

FINDINGS

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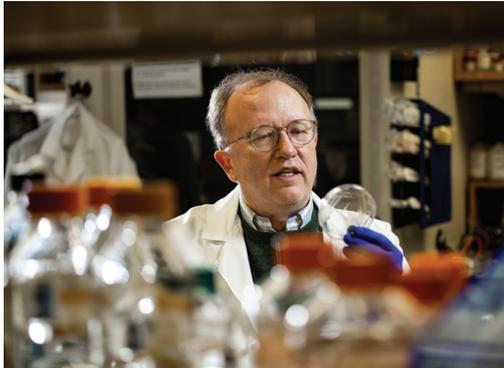
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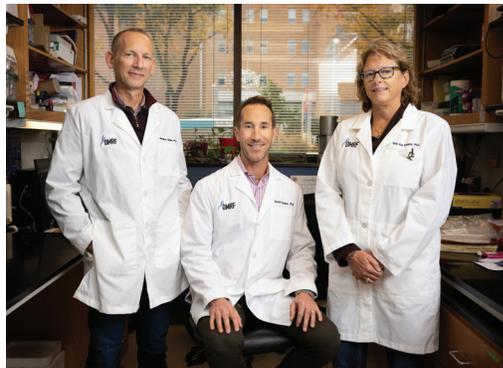
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Chartered in 1946, OMRF is an independent, nonprofit biomedical research institute dedicated to understanding and developing more effective treatments for human disease. Its scientists focus on such critical research areas as cancer, diseases of aging, lupus and cardiovascular disease.

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PRESIDENT'S LETTER

GROWING UP, DR. JUDITH JAMES' game of choice was something she called doll hospital. Instead of make-believe tea, she would feed Raggedy Ann and her stuffed animals medicine (actually, crushed vitamins). When her younger sister wanted to play store, she'd agree only if that store was a pharmacy, and the workers could, in Judith's words, "pick up the medicine to deliver to the children of Nepal or the doll hospital."

Suffice it to say that you didn't need a crystal ball to see that this remarkable young person would one day become a physician. Still, there was no predicting the heights she would reach in the fields of medicine and medical research.

As you'll read in these pages, Dr. James was elected to the National Academy of Medicine in October, making her only the fifth Oklahoman – and first woman – to receive this honor, one of the highest in the field. It's but the latest well-deserved plaudit for a physician-researcher whom a peer at Stanford University aptly describes as "the most respected rheumatologist in the country."

We couldn't be prouder of Dr. James and all she's done. Still, when it comes to remarkable people at OMRF, you'll see from this issue that she's in great company.

There's Dr. Benjamin Miller and his colleagues, who are on a quest to rewrite the book on healthy aging. Dr. Hal Scofield may, in fact, be the world's most interesting man, juggling a staggering array of interests while also leading a research lab and cracking mysterious cases in the clinic. Kevin Henry has brought his winning ways on the basketball court to our fundraising team. And with a record-breaking class of summer scholars, it looks like the next generation of game-changers has already entered OMRF's building.

I think you can tell that all of this gets me really excited. I hope it does the same for you.

I'm just now marking my one-year anniversary in Oklahoma and at OMRF, but it seems much longer. In a good way. Whether at OMRF or going about life outside the foundation, my family and I feel like we've yet to meet a stranger. The warm welcome we've received has been nothing short of incredible. With the number – and quality – of friends we've made, it can be easy to forget that we're still newcomers.

In the coming year, I'll be traveling around Oklahoma to get to know my new home state better – and to share all the good news coming out of OMRF. We'll announce more details about this statewide outreach effort in the next issue of Findings. In the meantime, please enjoy this one.

As you read, be sure to take pride in every scientific achievement, discovery and life changed. Because we are more than the Oklahoma Medical Research Foundation. We are Oklahoma's medical research foundation.



Andrew S. Weyrich

“

OMRF was a fantastic place for me to see people who loved what they were doing and were so committed to helping people. But the more I thought about it, the more I realized how much being a lawyer who did a lot of scientific work was the way I could help the most.

”

”



Jamaica Potts Szeliga

After graduating from Stillwater High School, Szeliga believed she was bound for a career in the lab. But a summer as an OMRF Sir Alexander Fleming Scholar led her to choose a different path. Today, the Harvard-trained attorney is a partner in the Washington, D.C., office of the international law firm Seyfarth Shaw, LLP, where she helps inventors secure patents and litigates intellectual property disputes.

Terms and Conditions

Dear Dr. McEver,

Hospital employees, especially when talking to the media, often describe a patient's condition as "stable." What does that mean? And when they say a person's condition is "fair," how does that differ from "good"?

Jo Jones
Edmond, OK

Dr. McEver Prescribes



There is no universal definition of the term "stable" in the medical context. Like so many words, it means different things to different people. And healthcare workers are people, too.

That said, a stable condition can generally be defined as one that doesn't change substantially over time. Still, as a trio of physicians wrote in the medical journal *Critical Care*, "the same patient may be classified as stable or unstable by different doctors and nurses depending on their clinical judgment, experience, and knowledge of the patient's clinical course."

The doctors went on to point out that the term can connote a false sense of security, as people tend to equate the word "stable" with "good." However, it's important to remember that stable is a relative term that hinges on the patient's original condition. If a patient came into the hospital in dire shape, loved ones "may not understand that being stable in such critical conditions actually means the patient is not getting better and his/her chances of a positive outcome are likely getting worse."

As for "fair" and "good," there actually are some guidelines established by the American Hospital Association for spokespeople who use these terms. Good means that "vital signs are stable and within normal limits. Patient is conscious and comfortable. Indicators are excellent."

However, as you might notice, this definition relies in part on the word "stable," which (along with most of the other terms in there) the guidelines do not define.

The guidelines also explain that fair means that "vital signs are stable and within normal limits. Patient is conscious but may be uncomfortable. Indicators are favorable." Without going on too deep of a medical-etymological dig, I'd say that fair is roughly a step below good.

But, of course, if good is an amorphous term, then so is fair.

The bottom line is that medical situations are complex. Distilling a person's health in a single word is unrealistic. You'll almost always need more information to get to the heart of the matter.



A physician-scientist, Dr. Rod McEver is OMRF's vice president of research. Send your health questions to findings@omrf.org.

School's Out

OMRF's education programs enjoyed a record summer in 2022

For most students, summer means late nights, lake days and snooze buttons. But for those who spend the dog days in OMRF's labs, it's mice, pipettes and data analysis.

Despite the obvious appeal of a lazy few months between semesters, in recent years, OMRF has seen a surge in students seeking summer internships. With that increased interest, the foundation has expanded its summer educational offerings. In addition to its Sir Alexander Fleming Scholar Program (founded in 1956), OMRF added the John H. Saxon Service Academy Summer Research Program in 2009 and, in 2021, the OMRF-Langston Biomedical Research Scholars Program.

For the summer of 2022, all of this spelled a new record: The three programs welcomed a total of 25 students, the largest summer class in foundation history.

That infusion of youth, says OMRF President Dr. Andrew Weyrich, is at once refreshing and crucial to the foundation's mission. "Having all these energetic people with new ideas and enthusiasm is like a shot of adrenaline for us," he says. "Plus, training young scientists is central to what we do. It ensures the next generation of researchers can carry the torch of discovery forward."

