

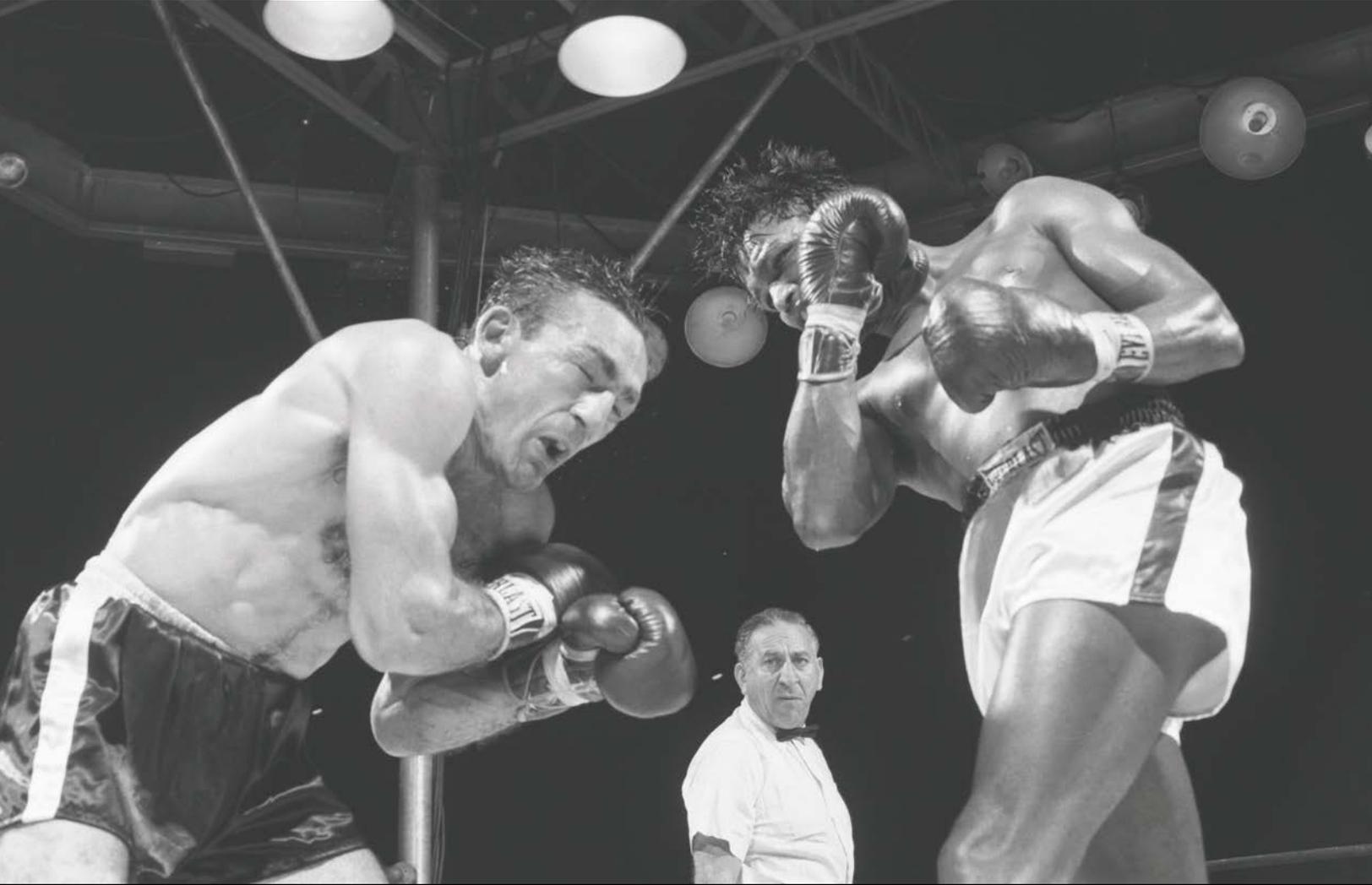
FINDINGS

Spring 2013 • omrf.org

LIFE, INTERRUPTED



When Sugar Ray Robinson fought in Oklahoma 61 years ago,
proceeds from the match went to OMRF.



Support medical research - it's a knock-out!



405-271-7400
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Living with MS



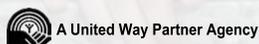
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Chartered in 1946, OMRF is an independent, nonprofit biomedical research institute dedicated to understanding and developing more effective treatments for human disease. Its scientists focus on such critical research areas as Alzheimer's disease, cancer,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



10

When multiple sclerosis struck Alea Hubbard at age 17, her life may have changed. But thanks to the treatment she's received from physicians at OMRF's Multiple Sclerosis Center of Excellence, her hopes and dreams burn as bright as ever.

