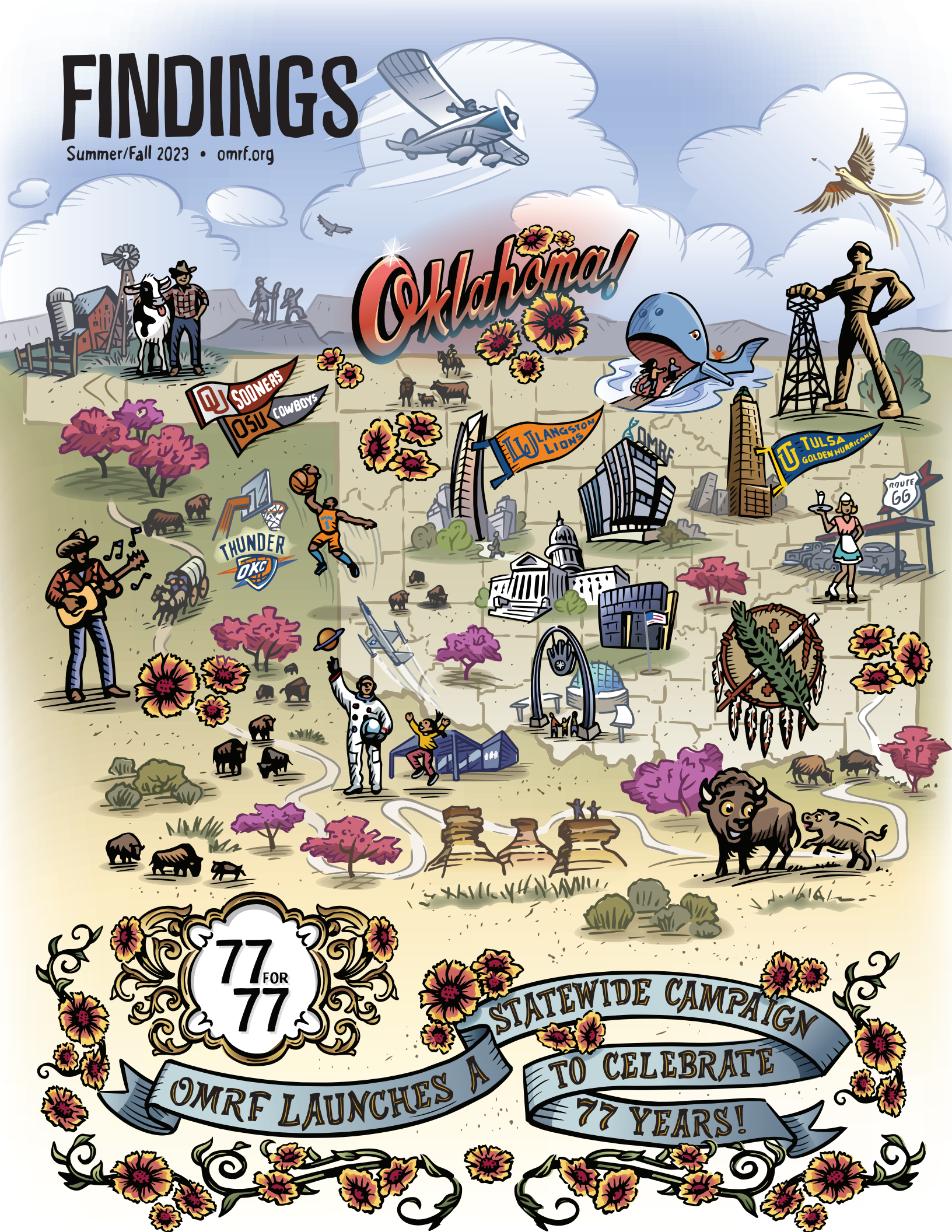
FINDINGS

Summer/Fall 2023 • omrf.org



FINDINGS

Summer/Fall 2023

FEATURES

77 FOR 77

12

OMRF's new statewide campaign takes a page from foundation history

A NEW BEGINNING

16

When multiple sclerosis robbed an opera singer of her future, an OMRF physician helped her get it back

ALSO IN THIS ISSUE

OKLAHOMA'S TREASURE

4 Dr. Andrew Weyrich wants Oklahomans to think of OMRF how researchers worldwide do

VOICES

5 Donors Jim and Norma Freeman are mapping their legacy

ASK DR. JAMES

6 What steps can we take to prevent Alzheimer's disease and dementia?

MATTERS OF THE HEART

7 Researchers find a new target for cardiovascular disease

UNFINISHED BUSINESS

8 Cancer couldn't put an end to Dr. Stephen Prescott's final passion project

THE AERIALIST

10 When Dr. Elizabeth Finn leaves the lab, she likes to leave the ground, too

END OF AN ERA

22 Dr. Rod McEver hangs up his lab coat after 36 years at OMRF

OMRF

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.

CHAIRMAN OF THE BOARD Len Cason, Esq.
PRESIDENT Andrew Weyrich, Ph.D.
EDITOR-IN-CHIEF Adam Cohen, Esq.
MANAGING EDITOR Lindsay Thomas
ART DIRECTOR Jenny Lee
WRITER Kate Miller
PHOTOGRAPHY Brett Deering

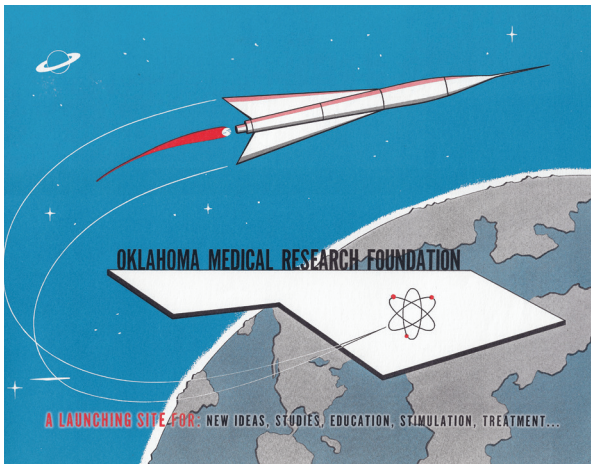
405-271-6673 • findings@omrf.org

COVER Jim Starr
BACK Courtesy of The Oklahoman

Oklahoma's Treasure

THE TITLE OF THE BOOK WAS, I THINK, intended as a compliment.

"Oklahoma's Hidden Treasure" was published in 1998, on the heels of OMRF's 50th anniversary. The foundation commissioned the work to capture the institution's history, from inception until the then-present. The book's author, W. Landon Young, wrote that he hoped his work would spark more people's awareness of OMRF.



With the 77 for 77 campaign, OMRF aims to replicate statewide outreach efforts like the one represented by this early marketing brochure.

With OMRF's new 77 for 77 campaign (page 12), we're trying to do this same thing. Because we're modeling this initiative on our founding campaign three-quarters of a century ago, Young's work has become something of a bible for us. And having now thumbed through its pages more times than I can count, I've increasingly found my mind wandering to its title.

Obviously, I'm biased, but I agree wholeheartedly with the characterization of OMRF as a "treasure." Our scientists' work has given birth to three life-changing drugs, and OMRF research on conditions ranging from HIV/AIDS to lupus has shifted the paradigms of not only how these diseases are understood, but also how they are treated.

Likewise, I'm all in on the idea that OMRF is Oklahoma's treasure. Even though we're an independent nonprofit and not a state entity, we belong to the state whose name we share. We wouldn't exist but for the support of thousands of Oklahomans whose gifts transformed the idea of a medical research foundation into laboratories and clinics filled with scientists and physicians. Indeed, it's that same generosity that helps sustain us today.

It's the word "hidden" that gives me pause.

On one hand, I get it. If everyone knew who we were and all we've done, we wouldn't need an awareness campaign. Yet it nevertheless strikes me that, a full 25 years after Young's book, we continue to scale that same mountain.

Meanwhile, in the scientific world, OMRF is anything but unknown. We're one of only eight National Institutes of Health Autoimmunity Centers of Excellence. OMRF researchers regularly publish their work in the world's leading scientific journals. And our own Dr. Judith James was recently elected to the National Academy of Medicine, one of the field's highest honors.

The challenge, as 77 for 77 campaign co-chair and former Oklahoma First Lady Cathy Keating says, "is to let all Oklahomans know about the world-class research that is being done right here." In other words, we want people in our home state to think of us in the same way that the national and international research community already does.