The programs each draw from a different pool of students. The Fleming program invites applicants from across the state, while the Langston and Saxon programs bring students from Langston University and the U.S. military academies, respectively. But once here, the groups form a single class and have the same experience: a hands-on summer working in OMRF's labs under the guidance of a scientific mentor.

"There was so much information to take in," says Cassidy Baughman, an Oklahoma State University biochemistry major from Lone Grove who spent July and August



Langston Scholars Amia Quinn, left, and J'Taelii Heath, right, devoted their summers to multiple sclerosis research.

investigating muscle loss as a Fleming Scholar. "But for that same reason, it was a wonderful experience."

J'Taelii Heath, a biology major at Langston University from Oklahoma City, says her summer was a lesson in patience and persistence. "It's not just a matter of doing an experiment and

"Training young scientists is central to what we do."

being done with it," says Heath, who has medical school in her sights. "You have to repeat the same experiment to show consistent results."

The programs help many students decide whether research is right for them. A summer in OMRF's labs paved the way for two of OMRF's preeminent scientists: Executive Vice President and Chief Medical Officer Dr. Judith James and Vice President of Research Dr. Rod McEver.

It did the same for Dr. Caleb Lareau, who's now a cancer researcher at Stanford University.

"For me, the Fleming Scholar Program was transformative," says Lareau, an Enid native who spent the summer of 2011 at OMRF. "There wasn't a career role model doing hardcore basic research in my hometown for me to emulate."

Lareau returned to OMRF throughout his years as an undergraduate at the University of Tulsa and developed a "career-long collaboration" with OMRF scientists that continued in graduate school at Harvard. He's now working with his former OMRF mentor, Dr. Courtney Montgomery, for his research at Stanford. Last year, it earned him a slot in Forbes magazine's "30 Under 30" innovators to watch in science.

"This isn't just a summer," Lareau says. "It's an invitation to the OMRF family to enable something incredible in your career."

HUMAN RESOURCES

The newest member of OMRF's Development team is Kevin Henry, who's also the color commentator for OU men's basketball.



OMRF's newest fundraiser brings a competitive fire to everything he does

Kevin Henry can't help himself. Even though he no longer plays basketball, he still gets caught up in the games. This can prove a bit awkward when he's sitting courtside at the Lloyd Noble Center, where he provides color analysis on the radio broadcasts for the University of Oklahoma men's games.

In exciting moments, Henry typically springs to his feet. "He has a hard time staying down," says Toby Rowland, Henry's broadcast partner since 2016. According to Rowland, Henry's penchant for uncoiling his six-foot-three frame during games has earned him a nickname: "Seatbelt. As in, we need to put one on him to keep from standing up!"

Since June, Henry has brought that same enthusiasm to OMRF, where, as senior director of major gifts and annual campaigns, he's the newest member of the Development team. For him, sports provide a valuable template for fundraising. "You have to get your

shots in every day," he says. "If you want to be successful, you need to put in the work."

As an athlete, Henry spent many years putting in the work. He grew up in Denton, Texas, where his shooting and playmaking skills, honed for many years practicing and playing in the greater Dallas area, made him one of the country's top 100 basketball recruits. He accepted a scholarship from the University of New Mexico, where he became a starter by the end of his first year. He developed into a sharpshooter, making 102 3-point shots on teams that were part of a 41-game home winning streak and made it to the second round of the NCAA Tournament in 1999 before losing to the University of Connecticut, the eventual champion.

On his recruiting visit to New Mexico, Henry met the point guard on the women's team, Aiyana Nash. When he enrolled, the pair started dating. They married in 2002 and now have two children, Emma, 17, and Nash, 14.

“Whenever the assistant coach who introduced us sees our kids, he tells them, ‘If it weren’t for me, you guys wouldn’t be here,’” Henry says.

After three years at New Mexico, where he scored as many as 28 points in a game, Henry followed his former coach to Baylor University and finished his college career. Still, like most collegiate players, he dreamt of making it to the NBA.

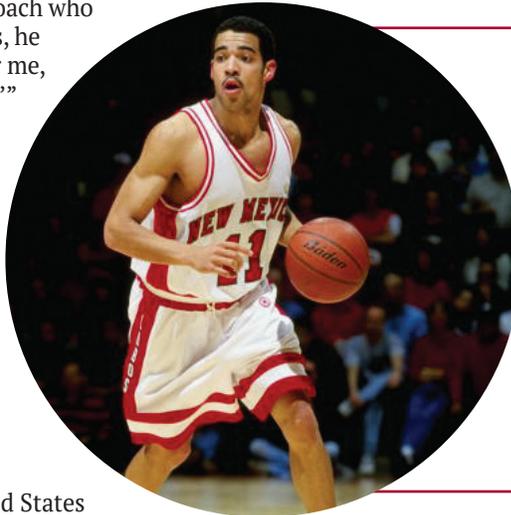
He spent a year playing professionally in the United States Basketball League, a forerunner to today’s G League. At the season’s end, he was offered a chance to continue his career in Germany; he opted, instead, to enroll in graduate school at Baylor. “I was 23, I’d just gotten married, and Aiyana was going to teach public school in Waco,” remembers Henry. “I thought, ‘This is going to be a better opportunity to get a master’s degree, be around college athletics and start my post-basketball career.’”



Henry made the most of his time at Baylor, earning a master’s in sports management and serving as a graduate assistant on the men’s basketball team. That led to a job as director of student-athlete development, followed by another as athletic director at the Methodist Children’s Home in Waco, where he got his first experience in nonprofit fundraising.

When Aiyana, who’d by then completed her doctorate, accepted a position in the Jeannine Rainbolt College of Education at the University of Oklahoma, Henry soon followed. He spent seven years at OU, most of it as a development officer specializing in major gifts to athletics. He loved the role, but when OMRF Vice President of Development Penny Voss contacted him about a newly created position, he saw a unique opportunity.

“The more I talked to Penny about joining her team, the more excited I



Still Got It

Even though Kevin Henry’s basketball career ended two decades ago, when he travels with the University of Oklahoma men’s team as a radio analyst, he and announcing partner Toby Rowland still enjoy hoisting up a few shots while the Sooners are lacing up their shoes. And if the former New Mexico and Baylor marksman is on fire, watch out.

In 2018, as OU prepared to take on Iowa State, Henry hit a series of three-pointers. “And,” recalls Rowland, “he started talking trash to Trae.” As in Trae Young, then a sharpshooting phenom for the Sooners. Henry challenged the future NBA All-Star to a three-point contest – and won. To this day, says Rowland, “Kevin won’t let us forget it.”

became. It was almost like a calling,” Henry says.

In Henry, Voss sees someone who will help elevate fundraising efforts at OMRF. “Kevin has an energy and confidence about him that inspires people,” she says. “He knows how to set goals, rally a team behind those goals, and achieve success.”

Henry has hit the ground running at the foundation, taking a key role in several of OMRF’s fundraising and awareness initiatives. And like

a seasoned competitor, he’s doing the daily work – making phone calls, scheduling meetings, building relationships – with an eye toward the long term.