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Feedback

Our family members no longer exchange Christmas gifts. Instead, we make charitable donations in honor of each other. This year, I paid tribute to my children and grandchildren with a gift to OMRF for glioblastoma research. My husband, W. Haskell Olivo Jr., was diagnosed with glioblastoma in 1999. A fine outdoorsman, Haskell was otherwise healthy and handsome on the day of his death six months later. My hope is that your researchers will be able to offer hope to other families facing glioblastoma. I am very, very proud of our state of Oklahoma and especially of OMRF for all the work you do and for putting Oklahoma on the cutting edge of research to find cures.

Bessie Ann Olivo
Norman



Happy trails, OMRF pardner

As the scheming, power-hungry Texas oil tycoon J.R. Ewing, actor Larry Hagman gave the small screen a super-sized dose of drama. Despite his "Dallas" shenanigans, the real-life Hagman often displayed a softer side. In the 1970s, he served as a spokesperson for OMRF, encouraging others to support the foundation in its mission. Sadly, he lost his long battle with cancer in November. We tip our cowboy hats to a fine actor and OMRF friend. Thanks for the memories.

BREAKING NEWS

It's official! Clinical trials on OMRF's experimental drug for treating glioblastoma have begun at the Huntsman Cancer Institute in Salt Lake City. For information about participating, contact Britney Hall at 801-213-4323.



When I read Larry Kennedy's story on the loss of his brother, (*Findings, Fall 2012*) it struck a nerve. We lost our beloved daughter, Debbie Caldwell Morgan, to brain cancer in 1993 after an agonizing six months. We felt helpless. I went to the library to find what I could, but there was little or nothing there. I believe you are on the right track. Please hang in there and find something that really works.

Bill Caldwell
Calumet

I just read through the latest *Findings* and loved it. I got emotional reading about the love Larry Kennedy felt for his brother and the frustration of not being able to help him. From cover to cover, this was probably one of my favorite issues. Love the graphics and the photos. I can't wait to share it!

Penny Voss
Norman

Shortly after reading the article in *Findings* about OMRF research on glioblastoma, we received word a young friend was diagnosed with this cancer. We know firsthand the value of your work, because I received a life-changing medicine which had its inception at OMRF. Before that, there was no direct treatment for my condition (known as PNH.) As a result, I am freed from monthly transfusions and the fear of blood clots. Thank you, OMRF. We pray for continued success in all of your endeavors.

Sandy Roark
Shawnee

I'd like to thank you

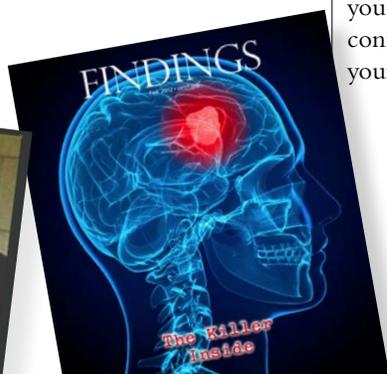
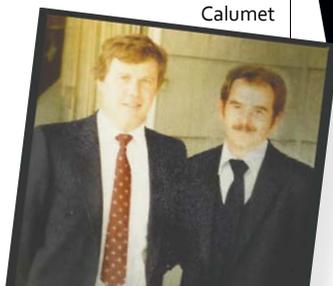
for all that you do for lupus research. My mom and I both suffer, and knowing people care so deeply about finding a cure and learning about the disease means a lot to us. So thank you!

Jamie Rose Smith
Oklahoma City

WRITE TO US!

Send us an email at findings@omrf.org or mail your letters to *Findings*, 825 Northeast 13th Street, Oklahoma City, OK 73104. Please include your name and address, and you'll receive an OMRF T-shirt if we publish your letter.

FOLLOW US ONLINE!



Research Pioneer

For 50 years, Dr. Morris Reichlin took young physician-scientists under his wing and taught them how to bridge the gap between the laboratory and the clinic. But his real love lay with those directly affected by his life's work—the patients fighting autoimmune diseases. To them, he was more than a doctor. He was a hero.

As the first head of OMRF's Arthritis and Immunology Research Program, Dr. Morris Reichlin built a research team centered on creating meaningful relationships with colleagues, students and patients. Over the years, his program grew and prospered, logging countless discoveries, all in the name of helping lupus, Sjögren's syndrome and myositis patients live longer, healthier lives.

Reichlin gained prominence when he developed a clinical test for lupus, a disease that causes the body's own immune system to attack itself. The test he created—the Reichlin profile—gave physicians around the world an important tool to assist them in diagnosing the disease. Its development marked a milestone in diagnostic medicine.

