

# Under the Sea

By Melissa Thompson

Forget visions of frothy, bubbling beakers — Hendrik Luesch, Ph.D., calls the ocean his laboratory, where marine organisms may hold the key to curing the world's worst diseases.



PHOTO BY SARAH KIEWEL

**HENDRIK LUESCH, PH.D.**

An assistant professor of medicinal chemistry in the UF College of Pharmacy, Luesch smiles briefly as he gazes at a poster of the Pacific island nation Palau hanging on his office wall. Tiny, uninhabitable islands resembling broccoli florets peek out of the turquoise water.

“If you can imagine,” he says, “it looks exactly like that — even better. It has some of the best places for diving in the entire world.”

He knows because he has plunged into that crystal-clear, 80-degree water in search of marine organisms such as cyanobacteria. Compounds extracted from these organisms could be made into drugs with the potential to treat or cure cancer or other life-threatening diseases.

Luesch, 37, developed an appetite for marine organism exploration when he began his doctoral studies at the University of Hawaii at Manoa in 1997. There, the Stendal, Germany native felt he had the best chances for making discoveries and getting published in scientific journals.

“I had a great chance of discovering unprecedented chemical structures by investigating largely unexplored organisms,” he said. “I would say at least 50 percent of the compounds we found were new.”

In Hawaii, Luesch often worked with a collaborator in Guam who sent him marine samples to study. As beautiful and varied as organisms off the coast of Hawaii were, the diversity and quality of samples from Guam were even better.

“The downside of that situation is that I collected very little myself while I was in Hawaii,” he said. “But I did try to go to the beach for an hour a week or surf at 6 a.m. to be in the lab an hour later when the tourists took over the beaches. It wasn’t that hard. My apartment was right on the ocean.”

Luesch could probably talk for hours about his marine research or his drug-discovery efforts to combat neurodegenerative diseases. That’s one of the reasons it’s hard to believe he initially shunned his curiosity for chemistry, even though it seemed to be part of his DNA.

Growing up in Communist-controlled East Germany in the ’70s and ’80s, Luesch attended Diesterweg Schule, a one-building school that housed about 400 students. His father was his chemistry teacher from seventh to 10th grade and the only teacher in the school who refused to join the Communist Party.

“It was obviously strange at times because if I wanted to ask a question I didn’t want to call him, ‘Dad,’” he recalled. “I think I didn’t want to admit that I loved chemistry for a while just to show my parents, but they never pushed me to do it.”

Some of his earliest career aspirations were actually to become either a professional Russian translator or a long-distance runner.

In the seventh grade his athletic dream almost came true when coaches from an East Berlin sports academy tried to recruit the lithe and lanky Luesch for their track program. He would have to leave his family and train for more than five hours a day, running 10K races and practicing the high jump and long jump with other athletes his age. He turned down the offer.

“I saw some of those guys get injured who spent many years of their lives training, get kicked to the curb, and then their dreams were over,” he said. “There was just something about it I knew was not for me.”

Luesch stopped fighting his love for chemistry and math and excelled in high school and college, eventually earning a Diplom — a degree he says is equivalent to an American master’s degree — in chemistry from the University of Siegen in 1997.

After earning his doctoral degree and working as a postdoctoral fellow at the Scripps Research Institute in La Jolla, Calif., Luesch applied for jobs at several academic institutions including UF, where he has been employed for two-and-a-half years.

“I could’ve gone back to Hawaii for a job there, but I saw the biggest potential here,” he said. “I felt like there was a good mass of people here who could help me move my projects forward.”

Today, Luesch works with samples collected off the coast of the Florida Keys, Fort Pierce and Fort Lauderdale. He feels each new discovery opens the door to new projects that will take his research into greater medical dimensions.

“My ultimate goal, like everyone else in this field, is putting a drug on the market that treats someone with a terrible disease,” he said. “In the end, I get up in the morning and look forward to what I do.” **P**