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Kimberly Fiock



ON A CAREER IN PATHOLOGY

anything but a dying profession:

For as long as she can remember, Kimberly Fiock has had an unusual fascination with disease. As a young girl, she was frequently sick and often wondered why certain people were more prone to certain illnesses. When Kimberly was five years old, that fascination became deeply personal as her mother was diagnosed with breast cancer.

“I decided at that point that I was going to cure cancer, so no one else had to go through what she went through,” Kimberly recalls. “My mom’s cancer provided the initial spark that got me interested in pathology.”

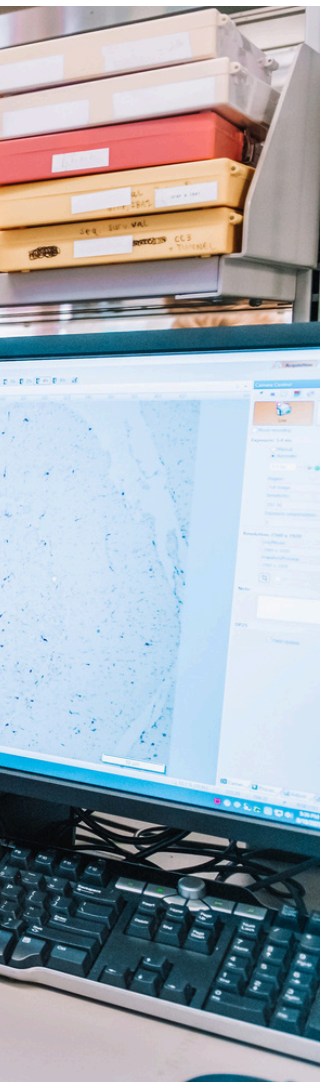
Kimberly’s love for science grew with age. After graduating high school, she completed a research internship in a chronic pain lab where she was introduced to drug development. Afterwards, she pursued a degree in neuroscience and psychology at The University of Texas at Dallas. Kimberly credits a post-freshman year neuropathology internship for changing the course of her career: “I fell in love with the work I was doing on neurodegenerative diseases and realized that my lifelong interest in disease actually had a name - pathology. I got to hold a human brain, assist in an autopsy, and physically see disease under a microscope, all for the first time.”

Pathology, explains Kimberly, is the study of disease in living organisms. “There are lots of different subspecialties in pathology, such as neuropathology, cancer biology, immunology, veterinary pathology, blood banking, and plant pathology. It’s an incredibly diverse field - so many people conduct pathology research and don’t even know it!”

Kimberly completed a master’s in pathology in 2020 and is now working toward her doctorate in the same field. Her research focuses on neurodevelopment and neurodegeneration - specifically, the role of the tau protein, which is heavily involved in the inception and progression of neurodegenerative diseases, called tauopathies, and best known for its role in Alzheimer’s disease. The accumulation of tau protein aggregates is known to interfere with neuronal signal propagation and lead to neuronal death. Through her research, Kimberly hopes to uncover tau’s role in a variety of other neurodegenerative diseases.

“Every day, we’re learning more about the similarities between neurodegenerative diseases,” notes Kimberly. “What were once considered vastly different diseases have now been shown to lie along the same spectrum of causality. We still have so much more to learn about proteinopathies (diseases caused by proteins).”

Kimberly expects her work will provide new insight into the mechanisms behind lesser-studied diseases. She notes, due to the fact that Alzheimer’s disease makes up about 70% of dementia





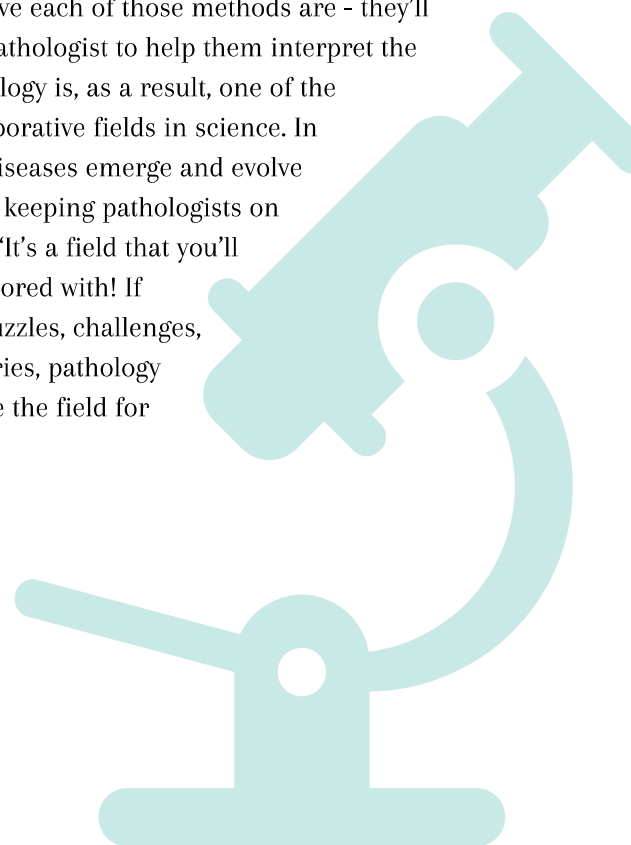
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cases, other forms of dementia don't receive as much attention or research funding. Kimberly is also hopeful her research can eventually lead to breakthroughs in scientists' understanding of why certain people are more likely to develop certain tauopathies. "I hope to become one of the leaders in my field that people feel confident turning to for advice," she remarks.