Reichlin helped build OMRF into one of the world's leading research centers for lupus research and treatment.

Scientists in that program have identified more than 25 genes associated with the disease, and thousands of patients have received state-of-the-art treatment to help them manage their condition. The program Reichlin created now employs more than 150 staff members. Its clinical focus has also expanded to include treatment for multiple sclerosis, rheumatoid arthritis and other autoimmune diseases.

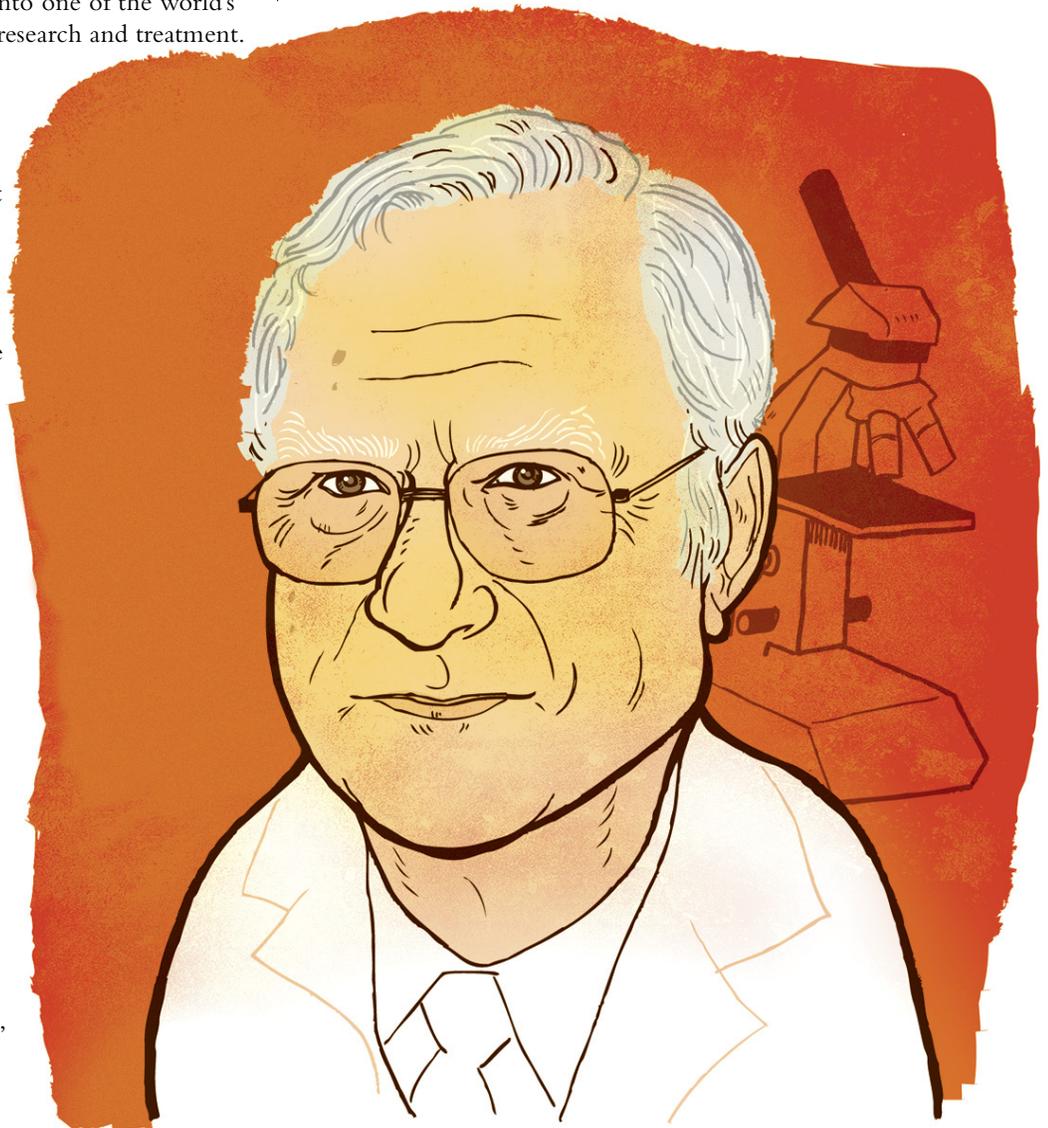
"Dr. Reichlin treated multiple generations of patients with rheumatic diseases, many for several decades," says Dr. Judith James, who assumed leadership of the program (now known as Arthritis and Clinical Immunology) in 2010. "He cared about them as much as he cared for them. When he retired from the clinic and transferred many of their cases to me, they still considered themselves Dr. Reichlin's patients. I'm sure they always will."