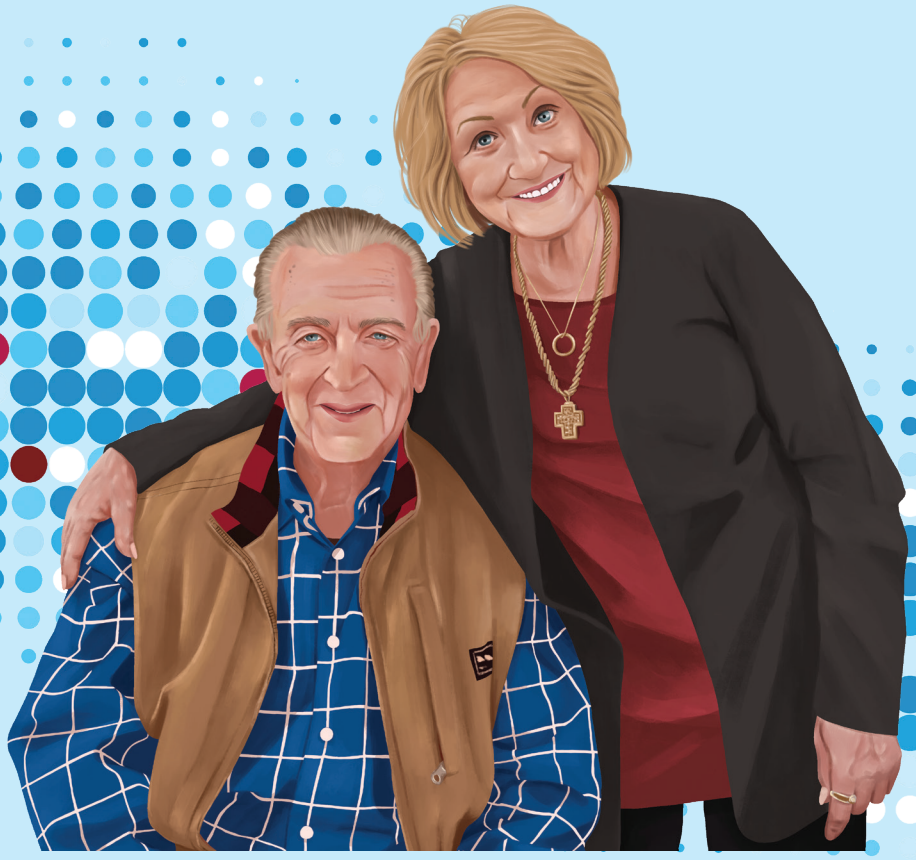
The world looks a lot different than it did in 1947, when OMRF launched its first awareness campaign. For one thing, there are many more organizations out there competing for attention. Likewise, the avenues for spreading information have mushroomed.

Still, when it comes to making an impression, I'm kind of old-fashioned. I like to meet people in person. I want to shake your hand, hear the timbre of your voice, look you in the eye. That's why, in the coming year, our OMRF team will be coming to your community as part of our 77 for 77 campaign.

When you get your invitation, we hope you'll accept. We also hope you'll bring friends. Because we're excited not only to reconnect with our OMRF family, but also to welcome new members. If we do our job well, that next edition of the OMRF history book won't require the word "hidden" in its title.

Andrew S. Weyrich

OMRF has done a lot of good in Oklahoma and has some of the world's top scientists. Medical research impacts everyone. It's a wonderful thing to support.



Jim & Norma Freeman

OMRF Donors

The Freemans said "I do" during their senior year at Central High School in Oklahoma City. After 68 years of marriage, three children, 11 grandchildren and 29 great-grandchildren, their focus has turned to mapping their legacy.

Avoiding the Same Fate as a Parent With Dementia

Dear Dr. James,

My mother has dementia. My sister and I are in our 60s, and we want to do everything we can to avoid going down this road as we age. What steps can we take to prevent Alzheimer's disease and dementia?

Becky Brown Mayhue
Rogers, Arkansas

Dr. James Prescribes

Let me start with some good news: The majority of people with a family history of Alzheimer's won't develop the disease.

Genetics play the strongest role in early-onset Alzheimer's, which only affects 1% to 2% of the population, and that form of the disease generally appears before age 65. The greatest risk factor for the more common form of the disease, late-onset Alzheimer's, is not family history; it's aging.

In other words, the chances that you or your sister develop Alzheimer's are probably only slightly higher than for the general population. Still, with roughly 1 in 3 adults 85 or older affected, it's wise to think about prevention.

A comprehensive 2020 report by the Lancet Commission identified 12 risk factors that appear to increase a person's odds of developing dementia. Many of these are things we maintain at least some control over even into the later years of our lives.

Controlling blood pressure, staying physically active and limiting alcohol consumption all appear to help lower dementia risk. So do maintaining a healthy weight, treating any hearing loss, and, if you are a smoker, quitting. Finally, studies have shown that maintaining social interaction and treating any depression or diabetes you might be experiencing may also be beneficial in preventing or delaying age-related cognitive decline.

A wide-ranging 2017 study from the National Academies of Medicine arrived at similar conclusions. It found "encouraging but inconclusive" evidence for three behavioral changes that may slow or prevent Alzheimer's or other age-related dementia: physical activity, blood pressure control and cognitive training. More limited studies this year have also pointed to the potentially brain-protective effects of lowering stress in one's life and eating a plant-based diet.

None of this is definitive. We still have miles to go before we fully understand what causes Alzheimer's and other forms of age-related cognitive decline.

Nevertheless, if you follow the best clues we currently have, we'd all do well to embrace the common-sensical approaches scientists believe help limit our dementia risk. That means staying physically, intellectually and socially active, controlling our weight and blood pressure, and managing medical conditions like diabetes, depression and hearing loss. It also means not smoking and limiting the amount we drink.

At worst, these measures will simply contribute to a healthier existence, extending our lives and diminishing our chances of disability and myriad illnesses. At best, they'll also protect our brains as we age.

Dr. Judith James, a physician-scientist, is OMRF's executive vice president and chief medical officer. Submit your health questions at omrf.org/AskDrJames.

Matters of the Heart

Acting on a scientific hunch, OMRF researchers find a new target for a common cardiovascular condition

The heart is like a house with four rooms, and each connects to another by one-way doors. When one of the doors (heart valves) doesn't seal perfectly, backflow allows blood to seep back into the wrong room (heart chamber). Called mitral valve prolapse, this heart valve defect can lead to fatigue, stroke and even heart failure.

Usually, people are born with the condition, but it can also develop with age from the natural wear and tear of our millions of heartbeats each year. According to the American Heart Association, it affects as many as 6 million Americans. In severe cases, it requires surgical repair or a heart valve replacement.

At OMRF, Dr. Sathish Srinivasan studies the lymphatic system, which carries tissue fluid throughout the body. He wondered whether lessons learned from the lymph system could also be applied to the heart.

"We got curious. Vascular and heart valves are different, but do the same molecules play roles in their function?" Srinivasan says. "It turned out to be a good guess."

Srinivasan and Dr. Yen Chun Ho, a postdoctoral researcher in his lab, found two proteins important to lymphatic valves also keep heart valves running smoothly. "We usually study developing vessels, but everything looked normal at that stage in our research models," says Ho. "We shifted our focus to analyze the effects over time."

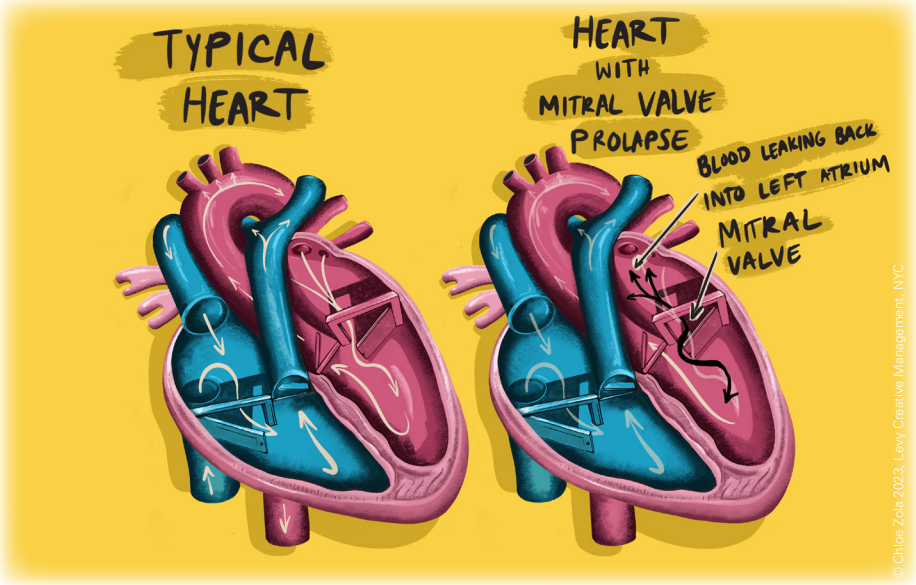
The researchers found that, in aging mice, heart valves became thick, overgrown and didn't fully open or close tightly in the absence of the proteins. "The valves sort of become clumsy," says Srinivasan.