“Finding what donors are passionate about and aligning that with the needs of our organization, that’s what fundraising is,” he says. He’s already looking forward to the day those efforts start paying off. When they do, he’ll celebrate those wins with each of his OMRF teammates.



OMRF’s Development team, which is led by Penny Voss, front row center, includes, from left, Ashley Lay, Marissa Noland, Caroline Allen, Katherine Jackson and back, Kevin Henry, Melissa Reed and Sonny Wilkinson.



Renaissance Man

If he's not conducting research or caring for patients, Dr. Hal Scofield has a staggering array of passions that keep him busy. And the list is always growing.

By Adam Cohen • Illustrations by Jeffrey Smith

When his late mother was in the early phases of dementia, Dr. Hal Scofield and his younger daughter, Amanda, headed to north Texas to lend a hand. Scofield's sister had been doing the caretaking, and they wanted to give her a break.

"My mother was at a stage where she was asking the same questions over and over again," remembers Scofield. Amanda admired how patiently he responded each time. How, she wondered, did he manage to do that?

The OMRF physician-researcher told her it was a way of balancing the scales. "Because there may have been a time when I asked my mom a lot of questions." For instance, as a boy, he recalls being intrigued by the behavior of certain household pests. "I wanted to know how flies walked on the ceiling." So, the youngster interrogated his mother about it nonstop. He took a similar, more hands-on approach when trying to figure out how the toilet functioned. "I flushed it again and again and again."

That sense of curiosity, he says, has been with him as long as he can recall. "It almost didn't matter the topic. I wanted to understand how things work." It only follows that he chose twin paths that lean into his natural inclination to ask why: physician who cares for patients with endocrinological conditions and laboratory scientist who studies autoimmune diseases.



For most, holding a pair of rigorous day jobs that require constant intellectual probing would be plenty. Plus, as associate chief of staff for research at the Oklahoma City VA Medical Center, he shoulders a host of administrative responsibilities. In other words, after a long day or week of work, what could sound better than an appointment with a reclining chair, a cold beverage and the latest streaming sensation or sporting event?

Well, for Scofield, let's go down the list.

It might be a day of refereeing youth soccer. An evening volunteering at a local free clinic. A few hours working on his vintage cars. Rehearsals for the jazz and concert bands in which he plays. Scouring bookstores to add to his antiquarian book collection. Or, most likely these days, diving into the history of medicine, a subject that he both teaches and is pursuing a master's degree in.

"Hal is insatiably curious about how the world works," says Dr. Sarah Tracy, director of the University of Oklahoma Medical Humanities Program and Scofield's teaching partner at the OU College of Medicine. Among a long list of traits she ticks off to describe her friend and colleague – "creative, kind, intellectually generous, upbeat, humble, honest" – his thirst for knowledge, Tracy says, "is one of his very best features."





The physician-researcher

Scofield grew up in Lewisville, a rural Texas town of 5,000 or so at the time that has since been subsumed by the Dallas metroplex. As a kid, he had a habit of bringing home creatures like snakes, turtles and the flat-bodied and fierce-looking Texas horned lizards, also known as horny toads. He loved reading, feasting first on adventure novels by Robert Louis Stevenson, Daniel Defoe and Jules Verne, and later on the works of Mark Twain and O. Henry. Musically inclined, he took up the tuba, and in high school, his idea of misbehaving was to use his lunch hour to drive with his “music buddies” to the nearby University of North Texas to listen to the jazz band rehearse.

At Texas A&M University, he flirted with architecture. “My uncle got his master’s degree with Buckminster Fuller,” he says, “but I quickly discovered I had no natural talent.” Instead, he followed the path of another uncle, a surgeon, studying chemistry and completing his pre-med requirements. Even then, he says, he had a bit of an academic wandering eye, minoring in anthropology. “I’d take classes like ancient Greek philosophy, and I’d be the only chem major in the room.”

When Scofield enrolled at the University of Texas Southwestern Medical School, he imagined he’d eventually head back to somewhere like Lewisville to be a small-town general practitioner. But that changed when a mentor introduced him

Hal is insatiably curious about how the world works.

to endocrinology, a specialty that treats diseases related to hormones. As an endocrinologist, he had to develop an understanding of a system of glands – thyroid, pancreas, pituitary and others – that ultimately regulate a number of the body’s vital functions.

“All these organs secrete hormones,” he says. “If they’re not working, they can affect every organ.” Malfunctions can cause illnesses ranging from diabetes to hypertension to thyroid cancer, along with many rarer diseases.

He was drawn by the breadth of the field, which mirrored his own wide-ranging interests. He also enjoyed the challenge that came with difficult-to-pinpoint conditions. “It’s like being a detective,” he says. Most of all, he relished the chance to take on the long-term care of patients with complicated conditions to help them manage their illnesses.

He came to the University of Oklahoma Health Sciences Center for his medical internship and residency. During his second year, he was doing rounds at the VA Hospital, which is sandwiched between OUHSC and OMRF, when he “went out on a limb” and diagnosed a rare rheumatological condition in a patient. The diagnosis caught the attention of Dr. John Harley, a rheumatologist who saw patients at the VA and ran a research lab at OMRF. Harley’s clinical and research interests centered on autoimmune diseases, conditions in which the body errantly turns the weapons of its immune system against itself.

Scofield accepted an offer from Harley to join him for a day staffing a clinic at the Lawton Indian Hospital. In Lawton, they spent most of their time treating patients with rheumatoid arthritis. On the drive back, Harley talked about how joint disease seemed to present a different set of

symptoms in Kiowa patients than the other Plains Indians they’d seen in the clinic. Scofield soon began working with Harley in his OMRF lab, and that car-ride discussion would form the basis of the first of many research studies the pair conducted together.

When Scofield finished his residency, he began a fellowship in endocrinology at OUHSC. But, true to form, he decided he’d do double duty, simultaneously taking on a postdoctoral fellowship in Harley’s lab. “I wanted to learn about autoimmunity so that I could apply it to problems in endocrinology,” Scofield says. He wrote a grant about autoantibodies – proteins created by the body that attack a person’s own cells – in two autoimmune illnesses, lupus and Sjögren’s disease. When the National Institutes of Health funded the proposal for five years, Scofield opened his laboratory at OMRF to study autoimmune diseases. Three decades and counting later, he’s still at it.





The history student

Right around the time he started his lab, Scofield and his wife, Bea, were shopping for antiques for their home when a handful of old medical textbooks and biographies caught his attention. He scooped them up (for \$56), and a new hobby was born.

Since then, he's amassed an impressive collection of volumes on medical history. The tracts mostly date from the late 19th and early 20th centuries. To Scofield, who says he's enjoyed reading history of any kind since he was a child, the works help cast the practice of medicine in a sort of historical context that's often lacking when people think about changing therapeutic approaches.

"At any given time, everybody believes they're on the cutting edge of science and doing the right thing," he says. Take, for instance, a practice now widely dismissed as pseudoscience. "You can read papers from the Middle Ages during the Black Death that sound a lot like something you'd see in a scientific journal today. Except that they're discussing where to bleed people if they have giant lymph nodes."