During his career, Reichlin published nearly 500 scientific papers, lectured on five continents, served on numerous editorial and advisory boards and received many distinguished awards. At

OMRF, he served as the foundation's first vice president of research and was named an OMRF Distinguished Career Scientist in 2010.

In October, the journal *The Rheumatologist* paid tribute to Reichlin in its "Profiles in Rheumatology" series. "Patients were my guideline," Reichlin says. "If it meant something to the patient, then it meant something to me, and I pursued it."

The work that Reichlin began at OMRF continues today, says James. "Our program was born as a result of Dr. Reichlin's vision and commitment to the success of his junior colleagues. His life-long interest in disease research remains our focus."



Ask Dr. P

OMRF President Stephen Prescott answers your health questions

Taming the big ah-choo

Everyone in my family has terrible allergies. In recent years, they've gotten even worse. In fact, it seems like everyone I know has allergy issues these days. What causes allergies, and what has changed to make them such a problem for so many people?

Danny Smith, Oklahoma City

If you have allergies, your immune system confuses innocuous things like pet dander and pollen for true bad guys like viruses and bacteria. As a result, when these allergens enter your body, your immune system sends in special fighters called mast cells armed with antibodies to combat the interlopers.

When your immune system surrounds, attacks and eliminates substances like pollen, it causes a chain reaction that releases histamines—which your own body makes—into the system. The histamines can cause inflammation in the nose and throat, mucus production and watering eyes.

So why, you ask, are allergies getting worse? That may have something to do with the weather.

A very cold winter can kill off or slow the growth of many plants. The longer the winter, the longer those plants remain dormant.

Here in Oklahoma, we've had a rash of mild winters in recent years. When spring rolls around (and it seems to get here earlier every year), plants have more months to grow and reproduce. Couple that with the drought-like conditions we're experiencing, and you have a perfect allergy-inducing storm.

Plants live to reproduce, so they send out enormous amounts of pollen into the air. If it rains, the pollen gets washed away. But dry and windy summers keep the pollen in the air longer and spread it further. Unfortunately for you and me, that gives our bodies more concentrated and prolonged exposure to allergens. That, in turn, causes our immune systems to overreact, leaving us with watery eyes and sniffles.

I might recommend avoiding the outdoors, especially when pollen counts are high. But we can't live our lives inside, so as long as the allergens are there, it's worth looking for ways to lessen their effects.

Over-the-counter antihistamines may provide some relief and help tame your seasonal allergy symptoms. But if it becomes an ongoing nuisance, consider talking to an allergist, who may prescribe a medication that can more effectively counteract your allergies and dry up your runny nose and watery eyes. It'll at least help you keep your tissue supply well stocked.

Send your health questions to Dr. Stephen Prescott at askDrP@omrf.org.

When Allergies Attack

55% of the U.S. population tests positive for one or more allergens



7 in 10

children with two allergic parents will develop allergies



4 million

work days are lost to hay fever annually



\$7.9 billion



Estimated annual cost of allergies to the health care system and businesses in the U.S.



One Family, Three Generations of Support for OMRF

On June 23, 1946, E.K. Gaylord joined a group of the state's leading businessmen and physicians for a strategic planning meeting in Oklahoma City. As the publisher of *The Daily Oklahoman*, the state's largest and most influential newspaper, Gaylord's input—and endorsement—had a major impact.

Within two months, that gathering spawned a new venture. It would be an institute where scientists and physicians could devote their careers to understanding human disease. And Gaylord's role in leading and supporting that new institute, OMRF, would become a model that continues in his family to this day.

Gaylord joined OMRF's board of directors in 1950, two months before the foundation first opened its doors. He served on OMRF's board until his death in 1974, playing a key role in guiding the foundation as it grew from a handful of scientists into one of the nation's leading independent medical research institutes.

Edward L. Gaylord followed in his father's footsteps as head of the family's publishing company and also found his place on OMRF's board of directors, serving as chairman from 1983 to 1997. Gaylord often injected his wry sense of humor into otherwise dry proceedings. "When you least expected it, Ed would call on you to explain something and then use the time as a chance to make a joke," says Dr. William Thurman, who served as OMRF's president from 1979 until 1997. "He really had a wicked sense of humor and used it to his advantage at the podium."

Gaylord and his wife, Thelma, took a personal interest in OMRF, as well, and in 1991, they established the Edward L. and Thelma Gaylord Prize, which is presented to foundation scientists for outstanding contributions to research. "I remember we sealed the deal for the Gaylord Prize in true Ed Gaylord fashion, not with a big fancy dinner but, instead, over hamburgers at Johnnie's," Thurman says.

