To explore the fascinating world of glycobiology and the crucial role of glycans (sugars) in chemistry and biology, we'll take a closer look at the work of Dr. Jean-Philippe Gourdine. Jean-Philippe (JP) is an Assistant Professor of Chemistry at Lewis & Clark College, a liberal arts college in Portland, Oregon, where he teaches general chemistry and organic chemistry laboratories**.** Within this teaching-focused environment, he also leads an undergraduate research lab that investigates the role of glycans in the human bladder microbiome. By integrating classroom teaching with undergraduate research, Dr. Gourdine's work highlights how foundational chemistry connects directly to biological systems and real-world health questions.

Learn more about JP's journey in this interview with him:

Did you always want to be a scientist? How did you get interested in glycoscience in particular? I didn't always plan on becoming a scientist. My path into science and eventually glycoscience was largely serendipitous. I grew up in Guadeloupe, a small Caribbean island. As an undergraduate, I became interested in research through hands-on lab experiences, including early work on sickle cell disease in a hospital setting. My introduction to glycoscience came during my master's research, where I used lectins to study glycoproteins involved in symbiosis between marine clams and bacteria. Discovering a conserved lectin sparked my curiosity about how sugars mediate biological interactions.

Through my PhD and postdoctoral training, which took me to France, Martinique, the United States, and the United Kingdom, my interest in glycobiology grew naturally over time. In each place, I worked with mentors studying different biological questions, but all of them were connected by a common theme: how sugars shape biological systems. This journey led me to Emory University**,** where I worked with Dr. Richard Cummings to study how sugars help immune cells communicate and respond to their environment and later to additional training in the UK focused on sugars involved in blood groups and cell recognition. Along the way, I gained experience with tools that let scientists observe and measure glycan–protein interactions—skills I now bring into both my research and teaching.

Over time, my research came full circle, from early studies of host-microbe interactions in marine systems to my current work investigating glycan interactions within the human microbiome, including the bladder microbiome. My academic journey helped me realize that glycans are essential components of biology, a perspective that now shapes both my teaching and the undergraduate research conducted in my lab.

Can you tell me a bit about your journey? Were there any unexpected twists? Oh yes—there were definitely some twists. My journey has not been linear or "perfect," and one of the biggest lessons I learned along the way is perseverance. During my PhD, I worked with techniques that simply did not behave the way I expected. I spent months waiting for results that never came, which was honestly pretty discouraging and at one point made me question whether I should keep going. It wasn't until I attended a conference and talked with other scientists that I realized the problem wasn't me—

others were struggling with the same technique! That moment reminded me how important it is to talk to people, share experiences, and not stay isolated.

The job market brought its own surprises. At one-point, academic positions in France were not available, so I applied broadly everywhere including in the U.S. Out of nearly a hundred applications, only two turned into real opportunities. Networking and mentorship made all the difference, and those conversations eventually led me to postdoctoral work that shaped the rest of my career. There was even a brief detour where I worked outside traditional academia—what I jokingly call my “Einstein phase,” where I was still doing science-adjacent work while figuring out my next step.

Now as a professor, I have also learned that rejection doesn’t mean failure. Grants get rejected, experiments fail, and plans change. If you take feedback seriously and keep improving, things can turn around. In fact, one grant I didn’t get the first time was funded the very next year after I revised it. Looking back, all of these twists taught me that persistence, curiosity, and staying engaged with the scientific community matter just as much as technical skill. Now I try to pass on that lesson to my students.

How did you know that glycoscience was the right field for you? I was interested in several fields early on, such as ancient DNA and molecular anthropology. I was really fascinated by the use of genetic markers to trace human migration and the African diaspora. But when I encountered glycoscience, I was hooked! The techniques themselves were exciting, from glycan arrays, which show how proteins interact with different sugars, to actually seeing how sugars bind proteins at the molecular level. It felt like discovering a part of biology that most people were not paying attention to yet. I often think of glycans as the **“**dark matter” of biology – they are everywhere, they are incredibly important, and they are full of mysteries. That sense of exploration is what made me realize this was the right field for me.

Is there anything else you think is important for people to know about glycoscience or being a glycoscientist? One important thing to know is that glycoscience is deeply interdisciplinary–it sits right at the intersection of chemistry, biology, genetics, and biochemistry. Sugars are a great way to connect these fields, whether you’re learning organic chemistry structures, enzyme function, or biological recognition like blood groups. I often tell students not to be afraid of the chemistry side of glycobiology because once you understand a few core sugars, everything else starts to build naturally from there. Being a glycoscientist means being comfortable at that intersection. That is also what makes the field so creative and fun: you can combine ideas from different disciplines to ask entirely new questions!

Could you tell me about some hobbies or interests you have outside of the lab? Living in Portland has made me much more outdoorsy! I love spending time walking in nature with my kids, exploring the Oregon coast, waterfalls, and trails. I’ve also picked up an ongoing obsession with pickleball, which started from a background in ping pong and quickly turned into a favorite way to unwind and connect with others. Outside of sports, I enjoy reading about the history of science, especially how ideas and

discoveries have traveled across cultures and shaped the way we understand the world today. I'm also deeply interested in linguistics and African history. I am someone who loves learning and sharing what I learn–since it reminds me that science, culture, and history are deeply connected.