The authors, says Scofield, "sound like they knew what they were talking about." To him, that kind of perspective "helps you understand that medicine is changing rapidly." There's a good chance future physicians will look upon today's practitioners in much the same way we now view those who leech their patients, he says, "and that keeps you humble."

About a dozen years ago, aware of Scofield's growing trove of medical history texts, the then-dean of the OU College of Medicine asked if he'd be interested in teaching a class in medical humanities to second-year students. Scofield happily accepted, and the dean paired him with Tracy, a Ph.D. historian who'd been teaching similar courses. "The rest," says Tracy, "is history."

Since then, the two have provided future doctors with an eight-week history of Western medicine, from the Greeks to Covid-19. "We try to get students excited about the history of their chosen profession," Tracy says. While she supplies the "big picture" backdrop, Scofield provides real-life examples from treating patients and "connects past to present from a clinical perspective," she says. The students, all future physicians, "appreciate his stories from medicine's 'trenches.'" They also seem to enjoy his sense of humor, candor and the zeal he brings for both clinical practice and medical research.

"Hal really is a blast to teach with," says Tracy.

After years of guiding sessions on medical history, Scofield says he decided he needed "some qualifications" beyond his clinical bona fides. He began taking distance learning classes on the subject at Johns Hopkins University. He enjoyed them so much that he applied for and was accepted as a master's student in the program, which Tracy says is one of the best in the country. He's now one class and a dissertation shy of his degree.

He plans to write his thesis on Dr. Isabella Vandervall, a Black New York physician from the early 1900s. Despite



Child's Play

In the clinic, Dr. Hal Scofield has earned a reputation as a diagnostician second to none, identifying rare diseases where other doctors see only a confounding array of seemingly unrelated symptoms. Still, his proudest case of medical sleuthing doesn't even involve a human patient.

When his daughter Amanda was 4 or 5, she handed her father the toy from a Happy Meal she was eating. "She said, 'What's wrong with this Barbie?'" recalls Scofield. The doll had a patch of hair above her upper lip. Scofield, an endocrinologist, said, "Amanda, I've been training my entire life to know what's the matter with this Barbie." The doll, he explained to his preschooler, was "hirsute, which is hair in the wrong place on women."

Believing the case needed a wider audience, he wrote it up for *The Journal of Irreproducible Results*, a spoof scientific publication. He included Amanda and his older daughter, Nicole, as his coauthors on the article, "On Hirsutism in the Doll Population."

Happily, the cease-and-desist letter Scofield expected from Barbie's manufacturer never came. And when the journal published an anniversary compilation, it included the piece alongside one that tackled another equally confounding phenomenon: "Siamese Twinning in Gummy Bears."





The ancient Greeks taught that doctors need to take into account the full patient. You're not just the gallbladder in room 105.



facing persistent racism, she became only one of a handful of Black women practicing medicine in the U.S. at the time and an early leader in the state's birth control movement. Scofield has identified a cache of her personal documents that, as far as he can tell, have never been reviewed. He's planning to apply for a small grant that will allow him to travel to New York to comb through the nine linear feet of letters and personal documents that Vandervall and her husband, also a Black doctor, donated to the New York Public Library.

"I think Dr. Vandervall's story is an important one," he says, "I'm hoping I can help more people learn about her."

Despite, or perhaps because of, having a great-great-grandfather who was a surgeon in the Confederate Medical Corps and owned enslaved people, Scofield has long committed himself to helping underserved communities. He volunteers weekly in a free clinic whose patients are almost all Hispanic. He researches autoimmune illnesses that disproportionately affect people of color. And since OMRF inaugurated its Langston University Biomedical Research Scholars Program, a mentoring partnership with Oklahoma's only historically Black college or university, he's put his shoulder into the effort. He's hosted multiple Langston students in his lab and wrote a VA grant that secured long-term funding to support the program.

Dr. Valerie Lewis worked in Langston's career planning office before joining Scofield's lab, first as a technician, then as a graduate student. As program liaison, she's been instrumental in building the Langston partnership, and she says it couldn't have happened without her mentor's support. "He saw this was important to me, so he encouraged me to participate and make it a part of my career development."

That Scofield recognized her passion and found a way to fuel it came as no surprise. "He's sensitive and attuned and wants to support minority populations," says Lewis, who is Black. She also appreciates his efforts to create a welcoming environment in his lab for all. "He's very no-nonsense about microaggressions and discrimination. He doesn't tolerate them in any form."

When Lewis completed her Ph.D., many advised her to follow the standard course for her postdoctoral fellowship: find a new mentor to broaden her base of knowledge and experience. Instead, she opted to stay with Scofield. "Hal makes sure I'm a priority," she says. "He always puts me in a position to succeed."

The ref

Most weekends, Scofield spends at least one day refereeing youth soccer. He started 20 years ago, when his son, Stuart, then a middle-schooler, expressed interest. Scofield, who'd never played soccer, thought it sounded like fun. The two earned their certifications together, and they spent the next decade officiating games as a father-son team. "We had a great time," says Scofield.

Although Stuart, now 32, has since hung up his whistle, his father's still gets plenty of use. Scofield says he especially relishes the buffer that refereeing provides from his life as a clinician-researcher. "At least for a few hours, work doesn't come into my head."

Making calls on the soccer field, he says, requires a different mindset than the one he employs in the lab or clinic. "At work, you have the luxury of time and thinking about what you're going to do next." But as a referee, "you have two or three seconds, and then you have to make a decision."

Not surprisingly, his favorite part is working with the 12- and 13-year-olds who get assigned as his officiating partners. "I really enjoy mentoring them and training them to be good refs," he says.

Also a golfer, he makes it a point to play regularly and holds a three-stroke handicap. While most would consider that level of skill admirable, trying to maintain such a low handicap is "almost a curse," says Scofield. "That means one bad swing will foul up your score for the whole day."

Then there's the concert band where he plays tuba and the jazz ensemble in which he's a trumpeter. The pair of vintage cars, a Corvette and a Volkswagen Beetle, that he's lovingly





"I like the long-term relationships with patients. You get to know them medically but also as people," says Scofield.

restored and is forever tinkering with. And the week he spends each summer volunteering at Camp Blue Hawk, where he helps 9- to 16-year-olds with Type 1 diabetes learn how to manage their health.

After a while, it can all sound like a little much. And, frankly, like a recipe for sleep deprivation and personal and professional disaster. But, with the help of Bea at home and a supportive lab staff well versed in the art of "Hal wrangling" at OMRF, the formula works for Scofield.

"Hal is brilliant. He is a visionary and a big-picture thinker," says OMRF Executive Vice President and Chief Medical Officer Dr. Judith James, who's worked with Scofield since the 1990s. She admits that his comically overcrowded schedule and tendency to think about "the next big experiment or the big unanswered questions" leads to the occasional missed meeting and a reputation around the campus as "being a bit of an absent-minded professor." However, she says, "He is also one of the best scientific 'finishers' I know." Nearly every one of his experiments culminates in a scientific publication, an accomplishment that those around him attribute to his remarkable ability to pound out a paper in a single sitting and a work ethic that routinely yields 3 a.m. emails.