Gaylord, says Thurman, was "an absolute bear about the importance of working in and giving back to your community." Gifts from Gaylord, as well as from his father and various trusts and foundations associated with the family, provided OMRF with funds for endowed chairs, special events and numerous campus expansion and renovation projects. And, says Thurman, "He never hesitated to encourage or even push others to do the same, often leading with the line, 'Oklahoma needs this.'"

In 2008, a third generation of the Gaylord family took its place in foundation history when Christy Gaylord Everest joined OMRF's board. "My grandfather once said that 'the research laboratories of today will plot the course of the world tomorrow,' and I know he meant it," says Everest, who also helmed the family's publishing company. "We've learned by his example to invest in causes that matter, like OMRF."

As OMRF has grown, the Gaylord family's generosity has helped OMRF remain firmly on a path of research excellence. In 2010, the Gaylord Family Foundation made a \$5 million gift to fund construction of OMRF's research tower. And in 2012, the family pledged another \$1 million to help expand OMRF's cancer research programs.

"It's important to find better ways to prevent and manage diseases like cancer, arthritis and Alzheimer's," says Everest. "The quality of the people doing research at OMRF demonstrates the effectiveness of our gifts. We believe in OMRF's mission."

“We sealed the deal for the Gaylord Prize over hamburgers at Johnnie’s.”



OMRF TEAMS WITH TRIBAL CLINICS TO FIGHT RHEUMATOID ARTHRITIS

Rheumatoid arthritis strikes earlier, more viciously and more often in American Indian populations than in European populations. Experts estimate that American Indians are four times more likely to have the disease than those of European ancestry. Now, a partnership between OMRF and the Chickasaw and Cherokee Nations is providing more rheumatology care to tribal clinics while helping scientists better understand the role race plays in rheumatoid arthritis and related diseases.

“We’re trying to identify blood markers that could help us diagnose rheumatoid arthritis earlier,” says OMRF’s Dr. Judith James. “Early diagnosis is crucial in allowing doctors to halt the progression of the disease.”

Rheumatoid arthritis is a chronic autoimmune disease in which the body’s immune system attacks joints and surrounding tissues. The disease affects 1.5 million Americans and is more common in both females and American Indian populations. RA causes pain, joint swelling, limited movement and other problems.

If rheumatoid arthritis is diagnosed early enough, patients can avoid or delay disability and deformities, says James.

“Most people think of RA as affecting only the joints, but it can strike almost any part of the body,” says James, who holds the Lou C. Kerr Chair in Biomedical Research at OMRF. “The increased inflammation seen in RA plays a part in accelerated heart disease, especially in tribal populations.”

The partnership enables OMRF scientist-physicians to visit tribal clinics in Ada (Chickasaw Nation) and Muskogee (Cherokee Nation) and to work with healthcare providers there to administer rheumatology care. Patients who receive care can

volunteer to take part in the research, and OMRF has enrolled more than 120 patients and 100 healthy controls in the study.

“We’re lucky to work with excellent doctors, like Fabio Mota and Tina Cooper of the Chickasaw Nation, and others who are so dedicated to providing top-notch patient care to our tribal communities,” James says. “And the help of epidemiologists at the Cherokee Nation like Sohail Khan is also invaluable.”

Although the research focuses mainly on rheumatoid arthritis, scientists are also examining scleroderma, Sjögren’s syndrome and lupus—three other autoimmune diseases that affect Native populations.

“This project provides a unique and beneficial opportunity for all involved,” says James. “Patients can receive the highest level of care available and play a part in research that could save lives otherwise shortened by rheumatoid arthritis and associated diseases.”

“IT’S NICE FOR OMRF PHYSICIANS TO GO TO THE TRIBAL CLINICS, BECAUSE IT’S MORE CONVENIENT FOR THE PATIENTS.”

Five OMRF scientists share their favorite apps



Molecules



Dr. Roberto Pezza

One cool science app I often use is called Molecules. It lets you see 3-D images of chemical compounds on your phone and manipulate them with your fingers. You can even download your own molecule!



Maps

Dr. Hong Chen

My favorite app is called Don't Forget the Milk. But it's not about milk. It's a daily reminder and calendar app. I rely on it every day to prioritize my tasks and get the most important things done on time.



Don't Forget The Milk



App Store



Game Center



Nook



Dr. Darise Farris

I just got a smart phone and I'm still learning how to use it! The only app I've really used so far is the Nook app, which lets me read at the gym when I'm on the elliptical trainer.



Google Maps



Dr. Stephen Prescott

Google Maps is a miracle app for me. It's directed me to within a few feet of a restaurant in a tiny alleyway in the old section of Rome and to the driveway of a castle in the rural west country of Ireland.