In people who don't have one or both of the proteins, Srinivasan says, inhibiting a particular molecule his team has identified may be an effective new target for medications to treat dysfunctional valves. OMRF has filed for a patent on this approach and is currently seeking a partner in industry to develop the technology.

Drs. Yen Chun Ho and Sathish Srinivasan are looking for new approaches to treat heart valve disease.

In the meantime, the pair's discovery of these proteins' roles in the heart opens the door to a new question: What other lymphatic valve proteins could explain the mysteries of our body's heart valves?

"We have observed others that may participate in heart conditions," Ho says. "We still have work to do."



Unfinished Business

Even cancer couldn't put an end to Dr. Stephen Prescott's final passion project

As a medical researcher, Dr. Stephen Prescott wrote prolifically. In a career that spanned almost a half-century, he authored or co-authored more than 270 scientific publications and textbook chapters.

Those pieces carried immense weight in the medical research community. They cast new light on areas ranging from cancer to heart disease, and scientists worldwide cited them almost 40,000 times. But with titles like "Platelet-activating factor" and "Intracellular unesterified arachidonic acid signals apoptosis," the learned tracts didn't exactly scream "Read me!" to the general public.

When Prescott interviewed to become president of OMRF, Board Chair Len Cason wondered whether the candidate – a Texas native who'd spent the previous quarter-century in Utah – had done his homework on the Sooner State. "I said, 'Steve, do you know much about Oklahoma?'" remembers Cason. "He said, 'Not really.'" But when Cason quizzed Prescott further, it turned out the physician-scientist had done precisely what you'd expect of someone who'd devoted his life to research: He'd read a dozen books on Oklahoma history.

Not surprisingly, Prescott got the job. When he came to Oklahoma to take the helm of OMRF, he brought his sense of curiosity with him. He also brought his golf clubs.

After a decades-long hiatus, Prescott had recently returned to the sport. "He saw golf as a good way to be with people on a social basis, and he could also mix in a little business," says his wife, Susan. A former collegiate baseball player, Prescott could hit the ball a long way. But as any golfer (or person who's ever watched the game) knows, controlling those drives can prove challenging.

"Steve kind of had a temper," says Susan Prescott. "And when the ball didn't go where he wanted it to" – a not uncommon occurrence – "it made him mad."

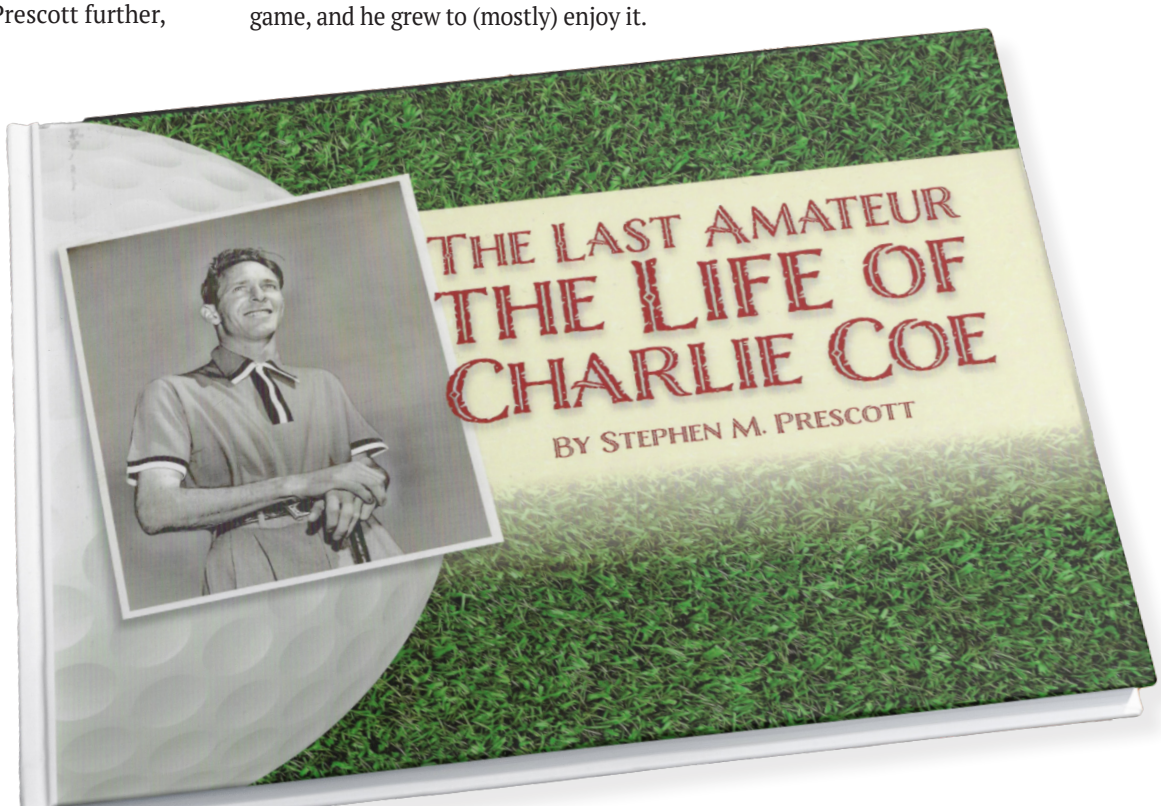
Still, Prescott continued to work on his game, and he grew to (mostly) enjoy it.

He played most often at the Oklahoma City Golf & Country Club. There, in the pro shop, he spotted memorabilia highlighting the achievements of a golfer he'd never heard of. His name was Charlie Coe.

A native of Ardmore, Oklahoma, Coe won the U.S. Amateur championships in 1949 and 1958. He'd played in the Masters Tournament 19 times. In 1961, he was runner-up in the entire tournament, the best finish ever for an amateur. Even today, he maintains a stranglehold on records for amateurs at the Masters. Yet he never turned pro.

The more Prescott learned about Coe, the more intrigued he grew. So, he approached Coe's widow, Elizabeth, who also happened to be a member of OMRF's Board.

"I asked her where I could find a biography of Charlie so I that could learn more about his life and career," Prescott later wrote. When she told him there wasn't one, Prescott resolved to fix that. "I thought there needed to be a book about Charlie Coe."



Published this year, Prescott's posthumous book about golfer Charlie Coe is available at the Oklahoma Hall of Fame and through ScissortailGifts.com.

Prescott connected with Coe's son Rick. In a series of conversations, Rick Coe shared his father's story and scrapbooks his mother had assembled. He also gave Prescott a gift that most biographers only dream of: drafts of an unpublished autobiography that Coe had worked on with Daily Oklahoman sportswriter Bill Inglish.

The pair had spent time together in the final years of Coe's life. But Coe's children had no idea the sessions had resulted in anything more than a way for their father to reminisce about his life until after he died in 2001. "We moved our family offices, and we found the manuscripts," says Rick Coe.

Armed with this trove of information, Prescott set to work chronicling the life of a golfer he'd never met. To get a better sense of the man, he interviewed family, friends and former competitors, a group whose ranks Father Time was rapidly thinning. When he could find time around his OMRF schedule, Prescott traveled to courses where Coe had registered some of his greatest performances. He also paid visits to those who'd battled Coe on the links, understanding that the richest portraits are usually painted with the color that face-to-face interactions can provide.

•••

Prescott did most of his writing on weekends, and his process differed markedly from the one he employed in his day job. "For scientific articles, he'd sequester himself in his office," Susan Prescott says. "With the book, he spread out in the dining room with Liz Coe's big scrapbooks open on our pool table." Frequently, a golf tournament played on television as he wrote. In the often stressful life of a CEO and researcher, she says, "it was a relaxing, pleasurable escape."