All told, his unique combination of talents has resulted in a steady stream of groundbreaking research totaling more than 300 scientific publications. With James and Harley, he coauthored a study in the influential *New England Journal of Medicine* about autoantibodies that precede the onset of clinical symptoms in lupus. That work has since become one of the most cited papers ever in the field of lupus. He's also been a pioneer in establishing the role the X chromosome –

of which women typically have two – plays in a series of autoimmune diseases.

Meanwhile, he continues to see patients. In that role, James says his talent for tackling challenging cases still amazes. "Hal is a master diagnostician," she says. "He can put together the most esoteric compilation of symptoms and find 'zebras' – rare conditions – "missed by many other physicians."

For his part, Scofield shrugs off the praise. "I like the long-term relationships with patients. You get to know them medically but also as people." What he finds most rewarding is not a high-profile publication or a diagnosis that impresses peers. "It's finding patients who have not been communicated with very well and talking to them at a level they can understand so they can get a clear picture of what's going to happen to them."

He recounts the story of a 29-year-old with thyroid cancer he's now treating. "Most people her age will be cured. But even if she is, she'll never quite be out of the woods. She'll have to keep coming back to us for decades." His job, really the job of every doctor, he says, is to make sure she not only gets the treatment she needs but that she knows exactly what to expect.

With that, he's off. Maybe it's to see patients. Perhaps he'll parse the results of the latest data generated in his lab. Or maybe he'll help a junior scientist sketch out a new experiment. It's still only late morning on a Wednesday, so golf and refereeing and music and cars and volunteering will have to wait. Ditto for his thesis and the class he's teaching that week. But somehow, some way, Dr. Hal Scofield will find a way to do it all. 🗨️



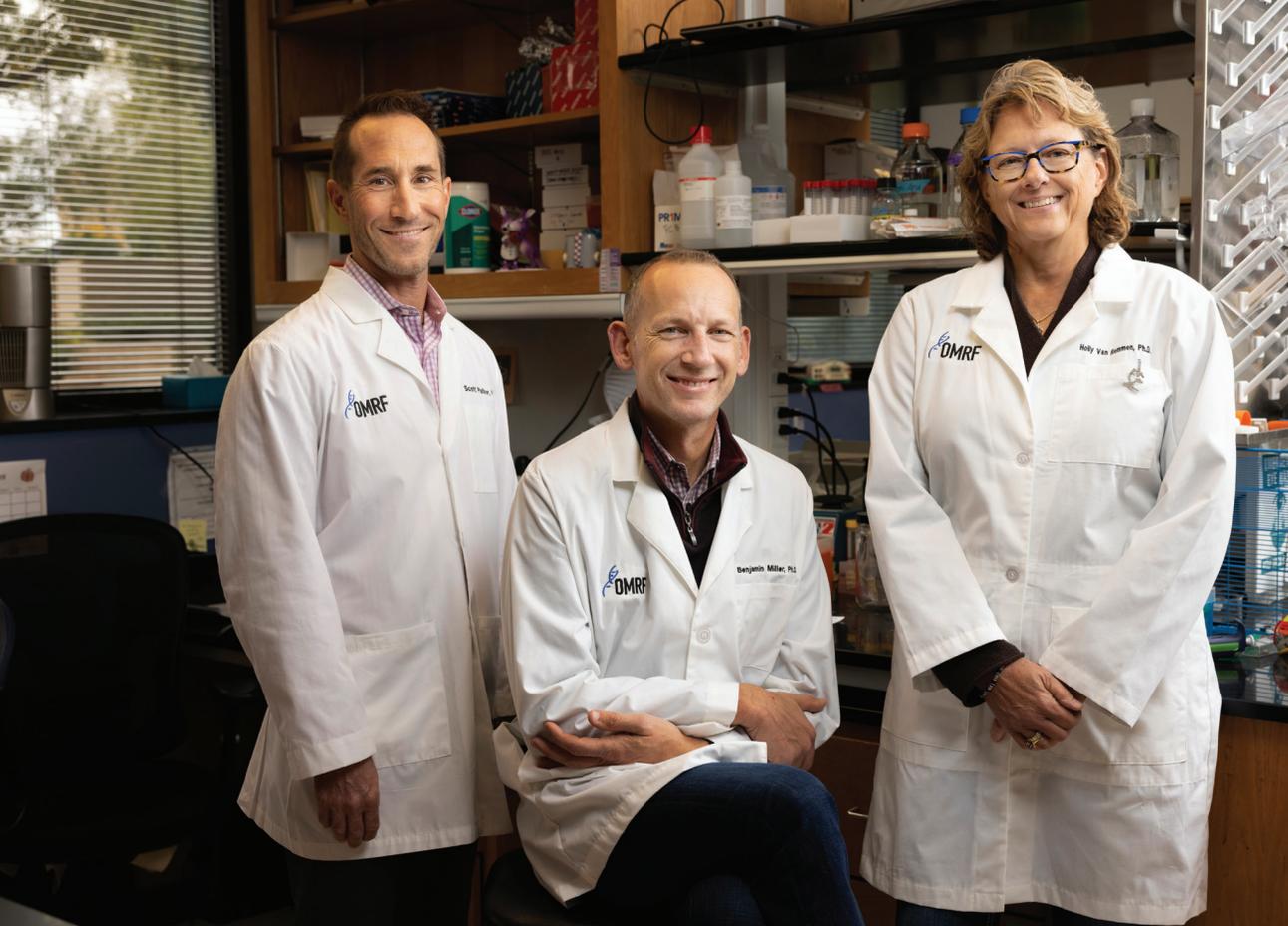


HOW LONG CAN WE LIVE?

AND IS THAT EVEN THE RIGHT QUESTION?

BY ADAM COHEN
ILLUSTRATIONS BY TAYLOR CALLERY

The year was 2000. And the bet was simple enough. Two biologists, each a leader in the field of aging research, had a fundamental difference of opinion. One believed that a human being alive at that very moment would reach the age of 150. The other did not. So, they put their money where their mouths were. Each deposited \$150 in an investment fund. When a later study published in the scientific journal *Nature* strongly implied that the human lifespan had already reached its limits, the scientists doubled their bet. The dispute would be settled no later than 2150. At that point, their investments likely would be worth many multiples of the original stakes. By then, it would also be clear who had won. Either someone would have celebrated their 150th birthday, or they wouldn't. The principals would be long dead. But their closest living heirs (almost certainly yet to be born today) stand to make a pretty penny from the wager. As of this writing, retired French nun Lucile Randon is the oldest person currently living. At 118 years, she still falls short of the standard set by Jeanne Calment. Also French, Calment enjoyed a glass of port, a cigarette and some chocolate most days. When she passed away in 1997, Calment is believed to have been 122, which most experts agree makes her the longest-tenured human ever.



Drs. Scott Plafker, Benjamin Miller and Holly Van Remmen want to increase the number of healthy years in our lives.

We now are seeing a record number of centenarians. In 1950, when the Population Division of the United Nations began making such estimates, it put the number of people 100 and older worldwide at 23,000. By 2021, the figure had grown to more than half a million.