Dr. Linda Thompson

I follow out-of-town OKC Thunder basketball games on the NBA's TV Companion app. It gives me live stats on all the players for both teams, including minutes, points, free throws, assists, rebounds, fouls and more. In case you couldn't guess, I'm a big fan!



NBA TV Companion



CHALLENGES



Two patients from OMRF's Multiple Sclerosis Center of Excellence tell how they've faced the challenges of MS.



Shan

CARTER

Oklahoma City Diagnosed with MS in 1999

I first noticed something was wrong when I went to my mom's birthday party. I picked up my little nephew to show him some fish in an aquarium. And I just fell over. It came out of nowhere. I was 32 years old. I'd just finished playing three soccer games in a row.

Within a month, I couldn't move anything but my arms.

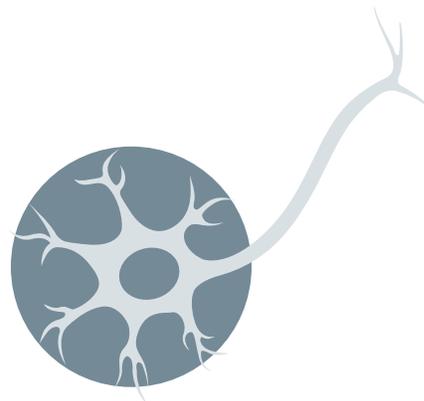
I spent the next six weeks in the hospital. It was all a blur. My systems were shutting down one by one, and it seemed like nothing was helping. Panic set in. Finally, I said, "Just let me go home to die."

That was a low point.

The doctors gave me steroids, and I was able to walk again. Eighteen months of steroids got me up, but it eventually got me down. I went from a size 8 to a size 26. My own family didn't recognize me. It would be years before I needed a cane, but the steroid treatments eventually destroyed my hip. They drilled a hole in the bone to restore circulation, and that improved things for a bit. Then I developed scoliosis from using the cane. Spasticity and a broken ankle eventually took the use of my legs.

The thing with MS is that you can't just take medicine and make it better. It's an inflammatory and degenerative disease, and I know I have challenges ahead of me. In the past few years, I've gotten optic neuritis three times. The last time, I lost all the vision in my left eye. It's never come back.

Now I spend my days in this chair. I call it my luxury vehicle, because I could have bought a nice, loaded Honda for about the same price.



What is MS?

In multiple sclerosis, the immune system attacks myelin, the protective covering that surrounds nerve cells. The resulting damage interferes with nerve signals the brain sends to the body, creating the neurological equivalent of a bad connection on a phone call.

Symptoms differ from patient to patient but can include

- Double vision or blindness
- Cognitive impairment
- Chronic pain
- Impaired balance
- Muscle spasms
- Incontinence
- Loss of muscle control in any part of the body
- Heightened sensitivity to heat or cold
- Extreme fatigue

Approximately 2 million people worldwide have MS. The disease typically strikes between the ages of 20 and 40, affecting women three times as often as men.

Alea HUBBARD



Treating MS

Physicians can alter the course of MS, decreasing relapses and progression of deficits with the use of immunotherapy, but there is no cure. Steroids, muscle relaxers and antidepressants can help improve symptoms, but long-term use can cause other side effects that may require additional treatment.

The perplexing nature of this disease prompted OMRF in 2011 to open the Multiple Sclerosis Center of Excellence, the region's only comprehensive center for treating every aspect of the condition.

"We are committed to seeing the patient through all the challenges they face," says the center's director Dr. Gabriel Pardo. "It takes a team with the right resources, manpower and physical space to keep up with the needs of our patients, and we've established that here at OMRF."

The MS Center provides treatment, physical therapy, ophthalmological care and social services to patients from Oklahoma as well as Texas, Arkansas, Missouri and Kansas.

"The best gift I can give a patient," says Pardo, "is a medication that controls their disease—at least until we have a cure."

Tulsa Diagnosed with MS in 2005

It didn't care that she was only 17. That she was a dancer. That she was going to travel the world, have a family, run a restaurant or maybe a hotel.

The disease paid no attention to her life or her dreams. It chose her anyway.

Doctors found three lesions on her brain, another on her spinal cord. She held her breath, waited for a diagnosis. The good news finally came: It's not cancer. But then the bad: It's multiple sclerosis.

Family and friends smothered her with hugs. Held her tight. Told her everything was going to be alright. But she could tell they didn't really believe it. They choked back tears when they talked to her. She caught somebody whispering condolences in her mother's ear.

I'm not dying, she thought. Or am I?

Life changed fast. She'd always hated needles. The long, sharp pieces of metal piercing her skin. The quick, sharp pain. It made her shiver just to think about them. But now they'd always be a part of her life.

