

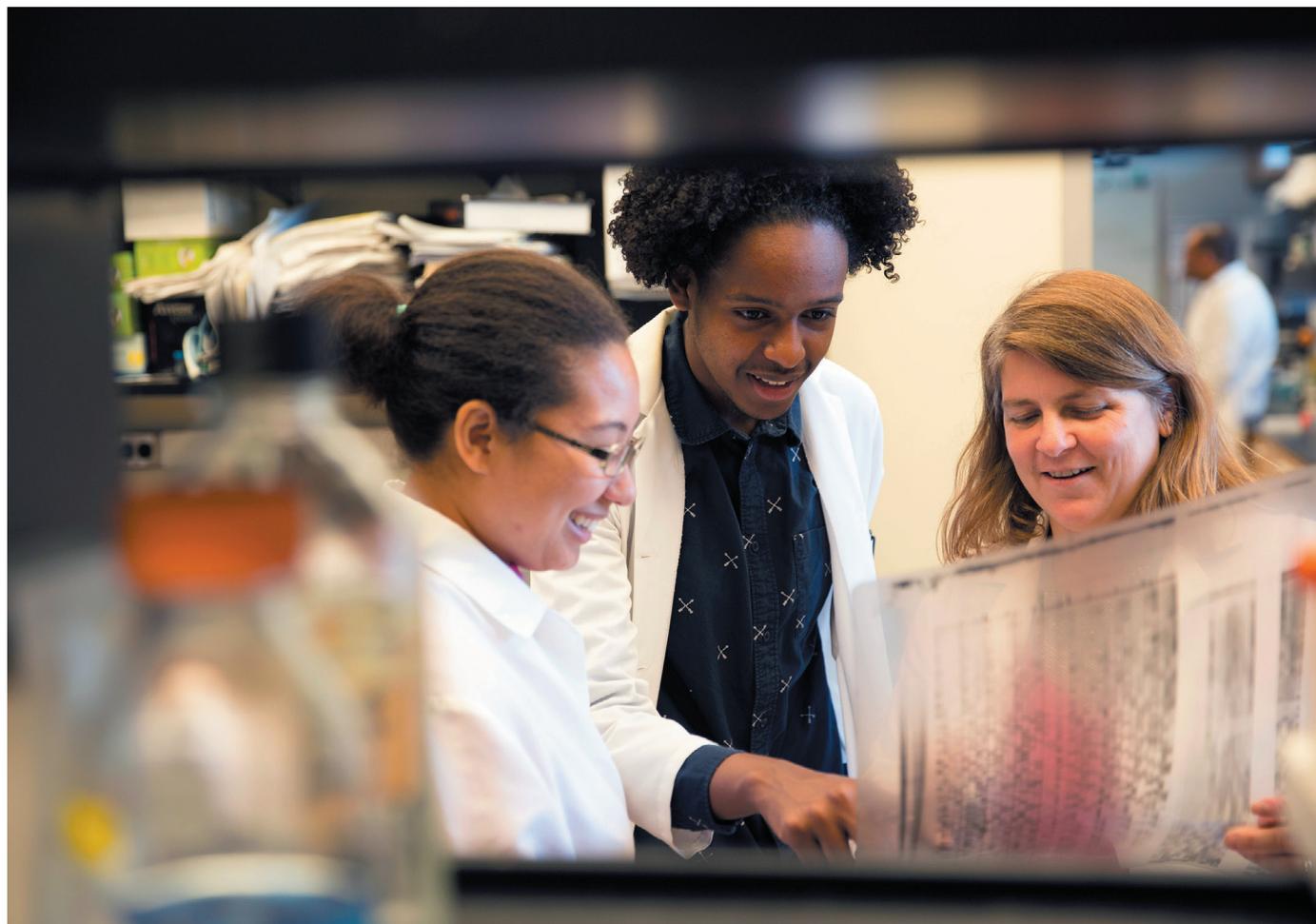
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Cell biologist Anita Corbett, right, a winner of the 2018 *Nature* Awards for Mentoring in Science, with two graduate students at Emory University, Atlanta, Georgia.

MENTORS

Southern comfort

Nature's latest mentoring awards focus on supportive senior researchers in the US South.

BY CHRIS WOOLSTON

Marsha Cole's scientific career nearly ended before it started. At a crucial point, she needed support and guidance to survive graduate school. In short, she needed a mentor.

Years before she racked up awards for her research on the chemistry of sugar, Cole was a freshly enrolled PhD student facing a crisis. Her first set of grades at Louisiana State University (LSU) in Baton Rouge put her on the

brink of expulsion, a setback that seemed to validate all her insecurities. As the first member of her family to dream of earning a PhD, and as a member of a minority ethnic group in a predominantly white field, those doubts were never far away. "I figured I wasn't good enough," she says.

Instead of dropping out, she went to the office of her chemistry group leader, Isiah Warner, one of four recipients of the 2018 *Nature* Awards for Mentoring in science. "I was crying," she says. "I told him I was so sorry."