Still, most scientists who study aging do not believe this statistic equates to an ever-lengthening lifespan. “The risk of death at that point is so high that most people aren’t going to live much beyond the limits we see today,” Dr. S. Jay Olshansky, one of the bettors and a professor in the School of Public Health at the University of Illinois at Chicago, told *The New York Times*.

Even if you don’t have money riding on the answer, though, it seems hard not to be intrigued by the question of how many days a member of our species might, under perfect

circumstances, live and breathe. Unless, that is, you are Dr. Benjamin Miller.

“How far we can push the maximal lifespan is not that interesting if it’s not met with quality years,” says Miller, who leads the Aging & Metabolism Research Program at the Oklahoma Medical Research Foundation. In his laboratory, he researches sarcopenia, the loss of muscle and function as we age. His work aims, he says, to “keep people healthy and independent for as long as possible.”

The optimal life trajectory, according to Miller, “is sort of a square.” With his index finger, he traces a vertical line in front of him, beginning at his waist and rising to his face. Then he moves his finger slowly in a flat line – “Here, you’re happy and healthy” – across the width of his body.

When it reaches his left shoulder, he plunges his finger straight down.

“And then you’re dead.”



Shown here celebrating her 117th birthday in 1992, Jeanne Calment lived to be 122, a mark for longevity that still stands.

MILLER BEGAN his scientific career in exercise physiology, studying muscle. And while he is a devoted athlete – he reached the ranks of elite amateur cycling and still tries to ride at least a dozen hours a week – he soon became “bored” with his initial research focus: how to make muscles bigger.

“It became much more intriguing to me how to prevent the muscle from getting smaller,” he says. “That work is much more impactful, and it drew me into aging.”

Research on aging traces its roots to the 1930s, when scientists were studying malnutrition in rats. To their

surprise, they realized the undernourished rodents lived longer than their well-fed counterparts. In the years since, researchers have replicated these findings in other species, including mice and fruit flies.

From a scientific perspective, caloric restriction seems like a tantalizing pathway for humans, save for two major problems. First, any type of experiment looms as nearly impossible from both moral and logistical perspectives. And, relatedly, we love to eat.

Nevertheless, says Miller, experiments in other model organisms offer signposts for the field. “We’re starting to look at drugs and other approaches the way we once studied caloric restriction.” Known as “mimetics” because of how they imitate certain aspects of the phenomenon, they include the diabetes treatment metformin and rapamycin, an immunosuppressive drug.

To Miller, who’s received grants from the National Institute on Aging to study both metformin and rapamycin, alternative paths could provide insights while avoiding certain pitfalls. “It’s easier for humans to take a pill than calorically restrict for 40% every day for your entire life.” Similarly, he’s interested in the rise in popularity of dietary approaches like timed fasting, where people eat only between certain hours. “It could have caloric restriction-like effects, but it seems more feasible in humans.”

For many years, aging research existed only as a series of outcroppings from other fields. Over time, though, scientists realized that growing old represented the single largest risk factor for many of our most prevalent chronic ailments: dementia, cancer, arthritis, heart disease. They also saw that these conditions rarely arose in isolation, with multiple systems failing in rapid succession.

These developments have not gone unnoticed by wealthy givers. As the field has matured and taken on its own distinct identity, donors like Facebook founder Mark Zuckerberg and Saudi Arabia’s Crown Prince Mohammed bin Salman have begun using their immense fortunes to underwrite research projects. Still, their motives may not be purely philanthropic, says Miller.

“As they grow older, they start to understand they’re not immune to aging,” Miller says. “So, they’re dumping money into the idea of immortality.”

While the influx of funding stands to spur new discoveries, it also comes with potential perils. Miller worries that the disproportionate flow of dollars from monied donors could create health disparities, with potential breakthroughs benefiting only those who can afford to pay for them. And, he says, the rush of new cash invites the risk of charlatanry.

To the casual observer, it can be difficult to distinguish approaches that have a sound scientific basis from those that do not. Take, for example, cryonics, the idea that you can freeze people’s bodies (or at least parts of them) after death in hopes that scientists will one day be able to reanimate or replicate them.

A cottage industry has sprung up around this notion, capitalizing on people’s grief and desperation as they confront death, either their own or that of a loved one. According to a

WHEEL GENIUS



On weekdays, Dr. Benjamin Miller climbs on his bike at 5 a.m. and rides for an hour or two. Most weekends, he waits until the leisurely hour of 6:30 a.m. or so, by which time the sun may actually have risen. With a temporary respite from the operations of a busy laboratory, he can get out into the central Oklahoma countryside and pedal for the better part of a day.

The OMRF researcher says he uses the time for two purposes: “To not think about science or to think about science.” Although he typically rides alone, he frequently keeps company with podcasts, usually on topics that have nothing to do with his day job. But almost as often, he says, “I will not listen to anything so that I can think about science and problem-solve.”

Miller has been biking since elementary school, when he first tagged along with his parents – avid cyclists both – on charity rides. While earning his master’s degree in kinesiology at the University of Wisconsin, he joined the cycling team, and that led to a long period as a competitive amateur cyclist, where he raced both on mountain and road bikes.

These days, he still competes occasionally, almost always in ultra-endurance races. This past summer, he finished third overall in a 24-hour mountain bike race. The event consisted of a 17-mile loop, which Miller managed to complete 11½ times, for a total of 196 miles. “That one beat me up,” he says in what undoubtedly is a tremendous understatement.

To celebrate his 50th birthday, he recently went on a 300-mile “bikepacking” trip in his native Wisconsin. In Oklahoma, he bikes to and from work each day with his wife, Bobbette, a physical therapist who treats patients in OMRF’s Multiple Sclerosis Center of Excellence.

Miller’s parents, now 75 and 77, both continue to ride regularly. He says he “can’t imagine” not following in their footsteps. Er, tire tracks.



2021 New York Times article, some companies are charging as much as \$200,000 for experimental cryopreservation procedures. However, as Dr. Michael Hendricks, a neuroscientist at Montreal's McGill University, wrote in the MIT Technology Review, "any suggestion that you can come back to life is simply snake oil ... an abjectly false hope that is beyond the promise of technology."

The concept of parabiosis – replacing an older person's blood with blood from a young person – may sound just as implausible. Yet, says Miller, in animal models, scientists are now studying this approach to see if young blood plasma can restore old muscles' ability to adapt to exercise. "If you consider blood transfusions and blood doping, I don't think of this concept as far-fetched," he says.