She opted for the medication that required the fewest injections. It was silly, she knew. But this was her life; she'd deal with MS on her own terms.

Her mother helped give her the shots. And they worked. She no longer felt like the walking dead. She had energy.

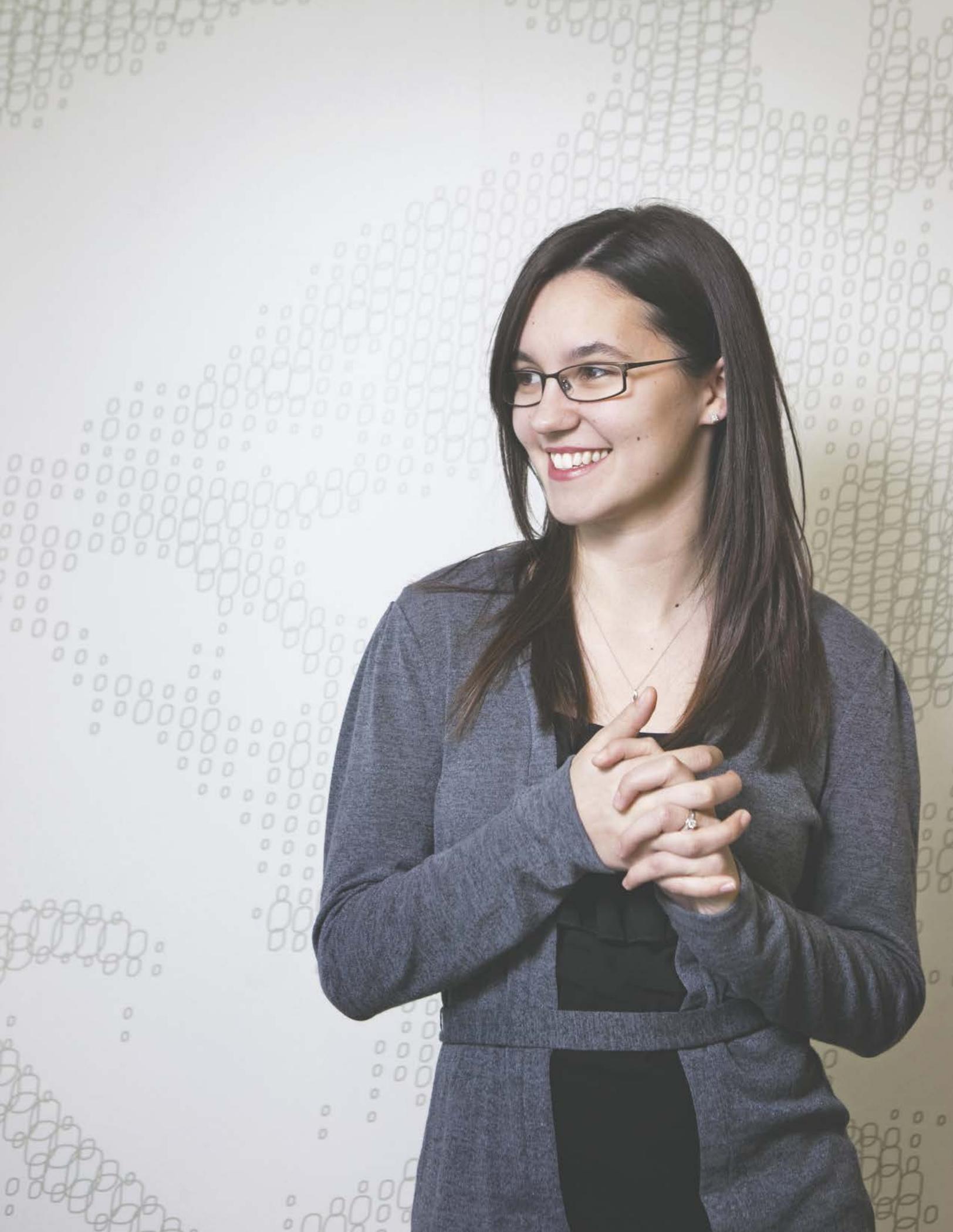
Doctors did another MRI. She held her breath. The lesions on her brain had...shrunk.

She knew she wasn't out of the woods. Never would be. But she'd keep getting the shots. So what if they sometimes bruised her? Gave her headaches and chills that made her bones feel like ice?

Consider the alternative.

Now she's 24. Finished college. Married. Working hard to make a career.

She knows that MS doesn't care. That her disease will not sleep forever. But she's made a choice. A decision not to live in fear. She's chosen to embrace hope.





the OMRF MS Team

Dr. Gabriel Pardo • Dr. Farhat Husain

Imagine the fear that grips a young mother when you tell her she has MS. It's devastating news. But you know you can help her. And you vow to walk beside her, wherever her condition takes her.