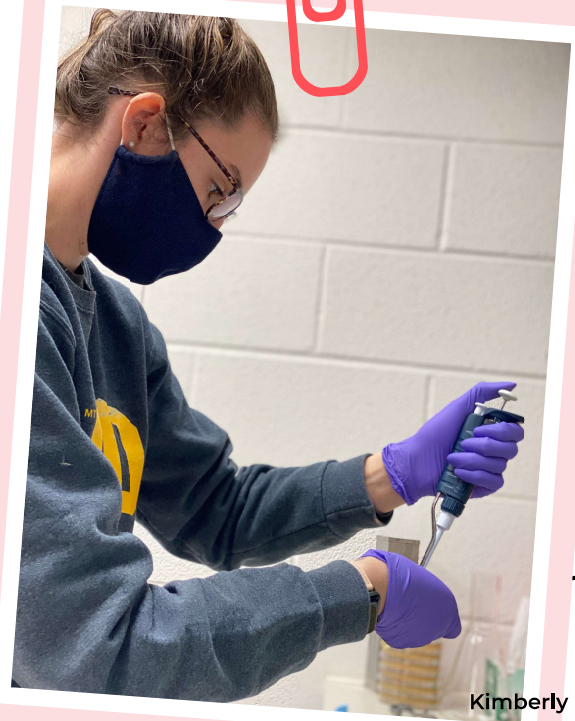
Kimberly is hopeful that the future holds new therapeutic targets for *tau*-specific neurodegenerative diseases. She anticipates researchers will be able to better understand the characteristics that separate diseases from one another, as well as the mechanistic similarities between proteinopathies. "Ideally, if we figure out a common mechanism, we could apply the same treatment to multiple diseases," she notes.

Through her work and activism, Kimberly aims to encourage more young people to consider a career in pathology. Not only is pathology "the coolest career to exist," but it's also one of the best fields to pursue to make a positive impact. Though pathology intersects with nearly every facet of biological research, most scientists aren't explicitly trained to

analyze data from the lens of a pathologist. For example, a biologist who studies methods to slow down disease progression in an animal cell may struggle to quantify how effective each of those methods are - they'll turn to a pathologist to help them interpret the data. Pathology is, as a result, one of the most collaborative fields in science. In addition, diseases emerge and evolve constantly, keeping pathologists on their toes: "It's a field that you'll never get bored with! If you love puzzles, challenges, and mysteries, pathology may just be the field for you."



KIMBERLY IN ACTION!



“Study what brings you joy and makes you feel like you’re making a difference!”



Those interested in pathology should research different subfields and learn about what diseases interest them, suggests Kimberly. It’s also a good idea to email researchers or pathologists and ask them questions about their career path. “Most importantly, follow your passion,” she advises. “Study what brings you joy and makes you feel like you’re making a difference!”

In addition to promoting pathology and science, Kimberly is an outspoken advocate for mental illness. She openly speaks about her struggles with bipolar and obsessive-compulsive disorders, particularly on how they’ve impacted her journey as a scientist. When it comes to learning to live with a mental illness, says Kimberly, accepting the inevitable ups and downs is key. “Mental illness doesn’t make you inherently broken, and embracing that it’s a part of who you are allows you to work with it and not against it,” Kimberly explains. “It’s much easier for people to say, ‘you can’t do that because of your mental illness,’ than it is to say, ‘you CAN do that, it may just look different from how other people do it.’”

Growing up with a bipolar father who rarely spoke about his illness, Kimberly didn’t fully grasp the implications of the diagnosis. When she received the same diagnosis a few years after her father’s passing, she felt lost and alone. “I vowed that I was never going to hide my mental illness from anyone. It’s not a shameful thing, and by speaking about what I go through, I hope people can see that.”

"I encountered a lot of people along my path that didn't believe in me," recalls Kimberly. "A lot of that had to do with my mental health and how much I struggled to manage it as an adult, on my own, for the very first time in my life. But I believed in myself. I also recognized that I would have to work harder than most to overcome the obstacles with my mental health and be viewed like everyone else."

Whether it's in regards to school, a job, or a relationship, Kimberly recommends that anyone struggling with mental health spend extra time learning about themselves and what they need to be successful. Habits and systems that promote success can look very different

look very different for different people, and it takes trial and error to learn what's most effective, she says.

"There are going to be a lot of people who underestimate you, who doubt your abilities, and who are downright convinced you won't be successful," Kimberly says. "Don't waste your energy trying to convince them otherwise. Instead, invest in yourself. You have a finite amount of energy and time to get yourself where you want to go, spend it wisely on things that will really help you get there. And remember that all it takes is one 'yes' to change your path."