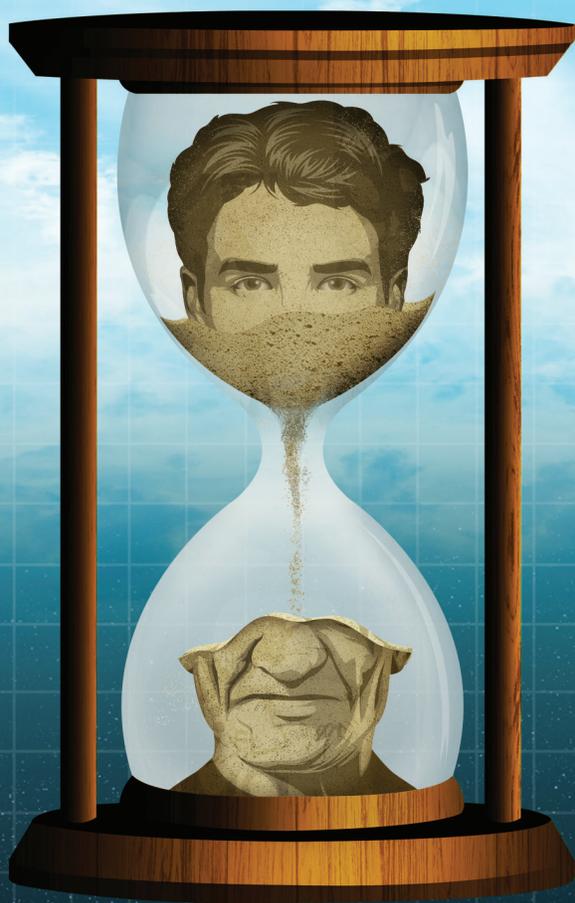
We will all one day fall prey to the effects of aging. One challenge for Miller and his colleagues is to balance the limits of science with our collective desire to cling to youth, vitality and, ultimately, life. Another is to manage our expectations.

AS SOMEONE WHO studies age-related degeneration in the eye, Dr. Scott Plafker has long been cognizant of the toll time exacts on our bodies. But developments in his own life heightened that awareness.

"When your parents hit a certain age, you begin to see everything differently," says the OMRF researcher. "You

BEAT THE CLOCK

OMRF EXPERTS OFFER TIPS FOR HEALTHY AGING



START EARLY

Get physically active now, rather than later, says Dr. Benjamin Miller. "It's much harder to treat things once they occur." Begin moving today to prevent problems tomorrow.



MAKE A LIST

Dr. Scott Plafker suggests preparing a list of things you enjoy, then figuring out how to incorporate some into a daily routine that encourages movement. For him, a pair of entries – water and nature – gave birth to morning yoga sessions by the pool.



STAY CONNECTED

Research shows those who maintain social networks have lower levels of Alzheimer's disease and dementia. "I firmly believe in the power of the community of church and family," Dr. Holly Van Remmen says. "Keep your mind and spirit healthy" by staying engaged with other people.

become so much more aware of their mortality and fragility. And your own.”

Like Miller, Plafker believes the goal of aging research “should be to extend healthspan, not lifespan.” That often means trying to hit singles – common-sensical strategies that might yield incremental improvements – rather than swinging for the fences with theoretically transformational approaches that lack firm evidentiary foundation or any realistic promise of advances.

Plafker’s work centers on using diet as a tool to mitigate the effects of aging and age-related disease. With a grant from the National Eye Institute, he recently completed a four-year project examining whether a compound that’s naturally produced in broccoli, cabbage, cauliflower and Brussels sprouts can protect the eyes as they age. Called sulforaphane, it had previously been shown to guard cells from stress and to have anti-cancer effects.

In mice that developed a condition resembling macular degeneration, Plafker’s research team fed the animals sulforaphane three times a week over a three-month period. They found that the rodents recovered function of their cones, photoreceptor cells in the retina that provide color vision and help us see fine details.

While the compound did not restore rods, photoreceptor cells that are sensitive to low light levels and are also lost in macular degeneration, Plafker was nevertheless encouraged by the results. “Sulforaphane is readily available in vegetables,” he says. “People can get it with ease, and they can get it without prescriptions or high costs.” This simple, easy-to-adopt approach represents precisely the sort of template researchers believe could prove most effective at enabling people to maintain their health as they get older.

Too often, says Plafker, we set the behavioral bar too high for ourselves, taking on fitness or dietary regimens so rigorous they’re unsustainable. “The key,” he says, “is to try to build habits.” That means finding something you like, or at least don’t mind, “and then developing it into a routine.”

When it comes to lengthening health spans, Miller sees a clear winning path: “As an aging researcher, there’s rarely a problem where I don’t think, ‘Oh, exercise could help that,’” he says. “The magnitude of the benefits produced by exercise is so large compared to other interventions that it seems like a no-brainer to me.”

Still, exercise is not a one-size-fits-all solution. For the most part, the people who are willing and able to exercise regularly already are. That means trying to find other answers for everyone else. Or, as Dr. Holly Van Remmen puts it, “Grandma’s probably not going to go to the gym three times a week.”

Van Remmen joined OMRF in 2013 and headed the foundation’s Aging & Metabolism Research Program until turning over the reins to Miller. But she is continuing her research, which, like Miller’s, centers on sarcopenia, the loss of muscle as we age.

She focuses on the cellular aspects of the process, working to develop a deeper understanding of what goes on at a molecular level. Over time, she hopes the work – hers and others’ – will open new therapeutic doors.

“Somebody needs to find an intervention or combination of interventions,” she says. “We’re not there yet, but we’re a lot closer than we were 20 years ago.”

IN MILLER’S OWN LAB. that search is on. Currently, it’s targeting two drugs: metformin and rapamycin. Already approved by the U.S. Food and Drug Administration for other indications, both have also shown promise in curbing some biological effects of growing older.

“Pills aren’t going to accomplish all that exercise can, but they can be a nice first couple of steps,” Miller says. “They’re a way to reach those who won’t or can’t exercise.”

He’s now conducting a clinical study of the anti-aging effects of metformin, the world’s most prescribed diabetes drug. In a previous study, he found it blocked normal physiological gains from exercise. But based on other data from the work, he believes the drug might still aid less active people.

To test this hypothesis, he’s recruited volunteers aged 40 to 75 who have higher-than-normal blood sugar, a body mass above 30, or are not physically active. “Our goal is to help determine who may benefit from metformin and better target the treatment to slow the onset of chronic diseases,” he says.

With a new grant, he’ll also use rodents to study rapamycin, which doctors now prescribe to prevent rejection in organ transplants and as a therapy for certain cancers. He’ll examine whether, in older animals, the treatment might help muscles recover after injury or disuse.

He doesn’t expect either drug will prove a magic bullet that stops aging. “We have so much still to do, because these treatments are not well understood,” says Miller. Nevertheless, in the longer term, he hopes his research will lead to concrete advances.

“I’d like to reach a point where we can expand the health span,” he says. “Right now, it’s just a concept.” Down the road, he says, “it would be really great if we could actually do something about it.”

“THERE’S RARELY A PROBLEM WHERE I DON’T THINK, ‘OH, EXERCISE COULD HELP THAT.’”

Groundbreaker

Election to the National Academy of Medicine is but the latest first for **Dr. Judith James**

Dr. Judith James can't remember not wanting to be a doctor.

As a 5-year-old, James, who had severe asthma, shared her career intentions with her pediatrician. "He said if I wanted to become a nurse, he would be happy to hire me someday." It did not sit well with the kindergartner. "I told him that I would become a doctor and hire him."

Five decades later, James, now OMRF's executive vice president and chief medical officer, became the first woman from an Oklahoma institution elected to the National Academy of Medicine. The honor is considered one of the highest in the field.