You take your time with each of the 2,000 people you treat. Because you know there's no such thing as an "average" MS patient.

So how do you treat a disease with hundreds of possible symptoms? A disease that impacts not only the body but the person's entire life. A disease so difficult to pinpoint that it can lie undiagnosed for years. How do you make a real impact?

You assemble a team dedicated to helping the whole person and design a comprehensive approach. Using the newest drugs available, you do your best to keep the illness at bay. In addition, you improve quality of life by addressing each symptom independently. Eye problems, gait difficulties, imbalance, bladder issues, cognition, mood changes and sensory abnormalities all can improve.

At OMRF, you offer a supportive environment with everything your patients need in one place. You stand beside them beyond the office visits, because MS affects far more than the body alone. Do they need a wheelchair or help with insurance? Advice from a social worker? Or maybe they can't find services in their hometown. Whatever the challenge, you and your team help give patients whatever they need as they navigate the new waters of life.

And you teach others about this mysterious disease. You share your expertise with other healthcare professionals. You encourage patients to become their own advocates.

Despite all your efforts, sometimes MS comes out ahead. And yet, even if MS has stilled their bodies, you marvel at the fight in their eyes. Though their voices may come in a whisper, they still greet you with a smile. Their courage inspires you. They ignite a passion in you like nothing else can.

You realize that you can't complain about anything in your own life. For in your patients, you see determination. Dignity. Hope. When MS knocks them down, they keep getting up. And it's your job—your calling—to walk beside them. Because discoveries are happening at an unprecedented rate. You are making a difference. And one day, you'll beat this disease.



Research + the Future

After decades of research, recent years have brought a rapid rollout of new and sophisticated drugs that are changing how doctors care for patients with MS. But the biggest advances may yet lie ahead.

Researchers have made a series of new findings about the biological roots of MS. Identifying the genes that control development and progression of the disease will allow physicians to identify people who have the greatest risk of developing MS and then to intervene earlier to slow or even prevent disease onset.

Genetic data will also help doctors determine the most effective courses of treatment, says OMRF's Dr. Judith James. "The disease varies from patient to patient. Knowing a person's genetic makeup will allow doctors to understand whether he or she will likely benefit from a particular drug."

The best medical research questions, says James, come from doctors' observations while treating patients. Right now, OMRF is in the process of recruiting a laboratory-based researcher to study the issues that Drs. Pardo and Husain are encountering as they treat thousands of people with MS.

Questions like: Why do certain drugs work in some people but not others? And how can we change outcomes for patients who don't respond to treatments we have now? "If OMRF can help find answers," says James, "we can improve the lives of people with MS."



Go to: omrf.org/msslideshow to hear more from Dr. Pardo, Shan and Alea.



Dr. Eliza Chakravarty

First, Eliza Chakravarty wanted to be a ballerina. Then a homicide detective. But the Baltimore native eventually headed west to Stanford University School of Medicine, where she spent 11 years as a rheumatology fellow and faculty member before coming to OMRF in 2011. Now she's helping Oklahoma lupus patients realize their dreams of motherhood. When the bundles of joy arrive, Chakravarty has a special requirement: "I don't just get to look at the babies. I get to hold them!"

1 Heights terrify me. When I was seven, my family went to Machu Picchu in Peru. I had anxiety attacks the whole trip and was sure we were going to die.

2 The worst grade I ever made was in chemistry lab in college. My teaching assistant was really cute, and I had a huge crush on him. When the class was over, I got my nerve up and asked him out. Now he's my husband.

3 Last year for my birthday, the clinic staff built me a throne made of Diet Pepsi cans, because I'm a huge addict.

4 During medical school, I joined the "Midnight Mud Club" at a pottery studio in Baltimore. We met from 11 pm to 1 am. It was great stress relief.

5 When my patients have a successful pregnancy, they're so happy that their feet barely touch the ground. I'm a mother. I get that.

6 One thing I don't do is cook.

7 The hardest thing I ever did was bury my mom five years ago. I cherish every minute I spent with her. We left nothing unsaid.







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Meet our Scientists

WHEN DR. CHRIS SANSAM SADDLED UP AND HEADED TO OKLAHOMA IN 2010, HE BROUGHT ALONG HIS TRUSTY HERD OF ZEBRAFISH. HE USES THE MINNOW-LIKE CREATURES, NAMED FOR THEIR STRIPES, TO STUDY HOW CELLS WITH DAMAGED DNA DIVIDE. SANSAM'S WORK COULD YIELD INSIGHTS INTO PREVENTING BIRTH DEFECTS OR CANCER. AND THAT'S NO FISH STORY.

