrap Astral Zoom MS, and Stellar MS, I was truly inspired by how far mass spectrometry technology had advanced in sensitivity, throughput, and robustness. Recognizing this transformative advancement, I decided to join Thermo Fisher's Global Business Development team, where I could help expand customer access to cutting-edge mass spectrometry technologies and empower researchers worldwide. In this role, my focus is on enabling scientists who traditionally work with genomics and transcriptomics to integrate high-quality proteomics and multi-omics data into their research—providing end-to-end workflow support, knowledge transfer, and collaborative project guidance.

What do you enjoy most about working in this role?

The most rewarding part of my current role is working at the intersection of innovation and collaboration, helping scientists harness the full potential of Thermo Fisher Scientific's chromatography and mass spectrometry technologies to advance discovery, translational, precision, and population health research on a global scale, while contributing to our company's mission to make the world cleaner, safer, and healthier. What inspires me every day is seeing the impact of multi-omics insights and how our customers' research is helping patients affected by diseases like cancer, along with neurodegenerative, infectious, and rare diseases, as well as aging. These are the types of conditions that are impacting every family globally.

Tell us about your involvement in the launch of Seer's Proteograph Product Suite?

Having spent many years working in plasma proteomics, I found it incredibly inspiring to see a product that truly enabled researchers to explore the plasma proteome in greater depth, without compromising throughput, coverage, or data quality. The Proteograph Suite made it possible to integrate deep plasma proteomics at scale, empowering groundbreaking

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Running for Susan G. Komen to raise funding and awareness for breast cancer. (Photo courtesy of Khatereh Motamedchaboki.)

research in cancer, xenotransplantation, neurodegenerative, and rare diseases. It was especially exciting to be enabling high-throughput sample processing that could finally keep pace with the capabilities of new-generation mass spectrometers like the Orbitrap Astral and Orbitrap Astral Zoom MS.

We understand you have been an ASMS member since 2018. What lessons have you learned from your membership there?

After moving into industry and becoming involved in launching chromatography and mass spectrometry products, I started to attend ASMS regularly. Before that, I used to send our lab scientists to attend ASMS so that they could share what was new and get up to date on technological advancements and application development in mass spectrometry–based proteomics. Now, ASMS has become something of a scientific family reunion for me—where I get to reconnect with customers, collaborators, and colleagues across the globe. What I love most about ASMS is the energy—it's the perfect place to brainstorm ideas, debate where the field is headed, and share in the excitement of every new discovery and technological advancement.

How has training and mentoring younger female scientists helped you to grow and learn?

Mentoring young scientists, especially women entering the field, has been one of the most rewarding parts of my career. Whether it's supporting colleagues, interns, or students I meet at conferences, I always try to do everything I can to help them find confidence in their skills and navigate their career paths. I'm also involved with local Bay Area FeMS (Females in Mass Spectrometry) and Thermo Fisher's San Jose Women's Empowerment Business Resource Group (WEBRG), which remind me how vital it is to create spaces of encouragement and belonging. My hope is that together, we continue building a safe, inclusive, and empowering network where women in mass spectrometry can thrive, support each other, and push the boundaries of what's possible in our field.

> *That's the future I'm deeply committed to helping build—a future where multi-omics molecular profiling translates into the most comprehensive knowledge of health and disease with tangible opportunities to improve human health and give hope to patients everywhere.*

My hobby of hiking, in the Grand Canyon. (Photo courtesy of Khatereh Motamedchaboki.)

In proteomics, is there a potential development in terms of technology or instrumentation that you are particularly excited about?

What excites me most about the future of proteomics is seeing mass spectrometry–driven discoveries translate from research to the clinic. We are entering a transformative era where proteomics can directly impact patient care—through the identification of new biomarkers, the validation of therapeutic targets, and the development of truly personalized treatment strategies.

When you're not in the lab, do your interests include any travel?

When I'm not traveling for work, I make sure to travel for fun! In the winter, you'll usually find me snowboarding somewhere in the mountains. Whether it's carving through powder in the United States, Canada, or Japan, I'm always chasing that perfect snowstorm and fresh powder. When the snow melts, I switch gears to road cycling, running (Figure 2), and hiking (Figure 3), often as part of fundraising events supporting cancer or multiple sclerosis research—causes that are very close to my heart. And, of course, no trip is complete without food adventures! I love exploring local cuisine wherever I go, then coming home and challenging myself and my family to recreate those dishes in our kitchen—sometimes with great success, and sometimes with fun surprises!

In what ways do you hope that your work will contribute to improving overall human health?

When I was a child, a close family member was misdiagnosed with cancer. That experience was both terrifying and transformative. At age eleven, when my class was asked to write about our future careers, I wrote that I wanted to "discover a cure for cancer." From that moment on, my path was set. That early experience has shaped not only my career, but also my life's mission. I believe the next major leap in improving human health will come through personalized medicine empowered by advances in standardization, automation, and experimental design, made possible by artificial intelligence. As mass spectrometry technologies continue to advance, we're drawing ever closer to making early detection of life-threatening and rare diseases and precision medicine a clinical reality. That's the future I'm deeply committed to helping build—a future where multi-omics molecular profiling translates into the most comprehensive knowledge of health and disease with tangible opportunities to improve human health and give hope to patients everywhere.