Still, with Prescott responsible for running OMRF, progress on this passion project could be fitful. It stalled further with Elizabeth Coe's death in 2018 and, finally, Prescott's own cancer, first diagnosed in 2017. By the spring of 2021, largely confined to a wheelchair and his bed, Prescott asked Frank Merrick, a close friend who was also Coe's nephew, to come to his home.

"Without ever knowing Charlie Coe, Dr. Prescott captured his essence."

"Steve handed me the transcript of what he'd written and said, 'Frank, promise me you'll get this published,'" remembers Merrick. He swore he would. "But," says Merrick, a retired nonprofit executive, "I had no idea how to do it."

Prescott died in May 2021. Merrick thought the unfinished book might find a home at the Oklahoma Hall of Fame, whose publishing arm specializes in titles on the state's history. He met with Gini Moore Campbell and Bob Burke, who'd worked as a publishing and writing team on more than 100 books for the Hall of Fame, and they agreed to take it on.

The manuscript, Burke soon discovered, needed little work. The story was impressionistic, moving in and out of key tournaments to reminiscences about Coe as both a person and a player. "I liked the structure and left it that way. I just did some editing to make certain it conformed to Hall of Fame standards," says Burke.

Campbell laid out the book in a coffee table format rich with vintage photos, and the first copies of "The Last Amateur: The Life of Charlie Coe" were unveiled at a small gathering of Prescott's friends and family in March. The book is now available at the Hall of Fame and through ScissortailGifts.com.

Prescott may have been known for his scientific talents, but his final project also proved him a more than capable biographer. "Without ever knowing Charlie Coe, Dr. Prescott captured his essence," Burke says. "I just wish he could have lived to see his work in print."

The Aerialist

If you stretched out the coil of DNA that's wound into any of your trillions of cells, it would measure roughly 6½ feet. Or, about 18 inches longer than Dr. Elizabeth Finn.

A geneticist and molecular biologist, Finn joined OMRF in 2022. She's investigating how our cells organize these long strands of DNA within each nucleus, knowledge that's key to understanding how certain conditions like cancer and neurodegenerative diseases occur.

Outside of OMRF, Finn experiments with how knotting and folding a different pair of strands – nylon ones – can hold up a human body: hers. "When I'm not in the lab, find me at the circus," she says.

An aerial artist was a first for OMRF's Cell Cycle & Cancer Biology Research Program, says Dr. Gary Gorbsky. He laughs recalling learning about Finn's high-flying hobby while recruiting her from the National Institutes of Health. "We thought it was great that someone who could run away to the circus would want to join our department instead."

Finn got her start in acrobatics as a preschooler. "I informed my mom she was signing me up for gymnastics," she remembers. The gym's acrobatics coach soon approached Finn's mother to recruit the youngster to his team. "She can focus," the coach told Finn's mom. "Most 5-year-olds can't."

When Dr. Elizabeth Finn leaves the lab, she likes to leave the ground, too.

With the same concentration she would later apply to science, Finn would go on to win a national championship at age 10 in acrobatics, which resembles gymnastics but also incorporates lifts and tosses seen in cheerleading. That eventually led her to the diving squad at the University of Chicago, where she majored in biochemistry.

"I had to take a course in musical anthropology as part of my core curriculum. It was terrible," says Finn. Its redeeming factor was her final project: observing a local circus troupe that was designing a new show. She capped the assignment by attending their first performance. Before the group took the stage, Finn found herself alone in the quiet theater. A trapeze dangled from the rafters.

"I just got on it. I immediately flipped myself upside down and hung from my

ankles," she remembers. "The director came out from backstage and said, 'You should take classes.'"

In the years that followed, Finn embraced climbing the smooth nylon of aerial silks, spinning on long, cotton straps that require the precision of gymnastics rings, and occasionally soaring on the trapeze. They provided an outlet from her demanding course load, first as an undergraduate and later while completing her Ph.D. in genetics at Stanford University.

During her postdoctoral training at the NIH, Finn found yet another circus home in Washington, D.C. Among her most memorable performance venues were the Kennedy Center and the National Mall. At 1600 Pennsylvania Avenue, she donned a neon green bird costume and spun on a trapeze to entertain military families enjoying the White House's Halloween festivities below her.

Researchers who spend their free time running, cycling or hiking often say that exercise invites their best thinking. Their minds wander. Breakthroughs follow.

But for Finn, when she's airborne, it's the only time she's *not* thinking about science. "At 30 feet in the air, my mind has to be locked on my next move. My focus is the only thing between me and the ground."

Still, Dr. Tom Misteli, Finn's former mentor at the NIH, sees threads that link Finn's aerial feats to her more earthbound pursuits.

"There's an element of creativity and a very intellectual part to it. She has to be very precise and controlled. That also characterizes her as a scientist."

At the NIH, Finn found that not just every cell, but every chromosome, folded itself differently. The study made the cover of the journal Cell. Science, perhaps the most influential of all scientific journals, published a review of the work.

At OMRF, she wants to understand what this means for our DNA's function and how it might be connected to conditions like cancer and epilepsy. The answers remain up in the air. Which, for Finn, should be perfect.

"In the air, my mind has to be locked on my next move," says Dr. Elizabeth Finn, shown here in this composite image. "My focus is the only thing between me and the ground."

77 for 77

OMRF's new statewide campaign takes a page from foundation history

By Adam Cohen

77 FOR 77 OMRF

Oklahoma's Medical Research Foundation Since 1946

Illustrations by Jim Starr

When Dr. Andrew Weyrich became president of OMRF, his wife, Amy, gave him a gift. The map of Oklahoma was printed on canvas and stretched across an internal frame that was slightly taller than a second outer frame that held the map. The effect was to bring the map forward, inviting interaction between Weyrich, a brand-new Oklahoman, and the state he'd now call home.

If there was any doubt about the purpose of the map, Amy dispelled it with a second present: a box of blue push pins.

As soon as he began at OMRF in January of 2022, Weyrich started traveling around Oklahoma, speaking to a variety of audiences and visiting with donors, legislators and Board members. Following each of these sojourns, he'd return to his office and insert a pin into the map, marking a community about which he could now say, "Been there."

In the ensuing months, navy orbs began to sprout up on the once-flat surface of the map. At first, they clustered around Oklahoma City. But over time, their ranks grew, spreading across the state to Woodward, Enid, Tulsa, McAlester, Ada, Durant, Ardmore and Duncan.

It was around this time that Weyrich began discussing the foundation's 75th anniversary with Penny Voss, OMRF's vice president of philanthropy and community relations. The milestone had come the previous year. OMRF leadership had mapped out activities to commemorate the foundation's birth in 1946, but the Covid-19 pandemic had short-circuited that plan.

Weyrich did some quick math. In 2023, OMRF would be 77 years old. And his newfound familiarity with Oklahoma geography had taught him that the state had a total of 77 counties. The symmetry was just too perfect to ignore.

"If we couldn't really do what we wanted to mark our 75th anniversary," he wondered aloud to Voss, "why not celebrate across the state in our 77th year by visiting all 77 counties?"

And with that, OMRF's 77 for 77 campaign was born.

COMING TO A CITY NEAR YOU

Beginning on Aug. 28, 2023, OMRF leadership, staff and scientists will embark on a yearlong statewide tour to thank donors, promote the foundation and increase support for medical research. Modeled on the awareness campaign that gave birth to OMRF in the wake of World War II, the new 77 for 77 campaign will host events in 25 Oklahoma cities and touch all 77 of the state's counties in honor of the foundation's 77th anniversary. OMRF donors can expect to receive invitations to an event near them in the coming year. For more information, go to omrf.org/77.

"The first and most important message I want to share is that we're here 77 years later because of the people who believed in our mission and that Oklahoma could do something special," says Weyrich. "It's a privilege for us to be here. I want to get out into the communities that made this happen so that they understand the extraordinary discoveries they've made possible." And, just as importantly, he says, "We want to say thank you."

The initiative will launch at OMRF on the 77th anniversary of the foundation's birth, Aug. 28, 2023. In the ensuing year, OMRF leadership, staff and scientists will crisscross the state, touching each of Oklahoma's counties and hosting events to reconnect with the communities that built the foundation.

Voss, who is serving as internal co-leader of 77 for 77 with OMRF Vice President for Government Relations & Advocacy Lisa Day, says the effort hearkens back to the founding of OMRF, when a statewide initiative introduced the idea of a medical research institute to Oklahomans. "We went back and studied that first campaign," she says. "There was no medical research institute in this state. It was an all-volunteer effort, and the idea was to educate and engage people."