When the National Academy elected her as one of 100 new members nationwide in October, it cited her work as "a pioneer in the field of systemic autoimmunity significantly advancing the understanding of how autoimmune diseases start and how immune responses evolve."

James arrived at OMRF the summer after her junior year at Oklahoma Baptist University as a Sir Alexander Fleming Scholar. She wanted to study asthma, a condition that impacted not just her but several family members. Instead, she was assigned a pair of projects on lupus, an autoimmune disease that affects an estimated 1.5 million Americans. The condition can damage the joints, skin, kidneys, heart and lungs, and it's notoriously difficult to diagnose and treat.

James thought the assignment would prove a brief detour from her pursuit of asthma research. Instead, it launched a lifelong quest to unravel a mysterious disease and inspired her to apply for the University of Oklahoma Health Sciences Center's M.D./Ph.D. program, then a new dual-track graduate path she would ultimately become the first to complete.



"Dr. James is the most respected rheumatologist in the country."

Today, James is known nationally and internationally for her watershed work identifying the early biological events of lupus and, more recently, her leadership of the first prevention trial for the condition. Earlier this year, the National Institutes of Health selected her to chair a nationwide initiative to accelerate new treatments for lupus and other autoimmune diseases.

"Dr. James is the most respected rheumatologist in the country," says Dr. P.J. Utz, a professor of immunology and rheumatology at Stanford University. "She blows me away every time I interact with her."

In November, OMRF named James executive vice president and its first-ever chief medical officer. She also leads OMRF's Arthritis & Clinical Immunology Research Program and is associate vice provost for clinical and translational science at OUHSC. Somehow, she finds time to care for patients in OMRF's Rheumatology Research Center of Excellence.

And for that, Loretta Williams is deeply grateful.

When a blood test revealed that a severe rash on the retired high school English teacher's face was likely a result of lupus, Williams' mind jumped

to James, whom she'd once met at a football game in their mutual hometown of Pond Creek. "We had a parade before the game to name a street after her, and she was the grand marshal," says Williams. "I called her right away."

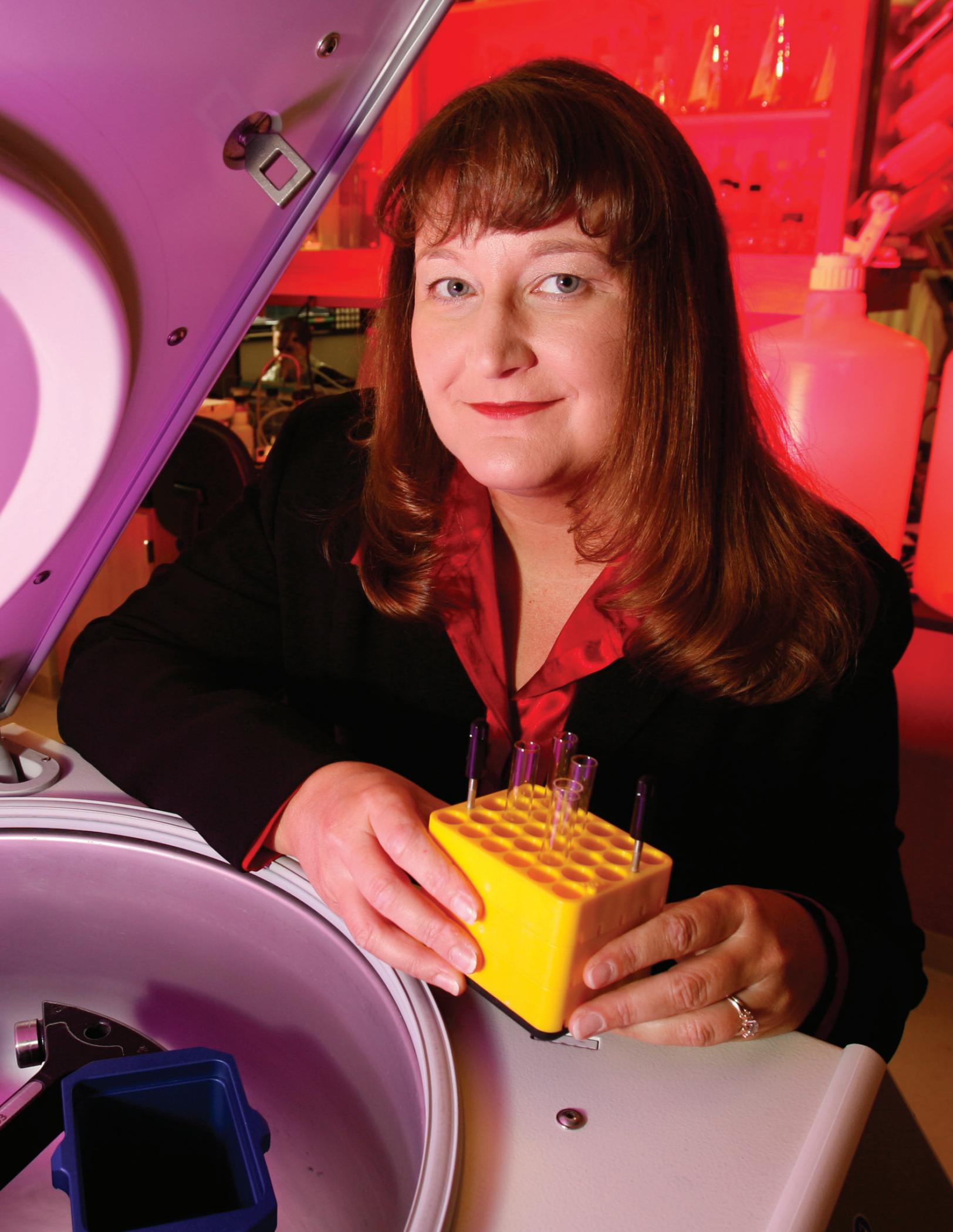
In the 17 years since, James has helped Williams manage lupus, rheumatoid arthritis and fibromyalgia. There are good days and bad days, Williams says. But she doesn't think twice about making the four-hour round-trip drive to OMRF for appointments every three months. "Dr. James is a blessing. I wouldn't be walking if it weren't for her."

James gets a great deal of satisfaction in helping patients like Williams manage complicated and challenging autoimmune diseases. She says their participation in research studies and clinical trials has made progress in the field possible.

James sees her election to the National Academy as a way to highlight health issues and disparities that impact Oklahomans. She hopes it will also improve our state's health, particularly in autoimmunity, which is "most severe in young women and women from underserved minority communities." Ultimately, she'd like to see more representation in the National Academy from her home state, where she is currently the only active member.

"This award is for all of us who have been focused on this research mission, from students and staff to nurses, accountants, cleaning staff, and faculty, but also to every patient who has been willing to participate in our work," James says.

While she's flattered by what she calls "an incredible recognition," she admits that "it's never easy to be the first anything." If anyone should know, it's James.





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'Do'-Gooders

Beginning in 1957 and continuing for more than a decade, OMRF research hospital patients could get complimentary beauty treatments each week. The "Curly Girlies," a volunteer group of women that included LaFaune Shouse Krampf, left, ran the hospital's beauty shop, where they styled hair and gave manicures to patients with illnesses like heart disease and cancer.