She felt she had let Warner down, and that she was taking up space that could have been filled by a better, more-deserving student.

Cole didn't know it at the time, but Warner, who develops nanoparticles for biomedical applications, had a long history of lifting up students in crisis, and had experienced barriers of his own. So Cole's situation seemed eminently fixable to him. "He told me, 'It's going to be OK,'" Cole remembers. Warner connected her with an academic support network and encouraged her to keep pushing forward. ►

► From then on, she was a straight-A student. Now she's a chemist at Louisiana Tech University in Ruston, where she encourages her own students to find their potential.

Without support, many promising scientists would give up or drop out long before earning a degree or landing their first job. But the lucky ones can rely on an often-unsung network of mentors who offer advice, build skills and dispel doubt. In many cases, these mentors' best work takes place behind the scenes. "Most of our mentoring happened over barbecue ribs, red beans and peach cobbler," Cole says of Warner.

Conversations and words of encouragement aren't as easy to quantify as grants or publications, but great mentorship deserves to be recognized. In that spirit, four scientists in the US South have won the 2018 *Nature* Awards for Mentoring in Science, which were first conferred in 2005 and focus on a different country or region each year. The winners, who will split between them the two prizes of US\$10,000, include two senior researchers noted for lifetime achievements: Warner at LSU and Jorge López, a physicist at the University of Texas at El Paso (UTEP). Two mid-career researchers were also honoured: Kjersti Aagaard, a physician and molecular geneticist at Baylor College of Medicine in Houston, Texas; and Anita Corbett, a cell biologist at Emory University in Atlanta, Georgia.

HELPING HAND

Excellent mentors have much in common: a commitment to community, a desire to see others succeed and a willingness to work for something beyond their own personal glory. But they all lead others in their own way. "Each of the awardees takes a distinct and innovative approach to their mentoring," says Susan Wenthe, a cell biologist and vice-chancellor for academic affairs at Vanderbilt University in Nashville, Tennessee, and chair of the judging committee for this year's awards. "Together, they represent the richness of truly outstanding mentors."

Over the years, López, who studies collisions of heavy ions, has travelled extensively around the Americas — especially to South America and his native country of Mexico — recruiting master's students to UTEP. The university doesn't have a PhD programme in physics, so master's students are generally the senior team members in his lab.

As do many successful mentors, López has a skill for finding diamonds in the rough. A major goal of his recruiting trips, he says, is to convince young students that they have a chance to make it in physics. "I find students who are at best B students in Mexico, and they come up here and get a master's," he says. "People say, this guy will never do much, and he ends up getting a PhD."

Over the years, López has found innovative ways to bring new faces into science. As Wenthe puts it, he is an "advocate of the power of



Chemist Marsha Cole at her PhD graduation ceremony in 2012. Hooding her is Isiah Warner, who tutored her during her postgraduate studies at Louisiana State University in Baton Rouge.

education on an individual and society". From 2008 to 2013, he was one of four academic researchers leading a project funded by the US National Science Foundation that trained undergraduate students to become peer mentors in maths, physics and chemistry. Sixteen of the 24 peer mentors personally trained by López pursued graduate studies in science. "It was a very interesting and unexpected outcome," he says.

López's scientific accomplishments earned him recognition as a fellow of the American Physical Society. But he says that such achievements will never mean as much as mentorship. "The best thing I've done in my career is to have an impact on people," he says.

WORK-LIFE BALANCE

At Baylor College of Medicine, Aagaard has a similar set of priorities. Wenthe says that "her thoughtful approach is evidenced in her ability to personalize support for her students". For all of Aagaard's personal accomplishments, including research on the physiological effects of Zika-virus infection during pregnancy, her team takes precedence. She says that she will divide her prize money into small grants to give a boost to other young researchers working on issues of pregnancy and reproductive health. "It will be fun to pay it forward," she says.

Testimonials from former mentees included in the award application underscore Aagaard's commitment and availability. "You become involved in people's lives," Aagaard says. One colleague recalled how she provided company

and comfort during chemotherapy sessions. Another remembered calling Aagaard moments before an international presentation to clear up some questions about the Zika virus. That incident, he wrote, showed Aagaard's willingness to offer help whenever needed.

Aagaard says that she goes beyond an 'open door' policy and is perpetually available to lab members when she is at work. Her office is tucked in a corner of her lab, so those in her team always knows where to find her, whether they need to talk about an experiment or babysitters.

As a mother of three, she is eager and well-prepared to offer advice about the struggles of balancing science with family life. "One of the most challenging things we do as scientists is parenting our own kids — giving them the love they need and also doing our jobs," she says. "That involves hard choices about how to spend your time and energy."