The initial campaign launched with "Research Week," proclaimed by Gov. Roy J. Turner. During the first week in May of 1947, 12 leading scientists from around the country gave presentations in 28 communities throughout the state. To round out the effort, Oklahoma medical professionals spoke to audiences in a dozen additional cities.

The awareness effort laid the groundwork for a fundraising campaign, which Gov. Turner led. Following the state's then-congressional lines, he split the campaign into eight districts. Those were subdivided into 25 smaller districts, with local captains appointed to lead each.

The widespread effort yielded tremendous dividends, with 7,500 Oklahomans pledging and giving more than $2 million. By 1949, with the bold promise "That more may live longer," construction of the foundation's first building had begun.

For Weyrich, revisiting this origin story is key. "As far as we know, we're the only independent research institute that formed as the result of a statewide campaign." Still, he says, even in Oklahoma, "Some people don't know our genesis, our history." With the new 77 for 77 campaign, Weyrich aims to change that.

"People may think OMRF is an Oklahoma City thing, but it's not."

Weyrich and the OMRF team will take to the road in 2023 and 2024 to share those messages as part of the 77 for 77 campaign. Following the blueprint of the founding campaign in 1947, they've divided the state into 25 districts. Each of those districts will have local chairs, who will host events to which they'll invite all OMRF donors in that district, along with local legislators, educators and other community stakeholders.

In addition to presentations by Weyrich, the events will also feature OMRF researchers. "There will be a scientific component," says Voss. "We think it's important to share some of the exciting developments in our labs and clinics."

Day is particularly focused on the outreach component of the events. "It's a wonderful opportunity for people to meet a scientist," she says. Specifically, she hopes they'll open the eyes of younger Oklahomans, who could then connect with OMRF through science education initiatives like the Sir Alexander Fleming Scholars Program or the Langston Biomedical Research Scholars Program. "If we reach even a handful of students, that could be life-changing for them."

The campaign will be led by former Oklahoma First Ladies and current members of OMRF's National Advisory Council Kim Henry and Cathy Keating, as well as their husbands, former Governors Brad Henry and Frank Keating. Cathy Keating agreed to co-chair 77 for 77 because she sees the initiative as "a call to action."

That action, she says, is to get more Oklahomans involved with OMRF. "That could be through philanthropic support of OMRF, signing up for weekly emails that answer health questions, or through participating in research or clinical trials." The foundation's work, she says, "touches every community in the state. Let's let Oklahomans know about those tremendous medical successes and the many opportunities for them to get involved with OMRF."

For Kim Henry, a former teacher who served on OMRF's Board for 19 years, the campaign also offers a chance to bring

science education into Oklahoma's elementary and junior high school classrooms. Working in conjunction with OMRF scientists and staff, she envisions an accompanying project: creating an "experiment in a box" to distribute to teachers and students in every corner of the state.

With a hands-on research experience, complete with lesson plans, a scientific liaison at OMRF and, potentially, classroom stipends for teachers, she sees a two-fold benefit. "We can help our struggling schools that need the resources and potentially spur a desire for science in students who didn't know they had it."

Putnam City Schools, a longtime partner of OMRF, and Marlow Public Schools have agreed to serve as a sort of Petri dish for the project. "We'll probably start out small with a lesson plan and an experiment a whole class can do as a sort of test run," Henry says. As with most experiments, this one will likely require mid-course adjustments. Even then, its success will be far from guaranteed.

Still, says Henry, if the project finds the right formula, it could open new avenues of learning for untold numbers of Oklahoma students. "And then it would be OMRF giving back to the community through education."

Mike Cawley grew up in Hooker, Oklahoma, a town of about 2,000 in the state's panhandle. He recalls first learning about OMRF in his early teens, when a star football player from Hooker High was selected to participate in the foundation's Fleming Scholar Program. "I kind of got excited about OMRF at a young age," he says.

That excitement continued when he became president of Ardmore's Samuel Roberts Noble Foundation, a key philanthropic partner of OMRF. He joined OMRF's Board in 1992, and he's remained a passionate advocate and supporter ever since.

Cawley has signed on as co-chair of the Oklahoma County district of 77 for 77, which means he'll host the kickoff event at OMRF in August. Understandably, he's eager to get the campaign underway.

"We have a new president in Dr. Weyrich, so it's an opportunity to introduce him," says Cawley. Just as importantly, he says, it's a chance to reintroduce the foundation to audiences around the state. "People may think OMRF is an Oklahoma City thing, but it's not."

Drugs born at OMRF are administered at hospitals and clinics throughout the state. OMRF's multiple sclerosis and rheumatology clinics treat patients from all corners of Oklahoma. That vision of an institution with a broad reach, says Cawley, was what fueled OMRF's founding campaign. "Our support was statewide from the start."

Since then, the foundation has consistently benefitted from the generosity of givers in small, rural communities as well as those in larger, more urban centers. "That tells you a lot about the character of the organization." Oklahomans across the state understand the value proposition. When you give to OMRF, Cawley says, "You never know what kind of seed you're going to plant."

Weyrich, for one, hopes that 77 for 77 will plant many new seeds for the foundation. Ultimately, he'll measure the campaign's success by metrics like new donors and increases in fundraising totals – figures that will one day translate to more discoveries in OMRF's labs, more life-changing advances for patients.

These kinds of outcomes, he knows, can take years to play out. So, in the meantime, he'll focus on another goal.

He points to the map of Oklahoma he received from his wife and smiles. "By this time next year," he says, "the plan is to have 77 little blue push pins in it."

A New Beginning

Multiple sclerosis threatened to rob a young opera singer of her future. An OMRF physician helped her get it back.

By Lindsay Thomas ♪ Photography by Brett Deering

The stoplight turned yellow, then red. Or at least that's what Kelsey Stark thought it did. As she sat behind the wheel of her car, she realized she could barely see the traffic signal.

Then 23, Kelsey had first noted problems in her vision months before. She'd gotten glasses, but when her eyesight continued to worsen, she'd returned for a new prescription and, again, for contacts. The aspiring opera singer chalked the eye issues up to long hours of studying and rehearsals to earn her master's degree in vocal performance.

After the sight in her right eye further deteriorated, she'd concocted another simple explanation: a scratched cornea. Once her finals and auditions for summer internships were wrapped up, she'd resolved to make an appointment to see a local ophthalmologist.

But now, at the New Jersey intersection, the center of her vision had gone completely black. Around the edges, everything appeared shattered, almost like someone had dropped a brick on her windshield.

Later, Kelsey would scroll back in her mind to this instant and understand. But in the moment, she just cocked her head and looked to the sky. When she spied a shard of green at the edge of the darkness, she drove on.

Kelsey went back to the optometrist who prescribed her contacts. A staff member examined her and immediately phoned the on-call ophthalmologist, who referred her to an eye hospital in Philadelphia.

She enlisted a friend to take her. In the exam room, a nurse flipped on the eye chart on the opposite wall. An oversized, black capital "E" glowed back at them. "What do you see?" the nurse asked. Kelsey blinked. "I said, 'I can't see anything,'" Kelsey remembers. "My friend nearly fell out of his chair."

A physician diagnosed the young soprano with optic neuritis, which occurs when inflammation damages the brain's optic nerve. She was admitted, and her symptoms rapidly worsened: her knees became numb, her face started to tingle, and she lost all sensation of temperature from the waist down. After two nights in the hospital and a battery of tests, her medical team told her she might have multiple sclerosis, or MS.

Kelsey had never heard of MS. "I was young. I thought I was indestructible, and a good night of sleep was all I needed," Kelsey says. She just wanted to wake up from this bad dream. "I didn't have time for a disease in the middle of my pursuit to become a classical singer."

In MS, the immune system attacks the body's myelin, the insulating layer that protects nerves in the brain and spinal cord. The disease damages the nervous system's ability to

transmit signals throughout the body. Although the condition manifests differently in each person, symptoms often include vision impairment. But the disease can also bring problems with balance and coordination, incontinence, muscle weakness and control, fatigue, numbness, and difficulty with speech, memory and concentration.

Research has found that for nearly 20% of patients with MS, optic neuritis is the first symptom of the disease. The condition occurs when the optic nerve's protective layer is stripped away, resulting in temporary blindness.

At some point, researchers estimate, more than half of all people with MS will experience the phenomenon. Disease flares can exacerbate vision loss, but with treatment, sight usually comes back. In some cases, though, the damage can become permanent.

In the hospital, Kelsey underwent an MRI. The images showed a tumor-like lesion in her brain nearly the diameter of a golf ball.

