

UNLOCKING NATURE'S SECRETS

2024 Senior Research Excellence Award Profile

For 15 years, Oberlies and his students have hosted a yearly Family Science Night at Lindley Park Elementary, to encourage a love of science learning in the community.

Last year, Oberlies received UNCG's top research award for his scholarship in natural products chemistry. The past president and fellow of the American Society of Pharmacognosy has published over 250 research articles, has been cited over 19,000 times, and has acquired over \$10 million in funding for UNCG from sponsors like the National Institutes of Health, Department of Defense, and American Cancer Society.

The big idea "Fungus does not make penicillin for the benefit of humanity. It makes penicillin to fight off bacteria that may encroach on its source of sustenance. Similarly, the walnut tree secretes juglone to prevent other plants from growing nearby and robbing it of resources. Nature constantly interacts via a *gemisch* – a mixture – of chemicals. It's our job to turn that to our advantage."

It takes a team "Collaboration is central to our research. Our collaborators are diverse, from an expert in ovarian cancer, to a microbiologist who studies drug-resistant bacteria, to a parasitologist who studies drug-resistant malaria, to experts in metabolism who study what happens in the gut when an herbal remedy is combined with a prescription drug.

"While those all seem like disparate goals, the common thread is that someone noticed an extract from nature did 'something.' It is my lab's job to figure out what compound or compounds did that 'something' and then determine their structure or structures. When we have a very promising lead, we figure out a way to make the compound on a larger scale, to make analogues of the compounds to improve potency or minimize the side effects, and to determine the best way to deliver it.

"In all cases we work with teams of scientists across UNCG, the state, the country, and the world. Today, I just got off the phone with a collaborator in Chicago and emailed others in Washington and Ohio. Next week, I travel to Texas, next month to England.

"I've been playing soccer nearly my entire life, sometimes I use that analogy with my new students. In soccer, my role is the not-so-glamorous left fullback position. But if no one is in that position, the game will quickly fall apart. Everyone needs to show up to play and be willing to work as a team."

Paying it forward "I can go on and on with examples where mentors gave me a shot, provided encouragement, helped open a door. I cannot pay a single one of them back. The only thing I can do is try to pay it forward. Training the next generation of scientists is one of the key reasons I came to UNCG.

"I'm so proud of the scientists that have been part of our team and what they've gone on to do. Graduate students trained in our lab are now professors in Arkansas, Thailand, Jordan, Mexico, Saudi Arabia, and Turkey. Three of our students are now at Proctor and Gamble – one as a director, and we have past students at AbbVie, Edeniq, Integrity Pharmaceutical Advisors, KBI Biopharma, Sutro Biopharma, Syngenta, and Triclinic Labs. Others are research scientists at universities or pursuing the next step in their education as master's and doctoral students at prestigious universities."