Corbett, also a mother of three, can relate to this issue. Like Aagaard, she goes to great lengths to accommodate the needs and schedules of everyone on her team. Wenthe notes that Corbett, who studies RNA binding proteins, "reaches outside of her own laboratory and is a leader at her university and in her field, with a passion for gender equity". For her first 12 years at Emory, Corbett was the only female faculty member in the biochemistry

"Most of our mentoring happened over barbecue ribs, red beans and peach cobbler."

department. She was also the only woman in the department to receive tenure until her protégé, Christine Dunham, joined the tenure ranks in 2016. “I felt a commitment to help her along the way,” Corbett says. “She was easy to mentor because she was so smart and driven.”

Lots of lab leaders talk a good game when it comes to mentorship, but Corbett thinks that they don’t always put in the necessary thought and effort. “Some who think they are good mentors are the worst,” she says. “It’s important to be purposeful. Sit down and think about what it really takes.” Even with her long history of successful partnerships with colleagues and students, Corbett doesn’t take her own skills for granted. Earlier this year, she attended a mentoring workshop conducted by the Howard Hughes Medical Institute in Chevy Chase, Maryland. “There’s a growing realization that mentoring isn’t something that we’re trained to do,” she says.

Corbett says that thoughtful mentoring can be particularly valuable — and personally rewarding — when one is working with students from ethnic or cultural backgrounds that are under-represented in the sciences. “You can see that they’ve got a ton of grit and persistence, but they don’t necessarily have the resources and tools to succeed,” she says. “There’s nothing more exciting than seeing them continue on a trajectory toward success.”

COMMITMENT TO CARING

After more than 40 years in various academic positions, Warner has felt that thrill many times over. “I want my students to succeed as much as I want my own kids to succeed,” he says.

He is especially proud of students who make it despite humble beginnings. He often notes that neither of his parents graduated from high school, and that he himself went to an impoverished high school in Bunkie, Louisiana, a world away from East Coast college-preparatory schools.

His commitment to diversity shows: the LSU chemistry department consistently produces more African American PhD graduates than does any other chemistry department in the country.

Cole is grateful for her breakdown in Warner’s office. “I think he saw then that I was ambitious,” she says. “He probably figured that I would never fail again if given a second chance.” From that time on, he pushed her hard and kept his expectations high.

She met those expectations, and then some. “She was one of the best people to ever come out of my group,” Warner says. “But if she was in another group that didn’t have that confidence in her, she might not have made it.” ■

Chris Woolston is a freelance writer in Billings, Montana.

COLUMN

How to land a research internship

Personalized recommendations and a solid science CV are crucial, say **Ruth Gotian** and **Ushma S. Neill**.

Research-intensive internship programmes for undergraduates offered by medical and graduate schools are in high demand. Here, based on our 25 years of collective experience running these programmes in the United States, we outline what you need to win an internship.

LETTERS OF RECOMMENDATION

The worst ones focus on the faculty member’s qualifications. Highlights of basic requirements, such as, “She submitted assignments on time, was punctual and participated in discussions”, are not useful.

But enthusiasm radiates off the page when the recommender truly knows the student, in statements such as, “She is a joy to teach, and makes other students look like zombies.” Get to know your recommender, so that they can comment on your tenacity and personality. Note that your letters — solicit at least two, but check programme requirements — should come from faculty members, and not from postdocs or teaching assistants.

Also, consider the timing of your request. Asking for a recommendation while faculty members are grading exams or preparing to leave for holiday will not work well. Propose drafting parts of the letter, highlighting your skills and accomplishments. The faculty member might not know that you write for the university paper or have a part-time job. When you provide this information, they can focus on writing about your intellectual prowess and critical-thinking skills.

PERSONAL STATEMENT

This section, the cornerstone of your application, must demonstrate what is unique about you and that you’re dedicated to research. Avoid personal anecdotes, especially those about family illnesses, when explaining your drive. If a grandparent’s stroke kindled your inspiration to go into neuroscience, make sure to explain what research or training you’ve done since that event.

One of the other most common openings to these essays is the claim to enjoy solving puzzles — for example, “The brain is a perfect match for me because I love solving puzzles, and the brain is the ultimate



puzzle.” Draw instead on what makes you unique.

Reviewers value applications that demonstrate the writer’s previous research experience. But we know that not everyone has a great deal of this. If this is true for you, address it in your statement and emphasize your transferable skills, such as technological prowess or programming abilities. Finally, the personal statement is the place to explain your low mark in calculus or your short-term leave. Don’t just hope that no one will notice.

GRADES AND TRANSCRIPTS

In a transcript review, where you went to school is not nearly as important as what you did while you were there. Make sure to take a balance of science, technology, engineering and mathematics (STEM) and non-STEM classes.

Applicants who distinguished themselves in their applications have turned out to be among the best interns we’ve hosted. We knew them by their names and their stories before they arrived. We took special care with them, and many of those mentoring relationships continue today. ■

Ruth Gotian is the assistant dean for mentoring and chief learning officer in anaesthesiology at Weill Cornell Medicine in New York City. **Ushma S. Neill** is vice-president in the Office of Scientific Education and Training at the Memorial Sloan Kettering Cancer Center in New York City.