Within days, physicians delivered a definitive diagnosis. She had MS.

As with most patients, Kelsey's MS began in a relapsing-remitting form. However, she had "active" relapsing-remitting MS, which meant frequent disease flares. Despite daily injections and intravenous steroids, every subsequent MRI showed more damage. Over time, the illness progressed, resulting in growing levels of disability.

Kelsey lost feeling from the waist down. She had debilitating headaches. Optic neuritis returned – in both eyes – twice. She felt tired all the time, and walking became challenging. Her medications even changed her voice, taking her ability to hit high notes with the clarity she had cultivated for a decade.

Her boyfriend, Gerard D'Emilio, was training for his own operatic career at the same school. He could see the daily toll that MS – and its treatments – took on her. "She had all the side effects of the medications with none of the benefits," he says. "The disease just got worse."

Kelsey returned to school and worked hard to hide her disease. She bought stiff shoes to disguise her difficulty walking and refused the cane that helped stabilize her. In a seminar one afternoon, her left leg went numb. Class adjourned, and she couldn't get out of her chair.

"I realized that this disease was stronger than I was," she says.

> "I realized that this disease was stronger than I was."

Still, Kelsey was determined. She was cast as the lead in an opera. But to accommodate her deteriorating mobility, the director had to arrange the set so that she could use furniture as stabilizers or seats to disguise her struggles. "My disease was so unpredictable, we had to change course daily. After wrapping the show, I realized I couldn't hide it anymore," she says.

"That was her lowest point," says Gerard.

The pair married and moved to Minnesota, where they joined an opera company. Kelsey's medications were so ineffective that she wondered if doctors had misdiagnosed her. Even a phone call could exhaust her.

If her body lacked the stamina to deal with everyday life, she knew it couldn't meet the demands of an operatic career. Even more devastating, she believed she and Gerard would never become parents; unable to care for herself, she certainly wouldn't be able to care for another human being.

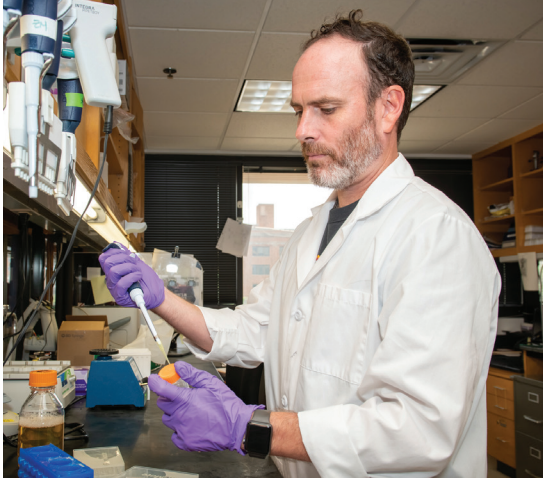
After three years of taking medications that didn't help her, Kelsey decided she was done with MS treatment.

Seeing the state of his wife's mental and physical health, Gerard believed she needed a familiar landscape. He convinced her to return to Oklahoma, where she'd grown up, and where her parents still lived. And where, soon, she'd meet Dr. Gabriel Pardo.

Before starting medical school, Pardo thought he'd become a pediatrician. But by his residency, he'd found a deeper calling: neuro-ophthalmology.

The field focuses on the relationship between the eyes and the brain. Pardo was fascinated by how the pair worked together to create vision, and he went on to complete a fellowship in the subspecialty. While there, he began to encounter patients with multiple sclerosis.

The disease takes a toll on every part of the body. It has no cure, and its damage builds over time. Because symptoms are different in everyone, it can go undiagnosed for years.



Dr. Gabriel Pardo, left, works with MS researchers like Dr. Bob Axtell, right, to create a feedback loop from the clinic to the lab.

"One patient could come to you with double vision, and another could have issues with bladder control. That's it. And they both have MS. No single symptom is present in every patient," says Pardo.

Pardo joined OMRF in 2011 as the founding director of OMRF's Multiple Sclerosis Center of Excellence. Envisioned as a one-stop shop for people with MS, the center would become the only comprehensive MS center in the region, providing neurology, ophthalmology, physical therapy, general wellness education, an onsite laboratory for patient samples, plus an infusion suite and access to clinical trials.

Kelsey wasn't eager to begin treatment again. But her mother, Mary Stark, knew OMRF's reputation for MS care, and she convinced her daughter to see Pardo in 2016.

In their first visit, Pardo assessed Kelsey's situation. Her MS was not well controlled, and standard therapies had proven ineffective. He recommended she enroll in a clinical trial of ocrelizumab, a medication that wasn't yet commercially available. The drug attacked the disease in a novel way, going after a particular immune cell that incites inflammation in the body.

Even though she'd just met him, Kelsey felt seen and heard by a physician in a way she hadn't experienced. "He was the first doctor who explained the science behind the medication," says Kelsey. Pardo gave her an overview of the research scientists were doing at OMRF. She sensed he didn't want to merely manage her disease. "He was looking for a cure," says Kelsey. "I felt the entire MS Center of Excellence was part of my team to overcome this disease."

She and her family also saw that OMRF offered a patient-centered environment. "Trying to treat my MS used to be a full-time job," says Kelsey. "But once I came to OMRF, what used to take six months took one day." Instead of the patchwork of different sites for labs, infusions and appointments with specialists she was accustomed to, everything happened in the same facility. The staff knew her name. Even the parking was convenient.

"As soon as she walked in those doors, everyone cared about her," says Mary.

Kelsey opted into the trial. Six months after her first dose, an MRI found her brain and spinal lesions were nearly gone.

Soon, feeling returned in her body where it was lost. Her headaches calmed, vision improved. Walking was no longer a chore. Energy returned. And unlike other drugs, it didn't affect her singing voice. "I got my life back," says Kelsey.

She hasn't had a relapse since starting the drug, which she continues to receive by infusion every six months at OMRF.

The Food and Drug Administration approved the medication in 2017. Today, Pardo says, it's the most-prescribed MS drug in the world.

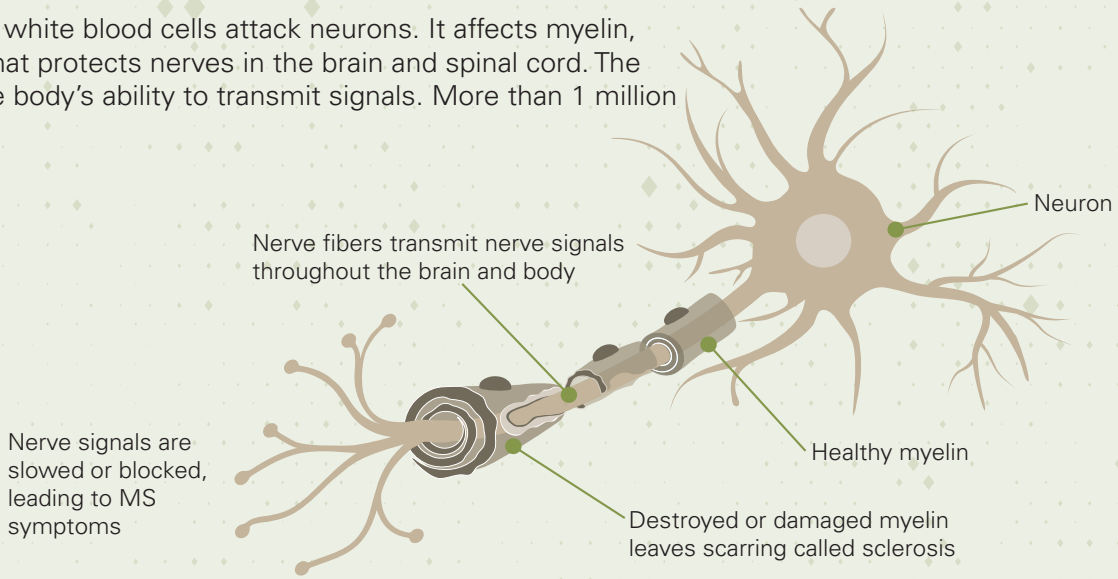
Once Kelsey was on an effective medication, she was able to return to music. She earned her doctorate in vocal performance from the University of Oklahoma and joined the faculty at Shawnee's Oklahoma Baptist University, where she rose to chair its music division. Earlier this year, she and Gerard welcomed Luca, the son they thought they would never have.

Just before their first grandchild was born, Kelsey's parents, Jack and Mary Stark, met with Pardo to express their gratitude. They also told him they wanted to find a way to help more families have this same experience.

