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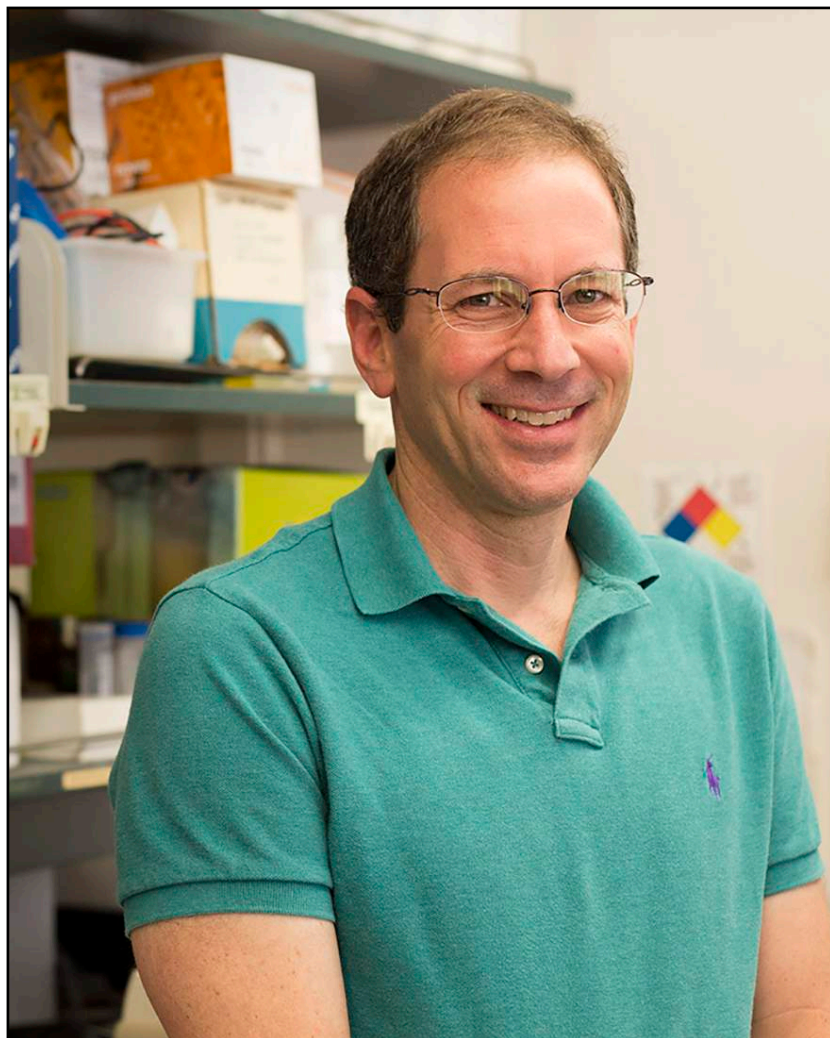
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An interview with **Erik D. Herzog, Ph** by Willa Kerkhoff

Erik D. Herzog is a professor within the department of biology at Washington University, St. Louis. Herzog is also one of the premier neuroscientists of our time, and an expert on sleep and circadian rhythms. He received his BA in biology and Spanish from Duke University in 1987, and went on to earn his PhD in neuroscience from Syracuse University in 1994.

He has an extensive career as a researcher, having worked with a number of institutions, including the McMurdo Base in Antarctica as a research diver. He has been published 85 times as a researcher, received a multitude of awards, has written several chapters for biology textbooks, and is a sought-after lecturer by many institutions.

Oberlin's Neuroscience department has had the pleasure of a long fruitful relationship with Dr. Herzog, and we look forward to welcoming him back soon.

So could you just start out with telling us a little bit about your research? Whatever you feel like sharing.

Yeah, so my lab is interested in what wakes us up and what puts us to sleep, and so we study circadian rhythms. There's an internal clock that is responsible for coordinating everything about your day and your night so that you're sleepy at night and awake during the day. It's responsible for giving you jetlag when you travel across time zones and also makes it difficult for you to be on shift work schedules. So my lab has really been interested in the basics. What are the molecules and the cells and the other things that underlie what wakes us up and what puts us to sleep?

How did you reach circadian rhythms as an interest?

I guess the way I got there was through my middle school interest in science and mostly in marine biology. When I was growing up I thought Jacques Cousteau was the coolest—I watched every episode of the Jacques Cousteau series and read all his books. So I chose my undergraduate

institution because they had a marine lab and I studied marine science. I really thought I was going to be a marine biologist, just roaming the seas and discovering things by going there. But along the way I discovered a marine organism that could see equally well day and night, like it wore night vision goggles. And so I asked, "How can that be? How can you make it so that you can see when there's almost no light?" I learned that there was this biological clock that prepared the organism for the darkness coming every night and allowed the organism to anticipate predictable daily changes. So then I just became infatuated with the clock; I wanted to know how it worked, so I've been studying it ever since.

So right now you're not doing as much work with organisms and more with cell cultures, right?

Yeah, we do a lot of cell culture. We record from neurons, we record from glia. We also do in vivo behavior to study things like sleep and wake. We study olfaction, as well as using behavior assays to study learning and memory.

It's a fun field because we can really go from understanding the role of a single gene to how that gene interacts with a cell and how that cell interacts with other cells, ultimately dictating your daily schedule.

It sounds like you're investigating all levels of the system, then, not just one.

Yeah, that's a great description. There are more levels that we don't get into. For example, we've yet to study the molecular structure of the molecules, which would be getting even more atomic. We also haven't really studied organism-to-organism interactions much, although we have a big project now in the lab where we're trying to understand whether fetuses communicate with mothers while in utero to make sure that they're both on the same time zone. We also have a grant from the March of Dimes to study preterm births.

That's awesome. I'd never really thought about the implications for mother-child pairs during pregnancy.

Yeah, it's very important.

I know you said that you were initially interested in marine biology and I know that you scuba dove for a while as part of your early research work. As a student were you super focused? Or did you always have the sense that you had no idea where you would end up?

I never knew where I would end up, for sure. And there were times that I got really nervous that I didn't have a plan B, I just had a next step. Things worked out, and certainly not in a predictable way. I'm living in a state that's bordered by eight other states. You can't be a marine biologist where I live. So along the way I just sort of followed my curiosity and I allowed myself to just say "that's an interesting question, an important question, let's work on that".

Yeah, that makes a lot of sense. So I know that you're not just working on research at the moment, you're also one of the co-directors of the neuroscience program at WashU, right? I'm sure you're mostly working with the daily routine of that administrative position, but you've also done some interesting outreach programs through the grad school. Why did you get interested in pushing a research-heavy graduate program toward community outreach and working with kids?

I really don't know why. It happened organically; many of us wanted to go and talk in a classroom. I had two young boys and I would go and talk to their kindergarten class and their second grade class, and sometimes I would talk about neuroscience. It grew because I would bring graduate students with me sometimes and they would say "This is really fun! We should do more." So we became a chapter for the Society for Neuroscience and we started organizing bigger and bigger events, to the point where we actually created something called "Neuro Day" at the St. Louis Science Center, which now attracts approximately 4,500 people a year. My role is primarily just to enable the people who present but otherwise stay out of the way.

We've created a program that trains young scientists on science communication. We recognize that there's a gap there, between the research we conduct and trying to make things understandable to the general public. We recognize that we can't just talk about our work with anyone who gets in an elevator with us. As scientists, we are probably handicapped in our ability to communicate in a way that is understood. This is all tied up both with being a good teacher, and with being a good citizen. ●

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