In February, the Stark Family Foundation announced a $1.5 million challenge grant to OMRF. The gift, which requires OMRF to raise a matching $1.5 million, will be used to increase the center's patient and research capacity by adding

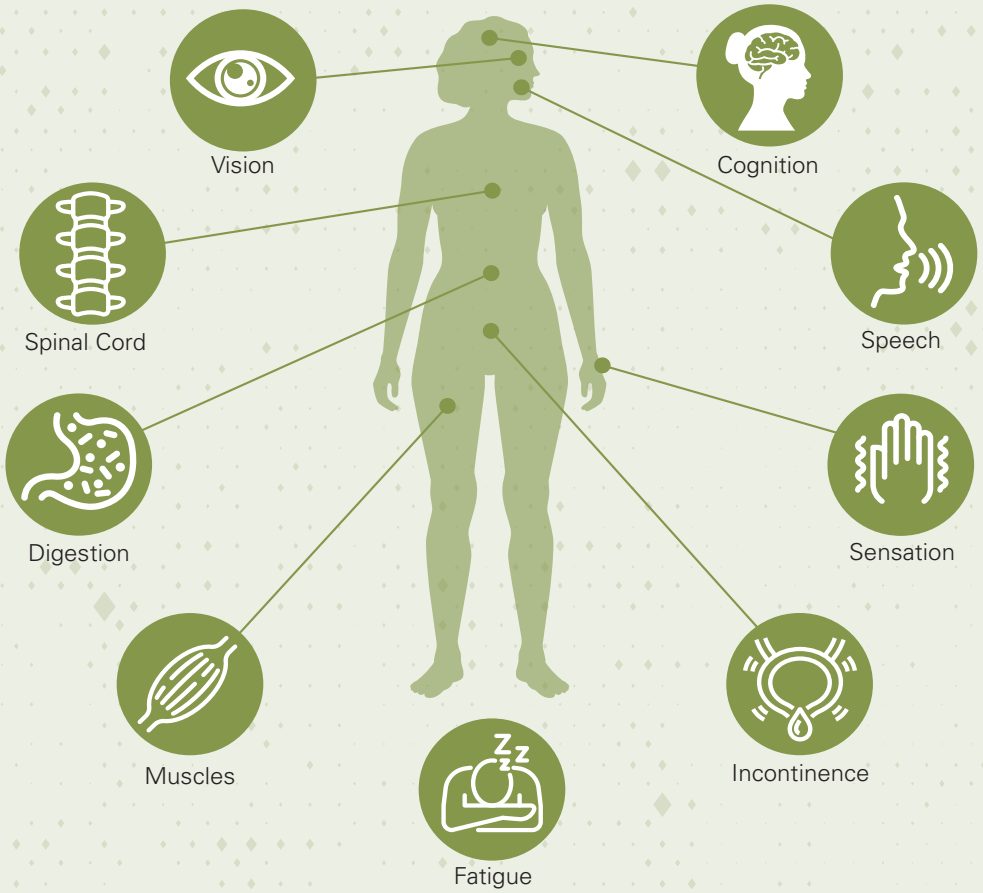
How MS Attacks

In multiple sclerosis, white blood cells attack neurons. It affects myelin, the insulating layer that protects nerves in the brain and spinal cord. The disease damages the body's ability to transmit signals. More than 1 million Americans have MS.



How MS Affects the Body

MS manifests differently in each patient. The symptoms, severity and duration vary. For most people, early symptoms arise suddenly and may include vision loss, difficulty walking or numbness.



Stark Family Foundation founders Jack and Mary Stark made a $1.5 million challenge grant to OMRF to expand the foundation's MS patient care and research.

Want to Help?

To receive a $1.5 million challenge grant from the Stark Family Foundation, OMRF must raise a matching $1.5 million. "OMRF gave Kelsey her life back," says Mary Stark. "Jack and I want everyone facing MS to have access to the same life-saving care and treatment our daughter found at OMRF."

Funds will be used to recruit a new physician-scientist to the MS Center, expand psychosocial care for its more than 3,000 patients, and grow the center's technological infrastructure. You can join the challenge today at **omrf.org/MSAdvocate**.

a new physician-scientist and a social worker, purchasing an MRI machine, and expanding the foundation's biorepository to store more patient samples for research.

"These funds will allow Dr. Pardo to expand his resources to meet the needs of his growing patient base," says Jack.

One person who's particularly excited about the growth is OMRF's Dr. Bob Axtell, who studies MS. "Having more people looking at a problem is always a good thing," he says.

Axtell's team is working to find new targets for MS medications and develop prognostics to improve clinical care. His lab recently identified new blood biomarkers for the disease, which could help detect a relapse sooner or perhaps even prevent it. That work, he says, is fueled by patients like Kelsey, who not only visit OMRF for care but also to participate in research studies that help deepen scientists' understanding of MS.

He walks into work every day alongside the people he's trying to help. "Seeing each patient and knowing that they may be gracious enough to donate samples for our work is very meaningful," says Axtell. "I also see their challenges. Understanding that we could impact them and people who haven't even been diagnosed yet is a day-to-day reminder of what we're trying to do."

Since Axtell joined OMRF a decade ago, the FDA has approved a dozen new therapies for MS. The advances are thanks in no small part to patients like Kelsey, who participate in clinical trials of investigational drugs. And though her experience with ocrelizumab has transformed her life, her challenges haven't disappeared.

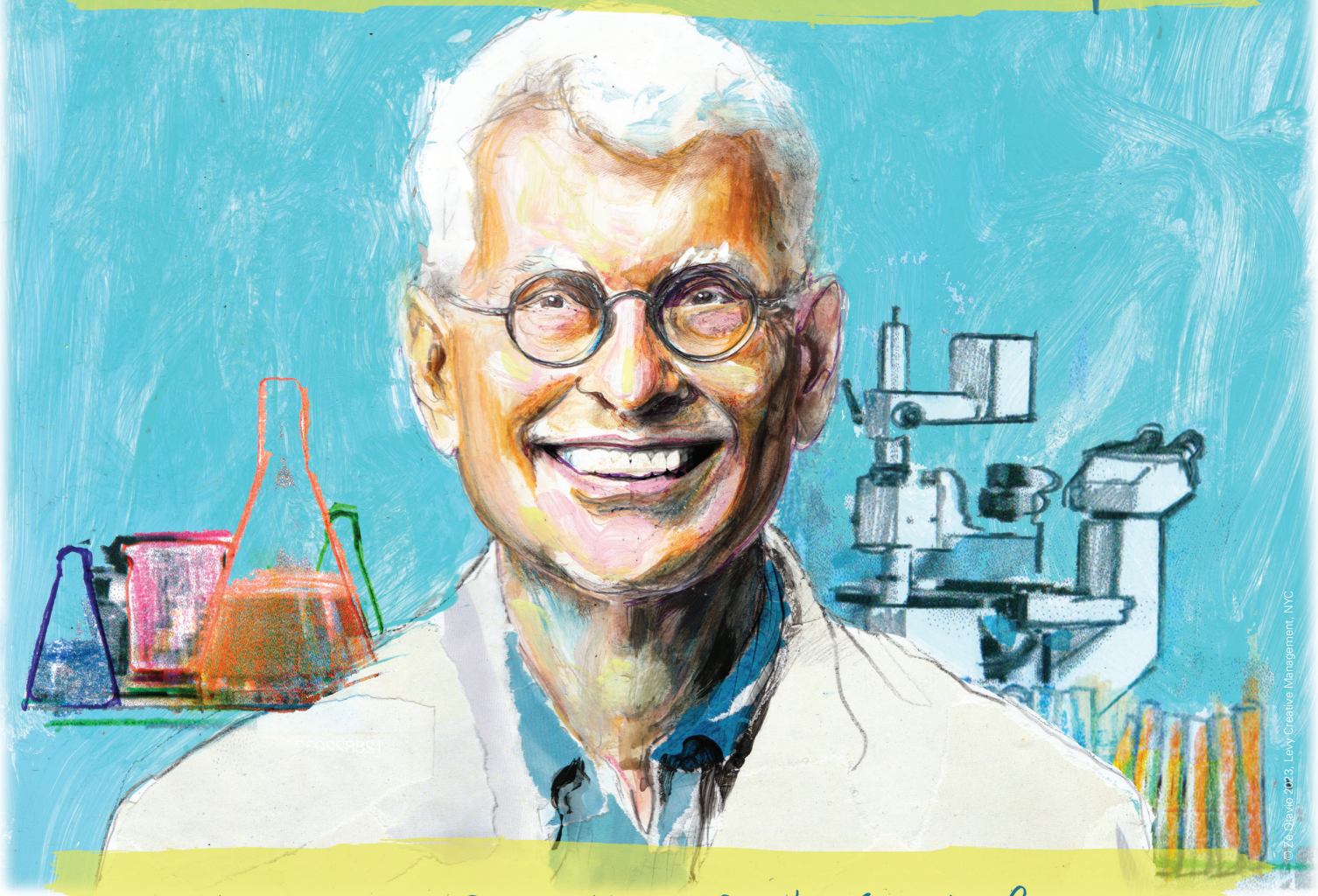
Her medication suppresses her immune system and makes her more susceptible to infection. She's extremely sensitive to heat. Her mobility challenges are a fraction of what they once were, but they aren't gone.

Still, Kelsey says it's the closest thing to a cure she's ever felt. "Miracles can come in the form of scientific advancements," she says. "I think that's what I experienced."

She knows that with MS, questions continue to outnumber solutions. But she's confident the place that helped get her life back on track can do the same for others. "OMRF was an answer to our prayers. It's where hope begins."

Kelsey and Gerard D'Emilio believed they would never become parents because of Kelsey's MS. Thanks to the care Kelsey received at OMRF, in 2023, they welcomed their son, Luca.

END OF AN ERA



AFTER 36 YEARS AT OMRF, Dr. Rod McEver Hangs up his lab coat

In retrospect, the path of life can seem clear, even foreordained. Yet as we live it, daily existence often feels like a random smattering of minor events and decisions. Most add up to little in the grander scheme, mere raindrops in the river. But every so often, a gush makes the water swell beyond the banks, pushing the stream in a direction it might not otherwise have flowed.

Dr. Rod McEver had just this sort of moment during his third year of medical school at the University of Chicago. Actually, he had two.

During his rotation in the hematology ward, he treated an elderly patient for a blood disorder. Her husband visited frequently, and the pair grew fond of the slender doctor-to-be with a soft drawl forged during formative years split between Louisiana and Oklahoma. The patient's condition improved, and when she was discharged, the couple, both Jewish, told McEver they would donate money to plant a tree in his honor in Israel.

While on that same rotation, McEver also took care of a 20-year-old poet with leukemia. When McEver explained to him that the chemotherapy drug used to treat his blood cancer derived from a purple, flowering plant, he composed "Ode to the Periwinkle Plant," a meditation about how a thing of such beauty could also treat a deadly disease. He gave McEver a book of his work when he left the hospital. However, the patient's leukemia proved intractable, and he died a year later.

When it came time to select a specialty, McEver remembered those patients. He chose hematology, which focuses on the physiology of the blood. He did so knowing that the path ahead would often be difficult. Indeed, treatment had failed the young poet he'd befriended. But the human bonds he'd forged – and the challenging medical problems that the blood presented – called to him.

McEver completed his medical school residency and hematology fellowship in the ensuing decade. He launched a career as a physician-researcher and soon pinpointed a protein in the blood that no one had identified before. The body rapidly mobilized that protein, which came to be known as P-selectin, to sites of injury and infection. "We knew we had discovered something very important in immune challenges and bleeding," says McEver. "It was quite exciting."

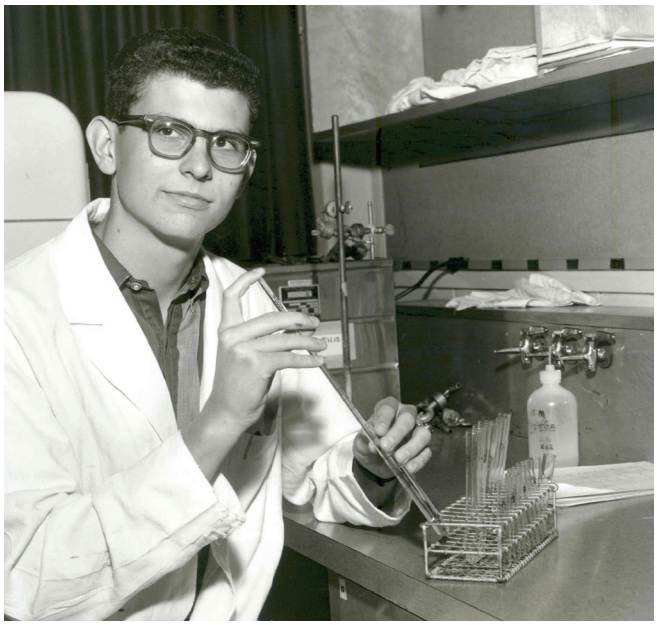
Around that time, McEver decided to join OMRF. As a teen, he'd gotten his first taste of medical research at the foundation as a Sir Alexander Fleming Scholar. When he returned, he hit the ground running. Within three years, his team had found P-selectin's function: mobilizing white blood cells to hunt down and stop invaders such as bacteria in the body.

Over the next 30 years, he studied the protein from just about every imaginable scientific angle. His hope was always to find a bridge between insights in the lab and ways to improve treatments for patients. But, he says, that connection could never be forced. "You stay committed to fundamental science. You pursue interesting questions with tenacity, no matter where they take you."

For McEver, that pursuit eventually brought him to sickle cell disease. An antibody he developed to block the effects of P-selectin showed promise as a therapy for the genetic illness, a debilitating and sometimes fatal blood disorder that affects an estimated 100,000 Americans. In 2019, Adakveo, a drug based on McEver's work, became the first FDA-approved treatment for the pain crises that accompany sickle cell disease.

McEver considers the drug "a cherry on top" of his life's work. "It's the dream of every physician, and certainly every scientist," he says, "to do something that can make a difference with patients."

To Dr. Lijun Xia, who came to OMRF to train with McEver and ultimately succeeded him as chair of the foundation's Cardiovascular Biology Research Program, the arc of his mentor's professional life "connects all the dots" – from physician not satisfied with available therapies to scientist who developed a drug. "That's a perfect career."



Rod McEver as a Sir Alexander Fleming Scholar in 1965.

In his final years at OMRF, McEver applied many of the lessons he'd learned in the lab in a new role: vice president of research. When he agreed to take on the role of the foundation's chief scientific officer, "I knew we were in good hands," says Dr. Courtney Griffin. "I knew he would keep the best interests of OMRF's scientists front and center."

Under McEver's watch, National Institutes of Health funding at OMRF grew substantially, led by a major new Centers of Biomedical Research Excellence grant. Despite a plan to retire in 2021, he stayed on for an additional two years to help lead the foundation through the presidential transition that followed the death of Dr. Stephen Prescott.

When Dr. Andrew Weyrich had a full year under his belt as OMRF's 11th president, McEver finally retired in March, on his 75th birthday. Before he did, though, he spent months working with Griffin, his successor. She was struck, in particular, by one Saturday in which he devoted 2½ hours to guiding her through "every inch" of the foundation. Though Griffin had joined OMRF 15 years earlier, McEver wanted to ensure she understood every nook and cranny of scientific space for which she'd be responsible. That attention to detail, Griffin says, "gave me the confidence I needed."

"YOU PURSUE INTERESTING QUESTIONS WITH TENACITY, NO MATTER WHERE THEY TAKE YOU."

The foundation's Board of Directors named McEver a Distinguished Career Scientist, one of only nine in OMRF's history. That means he will maintain an office and occasionally come by the foundation to lend, on request, a bit of his wisdom. But, he says, not too much. "I'm not going to try to micromanage."

With his wife, Gigi, he has leaned into a pair of hobbies: exercising and reading. They've also embarked on an ambitious travel schedule, with trips this year already to New Orleans, Australia, Iceland and Greenland. Next up are visits to Switzerland and the Galapagos Islands.

When he's home, McEver still looks at that book of poetry every once in a while. And he likes to imagine that somewhere in Israel, a tree planted in his honor grows tall and strong.

825 NE 13th Street
Oklahoma City, OK 73104

/OMRFOK @OMRF /OMRF

Nonprofit Org.
U.S. Postage
PAID
Permit No. 639
Oklahoma City, OK

Harvesting Good

Wheat is in Oklahoma's DNA – and OMRF's. In 1961, OMRF put out a call to wheat growers, and 450 farmers from 34 counties pledged to donate a portion of their crops to support the young foundation. The yield from the sale of 9,000 bushels went toward helping more live longer, healthier lives.